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PREFACE.

THIS, the twenty-third, volume of 'THE IBIS' is larger by many pages than any of its predecessors, showing that the Editors lack neither contributions to this Journal nor funds wherewith to publish them—subjects on which the Members of the B. O. U. may justly congratulate themselves. Long may the present state of things continue!

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ERRATA ET CORRIGENDA.

Page	Line	
210,	20,	for *scolopacinus* read *scolopacina*.
344,	6,	for TYRANN S read TYRANNUS.
,,	8,	for *affinis* read *similis*.
412,	30,	for *ochroeptera* read *ochroptera*.
506,	5,	for BINTET read BENTET.
512,	1,	for RACHYPODIUS read BRACHYPODIUS.
544,	8 & 26,	for ERYTHROSPIZA read ERYTHRURA.
602,	23,	for *lapponica* read *lapponicus*.

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THE IBIS.

FOURTH SERIES.

No. XVII. JANUARY 1881.

I.—*On the Contributions to the Anatomy and Classification of Birds made by the late Prof. Garrod, F.R.S.* By W. A. Forbes, B.A., Fellow of St. John's College, Cambridge, Prosector to the Zoological Society of London.

It having been suggested to me by one of the Editors of this Journal that a concise *résumé* of the ornithological papers of my late friend and predecessor, Prof. A. H. Garrod, F.R.S., would not only form an appropriate memoir of him, but would also be useful to those ornithologists who are interested in the anatomy of birds and the questions of classification that depend on it, I have endeavoured in the present paper to give a short sketch of the contributions Prof. Garrod made to our knowledge of, and of his views on these points.

In the seven years (1872–1879) during which Prof. Garrod held the post of Prosector to the Zoological Society, no less than thirty-eight papers from his pen (all, with one exception*, published in the Zoological Society's 'Proceedings') appeared, dealing with various points in the anatomy or physiology of

* "Note on some of the Cranial Peculiarities of the Woodpeckers," Ibis, 1872, p. 357.

birds. Of these a complete list will be found in the January number of this Journal for last year*. All of these, except two†, are morphological in nature; but many of the characters of birds from the physiological side were fully expounded in his series of Fullerian Lectures at the Royal Institution and elsewhere. At the time of his death Prof. Garrod was also engaged on an article on the mechanism of flight; for his wonderful mechanical skill enabled him to explain and demonstrate this and other physiological problems in a method but rarely to be met with amongst biologists generally. But this, unfortunately, he left in an unfinished condition.

In the present article I propose first to consider those points in the anatomy of birds first brought into notice, or worked out in large groups, by Garrod, and secondly to consider the light thrown by these facts on the correct collocation of various genera, or larger groups, as well as on the arrangement of these latter into groups of a still higher power. But I shall avoid, as far as possible, any comparisons with previously proposed classifications, as it is not my wish to enter, in this place, into discussions of that kind. Under each of these headings I shall endeavour, as far as is consistent with clearness and conciseness, to preserve a chronological order.

* In addition to his published papers on birds, Prof. Garrod was engaged, as probably many of the readers of 'The Ibis' are aware, on a general account of the Anatomy of Birds, to be published in three fasciculi. As originally planned, the first fasciculus of this work was to contain a complete account of the anatomy (not including the histology) of the common Fowl, as a type of all birds; the second was to be occupied with a comparative account of the "soft parts" in the different groups; whilst the third was, I believe, to have been devoted to osteology and a consideration of the results arrived at as regards classification. Of these three fasciculi, the first was nearly completed at the time of his death, and the second left about half done, nearly all the groups of the "Homalogonatous" birds being treated of in it, together with some of the remaining ones. The MS. of both of these portions has been, fortunately for our science, preserved; and it is my hope some day to complete the work for publication in a form worthy of its original author.

† "On the Mechanism of the Gizzard in Birds," P. Z. S. 1872, pp. 525–529; "On a Point in the Mechanism of the Bird's Wing," P. Z. S. 1875, pp. 82–84.

I. *On the Conformation of the Nasal Bones**.

"In most birds the anterior margin of the nasal bone is concave, with the two cornua directed forwards," these processes being "continuous behind with the body of the bone and with one another, there being no interruption of any kind between them. Such a condition is found in *Otis* and the Gallinæ proper; and birds possessing the bone so constructed may be termed *holorhinal*: in them a transverse straight line, drawn on the skull from the most backward point of the external nasal aperture of one side to that of the other, always passes in front of the posterior terminations of the nasal processes of the præmaxillæ." This simply concave nature of the posterior margin of the osseous external nares, as well as the relations of the extremities of the nasal bones to those of the nasal processes of the præmaxillæ, is shown in the subjoined figure of the Fowl's skull (see fig. 1).

Fig. 1.

Skull of *Gallus domesticus* (from P. Z. S. 1873, p. 35, fig. 9).

Fig. 2.

Skull of *Larus argentatus* (from P. Z. S. 1873, p. 34, fig. 2).

* "On the Value in Classification of a Peculiarity in the Anterior Margin of the Nasal Bones in certain Birds," P. Z. S. 1873, pp. 33–38.

In a large number of birds, however, the condition of things is different, as will be evident from an inspection of a similar view of a Gull's skull (*Larus argentatus*).

Here (see fig. 2) the posterior margin of the osseous nares has a distinctly slit-like or triangular form, instead of being simply concave; hence the birds presenting this peculiarity, which varies to some extent in the degree of its development in different forms, may be called "*schizorhinal*." In most of these *schizorhinal* forms the line joining the posterior extremities of the nostrils passes *behind*, instead of in front of, the ends of the nasal processes of the præmaxillæ. When the beak becomes shortened and broad at the base, however, as, *e. g.*, in the Pteroclidæ, this feature nearly disappears. Birds belonging to the *schizorhinal* group are nearly all, with the exception of *Platalea* and *Ibis*, "*schizognathous*," as regards their palate. The "Schizorhinæ" comprise the following minor groups:—Columbidæ, Pteroclidæ, Turnicidæ, Parridæ, Limicolæ (except *Œdicnemus*, which is holorhinal, therein agreeing with the Bustards), Laridæ, Gruidæ, Eurypygidæ, Rhinochetidæ*, Plataleidæ (the *Hemiglottides* of Nitzsch), and Alcidæ. *Aramus* also, as shown by Prof. Garrod's later investigations†, must be included here, being schizorhinal, like the Cranes. All these birds, it may be noticed, belong to the *Homalogonatous* series, possessing, at least normally, the *ambiens* muscle, presently to be referred to. In 1877 Prof. Garrod discovered that a similar conformation of the skull, as regards these bones, obtains in certain of the South-American "Formicarioid" Passeres—that is, in *Furnarius* and some of its allies‡ (*Leptasthenura*, *Synallaxis*, *Sclerurus*, and *Phlœocryptes*), as may be seen in fig. 3, where that of

* To these may be added, as I have Prof. Garrod's authority for doing, *Mesites*, as is shown by M. A. Milne-Edwards's investigations (v. Ann. Sc. Nat. ser. 6, vii. art. no. 6). The Rallidæ, with which that naturalist associates *Mesites*, are all *holorhinal*, at the same time that they lack the powder-down patches of *Mesites*, *Rhinochetus*, and *Eurypyga*.

† P. Z. S. 1876, p. 275.

‡ "Note on the Anatomy of Passerine Birds.—Part II.," P. Z. S. 1877, pp. 449–452.

Fig. 3.

Skull of *Furnarius rufus*, showing its schizorhinal character (from P. Z. S. 1877, p. 450, fig. 3).

Furnarius rufus is represented. Referring to this, he says, "It has been my habit to group all the birds possessing a schizorhinal skull in a single major division . . . but the independent development of an identical disposition in the small division of the Passerine birds above mentioned weakens the importance of the character to a certain extent, although it is not at all necessary to assume that it overthrows its significance. Collateral evidence, from visceral and other details, compels me still to think that those schizorhinal birds which possess the ambiens muscle, or are, in other words, homalogonatous, must be retained in one great order, *Charadriiformes*, until some important structural differences are discovered which necessitate their being otherwise arranged. The schizorhinal disposition is most certainly one which is a secondary development upon the normal holorhinal one; and that it has been independently arrived at in two non-related orders of the class is proof that it results from most simple causes, because the *probability* that the same complex conformation should appear, *de novo*, varies inversely as the complexity; the greater the elaborateness the less the chance that it, in all its detail, comes into existence more than once."

II. *The Carotid Arteries.*

The variations in the position of the carotid arteries in birds had been studied by Meckel, Bauer, Barkow, and others; but their opportunities of observation were limited, for the most part, to European species. Prof. Garrod, in his paper on the subject*, has recorded their condition in 400 species of birds, of 300 different genera; in his subsequent papers, or MS. notes, many additional species are included.

From a consideration of these, six different modifications in the disposition of these vessels may be traced :—

(1) The two carotids, each springing, as usual, from the innominate artery of its side, after the latter has given off the pectoral and subclavian branches, run up in a converging manner into the neck, and then continue, closely parallel to but quite free from one another, up along the under surface of the neck, in a bony canal or passage formed by the hypapophyses of the cervical vertebræ, to near the head, where they again diverge and break up for the supply of that part. This may be considered the most typical and least modified form: it is present in a very large number of birds.

(2) Where, instead of both carotids being developed, only one, the left, is so, the right having entirely disappeared. This is a condition constant in all Passeres, as well as in sundry other birds.

(3) Where the right artery is present in its normal position in the hypapophysial canal; but the left runs up the neck superficially in company with the left jugular vein and *vagus* (pneumogastric) nerve. This condition is present only in certain Parrots.

(4) Where the two arteries, instead of running parallel, *blend* together at the lower part of the neck, running up then as a *single* trunk in the normal position till its bifurcation near the head. This is an exceptional condition. The two trunks before blending may be equal in size (*Botaurus stellaris*), or either the right (*Phœnicopterus*) or the left (*Cacatua sulphurea*, according to Meckel†), may be the bigger.

* "On the Carotid Arteries of Birds," P. Z. S. 1873, pp. 457–472.

† Prof. Garrod was unable to confirm this statement in the only specimen dissected by him (P. Z. S. 1874, p. 588).

To these four conditions, duly noticed in Prof. Garrod's paper above quoted, may be added two more:—

(5) When the *right* carotid only is present, as is the case*, as discovered by him, in the Bustards of the genus *Eupodotis*.

(6) In *Bucorvus abyssinicus*, as discovered by my friend Mr. W. Ottley, who, at Prof. Garrod's request, undertook a reexamination of the question, the two carotid arteries are reduced to fibrous imperforate cords, and their place is taken (functionally) by two vessels which are apparently enormously enlarged equivalents of the *comes nervi vagi* of other birds†.

From these facts it is evident that, taken *per se*, the disposition of the carotid arteries has not much significance amongst birds, there being many families in which, whilst the majority of the species have two, some have only one carotid. This, for instance, is the case with *Toccus* and *Buceros* amongst the Bucerotidæ, *Plotus* and *Phalacrocorax* amongst the Steganopodes, *Cypselus* and *Cypseloides* in the Swifts, &c.: in all these cases the first-named genera have but *one*, the others two, carotids. In other cases, however, the characters of the carotids hold good through very large groups: thus no Passerine bird has ever yet been found with more than a left carotid, and no Pigeon, Duck, or Bird of Prey without two normally placed ones.

III. *The Disposition of the Vessels of the Thigh.*

In Man and other Mammals, so far as I am aware, the main nerve of the leg is the sciatic; the main artery and vein are the *femoral*, running in the front of the leg. In birds, as a rule, the main artery accompanies the *sciatic* nerve, running close above and parallel to it; the vein remains the femoral.

To these rules certain exceptions were first pointed out by

* P. Z. S. 1874, p. 473.

† "On a Peculiarity in the Carotid Arteries and other Points in the Anatomy of the Ground-Hornbill," P. Z. S. 1876, pp. 60, 61. Also "A Description of the Vessels of the Neck and Head in the Ground-Hornbill (*Bucorvus abyssinicus*), by W. Ottley, F.R.C.S.," P. Z. S. 1879, pp. 461–467.

Prof. Garrod. Thus, in *Centropus phasianus**, though *not* in *Centropus rufipennis*, or any of the other Cuculidæ examined by him, as well as in all the species of Pipridæ and Cotingidæ, eight in number, dissected (except *Rupicola crocea*), the main artery of the leg accompanies the femoral vein : it is a *femoral* artery †.

Again, in *Dacelo gigantea* and *D. cervina*‡, the femoral vein is replaced by one which lies between its normal position and the sciatic artery, crossing over, instead of under, the femoro-caudal muscle; and the same is the case, as recorded by him in an unpublished (and, unfortunately, unfinished) paper "On the Anatomy of *Pelecanoides*," in that singular form of Petrel. These two cases are, I believe, the only ones yet recorded of this unexpected arrangement.

IV. *The Muscles of the Thigh*§.

The myology of birds was always one of Prof. Garrod's favourite subjects; and of his various myological papers, the two enumerated below may fairly be considered the most important, as from the facts detailed therein he drew up, *in part*, the only detailed scheme of a classification of birds ever published by him.

In the region of the thigh of birds there are six muscles, which may or may not be present, though no known bird wants them all. These six muscles are the *ambiens*, the *gluteus primus*, the *semitendinosus*, the *accessory semitendinosus*, the *femoro-caudal*, and the *accessory femoro-caudal*‖.

* P. Z. S. 1873, p. 629, note.

† Since writing the above, I have found the same to be the case in my specimens of *Corythaix persa* (two), *C. porphyreolopha*, and *C. erythrolopha*, and in *Musophaga violacea*. In *Schizorhis africana* (two), however, the normal condition persists.

‡ P. Z. S. 1873, p. 629.

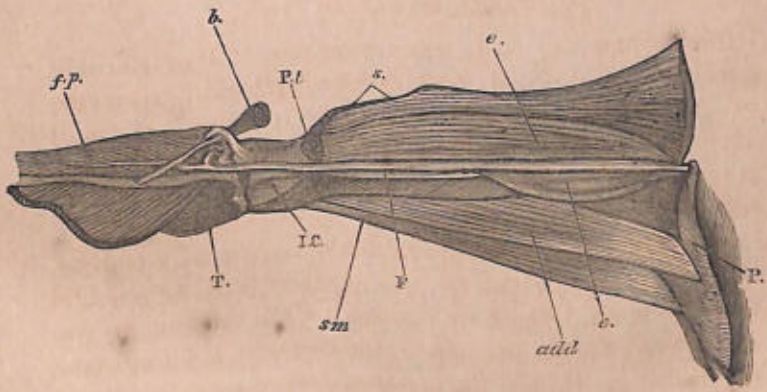
§ "On certain Muscles of the Thigh in Birds, and on their Value in Classification.—Part I.," P. Z. S. 1873, pp. 626–644; "Part II.," P. Z. S. 1874, pp. 111–123, pl. xvii.

‖ It is not my object in this paper to discuss the homology of the muscles here so named with those of other Vertebrata.

These will here be all considered seriatim; they may all, it may be mentioned, be well seen in the common Fowl.

(1) The *ambiens*.—This muscle, unlike the others to be subsequently mentioned, lies on the lower or inner surface of the thigh. As generally developed, it is a more or less slender fusiform muscle, which, arising from the præpubic spine or process of the pelvis, close in front of the acetabulum, runs along the inner side of the thigh superficially, and then, turning slightly outwards, runs, as a thin tendon, in the fibrous tissues covering the knee-joint (in some cases perforating the *patella*) to the outer side of the leg, and terminates there by joining one of the tendons of the superficial flexor of the toes, the *flexor perforatus digitorum*. The course of this muscle will be made clear by the accompanying representation of it, as

Fig. 4.



Thigh of Touraco (*Corythaix erythrolopha*) viewed from the inner side, to show the ambiens muscle, arising from the præpubic spine of the pelvis (P), and running along to blend with one of the tendons of origin of the flexor perforatus digitorum (*f. p*). F, femur; *Pt*, Patella; I.C, inner condyle of femur; T, tibia; *b*, biceps (cut short); *s*, sartorius (also cut); *e, e*, extensor femoris; *s m*, semimembranosus; *add*, adductores.

N.B. The surrounding parts have been somewhat distorted from their natural positions to show better the course of the ambiens.

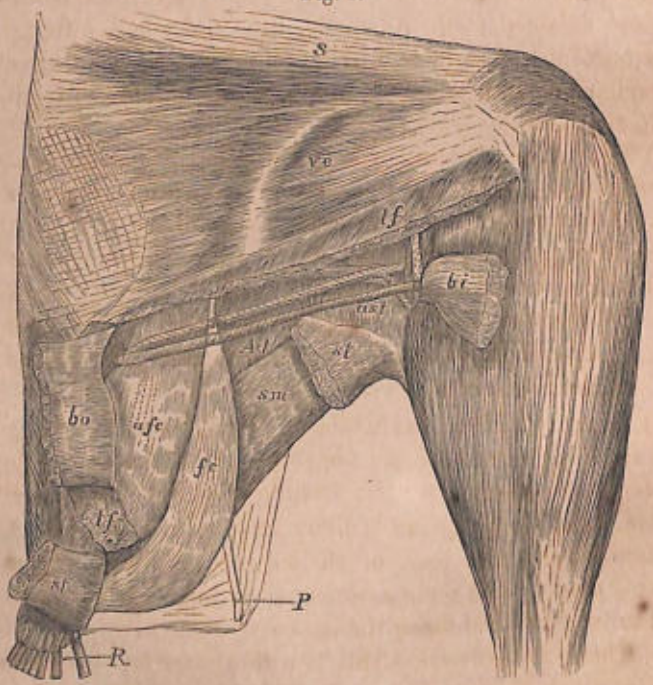
seen in a Touraco (*Corythaix erythrolopha*). In one or two cases (e.g. *Œdicnemus*, *Stringops*) it tends to become obso-

lete after reaching the knee, becoming lost in the capsule of the knee-joint. In all Passerine birds, and some others, it is always absent.

(2) The *gluteus primus*.—In Garrod's earlier papers this muscle is called the "*tensor fasciæ*;" and it is described under that name in the first of the two papers quoted.

Like the four next muscles, this lies on the upper (or outer) surface of the thigh, and with them may be seen in the annexed figure. It is entirely superficial, lying beneath the

Fig. 5.



Outer view of right thigh of *Gallus bankiva*, partially dissected (from P. Z. S. 1873, p. 627, fig. 1).

P, pubis; R, rectrices; *s*, sartorius; *v e*, vastus externus; *t f*, gluteus primus (cut) origin and insertion; *b o*, biceps origin; *b i*, biceps insertion; *f e*, femoro-caudal; *a f e*, accessory femoro-caudal; *s t*, semitendinosus, *ast*. accessory femoro-caudal; *Ad*, adductor.

skin, and not requiring any dissection for its display. More or less triangular in shape, it arises "from the whole length

of the postacetabular ridge," as the ridge separating the lateral from the dorsal surface of the postacetabular area of the pelvis may be called, "as well as from the posterior border of the ischium, as far forward as its junction with the pubis." Its fibres converge and become blended with those of the *extensor femoris*, forming with them a broad thin aponeurosis which covers the front of the knee and is inserted into the tibia-head—the patella, when present, being developed in it. The degree of development of this muscle (whose cut surfaces are marked *t f* in fig. 5) varies much in different groups of birds, and in some may be entirely absent, *e. g.* the Bucerotidæ and Palamedeidæ. As a rule, it is not small. In the paper on *Chauna** a table will be found stating the degree of development of this muscle in the greater number of families (*l. c.* p. 199).

(3) The *semitendinosus*.—Generally a broad flat ribbon-shaped muscle, bordering the contour (sometimes together with another muscle, the *semimembranosus*) of the fleshy part of the thigh behind. It arises from the transverse process of the first free coccygeal vertebra, and from the fibrous membrane between this and the ilium; it is inserted into the inner side of the head of the tibia (at least when the muscle next to be described is absent).

(4) In many birds a "a rhomboidal sheet of muscle, arising from the anterior end of the *linea aspera*" (a muscular line on the under surface of the femur) joins the last-named muscle "anteriorly by an oblique tendinous raphe, which continues down the back of the leg superficially." When present, most of the main *semitendinosus* joins this *accessory* head to be continued down the leg.

(5) The *femoro-caudal*.—This is a thin, narrow, elongated muscle, which is covered above by the *gluteus primus* (if present) and the *biceps cruris*, below by the *semitendinosus*. Arising from the last two coccygeal vertebræ, it is inserted into the *linea aspera* of the femur at about one third its length (in the Fowl) from the trochanter.

(6) In many birds the *femoro-caudal* is joined by an *acces-*

* "On the Anatomy of *Chauna derbiana*," &c., P. Z. S. 1876, pp. 189–200.

sorius, which arises from the external surface of the pelvis behind the femur, and joins the main muscle, to be inserted with it into the femur, but nearer the head of that bone.

As already mentioned, some birds possess *all* these six muscles, but no bird is known which does not possess at least one. It is a convenient plan to designate the four last-named muscles by the letters X, Y, A, B. Thus a Fowl possessing all four would have a formula A.B.X.Y, the *femoro-caudal*, *accessory femoro-caudal*, *semitendinosus*, and *accessory semitendinosus* being all present. On the other hand, a Hawk or Owl, possessing only *one*, the *femoro-caudal*, would have as formula A.

Of these four muscles there are sixteen possible combinations; but of these only eight are actually found in birds*.

Furthermore, if we denote the presence or absence of the *ambiens* muscle by the signs + or −, we obviously get sixteen combinations again, though of these only fifteen have, as yet, been observed. For the sake of brevity it will be useful to remember the above four letters, to save the repetition of the full names. To the bearing of these muscles in the classification of birds, I intend to revert at a subsequent part of this paper, only stating here that species of the same genus and nearly allied genera have, nearly in every case, *the same* myological *formula*, and that in *families* peculiarities involving more than *one* change are rare, further differences indicating a more remote relationship.

V. *The Distribution of the Deep Plantar Tendons*†.

In all birds, whatever number of toes they have, there are two deep *flexor* muscles of the toes, the fleshy bellies of which are situated between the knee and the "ankle," whilst their tendons run along the posterior aspect of the tarso-metatarse. One, arising from behind the external condyle of the femur, is the *flexor longus hallucis*; the other, arising from the posterior aspect of the tibia and from the fibula, is the *flexor perforans digitorum*, so called because its terminal tendons

* P. Z. S. 1874, p. 111.

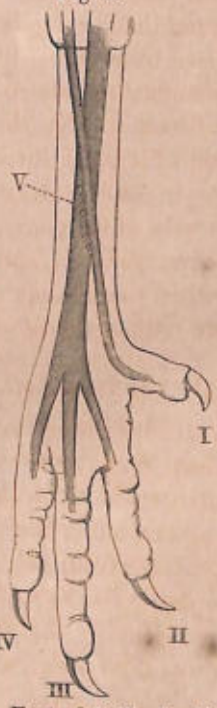
† "On the Disposition of the Deep Plantar Tendons in different Birds," P. Z. S. 1875, pp. 339–348.

perforate those of the more superficial *flexor perforatus* (the muscle, it will be remembered, joined by the tendon of the *ambiens*). Below the "ankle" the tendons of these muscles run along the tarso-metatarse; whatever their ultimate distribution, they may be easily identified in this region, the *flexor longus hallucis* being always external to, or superficial of, the *flexor perforans* (or both). In all the Passeres, as already noticed by Sundevall (except in the Eurylæmidæ, *vide infrà*), as well as in *Upupa epops* and perhaps one or two Ardeine birds, these two tendons are quite independent of each other, so that if the *flexor hallucis* be artificially pulled no flexion (closing) of the other digits takes place. This arrangement is represented in fig. 6. In all other birds, however, the two tendons, during some part of their course in the tarso-metatarse, are more or less intimately connected together by a fibrous band or *vin-*

Fig. 6.

A typical Passerine foot
(from P. Z. S. 1875, p. 347, fig. 9).

Fig. 7.



Foot of *Gallus bankiva*
(from P. Z. S. 1875, p. 341, fig. 1).

V, Vinculum.

culum, or may even completely blend. It is to a consideration of the varying arrangements produced that this paper of Prof. Garrod's is in the main dedicated; and some of the most important modifications may be noticed here.

In a large number of birds the type presented by the common Fowl obtains. Here the *flexor perforans* supplies digits II–IV, and the *flexor hallucis* only digit I (the hallux); this, as it crosses the tendon of the *flexor perforans*, sends down a strong fibrous *vinculum* (*vide* fig. 7, V). The proportions of the *vinculum* to the main tendon (that distributed to the *hallux*) vary greatly, as it may or may not be greater than the hallucial portion. In some Birds of Prey a *vinculum* may be combined with a special slip of tendon to digit II, or it may be nearly entirely distributed to that digit. In the Cathartidæ a quite different arrangement, next to be described, obtains. Here, and in many other birds, particularly amongst the *Anomalogonatæ*, the two tendons blend completely, and the tendinous slip to the hallux comes off from the blended tendon, apparently springing from the *inner* side. A slight modification of this produces an arrangement by which the hallucial slip seems to come off from the inner side of the *flexor perforans* tendon in its *upper* part, before it has been joined by the *flexor hallucis*. This last-named condition obtains in such birds as *Momotus*, *Merops*, and *Dacelo*.

When the hallux is absent, as well as in *Struthio* (where only two digits are present), the two tendons fuse completely in the leg, and the compound tendon is distributed in the usual way to the three (or two) digits. In many birds with a hallux, when there is no long flexor to that digit, the slip to it is extremely small; and in some cases it is altogether absent.

In the Trogonidæ, as might have been expected from the well-known peculiarity of their feet, an equally peculiar arrangement of the plantar tendons obtains (*l. c.* p. 345, fig. 6).

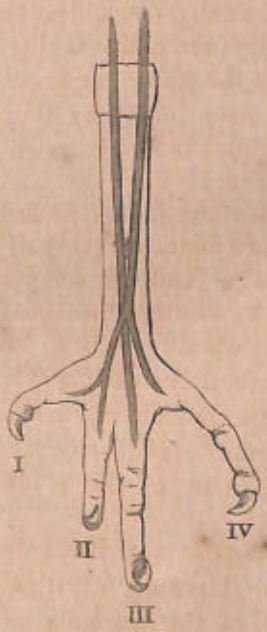
By far the most interesting feature, however, brought out by Prof. Garrod's investigations into this subject, is the discovery of the existence of two entirely different types of plantar arrangement in the so-called "zygodactyle" birds,

as well as the fact that this diversity of type exactly coincides with the two groups of birds so marked out being respectively "*Homalo-*" and "*Anomalogonatous.*" Thus, in the Parrots, Cuckoos, and Musophagidæ, which are all *Homalogonatous, possessing* (at least typically) the *ambiens* muscle, the plantar tendons are distributed in exactly the same way as in the common Fowl, the *flexor perforans* supplying digits II–IV, and the *flexor hallucis* digit I alone (neglecting the *vinculum*). In *all* the *Anomalogonatous* zygodactyle birds (which *all lack* the *ambiens* and *accessory femoro-caudal* muscles), namely the Picidæ, Capitonidæ, and their allies, Bucconidæ and Galbulidæ, an entirely unique arrangement is found; for in those birds the *flexor longus hallucis* splits up into *three* parts, *supplying digits* II and IV as well as the *hallux*, whilst the *flexor perforans digitorum* is distributed to the *third digit alone*. These differences in the two types will be clearly seen by comparing fig. 8 (*Crotophaga sulcirostris*) and fig. 9 (*Megalæma asiatica*).

Fig. 8.

Foot of *Crotophaga sulcirostris.*

Fig. 9.



Foot of *Megalæma asiatica.*

(From P. Z. S. 1875, p. 346, figs. 7 & 8.)

VI. *The Method of Insertion of the* Tensor patagii brevis *Muscle.*

In the patagial membrane of the wing in most birds there are two muscles present, the fleshy bellies of which arise chiefly from the scapular extremity of the furcula, whilst their tendons run between the two layers of membrane of which the *patagium* is composed. These muscles are the *tensor patagii longus* and the *tensor patagii brevis*. Arising in common, or in close proximity to each other, the tendon of the *tensor patagii longus* forms the more or less stiffened, though flexible, anterior border of the *patagium*; the tendon of the shorter of the two muscles runs more or less parallel with the humerus, ending near the elbow-joint. In different birds its insertion takes place in different ways, the tendon in some cases simply running straight on to the ulnar side, and there becoming blended with the general fascia of the part, whilst in others it becomes united, more or less intimately, with the tendinous origin, springing from a tubercle on the humerus, of a muscle lying on the radial side, the *extensor metacarpi radialis longior*. In some cases additional slips from the main tendon are given off, the arrangement sometimes thus getting very complicated (*e. g.*, in the Trogonidæ). As a rule, every natural family of birds has a characteristic arrangement of these tendons; so that their disposition often affords great help in classification. This is the case, for example, in the Passeres; throughout the whole of that immense group one arrangement, only slightly masked in one or two aberrant forms, which can be easily recognized and is most characteristic, obtains. The same is the case with the very closely allied groups of Picidæ, Ramphastidæ, Capitonidæ, and Indicatoridæ. These points were first worked out by Prof. Garrod in the first of his papers on Passerine birds*; and the arrangements in nearly all the families of his "Anomalogonatous birds" are there described and in several cases figured. In the Homalogonatæ, too, they offer nearly as well-marked peculiarities, though, unfortunately, his purpose

* P. Z. S. 1876, pp. 506–512, pls. xlviii.–li.

of describing and figuring their arrangement in these birds was never carried out. In his MSS. and drawings, however, he has recorded their condition in very many groups.

VII. *Certain other Muscles.*

In his paper on *Chauna* (*suprà*, p. 11), Prof. Garrod, for the first time, called attention to the value in classification of certain other myological facts. These are :—

(1) The presence or absence of the "*expansor secundariorum*" muscle.

This is a slender muscle which arises from the last few (generally two or three) secondary quills and has a peculiarly long and slender tendon, which, running superficially posterior to the humerus, together with the axillary vessels and nerves, is inserted into the thorax in different ways in different birds. One common arrangement is that found well developed in the Storks, and hence called "ciconiiform." Here the proximal part of the tendon is T-shaped, it splitting into two parts, one being inserted into the coracoid near the junction of this bone with the sternum, the other into the scapula close to the coraco-scapular articulation. In other cases the tendon may end by joining the *coraco-brachialis brevis* muscle, so as to appear to be part of that muscle, as in the Fowl and most of the Gallinaceous birds; or the tendons of the two sides may join in the middle line, as in most of the Anseres; or other and more complicated arrangements, duly described in the paper above referred to, may obtain. The only Anomalogonatous birds in which this muscle is present are the Coraciidæ. A table (*l. c.* p. 199) records the nature of this muscle in the families of Homalogonatous birds. In many it is quite absent.

(2) The presence or absence of a *biceps* slip to the *patagium* of the wing.

In many birds there is given off from the anterior margin of the *biceps* muscle of the arm a distinct and most peculiar muscular slip, which joins the patagial membrane of the wing. Its presence or absence is a very constant character amongst closely allied birds.

(3) The area of origin of the *obturator internus* muscle.

This muscle, arising in the interior of the pelvis, is inserted proximad of the *obturator externus* on the head of the femur. In most birds its shape, as seen in the pelvis, is more or less oval; but in some, as in the Gallinæ and Rails, it is distinctly *triangular*. Both its character and the presence or absence of a *bicipital slip* are recorded in the majority of the Avian families, in the table already mentioned in the account of the *expansor secundariorum*.

Besides these, a few other myological peculiarities insisted on by Prof. Garrod in various papers may here be named, such as the presence of an additional secondary femoro-caudal muscle in *Apteryx*, and the presence in it, as well as in the other "Struthious" birds and the Crypturi, of a muscular slip to the accessory femoro-caudal above the exit of the sciatic nerve and artery*; the occasional complete absence of the *semimembranosus* in some of the Grebes†; and the double condition of the great pectoral muscle in the Storks, Steganopodes, Petrels, and their allies‡.

VIII. *The Conformation of the Trachea and Syrinx.*

The curious contortions of the trachea, and other peculiarities of its structure, in various birds, such as the Cranes, Spoonbill, and Ducks, have long been known to ornithologists; and, as far as concerns this portion of the subject, Prof. Garrod's notes on these structures in various forms§ are simply confirmations of, or additions to, our previous knowledge of the subject. But, so far as I am aware, little or no attention had ever previously been paid to the details of modification in the cartilaginous or ossified tracheal and bronchial

* P. Z. S. 1873, pp. 643, 644, fig. 6.

† P. Z. S. 1873, p. 629, 642.

‡ P. Z. S. 1874, p. 120, and 1876, p. 340.

§ "On the Form of the Lower Larynx in certain Species of Ducks," P. Z. S. 1875, pp. 151–156 (the species described are *Sarcidiornis melanonota*, *Rhodonessa caryophyllacea*, and *Metopiana peposaca*); "On the Form of the Trachea in certain Species of Storks and Spoonbills," P. Z. S. 1875, pp. 297–301 (*Tantalus ibis* and *Platalea ajaja*); "On the Trachea of *Tantalus loculator* and of *Vanellus cayennensis*," P. Z. S. 1878, pp. 625–629.

structures concerned in the formation of the hard framework of the lower larynx, or "syrinx." Garrod's investigations into this subject therefore mark a new line of departure; and it is exceedingly to be regretted that only one part of his notes on the subject were completed before his death, these forming his paper "On the Conformation of the Thoracic Extremity of the Trachea in the Class Aves.—Part I. The Gallinæ"*, the last contribution of his pen to ornithological science. There is every reason to believe that this line of research, when prosecuted further, will lead to most valuable results as a means of separating, on anatomical grounds, allied genera or families of birds†. Of his investigations of the lower larynx of the Passeres I propose to speak later, under that head.

In the remaining part of this paper I propose to consider the results arrived at, from the consideration of these and other anatomical features, by Prof. Garrod as to the relationships of various obscure forms of birds, and also to describe certain remarkable peculiarities of others as first discovered by him. In these remarks, as before, I shall, for convenience sake, follow, as nearly as possible, a chronological order, reserving, however, till the last any general views on the classification of birds as a whole.

1. *Struthio*‡.—In this paper, written in conjunction with Mr. Frank Darwin, the principal point of interest is the discovery, or, at all events, first notice, of a peculiar nodule of bone lying on the centre of the pubis, and, in some respects,

* P. Z. S. 1879, pp. 354–380, figs. 1–35.

† A second part of Garrod's notes on the trachea, describing that of the Cuculidæ, I found in a nearly complete state amongst his MSS., as well as a very considerable mass of drawings and notes on this subject in other groups, it having been the special object of his study up to within a very few weeks of his death. Indeed, during all his last illness, when too weak to attend to larger and less convenient objects, he continued to work away with all his old enthusiasm and energy at the windpipes of birds, especially those from the extensive collection of Procellariidæ &c. made by H.M.S. 'Challenger.'

‡ "Notes on an Ostrich lately living in the Society's Collection," P. Z. S. 1872, pp. 356–363.

similar to the "marsupial" bone of the Implacental Mammalia and its corresponding fibrous representative in certain Carnivora.

2. *Heteralocha**.—In 1872 the true affinities of the Huia bird were quite uncertain, many authorities placing it amongst the Hoopoes (Upupidæ). From an examination of the specimen that lived in the Zoological Society's Gardens, Prof. Garrod was enabled to show that it was truly Passerine, and not only so, but in many respects so peculiarly *Sturnine*† as to entitle it to a place "at the head of the family."

3. *Steatornis*‡.—Besides the myology and visceral anatomy, the pterylosis, skull, and syrinx (which is "bronchial") are particularly described and figured. The result arrived at, as regards the systematic position of *Steatornis*, is that it must form a family by itself, with strong affinities to the Owls, Caprimulgidæ, and Coraciidæ and their allies.

4. *Columbæ*§.—In these papers the number of the rectrices (varying from twelve to twenty in different genera), together with the presence or absence of the oil-gland, of the cæca, and of the ambiens muscle, is recorded in a large number of forms, and, from the various combinations of characters so obtained, an attempt is made to divide up the group of Pigeons, in which are included the Pteroclidæ, in a more natural way than has hitherto been done. Attention is also called to the characteristic form of the humerus in these birds, as well as to the peculiar form of the gizzard in the genus *Ptilopus*, there being here *four* crushing-pads, instead of two as in all other birds, including even *Treron*.

* "Notes on the Anatomy of the Huia Bird (*Heteralocha gouldi*)," P. Z. S. 1872, pp. 643–647.

† Mr. Sharpe must, we fear, have overlooked this paper of Prof. Garrod's, as he still retains *Heteralocha* amongst the Corvidæ (Cat. Birds, iii. p. 143), quite in opposition to the conclusions above stated.

‡ "On some Points in the Anatomy of *Steatornis*," P. Z. S. 1873, pp. 526–535.

§ "On some Points in the Anatomy of the *Columbæ*," P. Z. S. 1874, pp. 249–259; "Notes on two Pigeons, *Ianthœnas leucolæma* and *Erythrœnas pulcherrima*," P. Z. S. 1875, p. 367; "Note on the Gizzard and other Organs of *Carpophaga latrans*," P. Z. S. 1878, pp. 102–105.

In *Carpophaga latrans* the stomach is even more peculiar; for here the epithelial lining of the gizzard is developed into about two dozen horny conical processes, like the tubercles of a *Cidaris* or similar Sea-urchin. A similar condition has been described by MM. Verreaux and Des Murs in *C. goliath* of New Caledonia*; but no other species of *Carpophaga* yet examined shows any trace of such a structure.

5. *Psittaci*†.—In these papers, as in the last, the condition of certain structures is recorded in a large number of forms, and from the *combinations* of characters so obtained a scheme of classification is sketched out, each group having assigned to it a formula stating its most essential characters. The presence or absence of the ambiens muscle, of a furcula, and of an oil-gland are the points here laid stress on, together with the condition of the carotid arteries. Of these there may be either two normally situated, or only one, the left (*Cacatua* and *Licmetis tenuirostris*), or two, the *left* of which, instead of running with its fellow in the hypapophysial canal, as already explained, runs *superficially* up the neck with the left *vagus* nerve and jugular vein. This last condition, which obtains *in no other birds*, is considered, as I think rightly, sufficiently important to divide off as a main group of Psittaci all those possessing it—a group including *all* the American Parrots, together with the Platycercidæ (including *Lathamus*), *Nestor*, *Dasyptilus*, and the African Parrots, other than *Agapornis* and *Palæornis*, of the Old-World forms. The further subdivision of these groups is effected in the way already indicated. In a supplementary note attention is called to the probably invariable presence of a gall-bladder in the *Cacatuinæ*, though this organ has not been found in any other Parrots.

* This has lately been described at greater length and figured by M. Viallane (Ann. Sc. Nat. ser. 6, vii. art. no. 12).

† "On Points in the Anatomy of the Parrots which bear on the Classification of the Suborder," P. Z. S. 1874, pp. 586–598, pls. lxx., lxxi. "Notes on the Anatomy of certain Parrots," P. Z. S. 1876, pp. 691, 692; "Note on the Absence or Presence of a Gall-bladder in the Family of the Parrots," P. Z. S. 1877, p. 793.

In a preceding paper* Prof. Garrod has described and figured the tongue of *Nestor*, which, as he shows, is peculiar, and *not* like that of the Lories, with which it has often been associated.

6. *Otididæ*†.—In *Eupodotis australis* there is *not*, as had been supposed, and even stated‡, by previous observers, a gular pouch, such as has been seen in *Otis tarda*. On the contrary, the *œsophagus* is highly *distensile*, and so produces the singular appearance of the males of this bird when excited during the breeding-season. In a young male specimen of *Otis tarda* examined, there was also no gular pouch present; but the *frænum linguæ* was double; and it is suggested that the pouch which *has* been found in the males of that species is due to a rupture and distention of the mucous membrane between this duplicate frænum, owing to the inflation of the air-passages during the period of display.

7. *Chauna*§.—The pterylosis, visceral anatomy, myology, and cranial and other characters of the Derbyan Screamer are here fully described. The very peculiar nature of the alimentary canal, in the glandular parts of the *proventriculus* forming, not a zone, but a patch, as well as in its possession of long *sacculated* cæca, without any spiral valve, which open into a special division of the intestine situated between the colon and the ileum, is particularly worthy of notice, *Chauna*‖ being absolutely unique amongst birds in this combination of characters. In its pterylosis and syrinx, too, it is very peculiar. As a result of his examination, Prof. Garrod concludes that the *Palamedeæ* cannot be placed amongst the Anseres, as had been done by Professors Parker and Huxley,

* "Note on the Tongue of the Psittacine genus *Nestor*," P. Z. S. 1872, pp. 787–789.

† "On the 'Showing-off' of the Australian Bustard," P. Z. S. 1874, pp. 471–473; "Further Note on the Mechanism of the 'Show-off' in Bustards," P. Z. S. 1874, pp. 673, 674.

‡ Ibis, 1862, p. 114.

§ "On the Anatomy of *Chauna derbiana*, and on the Systematic Position of the Screamers (Palamedeidæ)," P. Z. S. 1876, pp. 189–200, pls. xii.–xv.

‖ The anatomy of the soft parts of *Palamedea* is still, I believe, almost unknown.

but must form an independent group of birds, having probably "sprung from the primary avian stock as an independent offshoot at much the same time as did most of the other important families."

8. *Aramus**.—In the schizorhinal character of its skull, as well as in the presence of occipital foramina, *Aramus* resembles *Grus, Ibis, Platalea,* and the Limicolæ, and not the Rallidæ, with which it had generally been associated previously; and this collocation is quite confirmed by its myology and visceral anatomy.

9. *Plotus*†.—In the first paper the anatomy of *P. anhinga* is described at considerable length—particular stress being laid on the curious arrangement of the cervical vertebræ which makes this bird literally *unable* to carry its neck straight, and the correspondingly modified muscular system. Other points described are the presence of but *one* carotid artery, and of but *one* cæcum—the latter a feature previously unknown in any Steganopodous bird, though constant in the Herons. The most interesting feature, however, of *Plotus anhinga* is its very extraordinary stomach, previously only partially described by Macgillivray. The *proventriculus,* instead of forming a zone or patch, is here developed into a special sac-like *diverticulum,* which projects from the gizzard externally in a way quite unlike that of any other bird. Moreover the pyloric compartment of the stomach, which is present in a less complete form in *Pelecanus,* the Herodiones, Falconidæ, &c., here develops a covering of hairs, "a peculiarity which, as far as I know, is found only in one other bird, namely *Cathartes aura.*" This very extraordinary stomach is figured on plate xxviii., and is certainly, as far as yet known, unique amongst birds. In *Plotus levaillanti* the same features in its anatomy generally are present as in *P. anhinga.* But there are, as usual, two small cæca: and its stomach differs considerably; for here there is no proventricular gland-pouch, but this

* "On the Anatomy of *Aramus scolopaceus*," P. Z. S. 1876, pp. 275–277.

† "Notes on the Anatomy of *Plotus anhinga*," P. Z. S. 1876, pp. 335–345, pls. xxvi.–xxviii.; "Note on Points in the Anatomy of Levaillant's Darter (*Plotus levaillanti*)," P. Z. S. 1878, pp. 679–681.

organ, as in some other birds, assumes the form of two separate patches. The second (pyloric) compartment of the stomach is also present, in a well-developed form, and is also hair-clad. But here another difference presents itself; for "the hairy epithelium surrounding the pyloric orifice . . . . is produced into a considerable conical hair-covered process, projecting into the second stomach, and evidently acting as a valve to close the pylorus when necessary." These differences in two species so closely allied in all other points show that, though in nine cases out of ten similarity of external characters predicates similarity of internal structure, nevertheless in the tenth the correspondence breaks down, and that, too, without any obvious differences in mode of life, food, &c. The parallel, pointed out by Prof. Garrod, presented by these two species of *Plotus* with the two living genera of Sirenia (*Manatus* and *Halicore*), as regards the modification of their gastric gland-structures, is particularly interesting.

10. *Coliidæ**.—The skull of *Colius* is desmognathous, and has no vomer, as in *Alcedo*. The viscera and myology do not bear out the idea of any relationship to the Parrots or Musophagidæ; on the contrary, these birds are truly Anomalogonatous, and are most nearly related perhaps to the Alcedinidæ and Bucerotidæ. Nevertheless their combination of characters fully substantiates their claim to form a separate family, Coliidæ.

11. *Thinocoridæ*†.—These birds, in their schizorhinal skull, and in many other features, visceral and myological, resemble most some of the more aberrant forms of Limicoline birds, such as *Cursorius* and *Glareola*. Attention is also drawn in this paper to the very extensive variations in the form of the vomer in various Charadriiform birds, it being (so far from always "tapering to a point anteriorly," as it *should* [?] do in these "schizognathous" birds) in several forms extraordinarily *broad* or even widely *emarginate* anteriorly!

* "Notes on the Anatomy of the Colies," P. Z. S. 1876, pp. 416–420.

† "Notes on the Anatomy and Systematic Position of the Genera *Thinocorus* and *Attagis*," P. Z. S. 1877, pp. 413–418.

12. *Momotidæ**.—The colic cæca being absent, at the same time that, except in *Momotus*, the oil-gland is tufted, the Momotidæ must be placed amongst the Piciform series of Anomalogonatæ, close to the Todidæ, and not with the Coraciidæ amongst the Passeriformes. The syrinx and some other points in their anatomy are also described.

13. *Megacephalon*†.—A short paper describing the pterylosis (hitherto almost unknown in the Megapodidæ), syrinx, and other points in this peculiar form, which is perfectly gallinaceous.

14. *Indicator*‡.—In its pterylosis, visceral anatomy, myology, and osteology, *Indicator* closely approaches the Picidæ, Capitonidæ, and their allies, and is in no respect Cuculine. Its vomer is large and strongly bifurcate anteriorly, as in the *Capitoninæ*; of the latter some are desmognathous, others, as in *Indicator*, not. The truncated vomer of *Ramphastos* is also figured. In conclusion it is suggested that *Indicator* should form but a subfamily, to be comprised, together with the *Ramphastinæ* and *Capitoninæ*, in a larger group, the Capitonidæ.

15. *Opisthocomus*§.—*Opisthocomus* is a true Homalogonatous bird, having both the *ambiens* and accessory femorocaudal muscles; it cannot, therefore, have any thing to do with the Passeres. It is, perhaps, most nearly related to the Gallinæ, but, at the same time, can hardly be included with them; it is also not far from the Cuculidæ and Musophagidæ, helping thus to fill up the gap that now exists between these latter families and the Gallinaceous birds.

16. *Passeres*‖.—To define by anatomical characters super-

* "On the Systematic Position of the Momotidæ," P. Z. S. 1878, pp. 100–102.

† "On the Anatomy of the Maleo," P. Z. S. 1878, pp. 629–631.

‡ "Notes on the Anatomy of *Indicator major*," P. Z. S. 1878, pp. 930–935.

§ "Notes on Points in the Anatomy of the Hoatzin," P. Z. S. 1879, pp. 109–114.

‖ "On some Anatomical Characters which bear upon the Major Divisions of the Passerine Birds:" Part I., P. Z. S. 1876, pp. 506–519, pls. xlviii.–liii.; Part II., P. Z. S. 1877, pp. 447–452; Part III., P. Z. S. 1877, pp. 523–526, pl. liii.; Part IV., P. Z. S. 1878, p. 143.

generic groups in the immense mass of Passerine birds was always a favourite object with Prof. Garrod; and the four papers quoted above* are the published results of his efforts at a solution of the difficulties that have always attended the classification of this group. It was whilst working at Passerine birds that the classificatory value of the mode of termination of the tendon of the *tensor patagii brevis* muscle, already alluded to (*suprà*, p. 16), first attracted his attention. The presence also in certain Passerine birds, the Cotingidæ and Pipridæ, of a femoral instead of a sciatic artery has also been mentioned. A slight exception, too, to Sundevall's generalization about the independent muscular supply of the *hallux* in Passerine birds (*suprà*, p. 13) was found by him to exist in the Eurylæmidæ (P. Z. S. 1877, p. 447). But the most novel fact pointed out by Prof. Garrod as regards these birds is that they may be divided into two main groups, according as to whether the intrinsic muscles of the syrinx are inserted into the *ends* or into the *middle* of the bronchial semirings. The former group, called by him *Acromyodi*, includes all the ordinary singing-birds with four or five pairs of muscles, the Oscines, together with two aberrant Australian groups, formed by the genera *Menura* and *Atrichia*. In these the number of intrinsic muscles is reduced to three and two pairs respectively; but they are still inserted into the *tips* of the semirings †.

* Together with his appendix to the English edition of Johannes Müller's 'Stimmorgane der Passerinen.'

† I may here remark that I cannot at all agree with Mr. Sclater's view on the position of these two genera, which form his group "Pseudoscines" (Ibis, 1880, p. 345). By placing *Atrichia* and *Menura* away from the other Acromyodian Passeres, and interpolating the Mesomyodian ones, the important fact is ignored that, in their possession of an "Acromyodian" syrinx, these birds depart essentially from the typical avian "Mesomyodian" structure, the one which there cannot be the slightest doubt is the more primitive form. "The much more important osteological characters" in which these two forms are said to diverge from the other Passeres are, as far as I am aware, two only; and these, moreover, are individual peculiarities of each genus, and by no means common to the two forms—in *Menura* the curved posterior margin of the sternum,

The other group, the *Mesomyodi*, have the intrinsic muscles (which are usually reduced to a single pair, one on each side) inserted into the *middle* of the rings. In them, too, the tenth ("first") primary is always more or less long, and the tarsus, with trifling exceptions, not "bilaminate." They nearly correspond to the "Formicarioid" Passeres of Wallace, except that Wallace included in that group the Acromyodian, though in some respects aberrant, *Menura*. The Mesomyodi include all the Tracheophone Passeres, together with the Pipridæ, Cotingidæ, Tyrannidæ, Pittidæ, and a few smaller groups. A further division of these two main groups is given by Prof. Garrod in the first paper quoted (*t. c.* p. 518), the smaller divisions being based on one or other of the other characters already noticed. A considerable number of the previously unknown syringes of Passerine birds were described by him for the first time in one or other of the above communications, amongst which those of *Pitta* and *Atrichia* are particularly noticeable. The peculiar form of the nasal bones in certain of the Tracheophonæ, so that these birds are to this extent "schizorhinal," has already been mentioned when speaking of that character, as has also the paper on *Heteralocha*.

It is much to be regretted that Prof. Garrod did not live to make public his maturer views on the difficult subject of the general classification of birds. The only published scheme of any such classification is to be found in part ii. of his paper on the Thigh-Muscles (*suprà*, p. 8); and it is within my knowledge that he had already seen reason to deviate in some respects from the arrangement

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in *Atrichia* the absence of clavicles (Garrod, P. Z. S. 1876, p. 516). As is now well known, Prof. Huxley's original description of the skull in *Menura* (P. Z. S. 1867, p. 472) was founded on a misconception of its structure, apparently owing to the imperfection of his specimen (*cf.* Parker, Trans. Z. S. ix. pp. 307, 308). Moreover the "most anomalous forms of Passerine birds yet known," or at all events the most generalized, are, according to the views of Garrod and myself, certainly the Eurylæmidæ, which last therefore, and not the "Pseudoscines," should be placed at the end, in a descending scale, of the Passerine series.

there adopted. Nevertheless I think I may say he was satisfied to the last as to the naturalness of the two main groups into which he there divided birds, the "Homalogonatæ" and the "Anomalogonatæ." It is often assumed that this division rests only upon a single character, namely the presence or absence of the ambiens muscle. As a matter of fact this is *not* the case; for the ambiens muscle is absent in many birds that are ranked amongst the Homalogonatæ. What Prof. Garrod says is this:—"The oft-named *ambiens* muscle is, in my mind, the *key* to the whole," and that, not because of its own intrinsic importance, but because its presence is always associated with peculiarities in other parts never found in any Anomalogonatous bird. That the same combinations of three or four different characters should have arisen *independently* in different birds is so extremely improbable, that we can hardly ascribe these similarities in combinations of characters to any other cause than to blood-relationship, the expression of which is now unanimously accepted as the true end of all biological classifications.

"The facts disclosed by a study of the myology of birds *do not*, without extraneous assistance, place the families in their true relationship to one another. Because the same muscles are present in two families of birds, it cannot therefore be said that their kinship is extremely close, or the reverse .... It is therefore necessary to look around to find, if possible, myological characters which have some definite relations to equally well-marked pterylographic, visceral, or osteological peculiarities" (P. Z. S. 1874, p. 114). As already insisted on, it was in this combination of characters that Prof. Garrod trusted to find the true "key" to the question.

To return to facts,—no bird which is "Anomalogonatous" has ever an accessory femoro-caudal muscle; that is, the letter B never enters its formula. Again, no bird that is Anomalogonatous has ever a tufted oil-gland *and* cæca, though this combination is nearly always found in the Homalogonatous birds. So much so is this the case, that there are only nine groups of Homalogonatous birds that have *not*

this mentioned combination *, and in two of these the exception is caused by the entire absence of the oil-gland (in the Otididæ and the Struthiones). Of the remaining seven, in which the cæca and a tufted oil-gland are not correlated, I find, by tabulation, that four always have the ambiens muscle developed, whilst the remaining three have it present in at least some of their members. Of these latter, moreover, two have the accessory femoro-caudal (B) always present; so that it is only *certain* Parrots which have a formula like that of any anomalogonatous bird (for it must be remembered that in several Parrots the ambiens muscle *is* present). This fact will be made clearer by the accompanying table, containing the names of the three main groups of the Anomalogonatæ,

	Ambiens.	Accessory femoro-caudal.	Tuft to oil-gland.	Cæca.
Anomalogonatæ.				
Cypseliformes	−	−	−	−
Passeriformes	−	−	−	+
Piciformes	−	−	±†	−
Exceptional Homalogonatæ.				
Megapodidæ	+	+	+	−
Thalassidrominæ	±	+	+	−
Musophagidæ	+	+	+	−
Psittacidæ	±	−	+	−
Columbidæ	±	+	−	±
Cuculidæ	+	±	−	+
Cathartidæ	+	−	−	−
Other Homalogonatæ	±	±	+	+

* One or two genera in various families, as e. g. *Cancroma*, have also lost the oil-gland tuft. As, however, all the allied genera retain it, these slight exceptions in no way invalidate Prof. Garrod's argument.

† In *Momotus* the tuft is absent.

followed by those of the seven groups above mentioned as the exceptions to the combination of cæca and a tufted oil-gland amongst the Homalogonatæ.

Thus, of the whole series of Homalogonatous birds, not one, except certain Parrots (the most specialized, no doubt, of all that series), has any combination of these characters that could lead to its inclusion with the three combinations present in the Anomalogonatæ.

The grand division into Homalo- and Anomalogonatæ was primarily made by Mr. Garrod on the strength of the facts here tabulated. But subsequent investigations of quite different points have much strengthened his original position. One of these is the difference in distribution of the plantar tendons in the two groups of zygodactyle birds, already described above. I believe the removal of the Cuculidæ and Musophagidæ from the so-called "Picarian" birds, or "Coccygomorphæ," on account of their possessing the ambiens muscle, absent in the others, was considered by many naturalists a striking proof of the artificial nature of Prof. Garrod's system. But it has been most remarkably confirmed by his later discovery, and so is, to my mind, one of the most convincing proofs of the correctness of his arguments, until, at least, some other explanation shall be given of the facts here adduced. Yet another confirmation is afforded by the pterylosis. I here reproduce Prof. Garrod's own words:—"My study of pterylography has led me to look upon the nature of the dorsal tract as all important in determining to which great group of birds, the Homalogonatæ or Anomalogonatæ, any doubtful family belongs. When the dorsal tract develops a fork *between* the shoulders, a bird is Homalogonatous; when the tract runs on unenlarged to near the lower ends of the scapulæ, then it is Anomalogonatous" (P. Z. S. 1878, p. 931).

Very few exceptions to this rule obtain—the Coraciidæ, in that they develop an interscapular fork, although in other respects truly Anomalogonatous, being, perhaps, the most marked one.

The Homalogonatous nature of the Cuculidæ is fully born out by their pterylosis, the dorsal tract in them dividing

between the scapulæ. In the Musophagidæ the pterylosis above is peculiar, and gives no aid in determining their affinities. The Strigidæ, Caprimulgidæ, and *Steatornis* are, judged by this criterion, *Homalogonatous*, although in them the ambiens and accessory femoro-caudal are absent, at the same time that they have cæca and a nude oil-gland. But the very difficult question of the true affinities of these groups was one on which Prof. Garrod had not finally made up his mind.

Leaving these three groups aside, the following is the arrangement adopted by Prof. Garrod of his "subclass" Anomalogonatæ.

Piciformes.	Passeriformes.	Cypseliformes.
Oil-gland tufted.	Oil-gland nude.	Oil-gland nude.
Cæca absent.	Cæca present.	Cæca absent.
External branch of pectoral tract given off at commencement of breast *.	Pectoral tract simple, or with the external branch given off beyond middle of breast.	A.
(A) X Y.	A X (Y).	Macrochires.
Picidæ.	Passeres.	
Capitonidæ †.	Bucconidæ (?).	
Upupidæ.	Galbulidæ.	
Bucerotidæ.	Coraciidæ.	
Coliidæ.	Meropidæ.	
Alcedinidæ.	Trogonidæ.	
Momotidæ.		

As regards the Homalogonatæ, these were divided (P. Z. S. 1874, p. 119 &c.) into four orders, the Galliformes, Anseriformes, Ciconiiformes, and Charadriiformes, the latter including all the Homalogonatous schizorhinal birds. The further subdivisions of these will be found in Prof. Garrod's paper as quoted, and need not be repeated here.

The Strigidæ, there included with the Falconidæ amongst the "Ciconiiformes," would almost certainly, in a revised arrangement, have been removed from there and placed elsewhere. The Tubinares, or Petrels and Albatrosses, placed with the "Anseriformes," were found, on further examina-

* P. Z. S. 1878, p. 931.

† Including the *Ramphastinæ* and *Indicator* (*t. c.* p. 935).

tion, to be far nearer the Ciconiiform birds; and in the unfinished paper on *Pelecanoides* already alluded to, the reasons for this change were to have been given, the shortness of the cæca and the double great pectoral muscle being two of the facts adduced in favour of it.

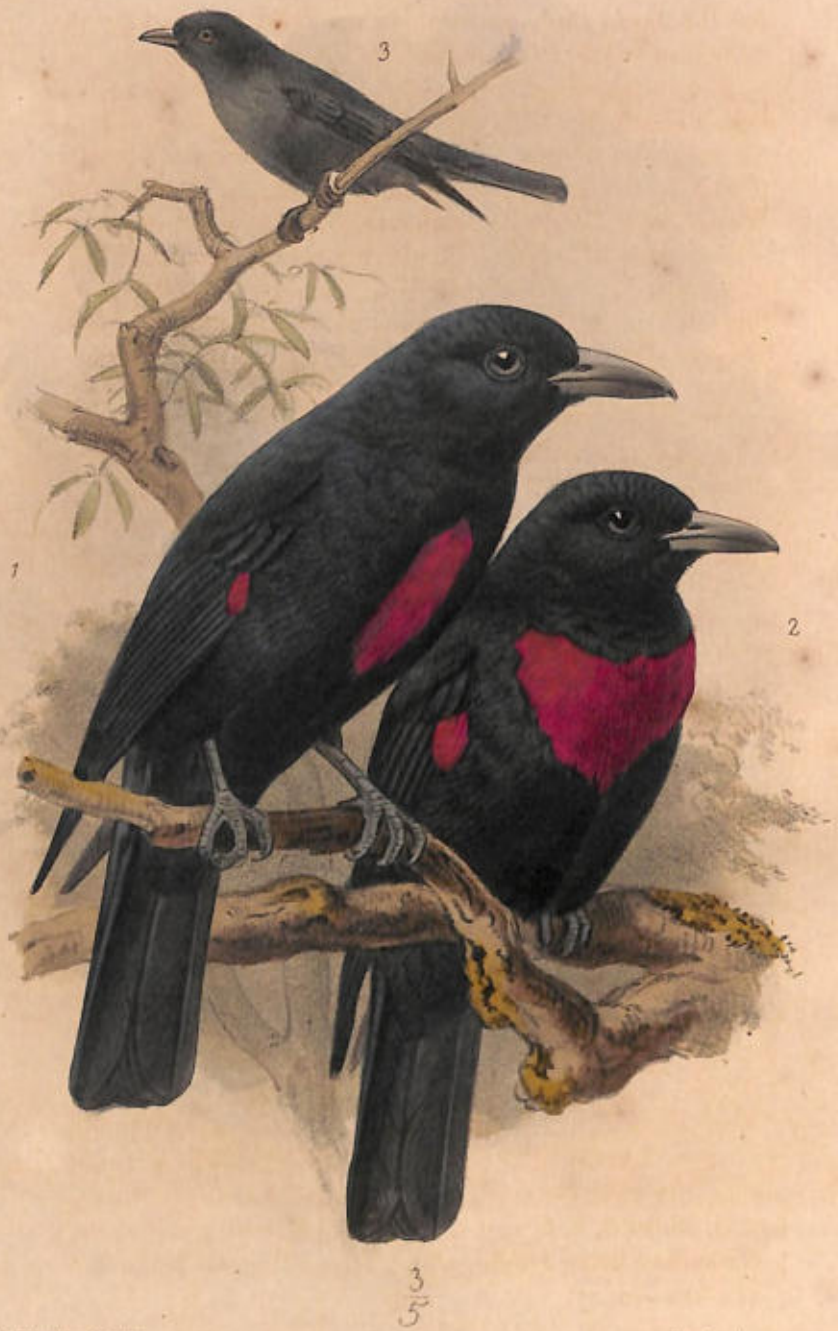
In this imperfect sketch of my lamented friend's ornithological work, I hope I have succeeded in showing my fellow members of the B. O. U. and others that Garrod's work and generalizations did not depend upon any single character or set of characters. No man probably has ever yet enjoyed such opportunities or ample material for research in any single group of animals as he did; and he had, in addition, the advantage of all the work previously done on the subject, the value of which was duly estimated by him in forming his own conclusions. He came to the question of the classification of birds quite fresh, with none of those prejudices on the subject which are nearly inevitable amongst those who have worked at birds in their early days and so imbibed more or fewer of the traditional ideas on the subject. In addition, he had had all the advantages of a regular medical and scientific education, and was therefore the less likely to be tempted into rash generalizations or led away by crude theories. This much is certain: no future attempt to classify birds can omit to take into consideration the contributions to this subject made by the brilliant genius of our late member, which will always remain as a lasting tribute to his memory.

II.—*Descriptions of two new Species of Birds.* By Captain R. G. Wardlaw Ramsay, F.Z.S. &c., 67th Regiment.

(Plate I.)

Two apparently distinct species of the genus *Analcipus*, Swainson, have hitherto been treated as identical, viz. the Black-and-crimson Orioles of Sumatra and Java.

The title *A. cruentus* (Wagler), Syst. Av. addit. sp. 9, has been equally applied to the birds from both islands, as well as to those from Borneo; but this title must be retained



J. G. Keulemans lith. Hanhart imp

1. ANALCIPUS CRUENTUS.
2. A. CONSANGUINEUS. 3 *id. fem.*

for the Javan bird, whilst a new one ...
Sumatran. ...
pl. 499, a...
have als...

...black, must be an old ..., whilst 3, 4, 5, and 6 are, I think, young males, the lower surface being greyish with a strong tinge of pink.

3
5

J. G. Keulemans lith. Hanhart imp.

1. ANALCIPUS CRUENTUS.
2. A. CONSANGUINEUS. 3 *id. fem.*

for the Javan bird, whilst a new one must be found for the Sumatran. The titles *sanguinolentus*, Temm., Pl. Col. iii. pl. 499, and *rubropectus*, Lesson, Rev. Zool. 1840, p. 274, have also been applied equally to the black Orioles of Java, Sumatra, and Borneo; but the bird which Temminck figures (*l. c.*) is an accurate representation of the Javan bird. Wagler, in his original description (*l. c.*), says, "alarum tectricibus superioribus majoribus extimis coccineo terminatis," which applies to the Javan bird. Mr. R. B. Sharpe (Cat. Birds, iii. p. 221) also described from a Javan specimen. The Sumatran bird I propose to call

ANALCIPUS CONSANGUINEUS. (Plate I.)

It differs from the Javan bird in having the general colour glossy greenish black instead of bluish black, in having the primary-coverts entirely crimson instead of only crimson at the tips, thus forming a much larger alar speculum. It may also be readily distinguished by the breast being nearly all crimson, that colour in *A. cruentus*, of Java, being confined to a narrow patch down the centre of the breast. The Sumatran bird is slightly smaller.

I have not had an opportunity of examining a specimen from Borneo, and therefore am unable to say to which species it belongs.

The following specimens were procured in Sumatra by Mr. Bock:—

1. ♂. Paio. Iris grey-blue (adult).

2. ♂. Mount Sago. Iris vandyke-brown, 31st August, 1878 (apparently adult).

3, 4, 5, 6. ♂. ? Juv. Mount Sago. Iris brown, September 1878.

7. ♀. Lolo.

8. ♂.

Numbers 1, 2, and 8 are, apparently, adult males, although the iris of 2 is noted as vandyke-brown. Number 7, being nearly throughout of a glossy greenish black, must be an old female, whilst 3, 4, 5, and 6 are, I think, young males, the lower surface being greyish with a strong tinge of pink.

A peculiarity in these latter specimens is, that the inner surface of the shoulder is mottled with crimson, extending, in two instances, onto the edge of the carpus, where no crimson occurs in the adult bird. The Plate represents (figs. 2 and 3) a male and a presumed adult female specimen (No. 7) of *A. consanguineus* from Sumatra, and (fig. 1) a male of *A. cruentus* from Java.

Another apparently new species to be noticed is

EDOLIOSOMA ALTERUM, sp. n.

Volvocivora cærulescens, Tweedd. P. Z. S. 1877, p. 759.

The Marquis of Tweeddale, in his list of the birds collected by Mr. Everett in the island of Zebu (*l. s. c.*), expresses an opinion that Luzon individuals of *Volvocivora cærulescens* do not differ from those from Zebu; but on an examination of the series obtained by Mr. Everett, it would appear that the adult males, at any rate, of the Zebu form may be readily distinguished from those of typical *V. cærulescens* of Luzon by having their black plumage glossed with a strong shade of green, which in the latter bird is of a shining inky bluish colour.

I can only account for Lord Tweeddale's statement (*l. s. c.*), that "the adult males of *V. cærulescens* are jet-black," and that "Luzon individuals do not differ from Zebu examples," by the supposition that the examination of the series was not made in a good light. For the same reason Mr. Sharpe, (Cat. B. vol. iv. Add. p. 469), has overlooked these particulars, but now expresses himself quite satisfied of the distinctness of the two forms.

The male specimen from Valencia in the island of Negros (P. Z. S. 1878, p. 283), referred to by Lord Tweeddale, may belong to another representative form, but more probably will be found to be in an adolescent phase of plumage of my *E. alterum*.

The dimensions of these two, or possibly three, races do not materially differ.

III.—*On the Birds of Gilgit.* By Major John Biddulph*.

The birds enumerated in the following list were collected during a residence of two years in Gilgit, a tract of country the ornithology of which has not yet been studied. As Gilgit is known but to few, a brief sketch of the locality will be useful.

In the north-west corner of the Cashmere dominions, where the Indus, after a north-north-west course of nearly five hundred miles, makes a sudden turn to the south, the Gilgit river joins the great stream on the right bank, after draining a very large extent of country north and west of the Indus. Its most western source is in the mountains at the head of the Swat valley. Further east a large affluent joins it in Yassin, which takes its rise in the Hindoo Koosh. Along this stream migrants from the Oxus valley find their way to the Indus. Further east still is its third and largest affluent, the Hunza river, of which one of the branches rises on the southern slope of the mountains that enclose the Taghdooughash Pamir, and the other on the western slope of the mountains that form the watershed between it and the valley of the Yarkund river. All around rise snow-clad mountains of great height, the ridges being from 13,000 feet to 17,000 feet above sea-level, while the number of lofty peaks and glaciers is not equalled by any tract of similar extent in the Himalayas.

Twenty-four miles from the Indus, at an elevation of little less than 5000 feet, is the fort of Gilgit. The valley, which is here about two miles broad, is barren and rocky, save in the spots of cultivation, which are few and far between. The cultivated spots themselves are thickly wooded. Higher up the valley contracts, and the cultivated spots are nearer together. The base of the mountains consists of precipitous bare rock; but above 7000 feet deep glens, pine-forests, and grassy slopes meet the eye everywhere up to the snow-

* [Dr. J. Scully, who is so often referred to by Major Biddulph, has kindly added some footnotes to this paper, which are distinguished by his initials.—Edd.]

line. The climate is dry, and subject to great extremes; the rain and snow, which fall abundantly at the higher elevations, seldom reach the main valley in any quantity. The rainfall of the year is only about five inches. The winter lasts about four months, during which there are six weeks of intense dry cold, when the thermometer in the open air goes down to zero.

Owing to the great radiation from the rocks, the heat in summer for about two months is very great; but the nights are cool, and the heat is never trying as in India.

It will be observed that the greater proportion of birds in the list are migratory, the constant residents being very few. It is probable that many migrants still remain to be added to the list; for it is curious of how many species only single specimens were secured. Abnormal weather is also likely to bring in birds not seen at other times, and to detain birds on passage that would not otherwise be noticed. The winter of 1877–78 was remarkably severe; snow began to fall heavily in October, and continued without intermission till the middle of January, forming the heaviest snow-fall known for fifty years. This brought in a number of species that remained the whole winter, many of which were never seen in the succeeding winter, and others only rarely.

There can be little doubt that in such a mountainous country the lines of migration are along the valleys; and so many northern species use this road on their way to and from India, that further observations at this point might furnish useful information on the migration of different birds. Some, like the Bluethroat, stay for more than a month on their way through in spring, before going on to their breeding-grounds. Others "come like shadows, so depart," like hasty travellers hurrying on to their journey's end. Of the *Saxicolæ* the males of *S. picata* appear in great numbers for over a fortnight before the females, after which the greater number vanish, and only a few remain to breed. Notwithstanding these eccentricities, the few dates of arrival and departure which I was enabled to note seem very regular. *Passer indicus* appeared each year on the same day; so did

Fringilla montifringilla. Others were first noted within two or three days of the same date in each year; and the irregularity was possibly as much due to the observer as to the birds.

In my list will be noticed a few species the right of which to be classed among our Indian avifauna has been questioned, such as *Fringilla montifringilla* and *Emberiza hortulana*; but the seasons at which they were observed make it evident that their migration was from the south. Others, such as *Leptopœcile sophiæ* and *Leucosticte brandti*, are altogether new to our lists of birds found south of the great watershed that divides us from Central Asia.

The neighbouring valley of Darel, which has not yet been visited by any European, appears to possess a different vegetation and soil from all the surrounding valleys. It is doubtless owing to this that the occurrence of stragglers of the stamp of *Coccystes jacobinus*, *Oreœcetes cinclorhynchus*, and *Buchanga longicaudata* is due.

The autumn migration begins, apparently, as nearly as possible on 15th August, the first birds to appear being the Snippets and Sandpipers. In the last three days of August 1879 a heavy fall of snow took place in the mountains above 11,000 feet, and drove down a great number of Cuckoos, Kites, Swifts, Crows, and Harriers of three kinds.

In both years I was unavoidably absent during the latter part of the autumn migration, and am indebted to Dr. Scully for a notice of species procured by him after my departure, which had not previously been recorded by me. I have also to acknowledge my thanks to Dr. Scully for many interesting remarks regarding other species, of some of which I had failed to procure specimens, but which he had succeeded in obtaining before my departure. It was only by the assistance of a large series of *S. picata*, collected by him in addition to my own, that the curious facts regarding the change of colour of this bird were determined beyond doubt.

Specimens of every bird on the list have been obtained, except in a few instances, which have been duly noted. The list is confined to birds obtained in the Gilgit district itself—

that is to say, in the main valley for forty-three miles from the Indus, and in the side valleys within that rise up to their crests, except the great Hunza valley, of which only the lower twenty miles belong to Gilgit. By going higher up the main valley, and taking in a larger area, more species might be recorded; but the list would lose in completeness without gaining in interest.

The large number of specimens brought away by me has been carefully gone through by my friend Captain G. F. L. Marshall, who has taken a large share in the preparation of this paper. In some cases he has added notes of his own, as designated by his initials; and I am indebted to him for the identification of many species.

1. Vultur monachus, Linn.

Not common. I saw a pair soaring over a dead ibex on the 5th May, at about 12,000 feet elevation, among more than a hundred *Gyps himalayensis*. The black colour and square appearance made them very conspicuous.

2. Gyps fulvescens (Hume)*.

A summer visitor only. One, a female, shot in July, and many others seen. On 5th May, out of over a hundred Vultures observed closely over a dead ibex, not a single one of this species was noticed.

3. Gyps himalayensis (Hume).

Very common in summer at over 10,000 feet, in winter at 6000 feet. On one occasion I had a snap-shot at a Markhor going up the hill-side, and thought I had missed. Immediately two of these birds came and perched close by. This caused me to send a man up to look; and he found the wounded beast walking slowly along, shot through the brisket, which had not been enough to disable it. The big birds had spotted it at once.

4. Neophron percnopterus (Linn.).

I saw a single *Neophron* on the 21st April, 1879, which I

* [This species is, I believe, entered here through an error for which I am responsible. Major Biddulph's specimen seems to be an immature brown-coloured example of *G. himalayensis* (Hume).—J. S.]

believe to have been *N. percnopterus*, from its appearing larger than *N. ginginianus*, and having darker bill and wings. I had a good view of it at about twenty-five yards for some minutes. Severtzoff mentions it in Central Asia, whence this was, no doubt, a straggler, like *Lanius homeyeri* and others. I never saw another.

5. Gypaetus barbatus (Linn.).

The Bearded Vulture is very common at all times of the year. In the summer it is generally seen at a mean elevation of about 8000 feet; in winter it comes low down, and may often be seen seeking its food close to habitations.

6. Falco peregrinus, Tunst.

Always about on the faces of rocky precipices. A number are caught always in October, which is the great season for catching them. I procured one specimen, a male, just commencing to get the grey feathers on the back, shot on the 14th April, at an elevation of 5000 feet. Dimensions as follows—length 16·5 inches, expanse 38·2, wing 12·4, tail 6·7, tarsus 1·85, middle toe 2, culmen 0·8, bill from gape 1·25. Cere and legs greenish yellow; irides dark brown. Weight 1 lb. 4 oz.

The Peregrines breed in the neighbourhood of Gilgit at about 6000 feet, on the face of precipices. A few remain throughout the winter; but the greater number leave in the autumn.

7. Falco subbuteo, Linn.

A summer visitor. It arrives about the end of April, and is very common throughout the summer; it appears to breed at about 9000 feet elevation.

8. Falco æsalon, Tunst.

Tolerably common, but not venturing, as a rule, far from the mouths of the ravines leading up to the high mountains, except in the depth of winter. The dimensions of a male are—length 11 inches, wing 7·7, tail 5·2, tarsus 1·4; and of a female the wing measures 8·85. The latter is much paler than the male specimen, and appears more fully adult; the

blackish tinge on the grey of the head and shoulders has almost entirely disappeared.

9. Cerchneis tinnunculus (Linn.).

A few seen all through the winter. In summer it appears in great numbers, especially about harvest-time, when I have counted upwards of twenty together hovering over a newly reaped cornfield, hunting for mice.

10. Astur palumbarius (Linn.).

A number are caught yearly in all the neighbouring valleys, and higher up in the Gilgit valley; but I never shot one, and only once saw a pair, in Gilgit itself.

White ones are occasionally caught, and considered a great prize. I saw one that had been caught in Wakhan and was being conveyed to Agha Khan, in Bombay. Birds in this phase of plumage are called "Taighoon," a name given to all albinos.

11. Micronisus badius (Gmel.).

One adult specimen shot 25th April, which apparently belongs to the pale race to which Severtzoff gave the name of *Astur cenchroides*.

[The plumage of this specimen is in a very remarkable stage: it is of a pale tone throughout; and the ferruginous bands on the upper breast are continued into a broad conspicuous collar of ferruginous buff completely encircling the neck, and contrasting with the brownish grey of the head and upper back, into which it shades above and below. The outer tail-feathers are banded as in the specimen described by Blanford in his 'Zoology of Eastern Persia,' no. 18, p. 108, as *Astur cenchroides* (?); and the present specimen agrees well with the description throughout, except that the barring of the lower surface is narrower and closer—in this respect agreeing with Indian examples of *M. badius*, to which species it is doubtless referable. Sex male. Dimensions—length 13·6 inches, expanse 32·65, wing 7·8, tail 6·5, tarsus 1·63, culmen 0·5, middle toe 1·15. Weight 5·25 oz. Irides bright orange, cere yellowish green, legs horny green, feet

dull yellow. A young male of this species shot on 1st September is identical with other Indian examples.—G. F. L. M.]

12. Accipiter nisus (Linn.).

Very common, except in the depth of winter. I took a nest and four hard-set eggs on the 23rd June. The nest was in a fir tree, about thirty feet from the ground, at an elevation of about 10,000 feet. The collection contains a very fine series of these birds, eleven females and eight males.

13. Accipiter melaschistus, Hume.

The collection contains one specimen which, if the sex is rightly ascertained, is clearly referable to this species. Unfortunately the determination of sex was made by one of the native collectors; but as the man had had many years' experience, and the bird was killed in July, it seems hardly credible that a mistake should have been made.

Sex male. Wing just short of 10 inches, tail 8·5. The claws are decidedly larger and more powerful than in female specimens of *A. nisus* of similar general dimensions; and the plumage agrees closely with Hume's original description.

14. Aquila chrysaetos (Linn.).

To be seen at all times of the year, generally in pairs. I have constantly seen them stoop at Partridges (*Caccabis chukor*).

Many young ones, conspicuous by the white tail, noticed in winter-time, hunting these Partridges.

15. Nisaetus pennatus (Gmel.).

In March and April a number are seen for a short time. Not noticed at any other time. A few specimens were secured in these months. One, a male, is in the plumage figured by Dresser in the 'Birds of Europe,' except that the whole of the sides of the neck and the throat are brown, each feather centred darker, but palest in the middle of the throat. Length 20·25 inches, wing 14·5, tail 9, tarsus 2·5. Weight 1 lb. 8 oz. Cere pale yellow; irides pale red.

16. Pandion haliaetus (Linn.).

An Osprey was observed by me, at intervals of about three

weeks, in the vicinity of a small marsh; but it was so wary that for a long time I failed to get a shot at it. It proved to be a male in almost adult plumage. Its stomach was full of a watery fluid, and contained a number of small wireworms about two inches long; and the bird was extremely fat. This was in March. I have once or twice fancied that I have identified the bird at other times in winter; but it is certainly not common.

17. Buteo ferox (Gmel.).

Extremely common in the main valley in winter. In the summer it ascends to the higher valleys, and breeds apparently at about 10,000 feet. All specimens, both of this Buzzard and *B. plumipes*, shot during the winter had large balls of a hard gummy substance firmly attached to their claws, which must considerably interfere with their grasping their prey.

18. Buteo plumipes, Hodgs.

A winter visitant, not very common; three specimens were shot about January.

A male, in early adult plumage, corresponds fairly with the description in Sharpe's Catalogue (i. p. 181); but on the breast the feathers entirely lack the black shaft-stripe, the shaft being black only; each feather on the chest is dark rufous with a bluish tinge, and with a paler and brighter margin. On the upper surface the dark purplish gloss is confined to the mantle. Expanse 49·5 inches, length 20·3, wing 15·7, tail 9·4, tarsus 2·6, bill at gape 1·55. Weight 1 lb. 10 oz.

None of the specimens observed or obtained were in the dark ferruginous plumage figured in Sharpe's Catalogue (vol. i.); all were of the "*B. japonicus*" type.

19. Circus cyaneus (Linn.).

Single birds seen at intervals during the winter. In March it becomes more common, and disappears in the beginning of May. One adult female, killed while carrying off a chicken, measured—length 21·5 inches, wing 15·5, tail 10·75, tarsus 3; cere yellow, legs bright yellow. One male in immature

plumage, shot in December, and two adult females, shot in March and April, had the irides light yellow.

20. Circus macrurus (Gmel.).

Appears at the beginning of April, during which month it is very common, disappearing about the middle of May. It appears again for a short time at the end of September, on its way south. I shot a female (while devouring a half-grown chicken it had carried off) which measured—length 19 inches, wing 13·85, tail 9·5, tarsus 2·65; irides light brown. In this specimen Mr. Hume's diagnosis (see 'Stray Feathers,' vol. i. p. 160) does not hold good, the third and fourth quill being equal, while in the other specimens it does hold good.

Two males shot in April and October in immature plumage; both had the irides gamboge-yellow.

21. Circus cineraceus (Mont.).

Not common, and only appearing in spring and autumn. An adult female shot 19th March measures—length 18·5 inches, wing 15·15, tail 10·4, tarsus 2·36; iris orange-yellow, bill black, legs yellow.

A male in not quite adult plumage was also shot by Dr. Scully.

22. Circus æruginosus (Linn.).

The collection contains twelve specimens, of which four are females and eight males.

One of the former, shot in April, is in the uniform chocolate stage of plumage, with the throat and top of the head and nape buff, sharply defined; the feathers on the head dark-centred, while those of the throat are merely inconspicuously dark-shafted, the lower ones being nearly white. The other three specimens, shot on the 13th and 29th March and 23rd April respectively, show, in addition to the buffy patches described above, a more or less complete broad luteous band across the lower breast, while on the mantle, back, and wing-coverts many of the feathers are broadly margined with this colour, some being entirely luteous white, with dark centres. The irides were dark brown, and the cere pale

greenish yellow. Length 22·5 to 23 inches, wing 16 to 16·75, tail 10·5, tarsus 3·25 to 3·75.

The eight males all have the grey tails, and grey on the wings, and were all shot between the 9th March and the latter end of April. The under surface varies from chocolate-brown, nearly uniform on the abdomen, and margined with rufescent on the throat and breast, to rufescent white with narrow dark centres. The irides light yellow. Length 20·5 to 21·5 inches, wing 15·75 to 16, tail 10, tarsus 3·25 to 3·5.

This Harrier appears to soar and hover often at a considerable height, as a Kite does. It was not noticed in the depth of winter. At the beginning of March a number appear, all of which are in adult plumage; these disappear in April, and are succeeded by birds in immature plumage, which arrive in great numbers throughout April, getting scarcer in May. A few remain throughout the summer; and in the middle of August adult birds begin to reappear, having apparently bred higher up, but not far off; by the middle of November all have left the valley. In one instance a female was brought to Dr. Scully, alive, which had struck a Coot (*Fulica atra*) in the water; during the struggle a native waded in and secured both birds.

23. Milvus govinda (Sykes).

None are visible during December and January; but on the 8th February I shot one specimen, after which it becomes common.

This Kite agrees, as regards habits, with the description of *M. melanotis* as given in 'Stray Feathers' by Brooks, but does not quite come up to Hume's measurements. It is much shyer than the Indian Kite, and avoids habitations, hunting about the fields, often in large flocks of fifty or sixty. On the 22nd February I saw a large flock of over 300, that appeared to be just arriving; and for many days afterwards they were seen in flocks of twenty or thirty, the flocks gradually getting small till about the end of April, when they disappeared. A single one was seen 29th August, in heavy weather.

[This Kite is the species named *M. major* by Mr. Hume, which now, as conclusively shown by Mr. Brooks, should stand as *M. govinda* (Sykes).—G. F. L. M.]

24. Syrnium ——?*

Since I left Gilgit Dr. Scully writes that he has secured a *Syrnium* which he believes to be new. As soon as he is able to describe it he will do so.

25. Asio otus (Linn.).

A summer visitor. Appears a little after the middle of March, and is tolerably common.

Dimensions of a female—length 14·5 inches, wing 12, tail 6·3, tarsus 1·8. Irides orange. Weight 8·75 oz.

26. Asio accipitrinus (Pall.).

A summer visitor; appears in the middle of April. These have more and purer white on the outer margins of the wing-coverts, and the general tone of the plumage is paler, than is usual in specimens obtained further to the east. A male shot on the 5th May had the testes slightly developed. Length 14·5 inches, expanse 41, wing 12·5, tail 6, tarsus 1·7. Weight 5·25 oz.

27. Bubo turcomanus (Eversmann).

The only specimen observed, a fine female, was brought in on the 4th January by a native, who had knocked it over with a pellet-bow.

It corresponds exactly with the original description, except in two points: there is no trace of white in the centre of the feathers of the back; and the primaries, instead of having the yellow interspaces marked with nothing more than a few minute dots of brown, have dense mottlings on the outer web, which are almost entirely wanting on the inner. The distinctive points separating this species from *B. ignavus* given by Sharpe in his Catalogue hold good, and are well exhibited in this specimen.

As compared with European and Chinese specimens of *B.*

* [Allied to *S. aluco*, and quite distinct from *S. nivicolum*, Hodgs. I hope to finish some notes about this interesting Owl shortly.—J. S.]

ignavus in the Indian Museum, the present species appears so well marked as to be worthy of more than the subspecific distinction assigned to it by Sharpe.

[It may be noted that Mr. Hume possesses a "pale" Eagle-Owl (which has been suspected to be a specimen of *B. turcomanus*) from Kulu, for which he some time ago proposed a provisional name, but added that "it is of precisely the same type of coloration as *B. maximus* (=*B. ignavus* of Europe)." Now *B. turcomanus* is not precisely of the same type of coloration as *B. ignavus*; it differs in style as well as in tone of markings. I have seen Mr. Hume's specimen; and, speaking from memory and after seeing the Gilgit specimen, I am inclined to believe that the Kulu bird is merely a male of *B. ignavus*.

Again, Mr. Blanford, in his 'Zoology of Persia,' notices a female Eagle-Owl which he identifies as *B. sibiricus* (=*B. turcomanus*), obtained near Shiraz, and adds that it is possibly the species referred to by Mr. Hume as above. The wing of the Shiraz bird is 17 inches, and the tail 9·5. These dimensions appear to be too small for any bird of either of these two types, and rather to correspond with those of a specimen of *B. ascalaphus*, also from Shiraz, which is now in the Indian Museum.

It does not seem probable that either of these birds could be rightly identified with *B. turcomanus*, to which species the Gilgit bird belongs. The dimensions of the latter (also a female) are—wing 19·1 inches, tail 12·3, expanse 70, length 27, bill from gape 2·1. Weight 4 lb. 9·25 oz.—G. F. L. M.]

Since my leaving Gilgit Dr. Scully has written to tell me that he has secured a specimen of a large Owl which appears to be too dark for *B. turcomanus*.

28. Scops pennatus (Hodgs.).

One specimen was procured in Ponyal by Dr. Scully on the 21st May. Length 7·6 inches, expanse 19, wing 6·1, tail 2·8, tarsus ·85, middle toe ·7, bill from gape ·76, bill from cere ·45, cere ·34, wings beyond tail ·35. Irides pale bright greenish yellow, bill dingy plumbeous, toes dull plumbeous, cere dull plumbeous.

Believed to be common, but, though very often heard in Gilgit, most difficult to see.

29. Scops brucei, Hume.

A single specimen shot; many others heard, but most difficult to find in the daytime. The specimen obtained corresponds exactly, to the minutest detail, with the description given by Mr. Hume ('Stray Feathers,' i. p. 9).

Another specimen, a male, shot just across the Indus at Boonji, opposite the mouth of the Gilgit river, also corresponds in all points with the description, except that the pure buff feathers forming the ruff are more broadly tipped with dark brown.

The fact of the specimens from this north-westerly locality corresponding exactly with those originally described from Ahmednuggur, places beyond a doubt the right of this species to specific separation from *S. giu*. (See observations in Sharpe's 'Catalogue of Birds in the British Museum,' vol. ii. pp. 62, 63.)

30. Hirundo rustica, Linn.

Seen at intervals all through the summer. The earliest date at which any Swallow was remarked was 4th March. Specimens obtained in March, May, and June belong to typical *H. rustica*. Length 7·75 inches, wing 5, tail 4.

31. Hirundo nipalensis, Hodgs.*

A few seen and two specimens shot on 16th May, among a large number of *Chelidon cashmeriensis*.

32. Cotilé rupestris (Scop.).

[Two specimens brought; these are the true *C. rupestris*, larger and darker than the southern *C. obsoleta*. Length 5·85 to 6·25 inches, wing 5·3 to 5, tail 2·25, tarsus ·45. Irides brown.—G. F. L. M.]

33. Chelidon cashmeriensis, Gould.

Appears about middle of April, and becomes very common in May.

[Only one specimen brought; differs from *C. urbica* in

* [The species here referred to is *H. erythropygia*, Sykes.—J. S.]

having the axillaries and wing-lining brown instead of greyish white. Length 5 inches, wing 4, tail 2, tarsus 5. Irides brown.—G. F. L. M.]

34. Cypselus apus (Linn).

First seen on 6th May. Very common during May in large flocks.

35. Caprimulgus unwini, Hume.

First observed in 1879, on the 13th of May, but was common in the summer. This is the pale form of *C. europæus*, now retained by Mr. Hume as distinct.

The Gilgit specimens appear to be identical with one from Shiraz, and to be barely, if at all, separable from other specimens from Persia in the Indian Museum.

36. Merops persicus, Pall.

Since my leaving Gilgit Dr. Scully writes that he secured specimens of this Bee-eater passing through late in the autumn.

37. Merops apiaster, Linn.

One specimen was shot, on 16th May, out of a flock of about a dozen which came over but did not stay. The only occasion of any being seen.

38. Coracias garrulus, Linn.

A summer visitor.

Appeared both years on 28th and 29th April. Breeds at 5000 feet.

39. Picus himalayensis, Jard. & Selb.*

Tolerably common at 9000 to 10,000 feet elevation, where it breeds.

[Of the specimens brought down four correspond with the Cashmir form of this species, having the under surface very pale, almost white. In these, also, the lower tail-coverts are deeply rufous, the outer tail-feathers are barred throughout,

* [The Sikkim specimens referred to are perhaps referable to *P. majoroides*, Hodgson, as *P. himalayensis* does not occur in Sikkim.—J. S.]

the primaries have no white tips, and usually five white spots on the outer web, and the bill is large.

Seven other specimens have the underparts strongly sullied, as much so as in the darkest Sikkim specimens; the lower tail-coverts are usually barely rufescent; the outer tail-feather is barred on the outer web only at the tip; the primaries are usually black, tipped with six white spots on the outer web; and the bill is smaller.

This is a very remarkable race; but as in the small series obtained the dark tone of the underparts appears to be the only distinctive feature that is constant, sufficient ground is not afforded for specific separation.—G. F. L. M.]

40. Gecinus squamatus (Vig.).

In the winter and spring is common in the main valley, but appears to ascend in the summer to higher elevations.

[Three specimens shot in December and January are identical with the Indian type; but three others obtained in March, at an elevation of 5000 feet, near Gilgit itself, are remarkable for having the neck, back, and outer margins of secondaries *grey* instead of green, while the wing-coverts are mixed grey and green. All three are females; and in two out of the three some traces of green are visible among the grey on the lower back; so that it may be only a phase of plumage of *G. squamatus*. In his 'Zoology of Persia,' Mr. Blanford notices an analogous grey form of the *Gecinus viridis* type.—G. F. L. M.]

41. Iynx torquilla, Linn.

A summer visitant.

Specimens shot in May have the abdomen pure white, while the rufous tone of the throat is more pronounced and strongly contrasted than in the autumn specimens; the flanks and under tail-coverts are also more or less strongly tinged with rufous.

42. Cuculus canorus, Linn.

Appears about 7th May. Common everywhere, up to 12,000 feet, in July.

43. Cuculus himalayanus, Blyth.

Not very common. Appears at the same time as *C. canorus*.

44. Coccystes jacobinus (Bodd.).

One specimen, a straggler, a female, apparently breeding, brought in by a native who had killed it with a stone, 15th June. None others seen.

45. Certhia himalayana, Vig.

Very common below 6000 feet in winter, disappearing at end of March, when it goes up to the forests above. In winter-plumage the whole of the underparts are dark sooty, gradually changing to white as spring comes on, not, apparently, by a moult, but by change of colour. The size of bill varies greatly according to age: a young bird four months old has the bill at gape 0·62 inch, one of eight months 0·8, full-grown 1.

One specimen has the tail very closely barred, as also has one shot in Chitral.

46. Certhia hodgsoni, Brooks.

A single specimen, a male breeding, obtained at 9000 feet, by Dr. Scully, on 11th June. Tail unbarred, throat and abdomen silky white, lower mandible white, first four primaries unspotted.

Length 5·2 inch, wing 2·7, tail 2·1 (damaged), tarsus 0·6, bill from front 0·64, bill at gape 0·8.

47. Tichodroma muraria (Linn.).

Very common indeed in November and December, but began to disappear in January. Two specimens were shot after the middle of March with the black throat fully developed. During the summer not one was seen even up to 16,000 feet elevation.

48. Sitta leucopsis, Gould.

A permanent resident; breeds at 10,000 feet.

49. Upupa epops, Linn.

A summer visitant; first seen on 6th March.

50. Lanius homeyeri (Cabanis).

A single specimen, the only one seen, was shot on the 4th March, close to Gilgit. This specimen approaches *L. excubitor* in the rump being greyish instead of pure white, the latter being given by Severtzoff as one of the distinguishing features of *L. homeyeri* ('Stray Feathers,' iii. p. 430); but it has the inner web of the secondaries broadly margined with white, while the lores are white with black shafts instead of white.

[From *L. lahtora* it differs in the entire absence of the black frontal band, not only the forehead but also the lores, as mentioned above, being pure white.—G. F. L. M.]

51. Lanius erythronotus (Vig.).

A summer visitor; appears about 19th April.

Jerdon's description of the colouring of the wing is incomplete: the secondaries are narrowly edged with buff on the outer web, the tertiaries broadly edged with buff and rufous on outer web and tip; upper wing-coverts black, narrowly tipped rufous, with a rufous patch and creamy white edging at the shoulder.

52. Lanius cristatus, Linn.*

A number of immature specimens appeared at the end of August and beginning of September for a few days; they were not observed at any other time.

53. Pericrocotus brevirostris (Vig.).

Since my leaving Gilgit Dr. Scully writes that he saw several flocks of this Minivet in Gilgit about the beginning of winter, but all the specimens secured by him were in yellow plumage.

54. Buchanga longicaudata (Hay).

A single specimen was procured by Dr. Scully in August. Probably a straggler from Darel.

55. Muscipeta paradisi (Linn.).

A single specimen, a young female, was brought in by a

* [The Shrike here referred to is *L. isabellinus* (Hempr. & Ehr.).—J. S.]

native, who had killed it with a pellet-bow. None were seen at any other time.

56. Hemichelidon sibirica (Gmel.).

Appears about 16th May, and is very common all through the summer.

57. Butalis grisola (Linn.).

Common in summer.

58. Cyornis ruficauda (Sw.).

Common in May, June, and July, at 9000 and 10,000 feet.

59. Troglodytes neglectus, Brooks.

Very common in winter, keeping generally to the sides of watercourses. In summer it goes up to the higher elevations, where I have seen it at about 10,000 feet.

60. Myiophoneus temmincki (Vig.).

Common all the year round. Breeds in the end of May, at about 8000 feet; in winter comes down to 5000 feet.

61. Hydrobata asiatica (Sw.).

Very common. Appears to breed early in March, as full-fledged young were about in the middle of April.

All the specimens show a narrow circle of white feathers round the eye; and many of them have pale greyish-white margins to the secondaries and wing-coverts, and the under tail-coverts tipped with white. The pale margins are probably remains of the immature plumage (which is blackish grey, each feather more or less margined with white); but the white circle round the eye appears to be a permanent feature*.

62. Hydrobata cashmiriensis (Gould).

Since I left Gilgit, Dr. Scully writes that he found the Cashmere Water-Ouzel in the upper part of the Kergah valley, at the head of which is a pass leading to Darel, but that it appears to be rare.

* [This has also been noted in birds obtained as far east as Shillong. *Cf.* Godwin-Austen, J. A. S. B. 1870, part ii. p. 203.—J. S.]

63. Petrocossyphus cyanus (Linn.).

Appears about 22nd April, and is commou all through the summer at about 7000 feet.

64. Oreœcetes cinclorhynchus (Vig.).

Since my leaving Gilgit, Dr. Scully writes that he procured a single immature specimen in Gilgit late in the autumn; probably a straggler from Darel.

65. Monticola saxatilis (Linn.).

A number in immature plumage appeared each year in autumn.

Two young males, in plumage corresponding to that described by Dresser in the 'Birds of Europe,' were obtained on the 21st August and 6th September.

Length 7·6 inches and 7·75, wing 4·45 and 4·65, tail 2·5 and 2·3, tarsus 1·1 and 1·12, irides red-brown. No adult birds of this species were observed.

66. Turdus ruficollis, Pall.

One specimen secured in January, the only one seen.

[The throat and breast are a deep vandyke-brown, with a ferruginous gloss and narrow ferruginous borders to the tips of the feathers.

The uniform dark throat and the pure rufous of the tail distinguish this species from *T. atrogularis*.—G. F. L. M.]

67. Turdus atrogularis, Temm.

Not uncommon in the winter, but not a summer resident. When the black plumage of the throat is fully assumed, the rusty tint of the axillaries and under wing-coverts disappears and is replaced by earth-brown uniform with the flanks. Though I have not remarked it in summer, it probably does not leave the district, but keeps to the higher elevations.

68. Turdus viscivorus, Linn.

Tolerably common in Gilgit during the severe winter of 1877–78, but seldom comes so low down, keeping generally to the higher valleys, where I found it in July at 10,000 feet.

69. Trochalopteron simile, Hume.

Seldom seen in Gilgit, but appears to be common higher

up the main valley. A pair were shot in Gilgit in the severe winter of 1877–78.

70. Trochalopteron lineatum (Vig.).

Common at all times. In summer goes up to about 9000 feet.

71. Oriolus kundoo, Sykes.

A summer visitant, and common. Appears about 1st May. Nest with three eggs hard-set, taken 8th June; several other nests taken later on.

72. Pratincola indica, Blyth.

A summer visitor, but breeds higher up than Gilgit, where it is only common in spring and autumn.

[Herren Cabanis and Severtzoff pointed out (S. F. iii. 429) the distinction between this species and *P. rubicola*, in that "*P. rubicola* has always blackish markings along the feather-shafts of the white rump, *P. indica* never." Subsequently Mr. Hume improved on this definition by stating that "the *upper tail-coverts* and lower part of the rump in *indica* are never striated."

According to Mr. Hume's definition, two of the Stonechats obtained would be *P. rubicola*, but according to Herr Severtzoff only one; for one has the rump and upper tail-coverts distinctly striated, the other has the upper tail-coverts striated but no trace of dark centrings on the rump*.

The two birds belong to the same species; and Mr. Hume's diagnosis appears to be the more strictly accurate of the two; but as both the specimens are females, and as no male approaching the *P. rubicola* type was found among the numerous specimens preserved, I hesitate, on the strength of these two, to include *P. rubicola* among the birds of Gilgit.

All the males show a small amount of white at the base of the tail, about a quarter of an inch in some; but none have white on the outer tail-feathers as in *P. hemprichi*.

They are distinguished from *P. macrorhyncha* by having

* [A similar coloration has been noticed in some Chats procured in Nepal (S. F. 1879, p. 301).—J. S.]

the white patch formed by the upper tertials and tertiary coverts next the body, and from *P. rubetroides* by having the axillaries black and not white.—G. F. L. M.]

73. Pratincola robusta, Tristram.

[Out of twenty specimens brought down, five apparently belong to the type separated as *P. robusta* by Canon Tristram. Mr. Hume points out (S. F. v. 243) that no constant specific difference has as yet been shown between this form and the smaller *P. indica*, and retains them both under one name.

After looking into this question with Mr. Brooks, and comparing a number of specimens, we concluded that *P. robusta* is a good species. It is not only a larger but a slenderer bird, with a tail much longer in proportion to its length of wing than *P. indica*. In specimens of *P. indica* and *P. robusta*, each with the wing 3 inches in length, the tail of the latter exceeds the tail of the former by a full quarter of an inch. The females also are more rufous altogether; and the males, in breeding-plumage, are less black above on the back.—G. F. L. M.]

74. Saxicola opistholeuca, Strickl.

Never very common; appears about 1st May. I shot one in December; but this was in immature plumage, and its appearance was quite accidental, I fancy. I never saw another in winter. Two of the specimens have a greyish tinge on the head and nape, forming a distinct cap, which appears to be a mark of nonage, as a young bird has the whole upper plumage suffused with this colour; in a still younger bird, the back and breast are rufescent-buff, edged with brown, the wings brown, each feather edged with fulvous, and the tail as in the adult.

The young appear to differ widely from those of *S. leucura* as figured by Dresser in the 'Birds of Europe.'

The adult female is similar to the male, except that the whole of the upper plumage is less black and presents a rusty appearance. The head also has a faint cap of dark brown extending to the neck, as in the young males; and the chin is light brown instead of black.

75. Saxicola picata, Blyth.

This was the commonest Stonechat in Gilgit, where it breeds. A very large series was collected in every month from March to September.

Mr. Hume has for some years past asserted that *S. capistrata* of Gould is merely the young male of *S. picata*: the question is one extremely difficult to decide finally; but the series now got together for examination bears out, to a very great extent, Mr. Hume's conclusion. The only point suggestive of a doubt of the identity of the two supposed species is, that throughout the summer numerous specimens were obtained in every month with pure black heads, showing no trace whatever of white.

Of eleven specimens collected in March, eight have pure black heads, one has a trace of a pale supercilium, one has the same more pronounced and also a whitish forehead, and one has the sides of the occiput and nape almost pure white, while the whole of the top of the head is more or less streaked with dingy white.

Of seven obtained in April, three have pure black heads, the wings being quite brown in one specimen and nearly black in the other two; two have a faint trace of white behind the eye; and two have the forehead paler, with a well-marked whitish supercilium and frontal band.

Of five specimens obtained in May two have pure black heads, the wings in one being quite brown; two have the sides of the occiput and the head streaked, as in the March specimen; and the fifth has the top of the head slaty white, pure white at the sides of the occiput, and is similar to *S. capistrata* (Gould), except that the white does not extend onto the mantle.

Of three specimens obtained in June, each has the head pure black.

Of ten birds obtained in July, five are young birds of the year; the five old birds are moulting and in bad plumage: four of the latter appear to have the head pure black; and one shows a greyish tinge on the cap.

Of three birds obtained in August, two have the heads black, and one has a greyish tinge on the cap.

Of seven obtained in September, one has only the faintest trace of white behind the eyes, one has the pale supercilium and frontal band, five have an indistinct greyish tone over the whole cap; but none show the white head, and one, showing no trace of white on the head, has the wings broadly margined with rufous.

Again, the adult specimens above referred to show many shades of brown on the wings, from light hair-brown to black; but this feature does not appear to be distinctive of either age or season.

In the young bird of the year the tertiaries and scapularies are narrowly margined with rufous-brown. In a September bird, apparently of the earliest brood, which has assumed the black on the upper parts, the tertiaries and scapularies are even more broadly edged with rufous than in the younger birds. The uniform brown wing, after losing the rufous margins, appears in birds of every season, and is not in any way connected with the assumption of the white on the head; it is seen equally in the most white-headed birds and in those with pure black heads. The rufous tone of the under tail-coverts appears most pronounced in spring and autumn; but even this does not hold good throughout the series.

Dr. Scully and I have closely examined a very large number of specimens; and the only way in which we can account for the occasional appearance of the white on the head is, that it is assumed in the spring of the first year only. The young bird has the head uniform dull brown, rather darker than in the adult female, with narrowish rufous edgings to the tertiaries and scapularies; and towards the next spring a white cap is gradually assumed, which is perfected in the beginning of May. Directly after breeding, the white of the head appears to give place to dark grey, hardly distinguishable from the black of the back; and in the succeeding autumn-moult the bird assumes the fully adult plumage with the glossy black head, which is not afterwards lost.

It may be that the species with the pure black head is

distinct from that which assumes the grey cap; but we are unable to separate them into two on this or any other hypothesis.

The sixty-odd specimens now examined show at least twenty phases or gradations of plumage; and though we cannot separate them into two distinct species, neither can we show conclusively that the gradations, according to age or season, are applicable on the assumption that there is only one species.

In no case does the white in these birds extend onto the mantle, as it does in *S. morio* at all ages.

S. picata also has the bill stronger and deeper, and the tarsus and toes stronger and coarser, than in *S. morio*. Some specimens measure as much as 6·8 inches in length, while only a single specimen of *S. morio* measures 6·4, the next longest being 6·25. No other measurements show permanent distinctions; but, on the whole, *S. morio* has somewhat the shorter tarsus.

Two dissected females, shot March 31 and April 5, have black throats and breasts, albescent chins, and dark brown backs; two males, shot March 25 and April 1, seem to belong to the same type, having brown on the back.

In the middle of June a nest was found deep in the crevice of a stone wall in a ruined fort. After two eggs had been laid the bird was apparently killed by some animal. One egg was found broken, and the ground strewn with feathers of the hen bird. The egg is pale blue, thinly spotted all over with rusty red, more thickly (but not very thickly) at the larger end.

76. Saxicola albonigra, Hume.

This species is never very common, but is the only *Saxicola* which remains in winter. I have procured specimens both in January and June. It may always be distinguished from *S. picata* by the size of its bill, which is always over half an inch in length.

77. Saxicola morio, Hempr. & Ehr..

This species is apparently only to be distinguished from *S.*

leucomela (under which name it is described by Jerdon) by the inner web of the quills being black instead of white. (See Blanford and Dresser's Monograph, P. Z. S. 1874, p. 225.)

From *S. picata* it may be distinguished by its more delicate legs, feet, and bill: it shows white on the head at all seasons; and the white extends onto the mantle. In no specimen of *S. morio* obtained is there any trace of rufous on the under tail-coverts. One specimen differs in this point only from Gould's plate of *S. capistrata*; and the specimen mentioned in the monograph as from Lahore, with rufous on the under tail-coverts, would appear to be a stage of the form described as *S. capistrata* (see *S. picata*): the white is very silky, and the black more intense and shining than in *S. picata*, especially on the throat. On the whole it is a shorter and more slender bird than *S. picata*, but has an equally long wing. Messrs. Dresser and Blanford are wrong in supposing that the female is like the male: it closely resembles the female of *S. picata* as figured in Gould's 'Birds of Asia' in the plate of *Dromolœa picata*; but the bill and feet are similarly weaker as in the males, the upper parts are more rufous-isabelline instead of hair-brown, and there is a well-marked, though narrow, pale supercilium and frontal band; the whole head is paler and more rufous than the back, whereas in *S. picata* the head and back are alike.

The younger male closely resembles the female, except in having the fore neck and upper part of the breast black mottled with rufous.

S. morio was first seen on April 22; in May and June it was tolerably common, but never seen in great numbers.

78. Saxicola vittata, Hempr. & Ehr.

Two specimens referred to this species were procured by Dr. Scully. The first, a male shot on June 11, agrees well with Mr. Blanford's description of the type, but differs slightly in size. Length 6·1 inches, expanse 10·5, wing 3·6, tail 2·4, tarsus 0·9, bill from gape 0·8, bill from front 0·5. The crown and nape are slightly sullied with brown, as in some specimens of *S. morio*. Chin, throat, and breast pure white.

The female is much paler than the female of *S. morio*, but has the chin and throat dirty white, and has no supercilium. Length 5·8 inches, expanse 10·6, wing 3·45, tail 2·6, tarsus 0·9, bill from gape 0·8, bill from front 0·47.

79. Saxicola isabellina, Rüpp.

None were observed in the first year. In the second year several specimens were procured. They appeared about March 6, and were tolerably common till the end of the month. One specimen was secured on April 21.

This is *not Saxicola œnanthe* (No. 491 of Jerdon) as identified by Messrs. Hume, Dresser, and Blanford. Jerdon's description is correctly applicable to the true *S. œnanthe*.

The female has the plumage of a paler tone throughout than the male.

80. Saxicola œnanthe (Linn.).

Two specimens were obtained, and about half a dozen others observed, during some heavy weather in March, but never seen at any other time. Both are males, and are assuming the summer plumage, as shown in the plate in Dresser's 'Birds of Europe.'

Mr. Hume has identified *Saxicola œnanthe*, as described by Jerdon, with *S. isabellina*; and in this he has been followed by Messrs. Blanford and Dresser in their exhaustive monograph of the genus. But Jerdon's description and the detailed description given in that monograph of *S. œnanthe* correspond exactly both with each other and with the specimens now brought from Gilgit. (In the fifth line of the description "outer" is probably a misprint for "other.") And as Jerdon, who very accurately describes the species, states that he got a specimen near Mhow, there is no ground for excluding *S. œnanthe* from the list of Indian birds.

It may be distinguished from *S. isabellina* by the wings and tip of tail being black, not brown, the dark tippings of the side-feathers of the tail being much narrower, and by the conspicuous broad black stripe on the side of the head from the lores through the eye to the ear-coverts, and in summer by the blue grey tone of the back.

81. Saxicola hendersoni, Hume*.

This species was not noticed the first year; but in the second year a number appeared in September, chiefly young birds, and a few adults among them. Messrs. Blanford and Dresser, in their monograph of the Saxicolinæ, and the latter also in the 'Birds of Europe,' suppress this species, and place the name as a synonym of *S. melanoleuca*. The reasons for this are not given; and the coloration of the base of the feathers on the back seems to be utterly incompatible with the assumption of a white back in summer; so that this decision could not be accepted, even in the absence of specimens in full breeding-plumage. But Mr. Hume has recently pointed out that three males obtained by Dr. Stoliczka, in the second Yarkund expedition, are in full breeding-plumage, and have the back, as might have been anticipated, black.

It is worthy of note that the nearly allied *S. deserti*, which is common in the Indus valley above 7000 feet, is not found in Gilgit.

There is nothing to add to Mr. Hume's careful and detailed description of his species *S. hendersoni*.

82. Ruticilla rufiventris (Vieill.).

With reference to the distinctive difference pointed out by Mr. Blanford in 'Eastern Persia,' vol. ii. p. 165, all specimens procured in Gilgit have rufous under wing-coverts, thereby distinguishing them from the *R. erythroprocta* type, which has the under wing-coverts black.

Eleven males agree fairly with stage IV. in 'Stray Feathers,' vol. v. p. 36, except that the back is only partially black, and the greyish white band on the forehead is only visible in the May specimens.

The fact of males breeding in female plumage has been before remarked; but it seems far commoner than has been supposed. Like many other birds, this species probably does not get its fully adult plumage till after the first breeding-season.

* [This is the same as *S. morio*, No. 77 of this list. Mr. Hume's original description and figure of *S. hendersoni* admirably represent the winter plumage of *S. morio* (Hempr. & Ehr.).—J. S.]

In males of the first year in autumn the black of the back is concealed by ashy brown, instead of grey as in more mature birds.

These birds go beyond Gilgit to breed as a rule; one female was shot off the nest with young at 10,000 feet elevation in the Gilgit district.

83. Ruticilla hodgsoni, Moore*.

A single specimen of a female procured in February. Its measurements correspond best with the measurements given by Jerdon for *R. hodgsoni*. In other respects the plumage is most like the description of *R. cæruleocephala* given by Hume in 'Lahore to Yarkund;' but the whole tail, except the two outer feathers, is rufous, and there are faint rufous tints on the breast.

84. Ruticilla erythronota (Eversmann).

Two male specimens of this handsome Redstart were procured in December and January. It appeared to be common in the upper part of the Chitral valley in November, when I procured several specimens of both sexes. As noted by Mr. Blanford, the amount of rufous on the back and breast differs in different specimens; but a specimen shot in December is almost entirely rufous on the back, showing very little grey. The feathers of the back and breast have margins of grey above and isabelline below, which are decomposed; and the breadths of these margins seem to differ in different specimens, causing a greater or less amount of rufous to be visible; the December bird is also small in all its measurements, with a bill of only 0·32 inch in front.

The white speculum on the primary-coverts is very prominent in the December and in one November specimen; in the other November and in the January specimen it is inconspicuous, almost wanting in the latter.

The speculum, where prominent, agrees with Eversmann's

* [This is hardly likely to be *R. hodgsoni*, as that species has not, I believe, been obtained west of Nepal, and the large tract of country between Nepal and Kashmir has been well explored. It might possibly be *R. mesoleuca*.—J. S.]

description. Mr. Blanford's description omits all notice of it (probably accidentally) in the Shiraz specimens; while in Mr. Moore's description of *R. rufogularis* the speculum is described as formed by the *basal* portion of the primaries being white. In other respects the three descriptions coincide well with each other and with the Gilgit and Chitral specimens.

85. Ruticilla erythrogastra (Güld.).

Was extremely common during the severe winter of 1877–78 down to an elevation of 5000 feet, but in ordinary years does not come much below 6000 feet. The white of the head and back of neck in the male appears to be a sign of maturity. One specimen, of which the sex is doubtful, has the dull plumage of the female, but has more rufous on the underparts, and is probably a young male of the year. Of the males in adult plumage some specimens have the white of the head and back of the neck thickly dashed with dark slaty grey, being, perhaps, males of the second year. Those in the most perfect plumage have the head and back of neck dull white, extending rather further down the back.

The female is slightly smaller than the male, the wing measuring from 3¾ to 4 inches. With the exception of the wing-feathers being margined with silvery grey instead of rufous, there seems to be no difference except that of size between the females of *R. erythrogastra* and *R. rufiventris*.

This Redstart is said to breed higher up the valley, in Yassin, at an elevation of 8000 feet.

86. Ruticilla frontalis (Vig.).

A summer visitor, appears in April and remains up in high ground about 9000 to 10,000 feet, being only once seen in Gilgit during some heavy weather in April.

The male in breeding-plumage loses the terminal brown edgings to the feathers of the head, back, throat, and breast, these parts becoming uniform dusky cyaneous, while on the feathers of the throat and breast a lazuline sheen appears.

In a young bird of the year the entire head, back, and breast are deep brown, each feather centred with rufous fawn-colour, more largely on the breast than on the back; the

wings are nearly black, the secondaries narrowly, and the tertiaries and greater coverts broadly edged with bright rufous; abdomen rufescent fawn-colour; upper and lower tail-coverts and tail as in the female.

87. Adelura cæruleocephala (Vig.).

A summer visitor. It appears in April, and breeds at about 10,000 feet.

88. Chimarrhornis leucocephala (Vig.).

A resident, but never very common. A few pairs to be seen generally at about 10,000 and 11,000 feet in summer; it comes down to 5000 feet in winter.

89. Nemura cyanura (Pall.)*.

Obtained in Gilgit in May and in the Nulter valley in August, at 11,000 feet. In August the young were fully fledged. The plumage before the first moult is bright rufous-brown above, paler below, each feather margined with dark brown; wings and tail hair-brown; middle of abdomen pure white.

90. Calliope pectoralis (Gould).

First seen on May 1, by which time it was in full breeding-plumage, birds shot in the beginning of June being not nearly so brilliant; it breeds at 10,000 feet.

The measurements and description given by Jerdon do not entirely correspond with the specimens secured; the wing in some is as much as 3·25 inches in length. In the breeding male the top of the head and nape are brown, forming a defined cap in contrast with the ashy grey of the back and sides of the neck, and there is no trace of the white moustachial spot; the female has no white on the tail at all.

The young males in July, in immature plumage, show no throat-spot, but can be distinguished by the white at the base of the tail.

Young birds and nestlings are spotted, and approximate to those of *Adelura cæruleocephala*. Evidently two broods are produced in the year.

* [This is the Himalayan *N. rufilata*, distinct from *N. cyanura* (Pall.). —J. S.]

91. Cyanecula suecica (Linn.).

The earliest migrant. It appears from the south about February 7, is very common all March, and disappears in April. It breeds somewhere higher up, but not far off, and reappears on its way south on August 21.

In all the March specimens the blue throat and rufous patch are fully developed. One of these is remarkable for having the lower rufous band below the black-and-white gorget an inch deep; in all the others, obtained earlier and later, this band is about a quarter of an inch deep.

All the September specimens are in the "young" stage, as described by Jerdon, having white throats with blue moustachial streaks.

92. Cyanecula leucocyanea (Brehm).

A single specimen was procured by Dr. Scully on April 15 with the white throat-spot. A faint rufous tinge appears at the bases of the satin-white feathers, looking very much as if there were a change of colour in the feather. Length 5·7 inches, expanse 8·75, wing 2·75, tail 2·15, tarsus 1·1, bill from gape 0·8, from front 0·45.

93. Acrocephalus dumetorum (Blyth).

Common in the summer.

94. Dumeticola major, Brooks.

Common in the Nulter valley in June, July, and August, where it breeds at an elevation of from 8000 to 10,000 feet.

Young birds shot in August are much the same in plumage as the old birds; but they have a strong tinge of green on the under surface, the breast-spots are indistinct and cloudy, lower mandible pale yellowish, upper brown, feet pale.

95. Hypolais caligata (Licht.).

A few specimens procured in August and September at 5000 to 7500 feet.

96. Phylloscopus tristis (Blyth).

A summer visitor. Breeds at about 8000 feet. Very common.

97. Phylloscopus lugubris (Blyth).

A single specimen shot at 10,000 feet at beginning of June.

98. Phylloscopus viridanus (Blyth).

Common from the beginning of June till the middle of September.

99. Phylloscopus tytleri, Brooks.

One specimen (♀) shot on August 9, in the Nulter valley at 10,000 feet. Length 4·4 inches, wing 2·36, tail 1·55, tarsus 0·75; legs greenish horny; soles of feet yellow.

100. Phylloscopus affinis (Tick.).

Three specimens obtained at 5000 feet in May and June, and several others at 10,000 to 10,500 feet in July and August.

101. Phylloscopus indicus (Jerd.).

Very common in summer.

102. Reguloides occipitalis (Jerd.).

A summer visitor. Common in June, July, and August at 9000 feet.

According to Jerdon this species is distinguishable from *R. trochiloides* by its size; but according to Seebohm the measurements of both are alike, and the only difference is that *R. occipitalis* has one bar, and *R. trochiloides* two, on the wings; but a specimen sent me by Mr. Brooks as *R. occipitalis* has two bars. If Seebohm is right, then two of my specimens would appear to be *R. flavo-olivaceus* (Hume, 'Str. Feathers,' vol. v. p.504); but the barring of the wing appears to depend on age and season, and I believe them all to be *R. occipitalis*.

103. Reguloides humei, Brooks.

A summer visitor. The young of this and *R. subviridis* are most difficult to distinguish. Both breed in the Nulter valley at about 9000 feet.

104. Reguloides subviridis, Brooks.

Common at 5000 feet in March, April, May, and beginning of June; breeds in the Nulter valley in July at 10,000 feet. Young birds shot in August fully fledged.

105. Regulus cristatus (Koch).

One specimen shot at 11,000 feet in July.

106. Sylvia affinis, Blyth.

A summer visitant. Arrives about May 1, and leaves in October.

107. Sylvia althæa, Hume.

The specimen which I have referred to this species was procured in May.

108. Sylvia cinerea (Lath.).

A few specimens were secured each year, in August and September.

109. Henicurus scouleri (Vig.).

Tolerably common in all the small streams. In addition to Jerdon's description may be noted that the primaries, except the first and second, and all the secondaries, have part of the outer edge white. There is also a conspicuous dark band across the rump between the white of the lower part of the back and the upper tail-coverts. The flanks are smeared with sooty.

110. Motacilla hodgsoni, Gray.

Extremely rare; only a single specimen obtained, in full breeding-plumage, in June, at an elevation of 8000 feet; two specimens, obtained in April, were assuming the breeding-plumage. In September it was tolerably common higher up the Indus towards Iskardo, and was then rapidly assuming the winter plumage.

Dr. Scully's diagnosis of the grey Wagtails in 'Stray Feathers,' vol. viii. p. 312, is extremely clear and accurate, so far as these specimens show, though there is some variation in the size of the bill.

M. hodgsoni may be best described as the black-backed representative of *M. personata*; while *M. leucopsis* (= *M. luzoniensis*) is the black-backed representative of *M. alba*. The distinction between *M. hodgsoni* and *M. leucopsis* is now probably questioned by no one, though it was formerly discussed in the earlier numbers of 'Stray Feathers.'

111. Motacilla personata, Gould.

Common all the year round. In summer it goes up to about 9000 feet or more.

Severe weather in winter, spring, and autumn always drives a number down to the low ground. They are as good as a barometer, always appearing a day before the bad weather, and disappearing again before it entirely clears. The specimens preserved were obtained in February, March, August, September, and October; and all show the grey back, while during the summer months, though unfortunately no grey-backed specimens were shot, they were constantly observed and were extremely common. This point establishes the specific distinctness of *M. personata* from *M. hodgsoni*.

112. Motacilla alba, Linn.

Not a constant resident.

In spring it was first observed on 24th April, when a large number in full breeding-plumage suddenly appeared during heavy weather. In the summer none were seen; but in September it was again extremely common for a short time in Gilgit, and also up the Indus towards Iskardo. Young birds secured at this time show the yellow tinge over the white on the face and neck.

113. Calobates melanope (Pallas).

Common in summer, but rarely seen in winter. The female in breeding-plumage has, instead of the black throat which is assumed by the male at that season, an interrupted streak of dusky spots at each side from the base of the lower mandible.

The young bird is similar to the female in winter plumage, but duller in tone throughout.

114. Budytes cinereicapillus (Savi).

A single specimen obtained on the 10th May. Field-Wagtails, except of the yellow-headed type, were only common for a few days in spring and autumn; a few were occasionally seen during winter.

[Mr. Brooks has given an excellent diagnosis of the characters by which the males of several of the species can be

distinguished in adult summer plumage; the following key extends the diagnosis to include all those recorded from India or neighbouring countries :—

A. With the entire head yellow.
  1. Entire back black ..... *B. calcaratus.*
  2. Back grey ..... *B. citreolus.*
B. With the top of the head pure black; supercilium very narrow or wanting.
  3. ..... *B. melanocephalus.*
C. With the crown yellowish green; supercilium yellow, broad.
  4. ..... *B. rayi.*
D. With the crown grey.
  5. Crown pure light grey; supercilium white, broad; cheeks pale grey and pure white *B. dubius.*
  6. Crown deeper grey; supercilium white, broad; cheeks dark grey, with a few white streaks ..... *B. flavus.*
  7. Crown dark grey; supercilium white, narrow or wanting; cheeks dark slate, almost black ..... *B. cinereicapillus.*

—G. F. L. M.]

115. Budytes melanocephalus (Licht.).

A single female shot on the 10th April in immature plumage.

116. Budytes calcaratus (Hodgson).

Out of ten specimens obtained in May and June, nine are males; and the only female has the back strongly tinged with green, and a good deal of dusky green is mixed with the yellow on the nape. The young of this species appear to be undistinguishable from those of *B. citreolus*, except perhaps by a generally rather darker hue. A single specimen was secured in March; but no others were noticed till May, after which it was common till October.

117. Budytes citreolus (Pallas).

Of this species males and females were obtained in about equal proportions. A female shot early in March has the black cowl well developed, and the back from the shoulders to the middle of the tail-coverts pure grey with a very slight wash of green.

Another, shot at the end of April, is similar, but the black cowl is much less prominent, though the whole head and nape are pure unmixed yellow.

In a third, shot at the end of May, the back is pure grey, the black cowl entirely absent, and the yellow on the nape is suffused with dusky; this is apparently a breeding but not fully adult bird. The bird figured by Gould (B. Asia, pt. xvii.) as female *B. citreoloides* in full plumage is *B. citreolus* in winter or immature plumage.

In Gilgit *B. citreolus* appears in March, and is common till May and again in October; it ascends to higher elevations to breed. The breeding-plumage is identical in the two sexes.

118. Anthus trivialis (Linn.).

Was very common throughout the summer, and breeds in July at the higher elevations.

[The series brought down contains many examples of the European type as described by Dresser in the 'Birds of Europe,' and also many of the Indian type, "purer and greener in colour, with the spots on the breast boldly defined;" but Mr. Dresser's conclusion that they are all referable to one and the same species appears to be quite correct.

During the summer months, while breeding, the plumage loses much of its brilliancy, the general tone becomes very brown, and the striations on the back are ill-defined; the brighter plumage is reassumed in September.—G. F. L. M.]

119. Anthus campestris (Linn.).

A single specimen shot on 8th March; no others seen. Evidently a straggler.

120. Anthus rosaceus, Hodgs.

A number were observed and ten obtained at the end of April and throughout May; but after the end of May none were seen.

121. Anthus cervinus (Pall.).

Two specimens shot, in May and December.

122. Anthus blakistoni, Swinhoe.

Very common all through the winter. About 20th Feb-

ruary the males begin to assume the rufous tinge of underplumage and the grey on head and neck. The females do not commence to assume their breeding-plumage till the middle of March. By the end of March the breeding-plumage is fully assumed.

I had entered this bird as *A. spinoletta*; but Mr. Brooks, on seeing some specimens, pronounced them to belong to this species, and distinct from true European specimens of *A. spinoletta*, which has a richer brown on the back and is less striated, with the breast-spots large and cloudy.

123. Cephalopyrus flammiceps (Burt.).

Three shot, on 1st September at 9000 feet.

124. Leptopœcile sophiæ, Sev.

A winter visitant, but seldom comes below 6000 feet except in very severe weather.

In 1874, after returning from Yarkund with some specimens of this bird, I found a young one labelled as having been shot at Leh, but not identified at the time. On showing my collection to Mr. Hume, he suggested that the label must have been attached by mistake, and that the specimen must have been procured with the others north of the Karakorum. After procuring the bird at Gilgit, I doubt not that my label was correct, and that specimens are to be procured at Leh; but the bird is at all times so difficult to see and to shoot, that it is not surprising that it has hitherto escaped notice. Dr. Scully also informed me that he found it in the Nobra valley in Ladak.

The plumage is very thick and soft; and the basal part of the feathers and down on the lower surface is deep black, concealed by the colour of the tips.

The male only has been figured by Gould; but the letterpress contains an accurate description of the female by Severtzoff.

125. Ægithaliscus leucogenys, Moore.

This species was described by Moore in the P. Z. S. as long ago as 1854, from specimens in the India Museum, labelled from Afghanistan; the description is accompanied by a short

extract from Griffith's MS. notes; but subsequently to this the bird does not appear to have been obtained, nor is its correct habitat defined.

A number of specimens were obtained in the main valley about fifteen miles above Gilgit, among thick bush and tree-jungle, about the middle of May. In these the chin and throat are of a deep blackish maroon, rather than jet-black (as described by Moore); and towards the breast the lower margin of the dark patch is narrowly but distinctly fringed with chestnut. In other respects they agree exactly with the original description.

The dimensions, taken in the flesh, are as follows :—

Adults—length 4·75 to 4·8 inches, wing 2·2 to 2·23, tail 2·2 to 2·25, tarsus 0·63, bill at front 0·25.

Young—length 4·3 inches, wing 1·95, tail 1·8, tarsus 0·55.

In the young birds the dark throat-patch is only partially developed and is blackish mixed with white.

126. Parus melanolophus, Vig.

A constant resident, but seldom comes below 7000 feet, even in winter.

A number of specimens were obtained—all males, strange to say; the buff tint of the spots on the wing-coverts appears to be a mark of nonage, the pure white being obtained when the birds are fully adult.

In many specimens the white tips to the secondaries are absent, and in others only faintly marked; their full development appears to take place in the adult bird.

The axillaries and under wing-coverts are rufous, as well as the flanks. The plate in Gould's handsome work 'The Birds of Asia' represents this species very accurately.

127. Parus rufonuchalis, Blyth.

This species is distinguishable from *P. beavani* by its larger bill and by the black extending further down the breast; the bill in *P. beavani* is similar to that of *P. melanolophus*.

It is a permanent resident at about 9000 feet, but seldom descends even in the depth of winter to the main valley. It is very common where found.

Compared with Blyth's type (which comes from Simla), the nuchal spot is less rufous, in some specimens being almost entirely white.

128. Parus nipalensis, Hodgs.*

All the specimens procured are paler on the nape; in some the edging to the black is albescent, but not any thing like a semicollar. Specimens from Murree cannot be separated from Gilgit birds.

Many show a vinaceous tinge on the white of the abdomen. Nestlings and young birds are strongly tinged with yellowish green.

The birds from Gilgit are similar to the type found in the Himalayas as far east as Nepal, at all events; but they are considerably larger than the type found in the plains, and lack the distinct white marking on the nape, whether spot or semicollar.

Measurements given in 'Stray Feathers,' vol. ii. p. 417, by Ball, from Chota Nagpore, are—wing 2·4 inches in one, 2·5 in another. Sex not mentioned.

Also 'Stray Feathers,' vol. i. p. 384, by Adam, from Sambur Lake—wing 2·6 inches. Sex not mentioned.

Jerdon gives measurements as 2·8 inches. A male from Murree measures (by my measuring) 2·9; and those procured at Gilgit measure 2·97 in the males and 2·7 in the females.

The young birds are green on the back, the undersurface pale yellow; the black markings are dull, with a brownish tinge and no gloss whatever, similar in extent to those of the adults on the upper surface, but beneath confined to a stripe from the chin towards the abdomen, not coalescing with the black on the upper surface, the sides of the face and neck being also pale yellow. In the nestling just fledged (killed in June) there is a well-defined pale yellow demicollar on the nape, beneath the black. In a rather older bird (killed in August) the back is still green, the black without gloss, and

* [Mr. Blanford has also pointed out that the birds of this species found on the Nilgiris are larger than specimens obtained in the plains (J. A. S. B. 1869, part ii. p. 181).—J. S.]

the pale demicollar less marked, and the black of nape and throat show no signs of coalescing; but the yellow tint of the undersurface is disappearing, and the wings and tail (which are fully developed) are coloured as in the adult. There is no intermediate stage represented in the collection, but as the green-backed bird is never found in winter, there can be no doubt that it is the immature phase of *P. nipalensis*, which is the commonest bird in Gilgit.

This is the only bird that does not appear to make any seasonal change in its habits in this locality.

129. Accentor nipalensis, Hodgson.

This Accentor was extremely common during the winter of 1877–78. It was generally met with in scattered flocks of fifteen or twenty, and seemed to prefer keeping to the vicinity of water. It was very bold, allowing one to come quite close, while it hopped unconcernedly about searching for worms &c. Occasional specimens seemed much lighter-coloured than the generality. All the specimens obtained were shot in December, January, and February.

The sexes are coloured alike.

130. Accentor altaicus, Brandt.

During the severe winter of 1877–78 several flocks of this Accentor appeared; but it was never very common. It was generally in compact flocks of twenty or thirty, keeping to the hill-sides, and not very easy to approach. The flight is very rapid; and, like most of the Accentors, it appears very Finch-like in its habits, approaching in this respect especially to the genus *Montifringilla*. The measurements given by Jerdon are apparently those of a female. In the adult male the wing measures $3\frac{3}{4}$ inches and the tail $2\frac{1}{2}$. Irides cherry-red. The ear-coverts are fulvous, the interscapulary region and tertiaries black with broad rufous margins; lower back dingy grey. The wing-coverts are more or less tipped with white, as in *A. nipalensis*, forming two conspicuous but irregular wing-bars; the under tail-coverts are brown, broadly margined with white. Chin white, the feathers of the throat and fore neck white with black tips.

The grey of the shoulders and lower back contrasts strongly with the ferruginous tint on the upper back; and the crown of the head is in some specimens very distinctly streaked with brown.

131. Accentor jerdoni, Brooks.

Common in the summer at elevations of 10,000 feet and upwards, where it breeds. It was not observed in winter. This is the species figured by Gould (B. Asia, pt. vii.) as *A. strophiatus*. A young bird just able to fly, shot towards the end of July, has the upper plumage dark brown, broadly margined with ferruginous, a party-coloured wing-bar, formed by buff tips to the secondary-coverts and dark-brown tips to the primary-coverts; the whole supercilium is buffy white; the lower parts are fawn-colour, almost white on the throat, and strongly tinged with ferruginous on the breast; most of the feathers dark-centred. This is a much younger stage than that described by Mr. Hume in 'Lahore to Yarkund.'

132. Accentor atrogularis, Brandt.

Tolerably common during the winter; leaves about the 23rd March.

Agrees well with Jerdon's description of *A. huttoni*, and also with Gould's plate of *A. atrogularis*, which latter name has precedence if the two names refer, as they apparently do, to one and the same species.

133. Accentor fulvescens, Severtzoff?

A species of *Accentor* was common in Gilgit during the winter, which, in the absence of the type to compare with, must stand under this name, though it neither agrees with the plate nor the description given in Gould's 'Birds of Asia,' part xxiii. (*vide* 'Stray Feathers,' vol. iii. p. 428), which Dr. Severtzoff says is his *A. fulvescens*.

Description. Sexes alike. Top of the head almost uniform dull brown; the rest of the upper plumage grey-brown; the feathers of the back indistinctly centred dull brown; wings and tail dull brown, with pale edgings; two white wing-bars, formed by tippings to the coverts; no pale tips to the inner webs of the tail-feathers, except a faint trace on the outermost

pair; superciliary streak, extending over the ear-coverts, pure white; sides of the face and ear-coverts deep brown, a few of the latter tipped whitish; under surface pale fulvous, deepest on the breast, albescent on the chin, throat, and lower centre of abdomen. Length 6·25 to 6·4 inches, wing 3 to 3·15, tail 2·5 to 2·65; tarsus ·75, dull red.

This bird is retained as *A. fulvescens* solely because it appears to be identical (speaking from memory) with the specimens obtained in Yarkund, which were identified by Dr. Severtzoff himself as belonging to this species; but it certainly differs, as stated above, from both the figure and the description.

It is not the *A. montanellus* figured in Gould's 'Birds of Europe;' for that has the back reddish ash, the supercilium buff, and the flanks striped.

It is not the *A. montanellus* in Gould's 'Birds of Asia' for the same reasons, and, further, because it wants the grey patch on the side of the neck, and the white tippings to the secondaries.

It is not the *A. montanellus* figured in David and Oustalet's 'Oiseaux de la Chine;' for that is a much darker bird, and has the buff supercilium and reddish-brown back.

It is not the *A. temminckii* of Brandt; for that is identical with the *A. montanellus* figured in Gould's 'Birds of Europe.'

It is not the *A. montanellus* described by Dresser in the 'Birds of Europe;' for that also has the supercilium buff and the back chestnut-red.

And if not *A. fulvescens*, Severtzoff, it is a species hitherto undescribed.

It is somewhat similar to *A. atrogularis*, which was almost equally common; but, besides wanting the black throat, its pale and almost uniform tone of coloration, and the absence of all tinge of red on the back, markedly distinguish it from that species.

134. Corvus corone, Linn.

Since my leaving Gilgit Dr. Scully writes that he has secured two undoubted specimens of this species.

135. Corvus cornix, Linn.

A few specimens always to be observed in December, January, and February, mixed up with other Crows.

136. Corvus levaillanti, Less.

There are evidently two species of Crows of this type; but the only good distinction in the dried skin seems to be the length of the tail. The short-tailed ones (*C. culminatus*) go about in flocks; the long-tailed ones (*C. levaillanti*) only in pairs, and keep to the higher elevations, only coming down in winter to the main valley. These Crows are apparently what Sharpe identifies as *Corvus culminatus* and *Corone levaillanti*, except that the dimensions of his *C. culminatus* are too small for the Gilgit bird. The distinction in comparative length of first primary holds fairly good, except in one specimen; the distinction in the lie of the rictal bristles is somewhat better, but is less decidedly marked in some specimens of *C. culminatus* than in others; but the differences in habit leave no doubt that, however difficult of definition, the species are distinct.

Out of nine specimens of *C. levaillanti* the wing ranges from 13 to 13·8 inches—except in a single specimen, unsexed, which measures 12·6. The tails measure 9 to 9·5, except in the specimen referred to above, in which it is only 8·8. In *C. culminatus* the wing ranges from 11·4 to 12·6, the tail from 7·85 to 8·75.

137. Corvus culminatus, Sykes.

See preceding remarks.

138. Corvus umbrinus, Hedenb.

On one occasion, among several hundred Crows collected over a dead animal, at 12,000 feet elevation, I distinguished a pair which differed from all the others in size, colour, and voice, and which I refer to this species.

139. Corvus frugilegus, Linn.

Very common in winter; appears in large flocks.

140. Corvus monedula, Linn.

A few always about during the time of extreme cold, gene-

rally mixed up with other Crows, but disappear in April. The specimens procured and observed show no approach to the *C. collaris* type, with the white half-collar, which is recorded from Kashmir and Afghanistan.

Since leaving Gilgit Dr. Scully writes that he has procured specimens of the *C. collaris* type, which appear distinguishable from *C. monedula*.

141. Nucifraga multipunctata, Gould.

Common at all times in the forests above 8000 feet.

Of six specimens the length of wing varied from 7·75 to 8·25 inches (the smallest being a female and the largest a male), total length 14 to 15·15, tail from 5·8 to 6·5. Irides brown; legs black.

142. Pica rustica (Scop.).

The form separated as *P. bactriana* by some authors.

Very common at all times. In winter it comes down to 5000 feet; but in April it ascends to about 8000 feet in the side valleys. The natives train the Sparrow-Hawk (*Accipiter nisus*) to take the Magpie with.

A nest with five eggs, hard-set, taken in a mulberry-tree at Nonval (5600 feet), 9th May.

A nest with three eggs (quite fresh) taken at Dayoor (5200 feet) 25th May. The bird had evidently not done laying.

143. Pyrrhocorax graculus (Linn.)

Common at the lower elevations in December, January, February, and March, when they commit great havoc on the newly sown corn. In summer they keep entirely to the mountains.

144. Pyrrhocorax alpinus (Koch).

Seems to care less for cold than the Red-billed Chough, only appearing in the main valley during the time of extremest cold, and then only in small numbers.

145. Sturnus vulgaris, Linn.

Occasional specimens secured during the winter, but not common.

146. Sturnus purpurascens, Gould.

A winter visitant. The specimens obtained are precisely similar to those got in Yarkund.

147. Temenuchus pagodarum (Gmel.).

One or two procurable each summer, at all elevations up to 8000 feet, where cattle are herded.

148. Pastor roseus (Linn.).

Two young birds of the year shot on the 19th and 28th August; a few others in immature plumage were also seen at the same time, but no adults.

149. Passer indicus, Jard. & Selb.

Begin to disappear in November, and leave Gilgit altogether during the time of extreme cold. In both years they reappeared in small numbers on 22nd February, but did not become common till the end of March. Dr. Scully writes that he has procured specimens all through the last winter; they were certainly not there in the two preceding winters.

150. Passer hispaniolensis, Temm.

Two specimens only procured in the winter. The female differs from that of *P. indicus* in having a stronger bill, and having a very faint supercilium; otherwise the markings are so similar that it is not distinguishable.

151. Petronia stulta (Gm.).

This Sparrow was tolerably common in December, January, and February. It was generally in flocks of fifteen or sixteen, and prefers open stony places. I never saw it near trees.

♂. Length $6\frac{5}{8}$ inches, wing $4\frac{1}{8}$, tail $2\frac{3}{8}$, tarsus $\frac{3}{4}$, bill in front $\frac{1}{2}$.

♀. Length $6\frac{1}{4}$, wing 4, tail $2\frac{5}{16}$, tarsus $\frac{5}{8}$, bill in front $\frac{1}{2}$.

152. Emberiza leucocephala, Gmel.

Occasional specimens secured in December, January, February, and March. The specimens obtained in the latter month are assuming the breeding-plumage.

153. Emberiza stracheyi, Moore.

Extremely common all the winter, but goes higher about

the beginning of April, and breeds at about 8000 feet. I took two nests (second brood, no doubt) in the first week of August. Both were on the ground, under a stone. One had only one egg in it, the other three.

I also took a nest with three fresh eggs in it on 1st June at 9000 feet, and took two nests, each with three eggs quite fresh, on 23rd and 24th June.

The colouring of all Gilgit specimens is paler than that of Cashmere or Simla individuals.

[The collection contains a large series of specimens of this bird, which I have compared and found identical with the plate of *E. stracheyi* by Wolff in the 'Proceedings' of the Zoological Society for 1855. The difference pointed out by Dresser in the 'Birds of Europe,' the absence of the *white* spots on the wing-coverts, holds good; but in some winter specimens the pale fulvous spots approach very closely to the white spots of *E. cia*. There is, however, a further and well-marked difference in the pure white of the nuchal end of the supercilium in *E. stracheyi* as compared with the grey of that part in *E. cia*, giving in the former bird three pure white marks on the side of the head, instead of two. In *E. stracheyi* the entire supercilium throughout its length is pure white.—G. F. L. M.]

154. Emberiza hortulana, Linn.

A single specimen, a female or young male, shot at Chimmooghur, in the main valley, ten miles from the Indus, on 26th May. Evidently migrating at the time. Length 6·4 inches, wing 3·2, tail 2·6, tarsus ·75. Irides dark brown.

The head is considerably battered; but the yellow tone of the markings on the throat, the greenish tone of the head, as far as traceable, and the strongly defined striations of the upper plumage serve sufficiently to distinguish it from *E. buchanani*.

The tints agree well with those of the figure of the young bird given by Dresser in the 'Birds of Europe,' pl. 99.

155. Emberiza buchanani, Blyth.

Not observed in the first year; but a number appeared in the beginning of September in the second year.

156. Emberiza stewarti, Blyth.

A summer visitant. Appears in April, and is very common in May and June, when it replaces *E. stracheyi* at the lower elevations. Breeds below 6000 feet.

157. Emberiza schœniclus, Linn.

Scarce; and never more than a single one was seen at a time. Four specimens were secured in January, February, and March. Both these and my Turkestan specimens are paler-coloured birds than English specimens, the ruddy tints on the wings and back being especially lighter; but they correspond fairly well with a specimen in the Indian Museum at Calcutta, obtained by exchange from Mr. Dresser, and labelled "*E. schœniclus*, var. B, Pallas, Lake Baikal."

158. Euspiza luteola (Sparrm.).

A few specimens shot in the end of August and September were all in immature plumage; no adult males were either procured or observed.

159. Euspiza melanocephala (Scopoli).

A single specimen, an immature female, was procured by me on the 5th October.

160. Mycerobas carnipes (Hodgs.).

Common at all seasons in the pine-forests above 8000 feet, seldom coming lower down even in winter. On one occasion only, in the severe winter of 1877–78, I saw and shot a pair in the main valley at 5000 feet elevation.

These birds belong to the western form which has been separated as *M. speculigerus* (Brandt). They differ from the usual eastern type in being of larger size; the colour of the abdomen is more vivid, and of a more decided yellow; the yellowish edgings of the tertiaries and wing-coverts are more conspicuous and much broader, and the bill more full and bulged. They correspond exactly with the figures in Gould's 'Birds of Asia.' which were taken from specimens from the Altai. But as the late Mr. Mandelli obtained in Sikkim specimens which correspond to the western form, there do not seem to be sufficient grounds for retaining *M. speculigerus* as a distinct species.

The males measure from 8·9 to 9·7 inches in length (the average being 9·4), with the wing from 4·55 to 4·8, and the tail from 3·9 to 4·3. In the females the wing measures from 4·35 to 4·65 inches, and the tail from 3·9 to 4.

Breeding males shot in June and July were still in female plumage, which is apparently not assumed till after the first breeding-season. Jerdon is wrong in stating that the sexes are alike. In the females the sooty black is replaced by brownish ash, and the feathers of the cheeks, throat, and breast pale-centred.

161. Pyrrhula aurantiaca, Gould.

This Bullfinch appears to be very local, but in certain localities is common, especially among pine-forests. They are permanent residents.

The upper tail-coverts are velvet-black, not white (as stated by Jerdon).

162. Erythrospiza incarnata (Sev.).

A constant resident, but seldom comes below 6000 feet, except in severe weather. I found it at about 10,000 feet in the Astor valley in June, when it was no doubt breeding. I have seldom seen it except in large flocks of twenty or thirty. On 29th April I shot seven out of a flock, which all turned out to be males.

The plate in Père David's 'Oiseaux de la Chine' represents the bird as far darker than any of the Gilgit specimens, especially about the cheeks and nape.

163. Carpodacus rubicillus (Güld.).

Very common in Gilgit, in flocks of twenty and thirty, from the middle of December to the beginning of March in 1877–78, but never seen again at any season or elevation. They prefer stony places, and keep to the same place day after day. There were places where I could always depend on finding a flock.

I have now a large series of this bird from Turkestan, Ladak, the valley of the Yarkund river near its source, and the Oxus valley. The plumage varies greatly in both sexes according to age, season, and locality—so much so that I

had some difficulty in believing that they are all of the same species. The specimens from Turkestan are extremely pale, and the rose-tints are very delicate; so that Severtzoff seems quite justified in distinguishing them as *C. pallidus*. The Gilgit specimens are darker; and those of Ladak and the Oxus valley are darker still. Specimens from the last two places have black instead of brown legs, and appear slightly larger than the others, but not markedly so.

The young male retains the striations on the back for some time after the rose-markings on the head and breast are complete. The striations of the females, both on back and breast, vary greatly according to age.

164. Carpodacus erythrinus (Pall.).

A summer visitor. Earliest appearance noted April 22. Breeds at 10,000 feet in July and August. The male does not get the roseate plumage till the second year, apparently. Several males with fully developed testes, shot in July, and evidently breeding, were still in female plumage. They probably get the rosy plumage just after the first breeding-season, and by a change of colour, not by moult, as some shot in May show a faint rosy tinge against the light. About the beginning of September they leave the hills and come down into the valley.

The young bird has two well-defined wing-bars formed by rufous edgings to the wing-coverts; and the tertiaries are broadly tipped with the same colour; the striations of the upper plumage are darker, broader, and more pronounced.

An albino (pure cream-colour, with hazel-brown irides) was shot on September 7 by Dr. Scully. Its plumage was much abraded. Several nests were found, all situated within a foot of the ground, either in low bushes or among the stems of coarse grass, about 2 feet high in scrub-jungle. The nest is a neat cup-shaped structure of grass, lined with the finer roots and stems only, except in one instance, in which a good deal of hair is mixed with the lining; the interior is from 2 to 2¼ inches wide, and 1¼ deep. The eggs are blue, of a purer and slightly deeper shade than those of *Trochalopteron*

lineatum, with chocolate spots sparingly scattered over them, chiefly towards the larger end. In one out of a dozen the spots are almost entirely wanting; in some they are paler, almost of a sienna-tint, in others nearly black, while on a few there are also one or two pale purplish spots and fine reddish scrawls at the larger end; and in these the spots are almost confined to the larger end, in an ill-defined zone or cap.

Nests were taken at 10,000 feet elevation on July 16, 17, 20, 21, 29, and 30, all with eggs mostly fresh.

165. Propasser rhodochlamys (Brandt).

Is a permanent resident, but is very seldom seen below 6000 feet. The measurements of the numerous specimens obtained correspond exactly with those given by Jerdon, and the bird itself with Gould's plate in the 'Birds of Asia,' also with the plate of *Carpodacus sophiæ* in Bonaparte's 'Monographie des Loxiens,' and with a specimen in the Museum from the hills north of Simla.

As in *C. erythrinus*, the males do not get their full plumage until after the first breeding-season. Several males with fully-developed testes were shot in May and June in female plumage.

166. Propasser frontalis (Blyth).

[Mr. Hume has, I think, prematurely expunged this species from the Indian list. A pair of Rose Finches, male and female, in full breeding-plumage, shot at Gilgit in June 1878, were brought down with the collection, which, after a careful comparison with some specimens of *P. thura* from the late Mr. Mandelli's collection, I decided must stand as *P. frontalis* (Blyth). Unfortunately the notes taken of the comparison were accidentally destroyed after leaving Calcutta, and as the specimens of *P. thura* were returned, I can now only give the distinctive features with reference to Jerdon's meagre description.

The male corresponds with Blyth's description of *P. frontalis*, except that the feathers of the top of the head, instead of being plain dark brown, are paler-edged, similarly to,

though more narrowly than, those of the back. The feathers of the chin, throat, and neck are not silvery-white-*shafted*, but have a silvery streak near the tip of each feather; and this silvery streaking hardly extends onto the breast. It also shows whitish at the centre of the abdomen near the vent, and at the hinder end of the superciliary streak.

It differs from *P. thura* in having a broad frontal band rose-pink, in the lores and a narrow band round the base of the bill crimson, and in the silvery streaks on the chin, throat, and breast, while on the back the general hue is much less dark.

The female answers well to Blyth's description, and differs from that of *P. thura* chiefly in lacking the broad pale supercilium, and in the ground-colour of the face, abdomen, and lower tail-coverts being white instead of light yellowish brown. —G. F. L. M.]

167. Pyrrhospiza punicea (Hodgs.).

These birds seem loath to leave the mountains. I never saw them below 10,000 feet, except in one place (the mouth of a ravine leading into the plain), and there only in the middle of January 1878, at the time of greatest cold.

The markings of the back in winter are much more defined than in the summer plumage; and one female specimen has broad buff tips to the wing-coverts, which form a conspicuous wing-bar. The outer edges of the secondaries are also broadly tipped with whitish buff.

The plate of this species in Bonaparte and Schlegel's 'Monographie des Loxiens' shows the upper plumage as darker and more uniform, while the red tint of the underparts extends further down the breast, and is less scarlet in tint than in any of the specimens obtained in Gilgit.

168. Carduelis caniceps (Vig.).

Small flocks appeared from time to time during the season of extreme cold, but never seemed to remain more than two or three days at a time. They breed at about 9000 feet, and are common in Cashmere in summer as well as in winter. The lores are black, interrupting the scarlet round the bill, which latter is rather wider in the male than in the female.

169. Metoponia pusilla (Pall.).

Appear at intervals during the winter, when driven down by very severe weather. I shot two out of a flock on May 21 at 5000 feet (Gilgit), where they had been attracted by the ripe mulberries; but I have seen them high up in the snow, at over 9000 feet, in February. They breed at about that height; and in August the young birds collect in large flocks of fifty or sixty, when not a single old bird can be seen among them. They seem to acquire the red head in the first year, as I have only procured one specimen without it (a young male shot in Astor about November 20) later than August.

On July 28 I had a nest brought me, which my shikari had been watching several days. He shot one of the pair of old birds about the nest, which turned out to be the male of *M. pusilla*. The nest contained three eggs perfectly fresh (and the number was apparently not complete), in colour a dull stone-white, with small red-brown spots dotted about the larger end. The nest was about 20 feet from the ground, in a cedar tree (*Juniperus excelsa*), neatly made of grass fibres, and lined thickly with sheep's wool, and matted on the outside with soft bits of decayed wood, so as to look like the bark of a tree.

170. Linaria brevirostris (Gould).

Since I left Gilgit Dr. Scully writes:—"How on earth did you miss this bird? I have preserved over sixty specimens, and have left off shooting it. It is one of the very commonest birds about now (January)."

As this is a bird I know well, having procured many specimens further eastward, it is hardly possible that I should have missed it, had it been as common as Dr. Scully says in the two preceding winters. I should be more inclined to regard this as an instance of the changes that take place in the migrations of birds owing to increase or decrease in the severity of the winter season.

171. Linaria cannabina (Linn.).

Fifteen or sixteen specimens were procured in January and February 1878, when the winter was an exceptionally severe

one; and many more were seen. They were generally in small flocks of four or five, and rather difficult to approach, keeping on open stony places. They are very restless birds, and constantly take short flights, uttering a twittering note. A specimen was apparently secured in Sind during the same winter (*vide* 'Stray Feathers,' vol. vii. p. 122); Mr. Hume, speaking of the specimen in question, says that, as far as plumage is concerned, it is absolutely identical with European specimens. This is not the case with these, which are all markedly paler and with more white about them than three English specimens I have compared them with. In the English specimens the white edgings to the primaries, which, when the wing is closed, form a conspicuous bar less than ½ inch long, in these form a patch 1½ inch in length. All the primaries are margined with white to the tip, whereas in the English specimens none are. The centre tail-feathers, which in the English bird have very faint pale margins, in these have a broad margin of snowy white for half the web.

The large amount of white on the upper tail-coverts, and the broad white margins to all the tail-feathers, are very conspicuous when the bird is flying. In size, also, they differ from the English specimens, the wing of several of the males being fully 3¼ inches, and the tail 2½ inches.

Dr. Scully writes that they have been common during the present winter, though during the winter of 1879–80 none were seen.

172. Fringilla montifringilla, Linn.

A few specimens were shot in March and April on their way northwards in both years. Mr. Hume doubts the occurrence of this Finch in Indian limits (Str. Feathers, vol. vii. p. 465). These had most undoubtedly come from the south. A male, shot on April 15, had the breeding-plumage nearly complete.

The wing-bar formed by the white spot on the outer web near the base of the quills does not extend right across the wing; it is absent from the first three primaries, commencing on the fourth. In other respects these birds correspond exactly with the description given by Dresser in the 'Birds of Europe.'

173. Leucosticte brandti, Sev.

This is the bird which I procured in 8874 in the mountains west of Kashghar, and took for *M. hæmatopygia*; but M. Severtzoff, on examining my collection, identified it as *Leucosticte brandti*. It first appeared about January 20, single specimens being mixed up in flocks of *Carpodacus rubicillus*. It gradually became commoner; but I never saw more than three or four together at a time. It disappeared about March 10.

Measurements of a male taken in the flesh :—Length 7½ inches, wing 4⅞, tail 3¼, tarsus ⅞, bill at gape nearly ½ inch; irides grey-brown. Out of eleven specimens secured, none had a black bill like those obtained by me in 1874 in the end of March and beginning of April. It is probably distinctive of the breeding-plumage.

This species can be readily distinguished from *M. hæmatopygia* by its greater size and the rose-coloured shoulder-patches. The rose tints on the rump are paler and less conspicuous than in *M. hæmatopygia*; and the general tone of the plumage is conspicuously paler.

174. Fringillauda sordida (Stoliczka).

A continuous resident in the district, appearing in flocks of forty or fifty at the lower elevations during the winter. In summer it goes up to 10,000 feet and higher. The young birds apparently do not acquire the rufous-brown head till the second year. I saw an immense flock of this Finch at Astor in November, and picked up twenty-six after one shot. This is probably the red-headed Sparrow said to appear in Leh in winter. The axillaries in this species are white instead of yellow, as in *F. nemoricola*.

175. Calandrella brachydactyla (Leisl.).

A few appeared in March, but were not seen again in Gilgit. In September and October I obtained a few higher up the Indus, towards Iskardo. The March specimens are in very faded plumage; those got in the autumn are in fresh plumage with the rufous edgings to the feathers perfect. The males are 6·5 inches long, wing 3·75 to 4·0, tail 2·4 to

2·5; the females 6 to 6·25 inches long, wing 3·3 to 3·4, tail 2·25 to 2·45.

176. Melanocorypha bimaculata (Ménétr.).

Three specimens were secured in the months of December and March, all males. In one specimen the height of the bill at front is 0·33 inch; no others seen.

177. Alaudula pispoletta (Pall.).

Dr. Scully writes that he has obtained a specimen since I left Gilgit, with short hind claw, spotted breast, and secondaries 0·75 inch shorter than the primaries.

178. Alaudula adamsi, Hume.

Since I left Gilgit Dr. Scully has obtained specimens of this Lark.

179. Otocorys penicillata (Gould).

Extremely common from November till the end of March, when, after forming large flocks of over a hundred, it suddenly disappears. Out of many specimens shot, none appears to answer to the description of *O. longirostris*.

180. Alauda dulcivox, Hodgs.

This large Skylark is a winter visitant only, first appearing in November and leaving by the end of March. In March, when assuming breeding-plumage, just before leaving, it gets much darker, but never apparently so dark as *A. guttata*, from which it can readily be distinguished by its superior size. In males the wing measures from $4\frac{1}{4}$ to $4\frac{11}{16}$ inches, in females from 4 to $4\frac{1}{4}$; the tarsus measures from $\frac{3}{4}$ to $\frac{7}{8}$, being generally slightly smaller than in *A. guttata*; bill at front barely $\frac{1}{2}$, generally $\frac{7}{16}$. Of the large primaries the second is slightly the longest, and the first slightly shorter than the third; sometimes all three are equal; the fourth is fully $\frac{1}{4}$ inch shorter than the second; and there is more than $\frac{1}{2}$ inch between the tertiaries and primaries. The outer web of the first developed primary is white in winter, and creamy buff in summer. The distinctions pointed out by Brooks (S. F. i. 484) between this species and *A. arvensis* hold good in the series of fifteen specimens of the former brought down.

181. Alauda guttata, Brooks.

This Skylark is a summer visitant only, appearing at the end of March and leaving about October; the first specimen was obtained on the 29th March, the same day as the last of *A. dulcivox*. One specimen was obtained in September, on the 27th, but none later. In males the wing measures from $3\frac{3}{4}$ to $4\frac{5}{16}$ inches. I have never procured one yet with a wing measuring fully $4\frac{1}{4}$. In females it does not exceed $3\frac{3}{4}$, tarsus $\frac{7}{8}$. Bill at front from $\frac{7}{16}$ to nearly $\frac{1}{2}$ inch.

Of the developed primaries the second is slightly longest, first and third subequal; sometimes all three are subequal; the fourth is $\frac{1}{16}$ inch shorter than the second. Tertiaries reach to less than $\frac{3}{4}$ inch from the primaries. In summer the outer web of first primary is rufous. Tail more furcate than in *A. dulcivox*, from which it is generally distinguished by its darker colour and smaller wing. Outer tail-feathers white, and not fulvescent.

In one specimen, a female shot in September, the plumage is fresh and perfect, showing broad pale edgings on the tertiaries, which are rounded, the edgings of the primaries are more rufous, the outer web of the first large primary being rosy, the patch behind the eye is fulvescent instead of white, and the dark markings on the breast are more shaded off and not so decided, the centre tail-feathers are black instead of dark brown, and the outer tail-feathers fulvescent white. Wing $3\frac{1}{2}$ inches, tail $2\frac{1}{2}$, tarsus $\frac{3}{4}$, bill at front $\frac{1}{2}$. Of the large primaries the second and third are equal, and first and fourth are equal, with $\frac{5}{8}$ inch between the tertiaries and primaries. The legs are much more transparent-looking than in the other specimens, all of which are in worn and faded plumage, with the feathers much abraded.

The distinctions pointed out by Brooks between *A. guttata* and *A. gulgula* hold good, except that the tendency of the spots to coalesce at the sides of the breast, which the specific name has reference to, is not at all well marked. The most notable distinctive points are the albescent hue of the plumage of the underparts and the larger size.

182. Galerita cristata (Linn.).

This is one of the very few birds that remain in Gilgit all the year round; it is very common.

183. Alsocomus hodgsoni (Vig.).

Procured only in the forests at about 8000 feet elevation, where it seems tolerably common. A male shot in July lacks the white spotting on the flanks described by Jerdon.

184. Columba casiotis (Bonap.).

A single specimen, a female, belonging to this species was procured in the main valley on 24th April. Jerdon's description hardly represents correctly the amount of white on the wing. The outermost secondary-coverts are pure white, forming a conspicuous longitudinal patch extending for over $3\frac{1}{2}$ inches down from the carpal joint. The primaries are margined with white, each except the second less conspicuously than the one before it, gradually shading into ashy, but not sufficiently broad to form a bar (as stated by Jerdon). The neck-patch is clayey buff or ochraceous; and the green gloss prevails above the patch, and the amethystine below. This style of coloration of the neck-patch also appears in specimens from Kumaon; and the distinction referred to by Jerdon, as pointed out by Blyth, does not hold good. Weight $11\frac{3}{4}$ ounces, length 16·8 inches, wing 10·1, tail 6·8, tarsus 1·3, bill at gape 1·1, bill from front 0·85. Irides yellowish white. A few other specimens were seen at elevations of over 8000 feet during the summer, but not one during the winter.

185. Columba intermedia, Strickl.

In November the pigeons begin to collect in flocks, which increase in size as the winter goes on.

At first they are mostly composed of *C. intermedia*, with a single specimen of *C. rupestris* in the flock. Gradually *C. rupestris* gets commoner, and a few specimens of *C. livia* appear. When the corn is sown the Pigeons collect in great flocks of several hundreds, and settle on the newly sown fields till it seems as if not a single grain would be left.

Till the end of April they appear at intervals whenever heavy weather in the mountains drives them in. In the

beginning of May they pair; and a large number of them leave the main valley in the summer for higher elevations.

The specimens of *C. intermedia* killed in summer show the ashy grey rump, tending in some almost to white, but never so marked as in *C. livia*.

186. Columba livia, Bp.

A few specimens seen both in summer and winter.

187. Columba rupestris, Pall.

C. rupestris never appears in large numbers; and I have never seen a flock of this species which had not specimens of one or the other before-mentioned Pigeons with it.

It has a conspicuous white shoulder-patch in winter plumage, which is not mentioned by Jerdon. Wing 9 inches, tarsus $1\frac{1}{8}$, bill at gape $\frac{7}{8}$.

188. Columba leuconota, Vig.

Not very common. Never seen below 10,000 feet. The whole head and neck are ashy black—not the top of the head and ear-coverts only, as described by Jerdon. The underparts are white, shading into ashy on the abdomen and under tail-coverts.

189. Turtur rupicola (Pallas).

A summer visitor; appears about 1st May.

190. Turtur aurita (Gray).

Appears about the same time as *T. rupicola*.

♂. Length 12 inches, wing 7·1, tail 4·9, tarsus 0·85.

♀. Length 11·4 inches, wing 6·75, tail 4·7, tarsus 0·80.

Irides orange, feet and legs lake-red.

191. Turtur cambayensis (Gmel.).

One single specimen, killed in the beginning of March among a flock of *T. suratensis*, in no way differs from the type commonly met with in India.

192. Turtur suratensis (Gmel.).

Never very common, but seen from time to time at all seasons of the year, in small flocks of four or five.

[This is nearer the typical form of *T. suratensis* than the

Spotted Dove of the plains, which approaches *T. tigrina*. In one specimen the buff spots on the feathers are enlarged so as almost to make the back uniform, while all the tints are paler and more delicate than usual; four other specimens are undistinguishable from those generally obtained in the western Himalayas.—G. F. L. M.]

193. Tetraogallus himalayensis (Gray).

Common everywhere in favourable ground. It makes its nest at about 8000 or 9000 feet, and breeds early. Directly the young are hatched they go up to the lower edge of the snow—in fact, as high as they can. I procured a nestling about three days old on 28th May. Six eggs (which were hatched two days afterwards under a hen) were brought in the last week in June; the old bird was also snared and brought in, and being let loose she wandered round the tent all night.

I have never seen these birds in large flocks like *T. tibetanus*; they are generally in pairs only. In the depth of winter a few collect together, but when disturbed separate at once.

In the nestling the lower plumage is silky white unspotted; the upper part white tinged with rufescent, here and there variegated with dark-brown markings, darkest and best-defined on the head. Wings and tail pale rufous, mottled with dark brown, except on the terminal fringe.

194. Caccabis chukor (Gray).

Very common. In summer it breeds at all elevations from 5000 feet to 10,000 feet, the nests at the highest elevations being hatched latest. At 5000 feet some of the young birds are able to fly by the first week in June. I took a single fresh egg out of a new nest on the 5th May.

A nestling obtained on the 22nd July at about 6000 feet elevation, with the wing only 3·6 inches long, unable to fly, had the top of the head earthy brown with a slight rufescent tinge, ear-coverts deep brown, chin, throat, and cheeks white, the rest of the plumage pale earthy brown, each feather with a pale buffy-white tip, largest on the abdomen, where the brown is almost lost; upper plumage rather darker, barred with pale buff, the bars edged with narrow interrupted

blackish lines; primaries hair-brown, with large irregular buff spots on the outer margin.

195. Coturnix communis (Bonn.).

Seen at intervals all through the year. In April becomes common, and breeds in May. Eleven eggs ready to hatch were brought to me on 26th June.

196. Otis tetrax (Linn.).

A male in winter plumage was shot on 27th March on a stony plain overgrown in places with coarse grass, about six miles from Gilgit. It weighed 21½ ounces. Another was seen at the same time. The natives say that a pair or two are to be found in the same place every summer; so they probably breed there; but I doubt if the bird is to be found anywhere else in the district, as the ground is hardly suitable to it.

197. Charadrius fulvus, Gm.

After I left Gilgit, Dr. Scully secured a specimen during the autumn migration.

198. Ægialitis cantiana (Lath.).

A single specimen, a female, procured at Gilgit on the 20th September.

199. Ægialitis philippensis (Scop.).

Tolerably common in April and May, in full breeding-plumage.

200. Ægialitis hiaticula (Linn.).

Dr. Scully writes that after my leaving Gilgit he secured a specimen of this species.

201. Vanellus vulgaris (Bechst.).

A few are to be seen at all times scattered about during the winter. In March they collect into flocks of twenty or thirty, and disappear about the 25th.

Jerdon mentions that the only distinction between the sexes is in the size of the crest; but the few specimens collected seem to show that the females never have the lores, chin, and throat black like the male. The colours of the male also are much more intense.

202. Chettusia gregaria (Pallas).

Two specimens were secured, a male and a female, one in each year, in the beginning of April, when the birds were apparently passing up from the south. The male had another one with it at the time of being shot. No others were seen alive; but one was picked up apparently freshly killed by a Falcon. Both specimens are in full summer plumage. The axillaries and inner lining of the wing are pure spotless white.

203. Lobivanellus indicus (Bodd.)*.

A single one was heard, but not secured, by Dr. Scully on 2nd June, after dusk. There could not be much chance of mistaking the cry for that of any other bird.

204. Anthropoides virgo (Linn.).

One specimen was brought to me alive in September. Two flocks were seen on 29th August late in the evening, in very heavy weather, flying west. They appeared to have just come down from the Pamirs by the Hunza valley.

205. Scolopax rusticula, Linn.

A winter visitant. During the severe winter of 1877–78 Woodcocks were not uncommon, generally keeping to the small watercourses made for irrigational purposes. I have never seen any in the summer, though they probably breed in the valley. A single specimen in the collection, shot in January, has the pale tone of colouring which characterizes so many of the birds in this locality.

206. Gallinago solitaria (Hodgs.).

A few occur in winter and spring, at heights of from 5000 to 9000 feet. I have never noticed them in the summer. A specimen shot in January has the pale lines formed by the edges of the outer dorsal and scapulary feathers nearly pure white, and a good deal of white intermixed with the pale bands on the wing-coverts and secondaries.

207. Gallinago scolopacina, Bonap.

The ground is not sufficiently favourable to induce Snipe

* [I subsequently obtained a specimen.—J. S.]

to remain in any numbers; but a few are always to be found all through the winter, from 2nd September to the end of April, along the watercourses and edges of rice-fields.

[A point of distinction between this species and *G. stenura* (Temminck), in addition to those which have been noticed by various writers, is the conspicuous white tipping on the secondaries in *G. scolopacina*, corresponding to the wide white tipping of its under wing-coverts.—G. F. L. M.]

208. Limosa ægocephala (Linn.).

After I left Gilgit Dr Scully secured a specimen during the autumn migration.

209. Machetes pugnax (Linn.).

A male was procured in September, apparently on its way southwards. The colours are somewhat more vivid than those of the winter plumage; but the ruff and other breeding-insignia are wanting. (Wing 7·25 inches, tail 2·7, tarsus 1·75, bill at front 1·5). A female was subsequently secured in the same month—length 9·5 inches, wing 6, tail 2·4, tarsus 1·6; irides brown.

210. Tringa subarquata, Güld.

A single specimen, a male, shot on 7th September, evidently passing southwards.

211. Tringa minuta, Leisl.

Since my leaving Gilgit, Dr. Scully writes that he found the Little Stint very common during the end of autumn and beginning of winter.

212. Tringa temmincki, Leisl.

Four specimens obtained in May in transition plumage—two on the 14th, and two on the 22nd.

Dimensions:— ♂, length 6·2, wing 3·8, tail 2·12, tarsus 0·7; ♀, length 6·1, wing 3·75, tail 2·05, tarsus 0·7. Irides brown.

213. Actitis glareola (Linn.).

Several specimens occurred about 23rd April; but not noticed at other times.

214. Actitis ochropus (Linn.).

One specimen killed in January. Very common in April,

disappears May, June, and July, reappears in considerable numbers in the middle of August.

215. Tringoides hypoleucus (Linn.).

Tolerably common about middle of May. A few stragglers noticed during the winter. Considerable numbers suddenly appeared in the middle of May for a short time.

The dates of the northern migrations of these Waders are well marked, and differ a good deal. *Actitis ochropus* appears in considerable numbers about second week in April, and disappears a little before the end of May. A few stragglers remain all the winter, and also are found in favourable places above 8000 feet in summer.

A. glareola appears about the end of April, and disappears by the middle of May. No stragglers seen at any other time.

T. hypoleucus and *Tringa temmincki* appear together in considerable numbers about 15th May, and disappear after a short stay.

216. Totanus glottis (Linn.).

A single specimen, a male, was procured in September, apparently on its way southwards.

217. Totanus fuscus (Linn.).

Not common. One specimen secured on 23rd April, a male in transition plumage, sooty black feathers appearing on the head and undersurface. Secondaries incompletely barred with white, and wing-coverts with a row of white spots on the outer margin, upper tail-coverts and all the tail barred with white, under tail-coverts with a few narrow brown bars.

218. Totanus calidris (Linn.).

A single specimen of the common Redshanks has been obtained by Dr. Scully since I left Gilgit.

219. Himantopus candidus (Bonn.).

One specimen, a female, shot in April; no others seen.

220. Fulica atra, Linn.

Common in November and December, but seems to go further south during the great cold, and reappears in March

and April on its way back to its breeding-grounds, when it is very common. It probably breeds at the big lakes at the head of the valley.

221. Gallinula chloropus (Linn.).

Common in spring and autumn. A young bird procured 26th August.

222. Porzana maruetta, Leach.

Though I have procured specimens of three kinds of Rails, strange to say, I have never seen one about, nor has a man who has been employed in shooting birds daily for nearly two years ever procured one. All the specimens I have seen have been brought in alive by natives. I imagine that a few of each species breed here every year. They are certainly only summer visitors.

Two of this kind were brought to me, a male and a female—one in the middle of April, the other at the beginning of July.

223. Porzana pygmæa (Naum.).

One specimen, a male, was brought to me alive on 20th May, when it was evidently breeding.

224. Porzana parva (Scop.).

Since my leaving Gilgit, Dr. Scully writes that he has secured an immature specimen which he believes to belong to this species. Wing 4 inches.

225. Crex pratensis, Bechst.

Since my leaving Gilgit, Dr. Scully writes that he secured a specimen during the autumn migration.

226. Rallus aquaticus, Linn.

A single specimen which I refer to this species was brought to Dr. Scully alive, by a native, on the 25th April. Length 10·9 inches, expanse 15·25, wing 4·65, tail 2·3, tarsus 1·6, middle toe, 1·75, tibia (bare) 0·5, bill—from front 1·54, gape 1·7, depth 0·35.

227. Ciconia nigra, Linn.

Flocks of Black Storks appeared at intervals in February,

March, and April. One was brought to me alive on 14th April, with the glossy-bronze markings on the head and neck very vivid.

228. Ardea cinerea, Linn.

Herons appear in the end of September, apparently on their way to the south, and again in the end of February, when they are common till the end of March, during which month they collect in flocks of ten or twelve, and gradually disappear, a few being seen till the beginning of May; but as they are known to breed in Kashmir, it is probable that a few pairs breed in Gilgit also. Most of them appear to go northwards, to breed near the lakes at the head of the Gilgit valley, which are favourite breeding-places for water-fowl.

229. Ardetta minuta (Linn.).

After I left Gilgit, Dr. Scully secured a specimen in the month of October.

230. Nycticorax griseus (Linn.).

One specimen brought in alive to Dr. Scully in the first week in May. A young bird in the collection, shot on the 8th July, has the wing 10 inches.

231. Anser indicus (Lath.).

I have several times observed flocks of geese flying over Gilgit, but have never shot any in the district. Higher up the valley I saw a number and shot several specimens of this bird, which is said to breed on the Shandur lake in May. This was the only Goose I saw on the Pamir in April 1874.

232. Casarca rutila (Pall.).

A pair occasionally seen in autumn and spring.

233. Spatula clypeata (Linn.).

The first Duck of the season, seen 30th August, looked like *S. clypeata*; and others were noticed in autumn and spring. One specimen shot.

234. Anas boscas, Linn.

Appears about the middle of October, and is the common

Duck to be seen during the winter. It remains till nearly the end of April.

235. Chaulelasmus streperus (Linn.).

Since my leaving Gilgit, Dr. Scully writes that he has secured a specimen of the Gadwal.

236. Dafila acuta (Linn.).

The Pintail is seen at intervals during the winter, but is never common. It remains much later than *Anas boscas*. I have seen it as late as the middle of April.

237. Mareca penelope (Linn.).

A single specimen of the Wigeon has been procured by Dr. Scully since I left Gilgit.

238. Querquedula crecca (Linn.).

To be seen at intervals all through the winter, from the middle of September to the middle of April, but is never very common or in parties of more than eight or ten, generally less.

239. Querquedula circia (Linn.).

Seen occasionally, but is never very common. I shot a pair in the middle of September, and one in the end of March.

One shot 2nd September, and a flight seen flying from the north at the same time. I rather think this Teal only appears very early and very late but does not remain all through the winter.

240. Branta rufina (Pall.).

I believe I identified two of this species among a flock of Ducks in March, but was not able to shoot a specimen.

241. Fuligula nyroca (Güld.).

On one occasion in March I saw some of the White-eyed Duck among a flock of Teal; and Dr. Scully has since written to me that he has secured a specimen.

242. Fuligula cristata (Linn.).

Dr. Scully writes that he has procured a specimen since I left Gilgit.

243. Mergus castor (Linn:).

I have several times come across the Merganser in winter, in the mountain-streams, but never secured a specimen.

244. Podiceps philippensis, Gmel.

One specimen was secured by Dr. Scully out of a small flock on 29th March; but they are seldom seen, and apparently do not stop at all on their passage through.

245. Larus affinis, Reinh.

A single specimen which appears to be *L. leucophæus* (Licht.), but which now, according to Mr. Howard Saunders (Stray Feathers, vii. p. 463), stands as *L. affinis*, was procured. Top of the head almost white, sinciput and ear-coverts darker, neck and upper plumage generally of various shades of brown, each feather edged with whitish except on the back, where the edgings are grey. Primaries brownish black, faintly tipped with whitish; secondaries brown, conspicuously tipped and fringed on the outer margin with white; inner web broadly margined with white, the basal portion being completely white; greater primary coverts brown bordered with white; secondary coverts broadly edged with grey; lesser coverts coloured like the upper surface; tertiaries and scapulars brown tipped with white; upper tail-coverts white, with a few brown spots; tail pure white at base, with a broad black terminal band; undersurface white, suffused with brown on the neck and sides of the breast; under tail-coverts white, with a large brown spot on outer web near tip; axillaries pure white, a few of them with a brown spot at tip; under wing-coverts white, barred with brown.

Dimensions (taken from dried skin)—wing 17·15 inches, tail 7·3, tarsus 2·65 (longer by 0·4 than the middle toe with claw, which, according to Mr. Howard Saunders, serves to distinguish this species from *L. cachinnans* and *L. argentatus*). Bill blackish, with horny tips, yellowish at base of lower mandible; length from gape 3·25 inches, legs and feet yellow.

246. Gelochelidon anglica (Mont.).

Terns are seldom seen, and never linger on their passage through. One specimen secured 23rd April.

247. Hydrochelidon hybrida (Pall.).

Two specimens secured 22nd April, when a party of eight or ten were seen.

In a young bird procured by Dr. Scully, 29th August, the bill is black, not red, as suggested by Hume (Stray Feathers, vii. p. 445), and the feet are dark brown with a reddish tinge.

A Tern which looked like *Sterna fluviatilis* was seen by me on 23rd August, evidently passing through on its way south.

248. Hydrochelidon nigra (Linn.).

Since my leaving Gilgit, Dr. Scully writes that he has secured five specimens, which he believes to belong to this species or to *H. leucoptera*. The measurements vary from 8·2 to 9 inches in the wing, and from 0·74 to 0·9 in the tarsus.

249. Graculus carbo (Linn.).

Several times I have seen a Cormorant which I assign to this species; but I have never secured a specimen. On 12th September I saw a flock of five in the Sai valley.

IV.—*Ornithological Letters from the Pacific.*—Nos. V. & VI.*

By Otto Finsch, Ph.D., H.M.B.O.U., &c.

No. V. *Kushai.*

Pacific Ocean, on board the German schooner 'Francisca.' March 1st, 1880.

We left Taluit (Marshall group) on February 15th, and made a fine and pleasant voyage of five days only to Kushai. The weather was exceedingly nice, and the sea was smooth; but no birds were seen, except a few Tropic-birds (*Phaeton flavirostris* and *P. æthereus*). On the morning of the 20th of February we sighted the island of Kushai, which, with its mountains covered all over with dense woods, offers a most delightful prospect, especially for those who have been living

* For No. IV. see Vol. IV. p. 429.

for months on uninteresting low coral islands. The mountains, although not exceeding 2000 feet in altitude, appear to be far higher, especially the steep peak of Mount Crozer, which forms an important landmark. The nearer we came the more delighted we were by the wonderful landscape; and when we anchored about noon in Chabrol Harbour, on the N.E. side, closed in by the small lovely hilly island of Lälla, with its nice-looking houses, we fancied ourselves in a Garden of Eden. The people (only about three hundred souls all together), who came to pay us their welcome in their singular canoes, were exceedingly polite and amiable; all were clothed, and spoke more or less good English. But what sounded more agreeable to my ears than even the English language, were the voices of different kinds of birds, which formed such a concert as I had not heard since leaving Europe. In Hawaii you scarcely hear any thing but the harsh, unmelodious voices of the Mainas; and on the low coral islands there are only the cries of Terns and Waders to listen to. As soon as we had paid our visit to the "Takuscha" (the first chief, or so-called "king" of the island) we went out to shoot. The first bird I got was *Drepanis cinereus* of Kittlitz, not obtained since the time of its discoverer, which I at the first glance found to be a true *Zosterops*, as I had long ago suggested. This modest-looking little bird is by no means rare; and although not shy, it is not easy to obtain good specimens. It keeps in small companies of from three to five, flying from tree to tree in search of insects, and resembles in its habits some of our Titmice, especially *Parus palustris*. I did not hear it utter any song; but it has various whistling notes, of which the most peculiar resemble those of our *Passer domesticus* when alarmed, but are not so harsh.

Zosterops, by reason of its dull plumage and quickness among the thick foliage of the trees, easily escapes notice; but the gay-coloured little *Myzomela rubratra* and the Starling-like *Calornis pacificus* cannot be overlooked. The former, so remarkable with its bright scarlet garb, is to be seen everywhere, on the flowers in the gardens, on the tops of the cocoanut-trees, and in the thickets of mangroves, and is not

at all shy. It is always moving about, flying from branch to branch, and utters several notes resembling those of our Nuthatch (*Sitta*) and Titmouse (*Parus*), varied with some melodious whistlings, which, taken together, form a sort of song, especially about daybreak, when a greater number of songsters are at work.

I found an unfinished nest of the *Myzomela*. It was half-cup-shaped, made of fine fibres and mosses, placed in a forked twig of a mangrove, about ten feet above the water, and ingeniously protected from sun and rain by one of the strong and compact leaves of the tree. As is the case with most tropical birds, there does not seem to be a certain fixed breeding-season; for at the same time that I found the nest, I got also young ones just able to fly, and old ones in nuptial as well as in moulting-dress. The young birds of *Myzomela* are smoky black, with some traces of red feathers on the neck, shoulders, and back. The female is like the male, but a little smaller and less brilliantly coloured. Next to *Myzomela*, or perhaps even more common, is *Calornis pacificus*. These birds keep in pairs or parties of from three to four, and frequent the gardens, plundering the fruit-trees, chiefly the *Caricæ* and bananas. *Calornis* is rather a silent bird, uttering only a few short Starling-like notes, and in manner and habits much resembles our Starling. I obtained young birds, distinguished by their dull blackish plumage, with pale edgings to the feathers underneath. Young birds have the iris whitish, or yellowish; but in the old ones it is invariably of a bright sulphur-yellow. Both sexes are alike. I tried in vain to get examples of *Lamprotornis* (melius *Sturnoides*) *corvina* of Kittlitz. Kittlitz speaks of obtaining two specimens in the "mountainous woods of the interior," where the species is "solitary and very rare." The natives to whom I described this bird did not know it, as was likewise the case with the gay-coloured little *Erythrura trichroa*, which Kittlitz also got in Kushai, and which I afterwards obtained at Ponapé.

I may mention that the Long-tailed Cuckoo obtained by Kittlitz in Kushai, and subsequently at Uleai, is undoubtedly *Eudynamis taitensis*, a species which I found in

the Gilberts, as also on the Marshalls and in Ponapé, and which seems to migrate over the whole of the Pacific islands, having been recorded westward as far as the Pelews.

A very lovely member of the avifauna of Kushai is the little Swiftlet mentioned by Kittlitz as *Cypselus inquietus*, and called by Streubel *Cypselus ualensis*, which is generally to be seen in small numbers or singly in the early morning or late in the evening, before sunset. This little bird resembles in its mode of flight our Swift, but unites to it some Swallow-like habits, as it hovers about the tops of the trees or over the surface of the quiet lagoons. On shooting some specimens I found them to belong to *Callocalia vanicorensis* (Quoy & Gaim.), a species distributed over the whole Western Pacific, ranging westward to the Pelews and northward to Guam (Mariannes). Amongst the congeneric species this one is distinguished by its uniform smoky black garb, the rump being of the same colour as the other parts. Hunting on the island of Lälla is very difficult, as there are so many stone walls of both modern and ancient times. Amongst the latter are some most remarkable cyclopean buildings, the architects of which are totally unknown, even to the present native generation. We stopped for about four days in Lälla harbour, and made several excursions up a little river, but were unable to enter the virgin woods, on account of the density of the trees and the undergrowth. It would require many hands to cut out a pathway; and even then it would be impossible to advance, on account of the deep mud which covers the level ground. For this reason I was unable to obtain specimens of the small Fruit-Pigeons (*Ptilopus*) of the island: although their call was frequently heard, yet nobody could penetrate to their roosting-places.

Besides the birds already mentioned, I observed in Lälla harbour *Anous stolidus* breeding in the parasitic fern-clusters on the branches of high trees, also *Gygis alba*, which breeds in the trees, and *Phaeton flavirostris*, which resorts to the woods higher up the mountains. I need hardly say that *Charadrius fulvus*, *Strepsilas interpres*, *Actitis incana*, and *Ardea sacra* were common everywhere; for they are as inseparable bird-

figures in a Micronesian landscape as *Charadrius fulvus* on a Siberian tundra, or the Eider Duck in a Norwegian fiord. When on our way to Coquille harbour, on the western side of the island, where we had to march partly along the sands or coral-gravel, the last-named species was by far the most plentiful, but always singly, in pairs, or in small flocks, never in large numbers. During this trip I obtained light and dark specimens of *Ardea sacra*, the latter much darker (in fact, nearly black) than those since observed by me.

Along the mangrove sea-margins *Gygis alba* was more common than elsewhere. We passed closed lagoons, surrounded by mangroves and patches of reeds, apparently made expressly for Ducks and other water-fowl; but I endeavoured in vain to see any of them, or to rediscover "*Rallus monasa*" of Kittlitz*. On account of the heavy rain, we had to stop at Taaf, a small place of three or four native houses, where we received a most cordial and kind reception. Notwithstanding the rain, we went out shooting, and had an opportunity of watching the habits of *Carpophaga* and *Ptilopus*, so common everywhere in the woods. The singular call of the latter sounds like *hoooo, hoooo, hoo, hoo,* the latter two syllables repeated very quickly a dozen times. We had heard it before in Lälla harbour; but it was the privilege of our consul, Mr. F. Hernsheim, to kill the first specimen, which proved to belong to an undescribed species peculiar to the island†. When the native lad who was my guide showed me the first specimens of this *Ptilopus*, I was much in the same position as when I was invited to have the first look at some prongbucks on the prairies of the far west. I was quite unable to detect the bird amongst the dense foliage, although it repeatedly uttered its calls; and I had to give my gun to the lad in order to secure the bird. Afterwards I became more accustomed to their ways, and was able to shoot these

* Of this species I examined the type in the St. Petersburg Museum, and found it to be *Ortygometra tabuensis* (Gm.).

† PTILOPUS HERNSHEIMI, sp. nov.

P. fasciatæ simillimus, sed maculâ epigastrii nullâ, et rectricum fasciâ latâ apicali flavissimâ. (*Cf.* P. Z. S. 1880, Nov. 16.)

small Pigeons myself. They are not at all shy; but, as already explained, the difficulty is to discern the small green body, so much like the leaves around it. The *Carpophagæ* are therefore easier to obtain; besides they are much more common, and are not at all shy. They roost generally higher up in the trees, and need heavier shot. The call of these birds is a deep *roo-oo*, two or three times repeated, but is far less often heard than the lively call of the *Ptilopus*. Of the *Carpophaga* I got young ones, and old ones in moult, as well as birds in full dress; so that the breeding-season must vary very much, and extend over nearly the whole year. Both these Pigeons feed upon various fruits; and it is astonishing what large-sized ones they are able to swallow. In Coquille harbour I observed the same species of birds as I mentioned above, but I got besides *Numenius phæopus* and *Phaeton flavirostris* (captured on the nest), and I found large breeding colonies of *Anous melanogenys*, the loosely constructed nest being placed on the branches of mangrove trees, mostly at a considerable height, and not accessible even to good climbers. In the dense mangrove-woods, partially flooded at high tides, I found another winged animal, which old Gessner would have taken for a bird, and which I at first took for the same. On the occasion of my first hunting-party, I saw for a moment a large winged animal between the tops of the trees, and exclaimed "An Owl! an Owl!" beginning to consider at the same moment whether it would turn out to be *Asio brachyotus* or a new and interesting species. When, however, the same animal made its appearance a second time, I found the supposed Owl to be *Pteropus ualensis*, so erroneously called by the English "Flying Fox," and by the Germans "Flying Dog"!!

In the whole avifauna of Kushai, of which I append a list, we find the total number of species to be twenty-two, of which only three, *Zosterops cinerea*, *Sturnoides corvinus*, and *Ptilopus hernsheimi* are peculiar to the island. The others have a wider distribution in the Western Pacific, or are migratory birds. To those acquainted with the next high island, Ponapé, it must seem very strange not to

find in Kushai representatives of the families Psittacidæ, Alcedinidæ, Muscicapidæ, and Campephagidæ, as the geological and botanical characters of the two islands are quite the same. I suspect *Calamoherpe syrinx* may still be found in Kushai, although it is not mentioned by Kittlitz and escaped my notice. Kittlitz, who in December 1827 and January 1828 visited Kushai (erroneously termed "Ualan"), enumerated fifteen species of birds as observed there by him; but a great number of these remained doubtful until I had the privilege of determining them. During a stay of only eight days, confined to the outskirts of the island, I may call it satisfactory to have collected examples of fourteen species, and to have observed four others, making a total of eighteen species, nearly the whole of the species known to exist on the island. Of these I add a list, in which those marked with an asterisk were collected by me.

1. Eudynamis taitensis (Sparrm.).
Cuculus, sp. inc., Kittl.

*2. Collocalia vanicorensis (Quoy & Gaim.).
Cypselus (=*Hirundo esculenta*, ex Java), Kittl.
Cypselus inquietus, Kittl.

*3. Myzomela rubratra (Less.).
Cinnyris rubrater, Kittl.

*4. Zosterops cinerea (Kittl.).
Drepanis cinereus, Kittl.

*5. Calornis pacificus (Gm.).
Lamprotornis columbinus, Kittl.

6. Sturnoides corvinus (Kittl.).
Lamprotornis corvina, Kittl.

7. Erythrura trichroa (Kittl.).
Fringilla trichroa, Kittl.

*8. Ptilopus hernsheimi, Finsch.

*9. Carpophaga oceanica, Less.
Columba oceanica, Kittl.

*10. Charadrius fulvus, Gm.
Charadrius pluvialis, Kittl.

*11. Strepsilas interpres, Linn.
Strepsilas interpres, Kittl.

*12. Ardea sacra, Gm.
Ardea jugularis, Kittl.

*13. Actitis incana (Gm.).
Tringa glareola, Kittl.

*14. Numenius phæopus, Linn.
Numenius tenuirostris, Kittl.

15. Ortygometra tabuensis (Gm.).
Rallus monasa, Kittl.

*16. Anous stolidus (Linn.).
"*Grosse dunkelbraune Meerschwalbe mit weissem Kopfe*," Kittl.

*17. Anous melanogenys, Gray.
Sterna panayensis s. *tenuirostris*, Kittl.

*18. Gygis alba (Sparrm.).
Gygis candida, Kittl.

19. Puffinus obscurus (Gm.).
"*Schwärzliche Sturmvogel mit weissem Bauche, so gross als eine Lachmöve*," Kittl.

*20. Phaeton flavirostris.
Phaeton candidus, Kittl.

21. Phaeton æthereus, Linn.

22. Tachypetes aquilus, Linn.

No. VI. *Ponapé.*

Pacific Ocean, on board the German schooner 'Francisca.' March 17, 1880.

When I wrote my paper "Vögel von Ponapé" (Journal des Museum Godeffroy, Heft xii. 1876, pp. 14–40) I had not

the slightest idea that four years afterwards I should be in the happy position of visiting this fine island myself, and should be able to make some small contribution to its avifauna.

Leaving Coquille harbour in Kushai (Strong Island) on the 29th of February, the 'Francisca' reached Ponapé on the 2nd of March, and cast anchor in the fine harbour of Jamestown, in sight of the rocky island Tokoiti, one of the most beautiful spots on the north coast. To the description of the island given in my paper (*l. s. c.*), I may add that its appearance from the sea is not so picturesque as Kushai; the mountains have not the sharp peaks so remarkable in Kushai, and therefore do not appear so high, although in reality they exceed in altitude those of Kushai. Otherwise the islands are similar, as regards their volcanic formation and their vegetation. The whole island of Ponapé is covered with dense woods, which makes it almost impossible to reach the interior without the assistance of a great number of men. Notwithstanding these similarities, and although the distance between the two islands is not very great (being only 300 miles), the avifaunas show considerable differences, which are not entirely due to the greater size of Ponapé, which island is nearly three times as large as Kushai. While Kushai has only twenty-two species of birds, three of which are peculiar to the island, Ponapé has thirty-two species, six being peculiar, viz. *Trichoglossus rubiginosus*, *Zosterops ponapensis*, *Myiagra pluto*, *Rhipidura kubaryi*, *Volvocivora insperata*, and *Aplornis pelzelni*, none of which, except *Zosterops*, is congenerically represented on Kushai. Are not these facts rather strange and difficult to explain? We ask in vain why there is no Parrot, no *Halcyon*, or Muscicapine birds to be found in Kushai; and we are still less able to answer this question when we find that the geological, botanical, as well as the whole physical character of Kushai is just the same, and that these birds consequently could live on either island. On the other hand, we may ask why some small birds, with little power of flight, such as *Erythrura trichroa*, do live on both islands, and why *Zosterops semperi*, wanting on Kushai,

is to be found on Ruck, and even on the Pelews, situated at a distance of 1400 miles. Again, why are the *Ptilopus* and *Phlegœnas* of Ponapé and the Ruck group the same, whereas Kushai has a peculiar species of *Ptilopus*? Such facts as these furnish abundant food for thought upon the subject of geographical distribution, and show that, although it may be easy to make general rules, exceptions occur which are very difficult to explain satisfactorily.

Among the land-birds, *Myzomela rubratra* and *Calornis pacificus* are, in Ponapé as in Kushai, the most common, and to be seen everywhere. The latter seemed larger to me than those from Kushai; but I had not then the opportunity of making a close examination. A later comparison, however, convinced me of the identity of the *Calornis* of Ponapé and Kushai, as well as that of Ruck and the Pelews. The habits and manners of both these species are just the same as on Kushai. The *Collocalia* also occurs, and, according to the investigations of Mr. Kubary, breeds in the inaccessible holes of the big Sentinel rock of Tokoiti. Still more plentiful, or rather more easily observable, is *Trichoglossus rubiginosus*, discovered forty years ago by the 'Danaïde' expedition, and the habitat of which was mistaken by so many eminent ornithologists until the Austrian naturalists on board the 'Novara,' eighteen years later, settled the doubt. Since I have myself become acquainted with this singular Parrakeet, I do not wonder that the members of the 'Novara' expedition collected eight specimens in as many hours; for this bird was the first that attracted my attention when landing on the island, and in less than half an hour I killed four specimens myself. This Parrakeet makes itself known by its continual noise, uttered both on the wing and when resting in the foliage of high trees. It is not at all a shy bird, approaching fearlessly the neighbourhood of houses and plundering the fruit-trees, notwithstanding all the means taken to destroy them. They keep mostly in pairs, or in small companies of from three to five; and often, when I had shot one of a flock, the remainder would come down to their crying comrade and share the same fate. *Zosterops ponapensis*, in contrast with

its congener in Kushai, I generally found singly. Both species frequent the gardens, and keep more on the outskirts of the virgin woods, whereas the interior, with its almost impenetrable thickets of trees, undergrowth, and ferns, is the dwelling-place of *Myiagra pluto*, *Rhipidura kubaryi*, and *Volvocivora insperata*. The latter is a shy bird, exposing itself only momentarily to the observer. The manner of this bird is Thrush-like, whereas the two former much more resemble the Muscicapidæ. They rest on the lower branches of trees, watching for insects, or hover in the air to catch them. *Rhipidura*, especially, has a most lovely appearance in the thick of the woods, spreading out and closing its erected and strongly-marked tail-feathers, and fully deserves the English appellation of "Fantail." *Phlegœnas* is confined to the interior of the woods, where it lives chiefly on the ground, and therefore easily escapes the observer, as was the case with me. Along the outskirts of the woods, and generally near to water, I found *Halcyon cinnamomina*; its peculiar cry, quickly and often repeated, arrests the attention of the ornithologist. They are seen mostly in pairs, sitting on a dead branch and watching for their prey, which consists chiefly of insects and lizards. *Erythrura trichroa* lives in small flocks, but is very local, and found only on a few of the more open and stony places on the hills. Far more rare and localized is *Aplonis pelzelni*, being, as Mr. Kubary tells me, confined to the high mountain-regions. Mr. Kubary showed me the nest and eggs of *Erythrura*; and oologists will be astonished to hear that the eggs are, contrary to all analogies, of a pure and uniform white. *Calamoherpe syrinx* is a true *Calamoherpe* in every respect in habits and mode of breeding. The nest is built in the same style as that of our *Calamoherpe turdoides*, and fixed on two or three stems of reeds above water. How different localities can modify manners and habits considered to be peculiar, this species clearly shows; for, from what Mr. Kubary tells me, this species breeds in the Mortlocks (where no reeds are found) in trees, and, what is still more remarkable, gregariously, there being a number of nests on one tree. I had not the pleasure of hearing this

very sweet songster, of which Kittlitz, Zelebor, and others speak with admiration. Of *Eudynamis taitensis* I obtained a single specimen, in very worn plumage, showing the shafts of the tail-feathers nearly naked. This species, of which only New Zealand is known as the true breeding-place, appears in Ponapé, as in all other Micronesian islands, only as a migratory bird, or rather straggler. I had supposed the same was the case with our Short-eared Owl (*Asio brachyotus*); but Mr. Kubary told me that this bird is stationary on the island, and showed me eggs of it. Of the Pigeons I can only repeat what I said in my letter from Kushai—that both (*Ptilopus ponapensis* and *Carpophaga oceanica*) are plentiful, and have the same manners and habits. Although the *Ptilopus* belongs to a different species, I found no difference in the voice of this species and the one found in Kushai; perhaps sharper ears than my own would be able to detect some difference, even as many years ago when old Pastor Brehm professed to be able to distinguish *Certhia brachydactyla* by the peculiarity of its cry, although nobody else could distinguish the species.

What I could say with regard to the Grallæ and Sea-birds would be what I have already said in my letter from Kushai, or in my former letters; therefore I avoid repetition; but I may mention that, according to the observations of Mr. Kubary, *Charadrius fulvus*, as well as the *Strepsilas*, *Actitis*, and *Numenius* are true birds of migration, resorting to Ponapé in the winter, although stray specimens of each of these species may be seen the whole year round. The two kinds of *Anous*, as well as *Gygis*, live in the same way as on Kushai; but it is a singular fact, and seems worthy of special mention, that two species of true Terns (*Sterna bergii* and *S. melanauchen*) occur here, whereas they are wanting on Kushai. *Sterna fuliginosa*, enumerated by me among the birds of Ponapé (P. Z. S. 1877, p. 781) should be erased, having been erroneously sent to me as coming from that island. The breeding-places of *Puffinus obscurus* are the highest mountain-tops; and they have been reached only by Johann Kubary.

In my letter from Kushai I forgot to mention Jungle-fowls, which are also plentiful on Ponapé; but on both islands

they are not native species, but the offspring of imported tame birds, which have run wild and have returned to the original plumage of *Gallus ferrugineus* of Sumatra. This appears to me a most interesting fact in support of the stability of species, and goes to prove that nature is able to maintain a species, even if a great deal of the original character be lost under the continued influence of domestication.

In speaking of the ornithology of Ponapé, it is a most agreeable duty for me to mention the name of Johann S. Kubary, in whose house I spent some delightful days. The fame of this indefatigable traveller and naturalist will be already known to the readers of 'The Ibis,' more especially in connexion with the Museum Godeffroy at Hamburg, for which Kubary was working in the South Seas ten years. How he worked, and with what enormous zeal and diligence, can only be understood by those who have had the pleasure of seeing all his extensive manuscripts in various branches of science, which treat not only of zoology, but also of anthropology, ethnology, and language. No doubt Johann Kubary is the best living authority on the Pelews, Ruck, Ponapé, Nuguoro, and the Carolines generally; and his researches would furnish the most accurate and minute details on this portion of Micronesia. Alas! his various careful and extensive reports, with the exception of a very limited number, remain in the archives of the Museum Godeffroy; and we can only express a wish that they may be published to the scientific world as soon as possible. The name of Kubary, hitherto merely known as that of a good collector, would then also be known as that of an excellent observer to whom science should feel indebted for ever, as having obtained, through him, a full knowledge of the Caroline archipelago, as well as of various other parts of the Pacific.

I append a list of the birds of Ponapé; those marked with an asterisk I was fortunate enough to obtain or to observe myself.

1. *Asio brachyotus* (L.).
*2. *Trichoglossus rubiginosus* (Bp.).

*3. *Eudynamis taitensis* (Sparrm.).
*4. *Halcyon cinnamomina*, Sw.
*5. *Collocalia vanicorensis*, Quoy et Gaim.
*6. *Myzomela rubratra* (Less.).
*7. *Zosterops ponapensis*, F.
*8. *Zosterops semperi*, Hartl.
*9. *Calamoherpe syrinx* (Kittl.).
*10. *Myiagra pluto*, F.
*11. *Rhipidura kubaryi*, F.
*12. *Volvocivora insperata*, F.
*13. *Calornis pacifica* (Gmel.).
14. *Aplonis pelzelni*, F.
*15. *Erythrura trichroa* (Kittl.).
*16. *Ptilopus ponapensis*, F.
*17. *Carpophaga oceanica*, Less.
*18. *Phlegœnas erythroptera* (Gm.).
*19. *Charadrius fulvus*, Gmel.
*20. *Strepsilas interpres*, L.
*21. *Ardea sacra*, Gmel.
*22. *Numenius phœopus*, L.
*23. *Actitis incana* (Gmel.)
*24. *Sterna bergii*, Licht.
*25. *Sterna melanauchen*, Temm.
*26. *Anous stolidus* (Linn.).
*27. *Anous melanogenys*, Gmel., = *Anous leucocephalus*, F., P. Z. S. 1877, p. 781.
*28. *Gygis alba* (Sparrm.).
*29. *Puffinus obscurus* (Gmel.).
*30. *Phaeton flavirostris*.
*31. *Phaeton rubricaudus* (Bodd.).
*32. *Tachypetes aquilus* (L.).

V.—*On new Species of East-African Birds.*

By Captain G. Shelley.

(Plate II.)

Examples of the following new species have been sent to me

by Dr. Kirk from East Africa. The collection which contained them includes many other interesting forms, which I shall refer to in a future paper.

1. Parus albiventris, sp. n.

General plumage black; median wing-coverts white; greater wing-coverts and the quills edged with white on their outer webs; the white edges of the inner primaries and outer secondaries shaded with ashy olive; primary-coverts with almost obsolete pale edges; the outer tail-feathers with the greater portion of the exterior web and the ends of the feathers white, the next pair having the end half of the outer webs very narrowly edged with white; centre of the chest, abdomen, thighs, and under tail-coverts white; under wing-coverts white; inner margins of the quills cream-colour; bill black; legs slate-colour. Total length 7·75 inches, culmen ·4, wing 3·3, tail 2·75, tarsus ·8.

Hab. Ugogo.

This species, sent home by Dr. Kirk, is represented by two specimens, probably a male and a female, the latter of which I have here described. The other agrees well in its measurements, but is a trifle brighter in plumage, and the ashy-olive shade on some of the quills inclines rather to grey.

2. Cosmopsarus unicolor, sp. n.

General colouring ashy brown; a triangular patch in front of the eyes almost black; wings and tail glossed with metallic green, and with numerous narrow obsolete bars, only visible in certain lights; wing-coverts but slightly glossed with bronzy green; the green gloss on the secondaries rather stronger; primaries nearly black, with the green gloss generally of a deeper shade than on the remainder of the wing; tail deep metallic green, or brownish black very strongly glossed with metallic green, and with numerous narrow black obsolete bars, more distinct than on the wing-feathers; under surface of the tail black; bill and legs black. Total length 12 inches, culmen ·7, wing 5·1, tail 7·3, tarsus 1·35.

Hab. Ugogo.

Three specimens, all in identical plumage.

J.Smit del. Hanhart imp

SCHIZORHIS LEOPOLDI

3. Pogonorhynchus albicauda, sp. n.

Entire head and neck white; eyelids and bare skin in front and behind the eye slaty black in the dried skin; back dark

J.Smit del. Lauhart imp

SCHIZORHIS LEOPOLDI

3. Pogonorhynchus albicauda, sp. n.

Entire head and neck white; eyelids and bare skin in front and behind the eye slaty black in the dried skin; back dark brown, with narrow white ends to most of the feathers; rump, upper tail-coverts, and tail pure white, with the exception of the basal third of the centre feathers, which is dark brown; wings dark brown, all the coverts tipped with triangular white spots; quills with similar terminal white spots, but less distinct, excepting towards the inner secondaries; front of the chest, thighs, vent, and under tail-coverts white, with the basal portion of a few of the latter dark brown; remainder of the body dark brown, with white ends to the feathers, forming irregular bars; under surface of the wings dark brown, the coverts mottled with white, and the quills edged with white on their inner webs; bill blackish; legs slate-colour. Total length 6·7 inches, culmen 1, wing 3·75, tail 2·5, tarsus ·95.

Hab. Ugogo.

A single specimen of this bird. It is closely allied to *P. leucocephalus*, from which it differs chiefly in having a white tail.

4. Schizorhis leopoldi, sp. n. (Plate II.)

Forehead, crown, crest, back, wings, and tail uniform brownish ash; no feathers on the face, chin, and upper portion of the throat, which are jet-black; ear-coverts, back of the head, and the neck white, with a large patch of green on the lower throat; entire chest vinous brown, fading into a much paler shade on the thighs, abdomen, and under tail-coverts; bill and legs black. Total length 20 inches, culmen 1, wing 9, tail 11, tarsus 1·7.

Hab. Ugogo.

This species is closely allied to *S. personata*, Rüpp., from which it may be readily distinguished by the following characters:—The bare skin of the face is jet-black; there is no shade of green on the crest, nor on the under surface of the tail; the green on the lower throat is confined to a much smaller patch.

This handsome species I have named after Leopold, the present King of the Belgians, whose interest in the geography of Africa has rendered great service to scientific exploration, especially in the eastern regions of that continent, where the present species is found.

Dr. Kirk has sent me two specimens of this bird from Ugogo, which agree perfectly in colouring and measurements. I presume them to be male and female.

5. Gallirex chlorochlamys, sp. n.

Closely allied to *G. porphyreolophus* (Vig.), from which it differs in the pure green of the neck, upper back, and front of the chest, these parts having no shade of red, as is invariably the case in the more southern *G. porphyreolophus*; the middle and lower back, not including the tail-coverts, are ashy blue, with no metallic gloss and no green shade; the blue of the wings is paler, and of a decidedly more ashy shade; the metallic green shade on the greater secondaries is barely visible; the tail is slightly bluer; the abdomen and thighs are paler and more ashy. Total length 16·4 inches, culmen 1·1, wing 7·2, tail 8, tarsus 1·8

Hab. Ugogo and Dar-es-Salaam.

This species I have named *G. chlorochlamys*, on account of its green mantle. This feature is not possessed by its South-African representative, *G. porphyreolophus*, which probably does not range so far north as Dar-es-Salaam.

The specimens before me are two from Ugogo and one from Dar-es-Salaam, all collected by Dr. Kirk.

VI.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

[Continued from 'The Ibis,' 1880, p. 471.]

The American genus *Harpagus*, which Mr. Sharpe includes amongst the Falconidæ, and which seems to to be rightly

located on the outskirts of that subfamily*, agrees nevertheless with the Pernine genus *Baza* in having two distinct teeth on the cutting-edges of the upper mandible, and also resembles it pterylographically, as pointed out by Nitzsch (*vide* Sclater's translation of that author, p. 66) †.

Of the three known species constituting the genus *Harpagus*, one, *H. diodon*, extends as far north as British Guiana, whence there is a specimen in the Norwich Museum, and as far south as Rio Janeiro, an example from that locality being in the possession of Messrs. Salvin and Godman, whose fine series of the birds of this genus I have been kindly permitted to examine. I have not met with this species from any locality west of Brazil.

As Mr. Sharpe does not give the colour of the irides in any of the species of the genus *Harpagus*, I may mention that Prince Maximilian of Wied has the following note respecting *H. diodon*:—"legs orange-yellow; irides yellow" ‡.

I may add to Mr. Sharpe's description of the immature plumage of *H. diodon*, that the brown shaft-marks on the feathers of the breast vary considerably in breadth in different individuals, and that some young birds also exhibit broad brown cross bars on the feathers of the flanks.

In *H. diodon* the under wing-coverts, axillaries, and tibial feathers are ferruginous at all ages; and this colouring, though sometimes a little less intense in immature than in adult birds, affords a safe diagnosis in comparing them with the young of the other two species, to which, except in this respect, the young of *H. diodon* bear considerable resemblance.

In immature specimens of *H. diodon* there is frequently a transverse barring of two shades of rufous on the thighs, which I have not met with in any adult specimen; and in one

* If *Harpagus* be accepted as a Falconine genus, it can only be so as an aberrant one. Mr. Ridgway informs me that "it is most nearly related, osteologically, to *Ictinia*."

† It should, however, be mentioned that only one species (*H. bidentatus*) appears to have been pterylographically examined; this was compared by Nitzsch with *Baza lophotes*.

‡ Beitr. Orn. Bras. vol. iii. Abth. 1, p. 138.

young bird in the Norwich Museum the rufous thighs are crossed by two bars of dark brown.

Messrs. Salvin and Godman possess a specimen in course of change from the immature to the adult dress, in which the newly assumed grey flank-feathers adjacent to the tibiæ are slightly tipped with rufous, like those of the thighs.

Of the three species of the genus *Harpagus*, the most widely spread geographically, and, so far as I have observed, the most variable in plumage, is *H. bidentatus*, which is found in Brazil, Guiana, and Trinidad, and, on the opposite side of the continent, in Peru and Ecuador, also extending northward to Venezuela and Panama, from both of which localities the Norwich Museum possesses an adult red-breasted specimen.

Leótaud, at p. 29 of his work on the Birds of Trinidad, speaks of the iris in *H. bidentatus* as yellow; but this does not agree with the testimony of other observers. Prince Maximilian gives the following particulars in his article on this species*:—"Iris bright cherry-red or light blood-red; cere greenish yellow; lores and eyelids pale blue-grey; legs orange-yellow, feet rather paler; a young female had the irides and feet paler and the lores and eyelids a lighter blue than in the old bird, in which they are tinged with yellowish."

Tschudi describes the iris as blood-red†, and d'Orbigny as pale red‡.

An adult and very red-breasted female from British Guiana in the collection of Messrs. Salvin and Godman is thus noted by the collector, Mr. H. Whitely:—"November 27. Upper mandible black; lower mandible light slate-colour; eye pink; legs and toes light chrome-yellow."

The immature plumages of *H. bidentatus* exhibit variations of coloration which appear to me to be probably synchronous and individual, and not to mark successive stages; these variations may be illustrated by a reference to the undermentioned specimens.

No. 1. (Collection Salvin and Godman.) This is the

* Beitr. Orn. Bras. vol. iii. Abth. 1, p. 132.

† Faun. Peru, p. 107. ‡ Voyage, Ois. p. 122.

youngest example which I have examined, the bases of the wing- and tail-feathers being still enveloped in the nesting-sheaths; it was obtained by Mr. Buckley at Sarayacu, in Ecuador. The upper surface, as well as the sides of the head and neck, are a very dark lustrous brown, the feathers of the nape showing white bases; the entire mantle is of a similar hue, but a little less intense; the lesser and median wing-coverts are narrowly and inconspicuously edged with rufous; the lower scapulars are crossed by two concealed white bars; and the inner webs of the quill-feathers of the wing are also barred with white; the tail, which is dark brown, has a narrow white tip and two imperfect light and partially white cross bars; the throat is white, with a central and two lateral stripes of dark brown; the remainder of the undersurface is tinged with buff, which is darkest and most rufescent on the lower breast, abdomen, flanks, and thighs, less so on the upper breast and under wing-coverts, and least so on the under tail-coverts; the feathers of the upper breast have narrow and very dark-brown shaft-marks, those of the abdomen and flanks have rufous-brown shaft-marks, and the latter have two rufous cross bars, of which the lowest is terminal; the thighs on their outer sides are transversely barred with alternate bands of dark and pale rufous; the axillaries in this specimen are still undeveloped.

No. 2. (Collection Salvin and Godman.) A young female obtained in British Guiana by Mr. Whitely on 14th October. Though an older bird than No. 1, and beginning to assume adult plumage on the sides of the upper breast and in the tail, it is evidently an individual of a type of coloration similar to that of No. 1, from which it only differs in the following particulars:—The narrow rufous-brown tips to the feathers of the wing-coverts are more extensively diffused, the tertials and upper tail-coverts are slightly tipped with white, and the tail is crossed with three imperfect white bars besides the white tip; the black marking on the throat is confined to the mesial stripe, the shaft-marks on the upper breast are rather larger, and the feathers of the flanks and sides of the breast, in addition to the rufous shaft-marks, are crossed with

transverse rufous bars; but with this exception, the entire undersurface is less tinged with rufous than in No. 1; the axillaries are cream-coloured.

No. 3. (Collection Salvin and Godman). A young female from Panama, very similar to the specimen last mentioned, but with the cross barring on the underparts extending quite across the abdomen, which is not the case in No. 2; it also differs from No. 2 in the cross bars being browner and less rufous, both on the abdomen and on the thighs.

No. 4. (Collection Salvin and Godman.) This is an immature bird from East Brazil, very similar to No. 2, but almost destitute of rufous edgings to the wing-coverts; it is more abundantly supplied with dark-brown shaft-marks on the upper breast; but the rufous cross bars on the sides are much less developed, and the rufous cross barring on the tibiæ is less distinct than in Nos. 2 and 3.

No. 5. (Norwich Museum.) This is also a young bird from Brazil, which presents a very different phase of plumage from the three birds last described, but agrees with Mr. Sharpe's description of the "young" plumage, except in the following particulars: the three transverse bars on the tail are partially white; the cheeks are dark brown like the crown of the head; the narrow dark shaft-marks on the upper breast have broad dark bases as on the flanks; and the thighs are transversely barred with greyish brown.

No. 6. (Collection Salvin and Godman.) A young bird from East Brazil, of a similar type to No. 4, but differing from that specimen in the absence of white mottlings on the upper surface (with the exception of white spots on the inner webs of the secondaries and tertials), in the dark shaft-marks on the upper breast being merely hair-like and without broad bases, in the flanks being immaculate, and the thighs also, excepting some very indistinct grey transverse bars on one of them. The white plumage of the underparts in this specimen is interrupted in two places by the appearance of new adult rufous feathers.

With regard to the plumage of the adult birds, I think it probable that Mr. Sharpe is correct in supposing that those

in which the underparts are suffused with grey are older individuals than those in which these parts are rufous; but I have not seen any grey-breasted specimens in which the rufous has entirely disappeared, considerable traces of it remaining in all those that I have examined, especially on the sides of the upper breast; neither have I met with any individuals (like those mentioned by Mr. Sharpe) with less than three light cross bars on the tail; but I have seen specimens, both red and grey-breasted birds, in which the upper bar was nearly obsolete.

The red-breasted birds are more or less transversely barred with rufous and white on the abdomen and lower breast, the rufous bars apparently becoming ultimately grey, and then ascending somewhat higher on the breast than was previously the case.

Some individuals, both in the grey and in the rufous stage, are more distinctly barred than others; but I have only seen one adult specimen in which the abdominal cross bars are entirely absent. This bird, which is in the collection of Messrs. Salvin and Godman, and was obtained at Sarayacu in Ecuador, has the whole of the breast below the throat and the abdomen an unbroken rich dark rufous; it, however, exhibits cross bars on the axillaries, flanks, tibiæ, and under tail-coverts.

Of the nearly allied form, *Harpagus fasciatus*, which occurs in Central America north of Panama, the only adults that I have seen are three in the collection of Messrs. Salvin and Godman, from Veragua, Costa Rica, and Guatemala respectively; these all bear a considerable resemblance to the rufous-breasted phase of *H. bidentatus*, from which, however, they differ in the greater breadth and extent of the alternate rufous and white bars, which traverse the underparts continuously from the throat to the vent, the rufous bars being each composed of two shades, the one a bright rust-colour, the other tinged with slaty brown; the under tail-coverts are pure white in the Guatemalan and Costa-Rican specimens, and buffy white, slightly marked with brown, in that from Veragua.

Messrs. Salvin and Godman also possess two immature specimens, both from Veragua, from which Mr. Sharpe's description of the "young" plumage is taken: they are very similar to each other; but in one of them, which is beginning slightly to assume the adult dress, the shaft-marks on the breast are narrower than in the other and younger specimen.

VII.—*A List of Birds collected at or near Mombasa, East Africa.* By J. H. Gurney.

I have been indebted to the kindness of the Rev. F. A. Buxton for the opportunity of examining a collection of birds, of which the following is a list. The collection was made for him by Mr. J. W. Handford, of Frere Town, Mombasa, East Africa, and was procured either on the island of Mombasa, or near to that locality on the neighbouring mainland. Mr. Handford has sent a few particulars relating to some of the birds he has collected, which I have inserted in quotation-marks. The species marked with an asterisk have not, so far as I know, been previously recorded from Mombasa or its immediate vicinity.

*1. Tinnunculus alaudarius (Linn.). European Kestrel.
An adult female in worn plumage.

2. Asturinula monogrammica (Temm.). One-streaked Hawk.

3. Coracias garrulus, Linn. European Roller.

4. Coracias caudatus, Linn. Lilac-breasted Roller.

5. Eurystomus afer (Lath.). Cinnamon Roller.
"Obtained at Giriana, about forty miles from Mombasa, and twenty or twenty-five inland from the coast."

*6. Trogon narina, Vieill. African Trogon.

7. Halcyon orientalis, Peters. East-African Kingfisher.
"Eye black."

8. Halcyon chelicutensis (Stanley). Striped Kingfisher.

9. Merops albicollis, Vieill. White-throated Bee-eater.

*10. Merops superciliosus, Linn. Blue-cheeked Bee-eater.

11. Irrisor erythrorhynchus (Lath.). Red-billed Wood-Hoopoe.

"Obtained at Giriana. Feeds entirely upon grubs and insects in the decayed trees."

12. Anthodiæta zambesiana, Shelley. Zambesi Collared Sun-bird.

"This species may always be found on the tall cotton-tree when in flower, or in our garden sucking the juice from the Barbados Pride &c."

13. Cinnyris microrhynchus, Shelley. Eastern Bifasciated Sun-bird.

14. Cinnyris gutturalis (Linn.). Scarlet-chested Sun-bird.

15. Cinnyris kirki, Shelley. Kirk's Sun-bird.

This is apparently the same species as that for which Cabanis proposed the specific name of "*kalckreuthi*" in the 'Journal für Ornithologie' for 1878, p. 227.

"This and all the preceding species of this genus are very fond of sucking the sap which flows from the young shoots of the cocoanut-tree, when cut, as it oozes into the calabashes put for its reception."

16. Macronyx croceus (Vieill.). Southern Yellow-throated Pipit.

*17. Saxicola œnanthe (Linn.). British Wheatear.

This is the most southern specimen of our common Wheatear that I have seen; but I am informed by Captain Shelley that he has received one from a locality about 100 miles further south, on the river Pangani.

Mr. Handford's specimen, which is a female, has been presented by Mr. Buxton to the British Museum.

*18. Monticola saxatilis (Linn.). European Rock-Thrush.

An immature specimen, but, on a careful comparison, found to be referable to this species.

19. Oriolus galbula, Linn. Golden Oriole.

20. Oriolus notatus, Peters. Peters's Oriole.

The collection contains two specimens of this Oriole, apparently both males, but one adult and one immature. The adult agrees with the description and with the figure of the tail given by Mr. Sharpe in the British-Museum Catalogue, vol. iii. p. 196; but the younger male differs from the adult in the following particulars, viz.:—The golden colour of all the upper parts is much tinged with olive-green, that tint being strongest on the scapular and interscapular feathers; the yellow margins to the wing-coverts, secondaries, and tertials are also more or less tinged with green, and are rather narrower than in the adult male; the central pair of rectrices are dark olive-green, tinged with yellow and black, the former predominating increasingly towards the base of the feather, and the latter towards its tip, the extreme tip showing, however, a minute yellow edge; the second pair (next to the central) have a bright yellow tip extending ·3 of an inch up the feather, above this the feather is black on both webs for ·7, and also on the entire remainder of the outer web; the rest of the inner web is greenish yellow, the yellow predominating along the edge and towards the base; the third pair of rectrices resembles the second, except that the yellow tip extends ·7 into the feather; in the fourth pair the yellow tip extends an inch into the feather, and the yellow of the inner web is broader and clearer than in the second and third pairs; in the fifth and sixth pair of rectrices the outer web is black to within about ·2 of the tip, and the remainder of the feather is a clear yellow.

	Culmen.	Wing.	Tail.	Tarsus.	Middle toe s. u.
♂ adult.....	1·1	5·4	3·3	·9	·7
♂ immature..	·95	5·45	3·3	·9	·7

21. Lanius caudatus, Cab. East-African Long-tailed Shrike.

22. Meristes olivaceus (Vieill). Blanchot's Shrike.

This Shrike appears to vary slightly according to the part

of Africa in which it occurs, the races found in Western, Southern, and Eastern Africa not being absolutely identical, though hardly differing sufficiently to be separated specifically.

Mr. Seebohm, who has been so kind as to compare the present specimen with others in the possession of Captain Shelley, informs me that it is of the usual East-African race, and that "South-African skins are exactly intermediate between it and the yellow-breasted West-African form."

*23. Dryoscopus affinis (G. R. Gray). Verreaux's Shrike.

The specimen sent agrees with the figure of this species in Finsch and Hartlaub's 'Vögel Ost-Afrikas,' pl. 5. fig. 2, except that it has white edgings to the feathers of the greater wing-coverts on the outer web, and that the similar white edging to the tertials is more conspicuous than it is represented in the figure above referred to. It would seem, however, that these differences are not constant, as they are present in some and absent in others of the specimens of this Shrike in Captain Shelley's collection.

*24. Lamprocolius melanogaster (Swains.). Black-bellied Glossy Starling.

*25. Lamprocolius sycobius, Peters. Zambesi Glossy Starling.

26. Pholidauges verreauxi, Bocage. Verreaux's Glossy Starling.

"Iris yellow in both sexes. I have only seen this species on the island of Mombasa, where it is found in flocks on the baobab trees, which are there very numerous, whilst on the coast of the mainland there are none of these trees."

*27. Hyphantornis rubiginosus, Rüpp. Rust-coloured Weaver-bird.

28. Hyphantornis nigriceps, Layard. Black-headed Weaver-bird.

"Iris red."

The above note was attached to a male in breeding-dress.

29. Hyphantornis bojeri, Hartl. & Finsch. Bojer's Weaver-bird.

30. Pyromelana nigriventris (Cass.). Black-throated Bishop-bird.

31. Vidua principalis (Linn.). Red-billed Whidah-bird.

The specimen sent, a male in full dress, except that the long tail-feathers are only partially developed, agrees in other respects with a full-plumaged male in my possession from the Transvaal. Both these specimens have the chin white, with the exception of a minute black spot between the rami of the lower mandible.

*32. Mariposa phœnicotis (Swains.). Crimson-eared Benghala Finch.

The specimen sent shows the purplish-crimson ear-coverts well developed.

33. Spermestes rufodorsalis, Peters. Rufous-backed Dwarf Finch.

34. Colius leucotis, Rüpp. White-eared Coly.

35. Pœocephalus fuscicapillus (Verr. & DesMurs). East-African Brown-headed Parrot.

36. Pogonorhynchus irroratus, Cab. Lesser Collared Barbet.

*37. Campothera chrysurus (Swains.). Golden-tailed Woodpecker.

The specimen sent, a female, has been presented by Mr. Buxton to the British Museum.

38. Coccystes jacobinus (Bodd.). Black-and-white Cuckoo.

39. Treron wakefieldii, Sharpe. Wakefield's Fruit-Pigeon.

"Iris white."

*40. Ardea melanocephala, Vig. Black-headed Heron.

J. G. Keulemans lith. Hanhart imp.

1. CISTOTHORUS BRUNNEICEPS.
2. MICROCERCULUS TÆNIATUS

VIII.—*Descriptions of two new Species of Wrens from Ecuador.*

By Osbert Salvin, M.A., F.R.S.

(Plate III.)

The two Wrens described in this paper were both procured in Ecuador through the intervention of Mr. Clarence Buckley. The first (*Cistothorus brunneiceps*) was obtained by Mr. Buckley himself, in the neighbourhood of Sical, a village lying about twenty miles to the south-east of Cuenca, at an elevation of 7000 feet; the other (*Microcerculus tæniatus*) was contained in a collection of birds' skins made by his correspondent, Mr. Illingworth, in the Balzar Mountains—a range lying to the north of Guayaquil, and forming a spur of the Andes running in a south-westerly direction from the main chain.

Cistothorus brunneiceps. (Plate III. fig. 1.)

Suprà fulvescenti-brunneus, capite summo, cervice posticâ et uropygio unicoloribus, interscapulii plumis nigris sordido albo medialiter vittatis, alis extùs et caudâ distinctè nigro transfasciatis, superciliis et hypochondriis fulvis, genis nigro irroratis; subtùs medialiter sordidè albus; rostro corneo, mandibulæ basi et pedibus carneis: long. tota 4·5, alæ 1·85, caudæ 1·8, rostri a rictu 0·6, tarsi 0·8.

Hab. Sical, Ecuador (*Buckley*).

Mus. nostro.

Obs. Species *C. polyglotto* affinis, sed crassitie majore et capite summo unicolori brunneo nec striolato distinguenda.

Of this species Mr. Buckley has sent us several specimens, all agreeing together, and differing both from *C. polyglottus* and from the descriptions of *C. æquatorialis*, Lawr. (Ann. Lyc. N. Y. x. p. 3), and of *C. graminicola*, Tacz. (P. Z. S. 1874, p. 130), in its plain-coloured brown head, these other species (if, indeed, they are different from *C. polyglottus*, which I much doubt) all having the head distinctly striped.

I at one time thought that the present bird was Mr. Lawrence's *C. æquatorialis*, from the fact of both coming from the same country; but I cannot reconcile the differences between my bird and Mr. Lawrence's description, especially as regards the colouring of the head.

The figure is taken from one of Mr. Buckley's specimens.

Microcerculus tæniatus. (Plate III. fig. 2.)

Suprà brunneus ferè unicolor, alis et caudâ quoque nigricanti-brunneis immaculatis, illis tamen vix pallidiore brunneo limbatis; subtùs omnino tæniatus, plumis singulis fusco-nigro et albo latè transfasciatis, hypochondriis imis brunneis vix nigro transvittatis, rostro corneo, mandibulæ basi albicante, pedibus fusco-plumbeis: long. tota 4·0, alæ 2·3, caudæ 0·9, rostri a rictu 1·0, tarsi 0·9.

Hab. in montibus "Balzar" æquat. occid. (*Illingworth*).

Mus. nostro.

Obs. Species *M. luscinicæ* et *M. albigulari* affinis sed fasciis distinctis corporis inferioris facile distinguenda.

This makes the seventh species now known of the genus *Microcerculus*, the present bird belonging to the section which has the wing plain and without the conspicuous white bar which distinguishes *M. bambla*.

Its nearest ally seems to be *M. albigularis*, of Eastern Ecuador, from which it differs in the clear markings of the undersurface.

IX.—*On an apparently new Parrot of the genus* Conurus.

By P. L. Sclater, M.A., Ph.D., F.R.S.

(Plate IV.)

Messrs. Salvin and Godman have kindly parted in my favour with one of two examples of a species of *Conurus* which they have recently acquired, unfortunately without any authentic information as to its "*lieu de provenance*," which, however, is supposed to be "Demerara." Whether this be the case or not, the species to which it belongs seems to be undescribed; and as it is of great beauty, I think a Plate in 'The Ibis' may be well devoted to making it known. I therefore propose to characterize it as follows:—

Conurus egregius, sp. nov. (Plate IV.)

Viridis; fronte brunnescenti-nigrâ, plumis auricularibus et maculâ gulæ mediâ cupreis; cervicis laterum et pectoris plumis albicante flavido marginatis, tanquam squa-

J.Smit lith. Hanhart imp.

CONURUS EGREGIUS

Microcerculus tæniatus. (Plate III. fig. 2.)

Suprà brunneus ferè unicolor, alis et caudâ quoque nigricanti-brunneis immaculatis, illis tamen vix pallidiore brunneo limbatis; subtùs omnino tæniatus, plumis sin-

2/3

J.Smit lith. Hanhart imp.

CONURUS EGREGIUS

matis; remigibus intùs nigris, primariorum et horum tectricum marginibus externis lætè cæruleis; secundariis extùs viridibus, dorso concoloribus; alulâ spuriâ flavâ rubro tinctâ; campterio alari coccineo; subalaribus flavis aurantiaco mixtis; caudâ obscurâ, nigricante, suprà vix brunnescenti tinctâ; tibiis rubris; rostro albicanti-corneo, pedibus fuscis: long. tota 10·0, alæ 5·0, caudæ rectr. med. 48, ext. 2·5.

Hab. (sicut dicitur) in Demerara.

Mus. S.-G. et P. L. S.

Obs. Species *C. devillii* proxima, sed caudâ obscurâ et subalaribus partim flavis, necnon primariorum marginibus lætiùs cæruleis dignoscenda.

This Conure belongs to the group A of the section "*Pyrrhura*" of Finsch (Papag. i. p. 524), in which the coverts of the primaries are blue or green. Amongst these it comes nearest to *C. devillii*, from Bolivia, of which the type specimen is now in the British Museum. But in *C. devillii* the tail is light red underneath and green above, the green of the body below is lighter and more yellowish, the breast-feathers are more of a pale greyish brown, and there is no yellow on the bend of the wing or on the wing-coverts below, which are of the same colour as the primaries, not yellow as in *C. egregius*. Besides this, the outer margins of the primaries in *C. devillii* are of a much paler blue than in *C. egregius*.

As regards the somewhat peculiar dark colour of the tail, the present species comes nearest to *C. melanurus*, which, however, may be at once differentiated by having the under wing-coverts green.

Dr. Finsch recognizes 17 species of *Conurus* of the section *Pyrrhura*, of all of which I have examples in my collection, except *C. roseifrons* and *C. devillii*. I have also examples of one other species described since his monograph was finished, namely *C. rhodocephalus* (Scl. et Salv. P. Z. S. 1870, p. 787). I think I may confidently say that *Conurus egregius* is quite distinct from any of these eighteen species.

X.—*Notes on the Avifauna of New Caledonia and the New Hebrides.* By Edgar L. Layard, C.M.G., F.Z.S., &c., H.B.M. Consul, and E. Leopold C. Layard, Vice-Consul at Noumea. *With Remarks by the* Rev. Canon Tristram, F.R.S., C.M.Z.S., &c.

(Plate V.)

We have one more novelty to describe from New Caledonia :—

Ægotheles savesi, sp. nov. (Plate V.)

Æg. suprà et subtùs nigra, albo pulverulento undulata, hôc colore plurimis striis angustissimis undulantibus et interruptis transversim in unâquâque plumâ variegato; primariis et rectricibus, præter duas medias et externas, in pogonio externo tantum striatis: pileo nigricante, vix albo variegato; tarsis nudis.

Long. tota 12·8 in., al. 6·6, caudæ 6·1, tarsi 1·1, dig. med. cum ungue 1·25, rostri a rict. 1·3; rictûs lat. 1·25.

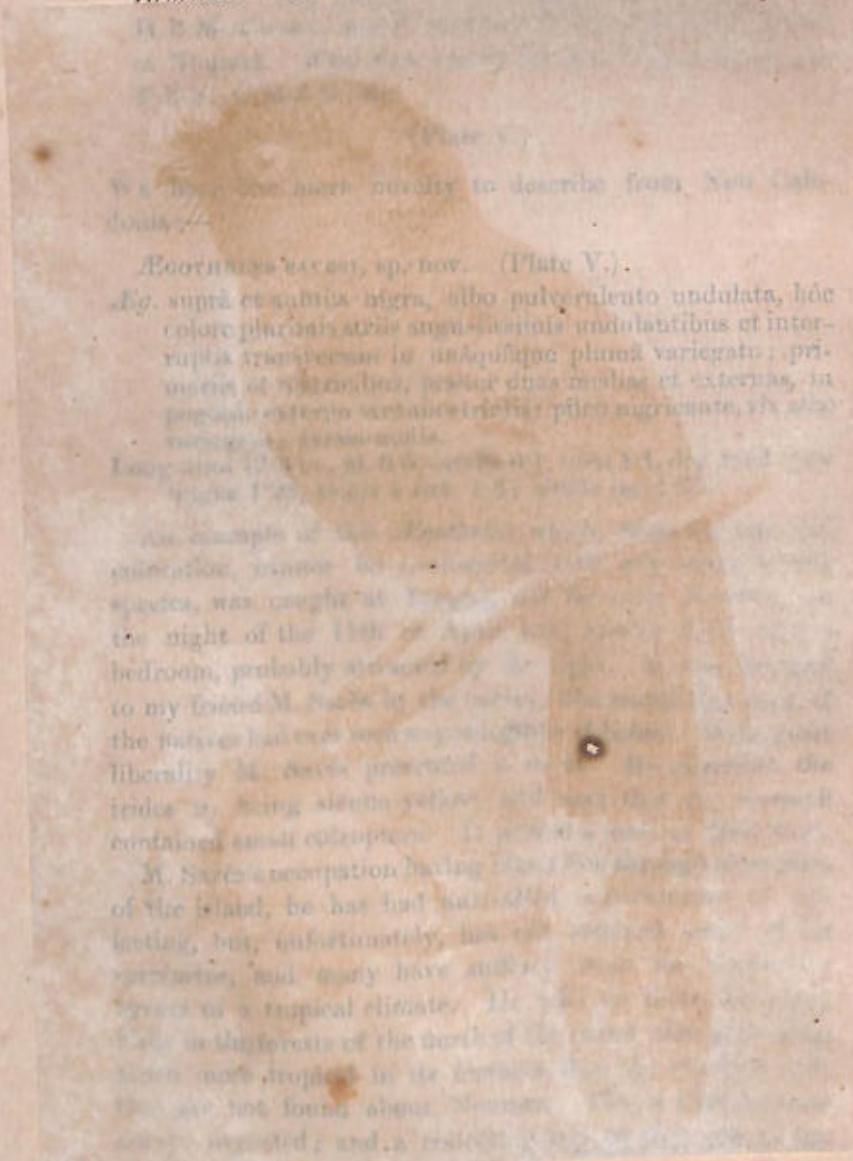
An example of this *Ægotheles*, which, from its size and coloration, cannot be confounded with any other known species, was caught at Tongué, not far from Noumea, on the night of the 11th of April last, having flown into a bedroom, probably attracted by the light. It was brought to my friend M. Savés by the captor, who stated that none of the natives had ever seen any thing like it before. With great liberality M. Savés presented it to us. He describes the irides as being sienna-yellow, and says that the stomach contained small coleoptera. It proved a male on dissection.

M. Savés's occupation having taken him through most parts of the island, he has had unrivalled opportunities of collecting, but, unfortunately, has not retained many of his specimens, and many have suffered from the destructive agents of a tropical climate. He tells us there are many birds in the forests of the north of the island (that part being much more tropical in its features than the southern end) that are not found about Noumea. This is what we have always expected; and a collecting-trip to that end of the island is one of our day-dreams.

J.Smit lith. Hanhart imp.

ŒGOTHELES SAVESI.

X.—*Notes on the Avifauna of New Caledonia and the New Hebrides.* By Edgar L. Layard, C.M.Z.S., F.Z.S.



Æcorhynchus layardi, sp. nov. (Plate V.).

Eg. supra et cauda nigra, albo pulverulento undulata, hâc colore pluribus striis angustissimis undulantibus et interruptis transversim in metallique plumâ variegato; primaries et secondaries, præter duas mediias et externas, in pogonio externo extrorsum albo nigricante, ut alæ clausæ fasciam albam

Long. alæ [illegible]

An example of this [illegible] species, which I propose to call [illegible], was caught at [illegible] the night of the 11th of [illegible] bedroom, probably [illegible] to my friend M. [illegible] the pairs I [illegible] liberality [illegible] irides [illegible] contained [illegible]

M. Sarasin [illegible] of the island, he has had [illegible] resting, but, unfortunately, has [illegible] parasites, and many have [illegible] specs of a tropical climate. [illegible] differences of the north [illegible] more [illegible] are not found [illegible] and a [illegible]

[illegible] is one of our day-dreams.

$\frac{1}{2}$

J.Smit lith.

Hasbart imp

ŒGOTHELES SAVESI.

An English settler on the west coast tells us he believes that a night-bird is not uncommon, the origin of the many extraordinary sounds heard in the forest at night. He says that no native will move in the bush after dark, and that their terror of night-birds is so extreme that they will not even willingly look at them, saying they are demons! not "canny," as the Scotch folk have it. He has never seen any of these birds, however; and all naturalists know the wonderful sounds emitted by tree-frogs; so he may be mistaken.

Leptornis aubryanus, Verr. et Desm. R. Z. 1860, p. 432. *Anthochæra aubryanus*, Gray, Brenchley's Voy. pl. vi. p. 364.

Here again we are indebted to our friend M. Savés, who has kindly presented us with what has long been a desideratum to our collection. The bird in question was shot near Noumea, soon after the occurrence of hurricanes that ravaged the country in the early part of the year. These storms seem to have unsettled all the bird population, scattering them from their secure haunts even to the trees in the town. The Pink-headed Dove (*Ptilopus greyi*) was shot in hundreds all round Noumea; "Notus" (*Phænorhina goliath*) and White-throated Pigeons (*Ianthænas hypœnochroa*) cruised about our garden; while the scarce, forest-loving, Banded Honey-eater (*Glycyphila fasciata*) was forced to seek its nectar from the lantana bushes growing in the gardens in the town. Unfortunately E. L. L. was compelled to go to Sydney, and L. L., being in charge of the Consulate, could not leave his post to reap this unexpected harvest; so we did not get much.

The coloration and description of the soft parts in the figure of *Leptornis aubryanus* are, as we have long suspected, quite wrong. All our inquiries have failed to elicit any thing of a bird with "the sides of the head naked and of a clear reddish colour;" and in the plate in the 'Voyage of the Curaçoa,' which we have had copied and sent to the forest districts, they are represented of a fine dark crimson. This is utterly wrong! the bare space about the eye is *bright yellow*, fading, after drying, into a dirty reddish brown. There appears also to be a yellow ear-tuft; but our friend's

stuffing is not equal to his generosity! we will report further on this point when we have the luck to obtain a fresh specimen. The one in question was brought into town and sold on the market for "gibier!" The legs and feet appear to have been yellow-brown; the soles of the latter are yellow even now; claws brown. The bill is rightly described. Mr. Savés says the irides were yellow. Sex male.

Falco melanogenys, Gould.

This noble Falcon appears to be not uncommon here. L. L. obtained a fine ♀ close to Noumea in April last; and M. Savés has also procured it. L. L.'s specimen had made free with a neighbour's poultry, the remains of which were in her throat when killed. This Hawk extends also to the New Hebrides. We have received a fine specimen in alcohol, shot on Vaté by Mr. Glisson.

Sula piscator (Linn.).

Several of these Gannets were driven ashore by the hurricanes, and picked up on the beach exhausted. They were purchased and eaten by some of the French "colons" as a rare kind of "Duck!" "There is no accounting for taste!"

Sternula placens, Gould, Ann. N. H. ser. 4, vol. viii. p. 192 (1871).

Some time since Mr. Masters, the gentleman in charge of the Macleayan Museum in Sydney, called our attention to specimens of a *Sternula* which he had formerly identified with *S. nereis* of Gould, stating they were distinct, and probably that called *S. placens* by the same author.

While visiting Sydney lately, E. L. L. compared specimens procured by L. L. on the islands of Ansevata with the plate recently published by Mr. Gould*, and showed them to Mr. Masters.

Our birds show very distinctly the black tip to the bill described, as if the point had been dipt in the ink-pot! but differ somewhat in the marking of the head, the black extending from the black cap in front of the eye, not reaching as far as the nostrils (as figured). Mr. Masters had never

* Birds of New Guinea, pt. iii. (1876).

seen specimens from Torres Straits in the full breeding-plumage, in which we brought them from Ansevata; we have no doubt, however, that our birds belong to this species. The description of the eggs (Ibis, 1878, p. 265) may therefore be ascribed to *S. placens*, Gould, and *S. nereis* erased from the catalogue of New-Caledonian birds for the present.

CHARADRIUS FULVUS, Gm.

Captain Legge (*in epistolâ*) states that L. L.'s account (Ibis, 1878, p. 262) of *C. fulvus* breeding in these islands in company with the preceding Tern has been received with surprise and incredulity by ornithologists at home as being contrary to probability. We can assure our brethren of the B. O. U. that the fact is strictly correct. L. L. has shot dozens of *C. fulvus*, and is quite familiar with their appearance. He was close to the old bird and young ones several times when on the island where she was, and would have shot her for thé pot but for the presence of her brood. Had he known that there was any thing remarkable in the fact of the bird breeding in these latitudes, he would have procured both old and young*.

UROSPIZIAS TORQUATA (Vig. et Horsf.).

Urospiza torquata, nob., Ibis, 1878, p. 251.

The birds we have hitherto identified as belonging to this species, Mr. Masters has shown us to be undoubtedly the young of *Accipiter haplochrous*, Scl. We suspect that the full adult plumage is not assumed till the third or fourth year, as we have obtained birds in the young dress in full breeding-στοργή. The size and form of the bill and legs of the true *U. torquata* at once separate it. It has never occurred here to us; and M. Marie, though he includes it in his list, *never had a specimen from hence.* The (*) being omitted before its name in his list, it may therefore be expunged till further notice.

[Mr. Gurney, on examining the specimens, indorses Mr. Layard's impression that those from New Caledonia are immature *U. haplochroa*, and that the individual from the Loyalty Islands is probably *U. torquata*.

* I confess I was equally ignorant!—E. L. L.

I may here observe that Mr. Gurney, having examined my adult specimen of *U. torquata* from Aneiteum, New Hebrides, is inclined to think it not absolutely identical with the true *U. torquata*, but somewhat intermediate between it and *U. approximans*. I trust, however, that he will discuss this point himself in the pages of 'The Ibis.' I have also just passed over to Mr. Gurney a specimen of *U. albigularis*, collected by Lieut. Richards, R.N., in the Solomon Islands, in a state of plumage hitherto undescribed, of which also I trust your readers will hear more.—H. B. T.]

[Chalcites ——?

The *Chalcites* of New Caledonia, of the identity of which Mr. Layard is in doubt (Ibis, 1878, p. 253), is *C. lucidus* (Gm.), the same as the Australian bird.—H. B. T.]

Esacus magnirostris (Geoffr.).

We forget if we have recorded the capture of this fine species. It is omitted from MM. Verreaux and Des Murs's list in the 'Revue Zoologique,' 1880, but included by M. Marie in the 'Actes de la Société Linnéenne de Bordeaux,' t. xxvii. 1870. It is common at the north of the island on Huon Islands; and Lieut. Richards, commanding H.M. Gunboat 'Rénard,' shot specimens on the eastern side of the Wodin Pass, not far from Noumea.

We are indebted to a fair correspondent on Aneiteum for the addition of several birds to those already registered from that island (*cf.* Ibis, 1876, p. 259). Our kind friend actually took lessons in skinning from us that she might supply us with specimens; and her first attempt would not have discredited many an amateur of several years' standing.

Among the collection sent us lately occur the following not noticed by Canon Tristram (*loc. cit.*):—*Urospizias approximans*, young and adult*, *Charadrius fulvus*, *Actitis incana* and *Ianthœnas leopoldi*, Tristram (Ibis, 1879, p. 193).

Through the kindness of the Premier of New South Wales,

* [This must certainly be the variety of *U. torquata* already noted by me from New Hebrides.—H. B. T.]

Sir Henry Parkes, C.M.G. &c., our library has lately been enriched by the presentation by the Government of New South Wales of the first three volumes of the 'Proceedings of the Linnean Society of New South Wales,' which we have long endeavoured to procure, but hitherto in vain.

We are now enabled to criticise some of the remarks of Mr. E. P. Ramsay, the curator of the Australian Museum, in that Journal, on the birds of the New Hebrides; and we commence with

MERULA ALBIFRONS, Ramsay, Pr. L. S. N. S. W. vol. iii. p. 336, from Erromanga.

We have not had an opportunity of seeing a skin of this bird; but in spite of Mr. Ramsay's stating that he has compared it with an *M. pritzbueri**, we cannot help thinking the two are identical, and that what he has taken for a discoloration of the "white" on the head, neck, and chest by the alcohol in which the specimen was placed, is in reality the proper colour, and that the "pure white feathers on the chest," and the "few white-tipped feathers on the abdomen," indicate that the typical example was suffering from albinism.

In very old specimens of our *M. pritzbueri* the colour fades out to nearly white. Further, we know that this species ranges to Tanna, whence L. L. brought the palest-capped bird we have yet seen. Now Tanna is in full sight of, and very near to, Erromanga: what more likely than that the species should extend thither? though proximity is not a sure cause, as witness the fact that this bird is not found either on New Caledonia or the still nearer island, Maré, being replaced on the former by *M. xanthopus*, Forst., on the latter by *M. maræensis*, Layard & Tristram. Another thing also strikes us. Mr. Ramsay identifies an *Erythrura* sent from Erromanga as *E. cyaneovirens*, Peale. This latter is a Samoan species, and, for aught we yet know, confined to that group of islands. Has Mr. Ramsay not mistaken it for our *E. cyaneifrons*? *which also is found in Tanna*, though, like the

* Misprinted "*pritzbuesi*" by Mr. Ramsay.

Merula, originally procured in, and described from, Lifu. We cannot recollect any land-bird common to Fiji and the New Hebrides, *much less any Samoan* species; but there are several examples of Loyalty-Islands and New-Caledonian species being found in both localities. Of course, not having actually seen specimens, these remarks are only suggestions.

Myzomela cardinalis, *l. c.* p. 337.

Under this head Mr. Ramsay takes exception to our identification of a *Myzomela* killed by L. L. on Vaté, and brought to Noumea in alcohol (*cf.* Ibis, 1878, p. 270), stating we had probably alluded to *M. cardinalis*, as *M. sanguinolenta*, the species to which we had assigned it, was "confined to Australia."

Hitherto, up to March 1879, the New-Caledonian bird has been considered identical with the Australian species. Mr. Forbes, however, has separated it (P. Z. S. 1879, p. 260) on account of some differences; but it is so like the Australian bird that it might well be mistaken for *M. sanguinolenta* vera. Whether the Vaté bird was *M. sanguinolenta* or its ally, *M. caledonica*, Forbes, as we were not aware of the differences at the time, we will not undertake to say; but *M. cardinalis*, which is well known to us, it certainly was not.

Myiagra melanura*, Ramsay, *l. c.* p. 339.

Mr. Ramsay, in attributing error to E. L. L. in describing the female of this bird as *black*, has fallen into error himself. He is apparently unaware that the *black*-breasted and *chestnut*-breasted birds belong to two distinct races, and that we have numerous examples of both sexes of both colours (*cf.* Ibis, 1878, pp. 271, 272, and Ibis, 1880, pp. 226, 227, and paper in the 'Field,' therein quoted). There are *several* well-known black-throated species and red-throated species (e. g. *M. viridinitens* and *M. caledonica* in New Caledonia, and *M. luguieri* and *M. intermedia* in Lifu); and Mr. Ramsay's "invariable" rule falls to the ground.

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"Ptilopus apicalis, Bp. *l. c.* p. 339.

"*Hab.* Havanah Harbour, Vela Habour, &c."

Mr. Ramsay writes, "This is probably the species referred to by Mr. E. L. Layard as *P. greyi* (Ibis, 1878 ?, p. 275)."

We have followed Gray, Finsch and Hartlaub, Verreaux and Des Murs, Canon Tristram, D. G. Elliot in his exhaustive monograph on the *Ptilopi* (P. Z. S. 1878, p. 500), and other authorities in assigning the name of *P. greyi* to the Dove which is found throughout New Caledonia, the Loyalty Islands, and New Hebrides far up to the northward. Whether these are all wrong, and Mr. Ramsay only is right, we must leave better judges than ourselves to decide. As we have sent home numerous specimens, there can be no doubt as to the identity of the species; and, as far as we ourselves can understand plain descriptions, we have no doubt that the birds are *P. greyi* and not *P. apicalis*.

XI.—*List of Birds collected by* Mr. H. O. Forbes *in the Island of Java*. By Francis Nicholson, F.Z.S.

Since my last communication on the ornithology of Java (Ibis, 1879, p. 164), I have acquired for my collection the series of birds obtained by Mr. H. O. Forbes during his recent travels in Java. At present I confine myself to giving a list of the specimens, with the interesting notes given by Mr. Forbes on the labels of the birds; but I hope ere long to publish a complete catalogue of the birds of Java, if I can manage to induce Mr. Forbes to continue collecting in that island. I think it right to state, apropos of my statement that Mr. Wallace's Javan collections had been dispersed without a catalogue, that I have received a letter from that gentleman informing me that a complete series of his birds was deposited in the British Museum along with his other collections, and that he still has all his notes, which he has kindly offered to place at my disposal if I should carry out my present intention of making a full list of the birds of Java.

Merula, originally procured in, and described from, Lifu. We cannot recollect any land-bird common to Fiji and the New Hebrides, *much less any Samoan* species; but there are several examples of Loyalty-Islands and New-Caledonian species being found in both localities. Of course, not having actually seen specimens, these remarks are only suggestions.

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Mr. Forbes collected a little while near Batavia, and also for a short time in the vicinity of Buitenzorg; but the bulk of the collection has been made in the district of Bantam.

I have referred to Count Salvadori's 'Uccelli di Borneo' in the following paper, as it is still by far the most comprehensive work on Indo-Malayan birds, although many Javan species do not occur in it, being peculiar to the island.

1. Elanus hypoleucus, Gould; Sharpe, Cat. B. i. p. 338.

No. 59. Tjikandi Oedik, Bantam, March 18, 1879. Irides blood-red. "Alap Alap."

2. Microhierax fringillarius (Drap. Dict. Class. vi. p. 412, pl. v.); Sharpe, Cat. B. i. p. 367.

No. 75, ♀. Genteng Lebak, March 28, 1879. Irides dark brown. Insects and small crustacea in stomach. "Candar Cassicir."

No. 109, ♀. Genteng Lebak, Bantam, April 11, 1879. Seeds and insects in stomach.

3. Falco severus, Horsf. Trans. Linn. Soc. xiii. p. 135; Sharpe, Cat. B. i. p. 397.

No. 157. Kosala, Bantam, June 5, 1879. 400 feet above Estate House on Kosala. "Alap Alap."

4. Rhinococcyx curvirostris (Shaw); Sharpe, P. Z. S. 1873, p. 604.

No. 139, ♂. Tjipanas, Bantam, May 20, 1879.

No. 151*a*, ♀. Tjipanas, May 27, 1879. "Doodoot."

No. 162, ♂. 500 feet above Estate House (about 1800 feet above the sea), Bantam, June 2, 1879.

No. 156, pull. from nest. Kosala, June 2, 1879.

No. 107, ♂. Genteng Lebak, April 11, 1879. Irides dark, with ring of surrounding white. Cere and round the eye bright scarlet. Bill light green. Insects in stomach.

Mr. Forbes sends two eggs of this species. They are white, and measure—axis 1·15, diam. 0·9.

5. Centrococcyx javanensis (Dum.); Salvad. Ucc. di Born. p. 76.

No. 111. Genteng, Bantam, April 11, 1879. Irides greyish brown. Food, seeds and insects. "Boorung Boöt."

No. 113. Genteng, Bantam, April 22, 1879.

No. 72, ♀. Genteng, March 25, 1879. Seeds and insects in stomach. Irides dark brown.

6. Thriponax javensis (Horsf.); Salvad. Ucc. di Born. p. 52.

No. 98. Genteng Lebak, Bantam, April 7, 1879. Straw-coloured irides.

7. Dendrotypes analis (Horsf.); Nicholson, Ibis, 1879, p. 165.

No. 5. Near Batavia, on cocoanut-tree, November 23, 1878.

No. 49, ♂. Shot on cocoanut-tree, February 25, 1879. Irides black.

No. 79, ♂. Genteng, Bantam, March 29, 1879. "Boorung platok." Dark-brown irides.

8. Meiglyptes tristis (Horsf. Tr. Linn. Soc. xiii. p. 177); Nicholson, *t. c.* p. 164.

No. 104, ♀. Genteng Lebak, Bantam, April 8, 1879. Irides reddish brown. "Tjaladi kotok."

A mistake has arisen in my previous paper (Ibis, 1879, p. 164), where the present species is referred to as a synonym of *Tiga javanensis*. The remarks show that the species was intended to have a different heading. Mr. Forbes's specimen confirms all that I have said already; and there can be no question that *M. tristis* is a good species, doubtless peculiar to Java.

9. Micropternus badius (Raffl.); *Picus badius*, Sundev. Consp. Av. Picin. p. 90.

No. 100. Genteng Lebak, Bantam, April 8, 1879. "Platok bawang." Dark grey irides.

10. Megalæma javensis (Horsf.); Marshall, Monogr. Capit. pl. xx.

No. 99, ♂. Genteng Lebak, Bantam, April 8, 1879. Irides dark brown.

No. 222, ♂. Kosala, Bantam, August 7, 1879. 1000 feet above sea. "Tooloong toompook."

11. Megalæma australis (Horsf.); Marshall, Monogr. Capit. pl. xxxii.

No. 115, ♂. Genteng Lebak, April 25, 1879. "Kaling."

12. Xantholæma rosea (Dum.); Marshall, Monogr. Capit. pl. xliii.

No. 125, ♂. Genteng Lebak, May 2, 1879. "Oonkook-oonkook."

13. Megalæma armillaris (Temm.); Marshall, Monogr. Capit. pl. xxviii.

Nos. 164, 167, 168, 169, ♂ ♀. 500 feet above Estate House, Kosala, Bantam, June 7 and 8, 1879. Feeding on *Hooroo Madang*. "Boroboi."

No. 191, ♂. Kosala, June 23, 1879.

No. 193. 650 feet above Estate House, Kosala, July 1, 1879.

No. 197, ♂. Kosala, July 6, 1879.

No. 227*a*. Kosala, September 30, 1879. "Selan Gunting."

14. Megalæma corvina (Reinw.); Marshall, Monogr. Capit. pl. xxiii.

No. 163, ♀. 500 feet above Estate House, Kosala, June 7, 1879. Irides greyish brown. Feeding on *Hooroo Madang*. "Tooloong toompook."

No. 210, ♀. 800 feet above Estate House, Kosala, July 6, 1879. "Haroohoo."

15. Halcyon chloris (Bodd.); Sharpe, Monogr. Alced. pl. 87.

No. 11. Near Batavia, November 29, 1878.

No. 68. Arendong, Bantam, March 21, 1879. "Petok-oudang."

No. 103, ♂. Genteng Lebak, Bantam, April 8, 1879. "Boorung Tatengkek and Tjakakak." Dark brown irides. Grasshoppers and Mantidæ in stomach.

16. Halcyon cyaniventris, Vieill.; Sharpe, Monogr. Alced. pl. lxi.

No. 155, ♂. Tjipanas, Bantam, May 28, 1875. Irides black. Feeds on insects.

17. Merops philippinus, Linn.: Salvad. Ucc. Born. p. 89.

No. 2. Indian Ocean. Came on board S.S. 'Celebes' 33 miles E.S.E. of 3° 26′ N. lat., 17° 48′ E. lon., November 7, 1878. Irides dark blood-red. Malay name "Langir."

No. 3. Came on board S.S. 'Celebes,' Indian Ocean, 1° 24′ N. lat., 76° 43′ E. lon., November 9, 1878. Irides brown.

No. 16. Buitenzorg, Java, December 8, 1878. Irides blood-red.

18. Merops quinticolor, Vieill.; Gray, Hand-l. B. i. p. 100. no. 1216.

No. 141, ♂. Tjipanas, Bantam, May 21, 1879. Irides red.

No. 175, ♂. Kosala, Bantam, June 13, 1879. Irides dark red. "Boorung oudang" or "Pennyen-sip."

No. 179, ♂. At foot of Mount Batoo, June 14, 1879.

No. 176, ♂. Kosala, Sept. 13, 1879. "Boorung Pennyen-sip."

19. Collocalia linchi, Horsf. & Moore; Salvad. Ucc. Born. p. 121.

No. 60, 61. Tjikandi Oedik, Bantam, March 19, 1879. Irides black.

20. Corone tenuirostris, Moore; Sharpe, P. Z. S. 1879, p. 335; *Corvus tenuirostris*, Tweedd. Ibis, p. 320.

No. 114, ♂. Genteng, Bantam, April 22, 1879. Irides brown. "Goak."

21. Corone enca, Horsf.; Sharpe, Cat. B. iii. p. 43.

No. 190, ♂. Kosala, Bantam, June 23, 1879. Irides dark brown. "Gā-āk."

22. Oriolus maculatus, Vieill.; Sharpe, Cat. B. iii. p. 199.

No. 15. Buitenzorg, December 8, 1878. "Boorung bincharung."

No. 116, ♀. Genteng Lebak, Bantam, April 25, 1879.

No. 142, juv. Tjipanas, Bantam, May 21, 1879. "Boorung Bincharung."

No. 138, ♂. Tjipanas, May 20, 1879.

23. Buchanga cineracea (Horsf.); Sharpe, *t. c.* p. 250.

No. 9. Near Batavia, November 27, 1878. Irides red; bill and feet black. Insects in stomach.

No. 102, ♂. Genteng Lebak, Bantam, April 8, 1879. "Sella Guntang." Blood-red irides.

No. 227 *b*. Kosala, Bantam, September 30, 1879. Bill black; feet grey. "Broboi."

24. Dissemurus platurus (Vieill. N. Dict. ix. p. 588); Salvad. Ann. Mus. Civic. Genov. xiv. p. 208.

No. 223, ♀. Kosala, Bantam, September 22, 1879. Bill and feet black; irides dark brown.

No. 183 *a*, ♂. Kosala, June 20, 1879. Irides bluish black. "Sellan Gunting."

25. Tephrodornis virgatus (Temm.); Sharpe, Cat. B. iii. p. 278.

No. 178, ♂. Kosala, Bantam, June 14, 1879. At foot of Batoo Mountain. Irides black. "Boorung Moortjang" (Sundanese), or "Kaméree" (Malay).

26. Hemipus obscurus (Horsf.); Sharpe, Cat. B. iii. p. 305.

No. 53. Tjikandi Oedik, March 13, 1879. Dark brown irides.

No. 96, ♂. Genteng Bantam, April 7, 1879. Black irides.

No. 203, ♂. Kosala, Bantam, July 22, 1879. 450 feet above Estate House. Sooty-brown irides. "Boorong jantoong."

The single egg of this species sent by Mr. Forbes was unfortunately broken on arrival. It is white, covered with tiny specks of purplish brown, larger and more thickly distributed near the larger end of the egg.

27. Platylophus galericulatus (Cuv.); Sharpe, *t. c.* p. 317.

No. 137, ♂. Tjipanas, Bantam, May 20, 1879. "'Mbe."

No. 153, ♀. Tjipanas, May 27, 1879. "'Mbe."

No. 52, ♀ juv. Tjipanas, May 27, 1879.

The interesting pair of birds now sent by Mr. Forbes settles the question concerning the colour of the sexes, which are black and similar to each other, as already mentioned by Count Salvadori (Ann. Mus. Civ. Genov. xiv. p. 229). Mr. Elliot's conclusion, that the Sumatran *P. coronatus* (Raffl.) is the female of *P. galericulatus*, is certainly erroneous.

28. Artamides larvatus (S. Müll.); Sharpe, Cat. B. iv. p. 11.

No. 194. Kosala, Bantam, July 1, 1879. 1150 feet above Estate House. "Selan gunting."

No. 230, ♀. Kosala, October 4, 1879. 2800 feet. Dark brown irides. Legs and feet black. Bill black.

No. 218, ♂. Kosala, August 5, 1879. 3100 feet above sea. Dark-blue irides. "Seran bodo."

29. Graucalus javensis (Horsf.); Sharpe, Cat. B. iv. p. 33.

No. 112, ♂. Genteng Lebak, April 15, 1879. Irides dark brown. Feeds on insects.

No. 209, ♀. Kosala, Bantam, July 25, 1879. 550 feet above Estate House. Feeding (at 5 P.M.) on *Erythrina indica*). Sooty-brown irides. "Seran bodo."

30. Pericrocotus peregrinus (L.); Sharpe, *t. c.* p. 76.

No. 89, ♂. Genteng Lebak, April 2, 1879. Irides brown. "Chi-chi-utan."

31. Pericrocotus exsul, Wall.; Sharpe, *t. c.* p. 76.

No. 90, ♂. Genteng, Bantam, April 5, 1879. Feeding on a species of *Ficus*. Irides dark brown.

No. 105, ♂ juv. Genteng Lebak, April 9, 1879. Dark-grey irides.

No. 148, ♂. Gobas Mountain, 500 feet above Tjipanas Bantam, May 22, 1879.

No. 184 *a*, ♀. Kosala, June 20, 1874.

No. 204, ♂. 450 feet above Estate House, Kosala, August 22, 1879. Dark-brown irides. "Boorung Seupah."

No. 224, ♀. Near Chiladaheun village, Bantam, September 24, 1879. Irides dark brown. Bill and legs black.

32. Pericrocotus miniatus (Temm.); Sharpe, *t. c.* p. 80.

No. 173, ♀. 400 feet above Kosala, Bantam, June 11, 1879. "Boorung Soupa."

No. 174, ♂. 600 feet above Estate House, Kosala, July 11, 1879.

No. 229. Kosala, 2000 feet, October 4, 1879. Feet and legs black; bill black; irides dark blue.

33. Lalage terat (Bodd.); Sharpe, *t. c.* p. 95.

No. 6. Near Batavia, on Acacia tree, November 23, 1878.

No. 57. Tjikandi Oedik, Bantam, March 14, 1879. Pale blue irides. Bird of ill omen. Sings or rather whistles all night long.

34. Lalage fimbriata (Temm.); Sharpe, *t. c.* p. 103.

No. 226, ♂. Kosala, Bantam, September 27, 1879. 2500 feet. Bill and feet black; irides reddish brown.

No. 202, ♀. Kosala, July 22, 1879. 600 feet above Estate House. Dark brown irides. "Moontjang."

35. Rhipidura javanica (Sparrm.); Sharpe, Cat. B. iv. p. 332.

No. 56. Tjikandi Oedik, Bantam, March 14, 1879. Irides reddish brown.

No. 121, ♂. Genteng, April 30, 1879. "Boorung Kepas."

36. Cryptolopha trivirgata (Strickl.); Sharpe, Cat. B. iv. p. 396.

No. 184, ♂. Kosala, Bantam, June 19, 1879. 2200 feet above Estate House, on Endoot Mountain. "Tjiekrak."

37. Rubigula dispar (Horsf.); Salvad. Ann. Mus. Civic. Genov. xiv. p. 220.

No. 151, ♀. Tjipanas, Bantam, May 26, 1879. Straw-coloured irides. Various fruits in stomach.

38. Ixidia squamata (Temm.); *Pycnonotus squamatus*, Gray, Hand-l. B. i. p. 271. no. 3974.

No. 201, ♂. Kosala, Bantam, July 22, 1879. 500 feet above Estate House. Dark red irides, encircling a lighter red ring. "Boorung Patjing."

39. Criniger gularis (Horsf.); Gray, Hand-l. B. i. p. 274. no. 4016.

No. 166, ♀. Kosala, Bantam, June 8, 1879. 480 feet above Estate House. Irides reddish brown. "Kores."

40. Iole virescens (Temm.); *Criniger virescens*, Gray, Hand-l. B. i. p. 275. no. 4051.

No. 214, ♀. Kosala, Bantam, August 4, 1879. 2000 feet above sea. Irides dark brownish red. "Kores."

No. 213, ♀. Kosala, August 2, 1879. 2100 feet above sea. "Chankorawok Kibjil."

No. 219, 220, ♂ ♀. Kosala, August 5, 1879. 3100 feet above sea. Irides dark reddish brown. "Kores."

41. Irena turcosa, Walden; Sharpe, Cat. B. iii. p. 267.

No. 147, ♂. Tjipanas, Bantam, May 22, 1879. About 800 feet above Tjipanas, village on Gobas Mountains.

No. 192, ♂ in moult. Korsala, Bantam, June 30, 1879. "Boorung tepus" (*Sund.*), "Boorung Katchem-bang."

Nos. 206, 207, ♀. Kosala, Bantam, July 24, 1879. 450 feet above Estate House. Irides dark red. "Seram Bodo."

42. Alcurus ochrocephalus (Gm.); Nicholson, *t. c.* p. 168.

No. 91, ♂. Genteng Lebak, April 5, 1879. Light-red irides. Magnificent songster. "Besooching."

43. Pycnonotus analis (Horsf.); Nicholson, *t. c.* p. 168.

No. 85, ♂. Genteng, Bantam, March 30, 1879. "Cotilang putih." Irides black.

The nest, as sent by Mr. Forbes, is a deep cup-shaped structure, attached to a thin branch. It is composed of an outer framework of small twigs, intermingled with dead leaves. The lining is composed of cocoanut-fibre.

The eggs are very pretty, having a white ground profusely

spotted with reddish brown mingled with pale purplish blue underlying spots. In some of the specimens there is a disposition towards a zone of spots near the thicker end, where the markings are larger and more distinct.

44. Pycnonotus crocorrhous (Strickl.); Nicholson, *t. c.* p. 168.

No. 76, ♂. Genteng Lebak, March 28, 1879. Irides brown. "Tjang-cotilang."

No. 215, ♂. Kosala (1800 feet above sea), August 2, 1879. "Cotilang." Dark-red irides.

No. 119. Genteng, April 26, 1879. Nestling taken from the nest.

The nestling reproduces the colouring of the adult, but has the under tail-coverts only faintly tinged with yellow. The general coloration is everywhere paler, the upper surface more uniform, and the cap of not such a deep black.

The nest, though cup-shaped, like that of *P. analis*, is better constructed and more neatly woven. As with the last-named species, it is composed of slender twigs, with dead leaves interwoven to form a more solid base, and it is lined with cocoanut-fibre.

The eggs are similar in character to those of *P. analis*, being creamy white with large red spots and underlying pale-grey markings; but the spots are decidedly larger than in the eggs of the latter species.

45. Ægithina scapularis (Horsf.); Nicholson, *t.c.* p. 167.

No. 58, ♀. Tjikandi Oedik, Bantam, March 14, 1879. Irides pale slate-blue.

No. 171, ♀. Kosala, Bantam. June 10, 1879. "Chikrak."

46. Chloropsis nigricollis (V.).

Phyllornis cochinchinensis auct.

No. 94, ♂. Genteng, Bantam, April 7, 1879. Dark-brown irides.

No. 177, ♀. Kosala, Bantam, June 13, 1879. "Charang-charang." Black irides.

No. 188, ♂. Kosala, June 21, 1879. Irides dark brown.

No. 212, ♂. Kosala, Aug. 2, 1879. 2100 feet above the sea.

Mr. Sharpe, who has recently worked out the Bulbuls, informs me that the Javan species is really the *Turdus cochinchinensis* of Gmelin; but he considers that that name should be suppressed on account of its misleading tendency, and hat *C. nigricollis* of Vieillot is the next in order of date.

47. Copsychus, sp. inc.

No. 48, ♀. Batavia, February 24, 1879. Irides black.

No. 64, ♀. Tjikandi Oedik, March 19, 1879. Irides black. "Boorung Sepian."

Apparently females of *C. musicus*.

48. Orthotomus edela (Temm.); Sharpe, Ibis, 1877, p. 112.

No. 133, ♂. Sadjira, Bantam, May 12, 1879. Irides isabelline colour.

49. Pomatorhinus montanus, Horsf.; Gray, Handl. B. i. p. 277. no. 4081.

Nos. 180, 181, ♂ ♀. On Gooming Endoot, Kosala, Bantam, June 19, 1879. 1500 feet above Estate House. Irides pale straw-colour. Insect-eating bird. "Patching Payor."

No. 182, ♂, pull. from nest, June 19, 1879. Irides sepia-coloured.

50. Mixornis javanica, Cab. Mus. Hein. Th. i. p. 77, note.

No. 31, ♀. "Boorung Kalatjes." March 29, 1879. Straw-coloured irides.

No. 150, ♀. Tjipanas, Bantam, May 25, 1879. Among bamboo. Straw-coloured irides. "Patjickrak."

51. Prinia familiaris (Horsf.); Nicholson, *t. c.* p. 169.

Kosala, Bantam, June 1879. Malay name "Boorung Gengeh."

Two eggs of this species, so marked by Mr. Forbes, seem to me extraordinarily large for the size of the bird, measuring, axis ·9 in., diam. ·65 in. They are light salmon-colour, slightly blotched here and there with reddish, and with a few

pencilled lines and spots of reddish brown. The eggs were procured at Tjipanas on the 25th of May.

52. Suya polychroa.

Drymœca polychroa, Temm.; Horsf. & Moore, Cat. B. Mus. E.I. Co. i. p. 328, note.

No. 101, ♂. Genteng Lebak, April 8, 1879. Light-yellow irides. Seeds in stomach. "Boorung chi-chi."

No. 117. Genteng Lebak, April 25, 1879. "Boorung Kredja," "Ziekrak."

Three eggs were obtained by Mr. Forbes on the 25th of April, and are lovely in colour—light bluish green, with large blotches of chestnut-brown and underlying blotches of light reddish brown, the surface also relieved with a few spots and pencillings of dark chestnut. Axis ·65 in., diam. ·45 in.

53. Cisticola ruficeps, Gould.

Drymœca ruficeps, Gray, Handl. B. i. p. 200. no. 2809.

No. 78, ♂. Genteng, Bantam, March 29, 1879. Irides light isabelline colour. "Chi chi-paddy."

No. 73, ♂. Genteng, March 26, 1879. Feeding among dry sheaths of bamboo-leaves.

After having examined the large series of *Cisticolæ* in the British Museum, I have decided that the Javan birds collected by Mr. Forbes agree best with *C. ruficeps* of Gould; but that, when the genus is thoroughly monographed, they will be found specifically identical is more than I can say for certain. At present the species seem to be hopelessly confused. The eggs, three of which were got by Mr. Forbes at Genteng on the 26th of April, are light blue, with a considerable number of tiny reddish spots, particularly at the thicker end. Axis ·65 in., diam. ·5 in.

54. Lanius magnirostris, Less.; Gray, Handl. B. i. p. 393. no. 5972.

No. 231, ♂. Kosala, Bantam, October 27, 1879. 1650 feet. Irides dark brown; feet pale blue; bill pale blue, black at tip.

55. Lanius bentet, Horsf.; Nicholson, *t. c.* p. 170.

No. 92, ♂. Genteng, Bantam, April 6, 1879.

No. 172, ♂. Kosala, Bantam, June 10, 1879. 500 feet above Estate House. "Katoel."

No. 217, ♀ jr. Kosala, Bantam, August 5, 1879. 3000 feet above sea. Dark-blue irides.

56. Parus atriceps, Horsf.; Nicholson, *t. c.* p. 167.

No. 88, ♂. Genteng, Bantam, April 2, 1879. "Boorung glatek batoo." Brown irides.

No. 196, juv. 1250 feet above Estate House, Kosala, July 2, 1879. "Clupan."

57. Æthopyga siparaja (Raffl.); Shelley, Monogr. Nect. pl. 19. Salvadori, Ann. Mus. Civic. Genov. xiv. p. 212.

No. 106, ♂. Genteng Lebak, April 9, 1879. Dark brownish irides.

No. 199, ♂. 500 feet above Estate House, Kosala, July 21, 1879. Feeding on *Erythrina indica*. Irides brown. "Pennyen-sip."

Count Salvadori has already recorded the occurrence of this species near Buitenzorg, whence Signor Ferrari has forwarded specimens to the Genoa Museum.

58. Cinnyris pectoralis (Horsf.); Nicholson, *t. c.* p. 166.

No. 62, ♂. Tjikandi Oedik, Bantam, March 19, 1879. Irides deep dark blue or black.

59. Anthreptes malaccensis (Scop.); Nicholson, *t. c.* p. 166.

No. 55, ♀. Tjikandi Oedik, March 13, 1879. Irides black.

Nos. 65, 66, ♂. Tjikandi Oedik, March 14, 1879.

No. 132, ♂. Sadjura, Bantam, May 12, 1879. Irides mahogany-red.

No. 143, ♂. Tjipanas, May 21, 1879.

No. 149, ♂. Tjipanas, May 25, 1879. Irides red.

60. Dicæum chrysorrhœum (Temm.); Salvad. Ucc. Born. p. 168.

No. 211, ♂. 2000 feet above the sea, Kosala, August 2, 1879. Irides, dark red. "Pennyen-sip."

61. Dicæum sanguinolentum, Temm.; Gray, Handl. B. i. p. 114. no. 1418.

No. 216, ♂. Kosala, Bantam, August 5, 1879. 2000 feet above sea. Dark-blue irides.

No. 208, ♀. 400 feet above Estate House, Kosala. July 24th, 1879. "Boorung Chaby-chaby," or "Pennyen-sip."

62. Dicæum flammeum (Sparrm.); Nicholson, *t. c.* p. 166.

No. 80, ♀. Genteng, Bantam, March 29, 1879. "Boorung chaby-chaby." Dark-grey irides.

No. 83, ♀. Genteng, March 30, 1879.

No. 84, ♂ juv. Genteng Lebak, Bantam, March 30, 1879. Sooty-brown irides. Hard round seeds of species of *Acacia* in stomach.

No. 93, ♂ juv. Genteng, Bantam, March 6, 1879. Sooty-brown irides.

No. 131, ♂. Sadjiren, May 12, 1879.

63. Zosterops auriventer, Hume, Stray Feathers, vi. p. 519.

Zosterops buxtoni, Nicholson, *t. c.* p. 167.

No. 205, ♂. 450 feet above Estate House, Kosala, July 22, 1879. Dark straw-coloured irides in red linear ring outside. "Pennyen-sip."

No. 200, ♂. Kosa, July 21, 1879. Feeding on *Erythrina indica*. Straw-coloured irides.

64. Munia ferruginosa (Sparrm.).

Amadina ferruginosa, Gray, Handl. B. ii. p. 54. no. 6756.

No. 47, ♂. Batavia, February, 23, 1879. Irides black.

65. Munia undulata (Müll.).

Amadina undulata (Müll.); Gray, Handl. B. ii. p. 56. no. 6778.

No. 10. Near Batavia, November 27, 1878. Irides black. "Prit."

The eggs of this species were taken by Mr. Forbes on the 24th and 25th of April, 1879. They are pure white. Axis ·6 in., diam. ·4.

66. Padda oryzivora (L.); Salvad. Ucc. Born. p. 263.

Nos. 7, 7*a*. Near Batavia, November 25, 1878. Brought by native. Eyelids pinkish red; irides reddish. "Boorung glattek."

67. Gracula javanensis (Osb.); Salvad. *t. c.* p. 274.

No. 158. Kosala, Bantam, June 5, 1879. 500 feet above Estate House on Kosala. Feeding on Hooroo madang.

68. Sturnopastor ialla (Horsf.); Gray, Handl. B. ii. p. 22. no. 6313.

No. 67. Tjikandi Oedik, Bantam, March 14, 1879. "Kaleng Krobo," "Jalaksoren."

69. Sturnopastor melanopterus (Daud.); Gray, Handl. B. ii. p. 22. no. 6314.

No. 110, ♂. Genteng Lebak, Bantam, April 12, 1879. Roof of mouth black. Seeds of rice in stomach. "Kaleng putih."

No. 69. Arendong, Bantam, March 22, 1879. Irides nearly white. "Kalung putih," "Kalery Cumbang."

70. Acridotheres javanicus, Cab. Mus. Hein. Th. i. p. 205.

No. 77. "Kaleng Krobo," March 28, 1879. Irides yellow.

No. 185, ♂. Kosala, Bantam, June 21, 1879. Irides straw-coloured. "Kaling."

71. Artamus leucorhynchus (L.); Nicholson, *t. c.* p. 170.

No. 108, ♀. Genteng Lebak, Bantam, April 11, 1879. Irides black. "Boorung Booah."

No. 144. Tjipanas, Bantam, May 31, 1879. "Boorung Kekep."

No. 170, ♂. Kosala, Bantam, June 10, 1879. "Kekep," "Dedet."

Nos. 186, 187, ♀. Kosala, June 21, 1879. Irides dark brown.

No. 189 ♂ juv. Kosala, June 21, 1879.

3. Kosala, 1900 feet above the sea.

72. Mirafra javanica, Horsf. Trans. Linn. Soc. xiii. p. 159.

No. 4. Near Batavia, November 23, 1878, on wet ground.

No. 54. Tjikandi Oedik, March 13, 1879. "Tjarang jangan."

No. 129, ♂. Genteng Lebak, May 3, 1879. Irides grey-brown. "Tjarang jangan."

73. Pitta cyanura (Gm.).

Pitta guaiana (P. L. S. Müll.); Elliot, Ibis, 1870, p. 420.

Nos. 123, 124, ♂ ♀. Genteng Lebak, May 21, 1879. Irides dark blue. "Paok."

No. 130, ♀. Genteng Lebak, May 4, 1879. Irides rich brown.

The eggs of this *Pitta* were got by Mr. Forbes on the 24th of April, 1879, at Genteng. They are rounded in shape, with a few scattered dots of reddish or purplish brown, having a tendency to form a zone round the thick end of the egg, which is also relieved by some large spots of blackish brown. Diam. ·85 in., axis 1 in.

74. Ptilopus porphyreus (Temm.); Elliot, P. Z. S. 1878, p. 553.

No. 198, ♂. Wallik, Kosala, Bantam, July 20, 1879. Brought by native. Feeds on katchembang (small berries).

No. 183, ♀. Kosala, Bantam. On Goonung Endoot. 1535 feet above Estate House. June 19, 1879.

The female, collected by Mr. Forbes, is gaining the rose-coloured head of the male, and it has also nearly acquired the rosy throat. The dark green breast-band, and the purplish patch in the centre of the breast, are absent; but, as Mr. Elliot states that the sexes are alike in adult birds, it is evident that Mr. Forbes's specimen is immature.

75. Ptilopus melanocephalus (Gm.); Elliot, P. Z. S. 1878, p. 551.

No. 82, ♂. Genteng, Bantam, March 29, 1879. Irides dark yellow; cere round eye bright yellow. Hard seeds of some species of *Acacia* in stomach. "He-kejoan."

76. Macropygia ruficeps (Temm.); Salvad. Ucc. Born. p. 298.

No. 227, ♂. Kosala, Bantam, September 30, 1879. 2700 feet. Pale-grey irides ;, bill reddish brown ; feet pale red (or dark flesh-colour). "Kouran."

No. 228. ♀. Kosala, October 4th, 1879. 2800 feet. Bill dirty red, or earth-colour ; legs the same.

77. Geopelia striata (L.); Salvad. *t. c.* p. 298.

No. 8. Batavia. Brought by a native, November 25, 1878. Irides reddish; naked space round eye purplish blue.

No. 120, ♂. Genteng Lebak, Bantam, April 29, 1879. "Tercootil."

Two eggs collected by Mr. Forbes, one pure white. Axis ·95 in., diam. ·65 in.

78. Turnix pugnax, Temm. ; Gray, Handl. B. ii. p. 271. no. 9749.

No. 87, ♂. Genteng Lebak, March 30, 1879. Light straw-coloured irides. "Pooyon."

Three distinct types of egg are exhibited in the series sent by Mr. Forbes. Three, got with the male bird quoted above, are of an ashy-white ground-colour, thickly laid with dots and marblings of ochreous brown, over which, again, are spread some distinct spots and small blotches of black. Axis ·95 in., diam. ·75 in. The black spots are not very large, but are well distinguished.

Two eggs, procured on the 30th of April, are very similar in colour, but are remarkable for the bold relief of the black spots, which give the egg a much prettier appearance.

Two more, taken on the 29th of April, are much more uniform ochraceous, the black overlying spots, though present, being scarcely perceptible.

Three eggs, procured on the 13th of May, are really beautiful. They are more of a ruddy ochre, marbled with clear brown, while the black spots are large and thickly distributed, producing a richly mottled appearance.

79. Excalfactoria chinensis (L.); Salvad. Ucc. Born. p. 311.

No. 86, ♂. Genteng Lebak, March 31, 1879. Dark-red irides. "Ponyou."

No. 118, ♂. Genteng Lebak, April 26, 1879.

Nos. 126, 127, ♂ juv. Genteng Lebak, May 3, 1879.

No. 128, ♀ juv. May 3, 1879. Feeds on seeds.

80. Rallus philippensis, L.

Eulabeornis philippensis, Gray, Handl. B. iii. p. 57. no. 10377.

No. 24, young. Direction Island, January 28, 1879. "Ayam utan."

This specimen is immature, but has indications of the yellowish band on the breast; so that it seems to be undoubtedly of the present species.

81. Glareola orientalis, Horsf.; Salvad. Ucc. Born. p. 319.

No. 70. Arendong, Bantam, March 22, 1879. Irides black.

XII.—*Description of a new Finch of the Genus* Propasser *from Yarkund*. By Major J. Biddulph.

(Plate VI.)

A small number of Rose Finches, identified at the time as *Propasser rhodochlamys*, were procured by me during the winter of 1873–74 in Yarkund. The large series of *P. rhodochlamys* since obtained, and a careful examination of the figures and published descriptions, leave no doubt in my mind that the Yarkund bird is distinct and hitherto undescribed. I therefore propose to name it

Propasser rhodometopus, sp. nov. (Plate VI.)

Male.—Top of the head dark vinaceous brown; upper plumage greyish brown with a vinous tinge, the feathers rather narrowly dark-centred; the forehead, a broad supercilium, and the entire throat and cheeks bright silvery pink; the entire underparts and rump grey with a pink sheen, paler on the rump; wings brown, edged with rosy, narrowly

on the primaries, very broadly on the tertiaries; tail dark brown, faintly edged with rosy.

Female.—Of the usual type of females of this genus; hair-brown above, every feather broadly margined with pale dingy buff: underparts pale dingy buff, each feather rather narrowly centred with brown, most strongly marked on the throat and breast, and least on the abdomen and flanks.

Wing, ♂ 3·45 inches, ♀ 3·3 and 3·35; tail, ♂ and ♀ 3·5.

This new species differs from *P. rhodochlamys* in having a much longer tail, combined with a rather shorter wing, in having the whole forehead of a bright pink, uniform with the supercilium, and in the pale pink hue of the rump. The general tone of the entire plumage is also paler and greyer in the male, and more buff in the female, while the bill is shorter, stouter, and more tumid, inclining to the form of the *Carpodacus* type, the tail-feathers are more markedly edged with rosy, and the pale margins to the tertiaries are broader and more conspicuous.

The Plate represents an adult male in my collection from Yungi-Hissar, killed on the 2nd of December 1873, and a female obtained at Kashgar on the 10th of the same month.

XIII.—*Notices of recent Ornithological Publications.*

1. *Bocage on a new African* Coracias.

[Notice sur une nouvelle espèce africaine du genre *Coracias*. Par J. V. Barboza du Bocage. Jorn. Scien. Math. Phys. e Nat. Lisboa, no. xxviii. 1880.]

The species (*Coracias dispar*) is the same as has lately been described by Mr. Trimen (P. Z. S. 1880, p. 30) as *C. spatulatus*. Prof. Bocage's example, from Caconda, in the interior of Benguela, was obtained by Sr. Anchieta.

2. *Bocage on West-African Birds.*

[Aves das possessões portuguezas d'Africa occidental por J. V. Barboza

du Bocage. (Decima nona Lista.) Jorn. Scien. Math. Phys. e Nat. Lisboa, no. xxviii. 1880.]

Prof. Bocage's nineteenth contribution to this subject mentions 93 species, exemplified by 126 specimens recently collected by Sr. Anchieta at Caconda. Seven of them are new to the avifauna of Angola; and one of them, *Hyphantornis temporalis*, is now first described.

3. *Campbell on the Nesting of the Orange-wattled Crow.*

[Notes on the Nesting-habits of the Orange-wattled Crow. By W. D. Campbell. Trans. & Proc. New-Zealand Inst. xii. p. 249.]

Two nests of *Glaucopis cinerea*, found on the Hokitika river in February 1878, were placed in the branches of a black scrub, about nine feet from the ground. They were cup-shaped, and contained in one case two young, and in the other a single egg. The egg is described.

4. *Coues's Ornithological Bibliography.*

[Fourth Instalment of Ornithological Bibliography: being a List of Faunal Publications relating to British Birds. By Elliott Coues. Proc. U.S. Nat. Mus. vol. ii. p. 359.]

Dr. Coues's fourth instalment of his Ornithological Bibliography will be of special interest to most of our readers, as it gives "the titles of all publications treating of British birds as such, exclusively, and indiscriminately or collectively." Like the previous instalments, the present is "to be considered only in the light of published proof-sheets, to be cancelled on the final appearance of the whole work." Dr. Coues will therefore esteem it a great favour to receive back this pamphlet, with errors corrected, omissions supplied, or emendations suggested, and most liberally offers a copy of the entire Bibliography, when completed, in return for such assistance.

5. *Desfontaines's Mémoire* (Reprint).

[Desfontaines's Mémoire sur quelques nouvelles espèces d'Oiseaux des Côtes de Barbarie. 4to. Paris: 1789. Reprinted by the Willughby Society; edited by Alfred Newton, M.A., F.R.S., &c. London: 1880.]

This little-known tract was omitted in M. Dureau's volume containing the miscellaneous papers of Desfontaines. It is of special interest to students of Palæarctic ornithology, as containing the first published descriptions of several well-known species. Prof. Newton contributes a preface of great interest.

6. *Elliot's Monograph of the Hornbills.*

[A Monograph of the Bucerotidæ, or Family of the Hornbills. By D. G. Elliot, F.R.S. &c. Parts vii. & viii. Small folio: 1880. Published by the author.]

We are glad to be able to announce the issue of two more numbers of Mr. Elliot's Hornbills, and trust that this important work may now be shortly concluded.

We may take this opportunity of calling Mr. Elliot's attention to the second specimen of *Buceros subcylindricus* now living in the Zoological Society's Gardens, which has redeemed the character of the species by growing a perfect tail.

The following species are figured in the new parts:—

Part VII.	Part VIII.
Hydrocorax mindanensis.	Bucorvus cafer.
Anthracoceros convexus.	Cranorrhinus corrugatus.
Anorrhinus galeritus.	Bycanistes buccinator.
Cranorrhinus leucocephalus.	Anorrhinus tickelli.
Bycanistes albotibialis.	Rhytidoceros narcondami.
Tockus melanoleucus.	Tockus camurus.

7. *Finsch on two Pacific Birds.*

[Ornithologische Notiz. Von Dr. Otto Finsch in Bremen. Verhandl. d. Vereins für naturw. Unterhaltung, Hamburg, iv. p. 176.]

Dr. Finsch states that his *Petræca kleinschmidti* = *P. pusilla* (Peale), and his *Ptilotis xanthophrys* = *P. provocator*, Layard.

8. *Freke on Birds found in Europe and North America.*

[A Comparative Catalogue of Birds found in Europe and North America. By Percy Evans Freke. Proc. R. Dublin Soc. 1879.]

A very useful paper, giving in parallel columns the names

of all species found in Europe and North America, with a short account of their distribution and occurrence in each continent.

9. *Godman and Salvin's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana: or Contributions to the knowledge of the Fauna and Flora of Mexico and Central America. Edited by F. DuCane Godman and Osbert Salvin. (Zoology.) Parts v.–vii. 4to. London: 1880. Published for the editors by R. H. Porter, 10 Chandos Street, Cavendish Square, W.]

Messrs. Salvin and Godman finish their account of the Central-American Wrens in Part vi., and proceed with the Motacilildæ and Mniotiltidæ, the latter of which are very fully represented in this subregion. One plate is given, containing figures of *Parula inornata*, *P. superciliosa*, and *P. gutturalis*.

10. *Gould's 'Birds of Asia.'*

[The Birds of Asia. By J. Gould, F.R.S. &c. Dedicated to the Honourable East-India Company. Part xxxii. Folio. London: 1880. Published by the author, 26 Charlotte Street, Bedford Square, W.C.]

Mr. Gould's thirty-second part contains excellent figures of the following twelve species:—

Erythropus amurensis.
Irena cyanea.
—— criniger.
Pitta kochi.
Upupa nigripennis.
Carcineutes pulchellus.
Carcineutes melanops.
—— amabilis.
Pyrrhula major.
—— erithacus.
Euspiza elegans.
Erythrospiza githaginea.

Malaccan and Sumatran forms are usually conspecific; and we confess to a little incredulity as to the distinctness of *Irena crinigera* and *I. cyanea*. Nor is *Carcineutes amabilis*, in our opinion, a very good species.

11. *Harvie-Brown's 'Ornithological Journal of the Winter of 1878–79.'*

[Ornithological Journal of the Winter of 1878–79, with collected Notes

regarding its Effect upon Animal Life, including Remarks on the Migration of Birds in the Autumn of 1878 and the Spring of 1879. By Mr. John A. Harvie-Brown. Proc. Nat.-Hist. Soc. Glasgow, Sept. 1879.]

Mr. Harvie-Brown attempts to chronicle the abnormal effects of an unusually severe winter on the migration of birds, and, after alluding to various other papers already written on the same subject, gives us the results of his own experience and that of many correspondents. He then treats of the species in order, and of the manner in which they were variously affected by the winter of 1878–79.

12. *Haswell's Notes on the Anatomy of Birds.*

[Notes on the Anatomy of Birds. By William A. Haswell, M.A. Proc. Linn. Soc. New S. Wales, vol. iv. p. 303.]

Part ii. of Mr. Haswell's Notes treats of the lumbar and sacral plexuses of the nerves, part ii. of the myological characters of the Columbidæ. In the latter the author points out five special characters of this group as regards their myology.

13. *Henshaw's Ornithological Report.*

[Ornithological Report upon Collections made in Portions of California, Nevada, and Oregon. By H. W. Henshaw. Extracted from Annual Report of the U.S. Geogr. Survey, 1879.]

Mr. Henshaw reports upon his ornithological observations and collections made during the field-seasons of 1877 and 1878 of the geographical surveys west of the 100th meridian. After a preliminary account of the natural features of the country traversed (which lay between the western border of Nevada and the Columbia river), the notes are given, in systematic order. Among the rarer species met with abundantly were *Myiadestes townsendi* and *Stellula calliope*. Mr. Henshaw makes good remarks upon the various geographical forms of many of the species, especially among the Fringillidæ.

14. *Homeyer's 'Journey to Heligoland.'*

[Reise nach Heligoland, die Nordseeinseln Sylt, Lyst etc. von E. F. v. Homeyer. Frankfurt a. M.: 1880. 8vo, 92 pp.]

In this little pamphlet Herr v. Homeyer gives an interesting account of his tour to Sylt and Heligoland after attending the meeting of the German Ornithological Society at Stettin in 1880, and of the various naturalists and their collections visited on the route. A systematic list of the birds of the North-Frisian islands, by Herr Rohweder of Husum, is added. In Sylt, on the 12th of June, Herr v. Homeyer visited the celebrated breeding-place of *Sterna caspia*, at the north end of the island, and found the colony to consists of about twenty-two nests.

15. *Hutton on* Anas gracilis.

[On *Anas gracilis*, Buller. By Prof. Hutton, of the Otago University. Trans. & Proc. New-Zealand Inst. xii. p. 271.

Having obtained from Paris an example of *Querquedula gibberifrons* from Celebes, Prof. Hutton disputes its identity with *Anas gracilis* of Buller, as given by Finsch and Buller himself (B. N. Z. p. 250). Prof. Hutton considers *A. gracilis* rather a synonym of *A. castanea* (*cf.* Ramsay, Pr. L. S. N. S. W. iii. p. 38). We fear this question is not yet settled. It is certain, however, that there is a Duck in Australia the male of which closely resembles the female of *A. castanea* (Cf. Sclater, P. Z. S. 1880, p. 519).

16. *Kirk on the Red-capped Dotterel.*

[On the Occurrence of the Red-capped Dotterel (*Hiaticula ruficapilla*) in New Zealand. By T. W. Kirk. Trans. & Proc. New-Zealand Inst. xii. p. 246.]

Mr. Kirk records the occurrence of a specimen of this Australian species in New Zealand in December 1878.

17. *Kirk on some curious New-Zealand Birds.*

[Remarks on some curious Specimens of New-Zealand Birds. By T. W. Kirk. Trans. & Proc. New-Zealand Inst. xii. p. 248.]

Mr. Kirk notices albinos of *Carpophaga novæ-zealandiæ*, and a deformity of the bill in *Heteralocha acutirostris*.

18. *Legge's 'Birds of Ceylon.'*

[A History of the Birds of Ceylon. By Captain Vincent Legge, R.A. Part iii. (concluding the work). 4to. London: 1880. Published by the author.]

We heartily congratulate Captain Legge upon the conclusion of his handsome volume, which, in our opinion, is as good a bit of real earnest work as any that has been accomplished of late years in our department of zoology. The 'Birds of Ceylon,' as finished by the issue of part iii., constitutes a bulky work of 1238 pages and 34 well coloured plates, in which nearly all the species peculiar to the island are figured. There is, besides, a map, to illustrate the chief natural divisions of the Ceylonese avifauna, such as ought to accompany every geographical work on natural history. The plates given with part iii. contain figures of *Gallus lafayettii*, ♂ et ♀, *Galloperdix bicalcarata*, and figures of the eggs of the following species—*Buchanga leucopygialis, Pomatorhinus melanurus, Hirundo hyperythra, Pyctorhis nasalis, Rubigula melanictera, Malacocercus rufescens, Acridotheres melanosternus, Turdus spilopterus, Galloperdix bicalcarata, Gallus lafayettii, Eulabes ptilogenys, Megalæma flavifrons, Drymœca insularis, Zosterops ceylonensis, Munia kelaarti, Alcippe nigrifrons, Pellorneum fuscicapillum.*

Capt. Legge will forgive us, we are sure, if we call his attention to two or three errors in his nomenclature which ought not to be followed in quoting his work. "*Cyanus*" (p. 460), the specific name of the Rock-Thrush, is a substantive, and should not be written "*cyana*;" on the other hand "*Turdus spiloptera*" (p. 451) should be "*spilopterus*;" nor can a bishop, "*episcopus*" (according to orthodox practice), be of the feminine gender (*episcopa*), as is written, p. 1118. Again, *Chrysophlegma* is a neuter substantive (φλέγμα—*flamma*), and claims to agree with a neuter adjective (*xanthoderum*, nec *xanthoderus*).

There is also a slip, p. 796, in crediting *Porphyrio alleni* to Capt. Shelley, whereas it is a well-known West-African species, originally discovered by T. R. H. Thomson during the Niger Expedition, and described by him in 1842. In

general, however, the execution of the work is of the most painstaking character, though we cannot quite agree to placing *Turnix* in the Tinamidæ, or *Tantalus* among the Ibises! It is also rather a strong statement to say that *Phœnicopterus* has nothing to do with the Herodiones, except as regards "length of leg." Shade of Nitzsch!

19. *Marsh on the Extinct Toothed Birds of North America.*

[Odontornithes: a Monograph of the Extinct Toothed Birds of North America; with Thirty-four Plates and Forty Woodcuts. By Othniel Charles Marsh. Mem. Peabody Mus. Yale College, vol. i. 4to. New Haven, Conn.: 1880.]

This is one of the most elaborate and best-illustrated monographs that have ever appeared on a zoological subject. The whole osteology of *Hesperornis* and *Ichthyornis* is admirably and fully described and figured in detail; and restorations of the entire birds are added. It is clearly shown that these birds are types of two very different forms of ornithic life which prevailed during the Middle Cretaceous period, and to be referred to two different Orders, "Odontolcæ," and "Odontotormæ," both provided with teeth, which in the former were placed in grooves, in the latter in sockets. In the former (*Hesperornis*) the sternum was without a keel, and the wings rudimentary; in the latter the sternum was keeled, and the wings well developed. Prof. Marsh proposes to unite these two groups with the Saururæ (*Archæopteryx*) into one subclass, "Odontornithes," which, of course, is quite different from any existing form of bird-life.

20. *Oustalet on new Birds from New Guinea.*

[Description de quelques oiseaux nouveaux de la Nouvelle-Guinée; par M. E. Oustalet, Ass. Scient. de France. Bull. Hebdomadaire, No. 11.]

M. Oustalet describes a supposed new species of Paradise-bird of the genus *Drepanornis*, from the northern coast of New Guinea, between 136° and 137° E. lat., as follows:—

"Le bec n'est pas noir comme chez *Drepanornis albertisii*; il est jaunâtre sur le spécimen desséché et se fait remarquer

par son épaisseur ; en outre, l'espace dénudé qui existe sur le côté de la tête est sensiblement plus large que chez le *Drep. albertisii* et ne se rétrécit pas en arrière des yeux ; les plumes du dessus de la tête, qui affectent une forme écailleuse, sont beaucoup plus foncées, d'un brun olivâtre, et de chaque côté du menton descend un trait brun en forme de moustache."

He calls the species *D. bruijnii*, after Herr Bruijn of Ternate. A *Cyclopsittacus* from the same district is designated *C. salvadorii*. A new Muscicapine bird from Mount Arfak is called *Chloromyias laglaizei*, sp. et gen. nov. ; and another new bird of the same family, *Pomareopsis semiatra*. M. Oustalet will pardon us, we trust, if we say that more exact scientific descriptions (might we venture to add, in Latin?) of these fine novelties would be very desirable.

21. *Pelzeln's Report on the Progress of Ornithology in* 1878.

[Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1878, von August von Pelzeln. Wiegm. Arch. xlv. p. 381.]

Herr von Pelzeln's report on ornithology for 1878 is drawn up with its usual care and attention to details. We venture to suggest that it would facilitate reference if the titles of the papers given under each head ("Europe" &c.) were arranged alphabetically, according to the names of the authors.

22. *Reichenow and Schalow's 'Compendium.'*

[Compendium der neu beschriebenen Gattungen und Arten. Von Anton Reichenow und Herman Schalow. Journ. f. Orn. 1880.]

In these most useful papers, published in the 'Journal für Ornithologie,' the authors propose to give copies of the diagnoses or descriptions of all newly described genera and species of birds. They beg the assistance of their brother ornithologists in this important undertaking, and request to be favoured with copies of their papers for this object. In this request we join most heartily, as also in their further suggestion, that all diagnoses should be written in Latin, as the universal literary language.

23. *Rodd's 'Birds of Cornwall.'*

[The Birds of Cornwall and the Scilly Islands. By the late Edward Hearle Rodd. Edited, with an Introduction, Appendix, and brief Memoir, by James Edmund Harting; with Portrait and Map. 8vo. London, Trübner & Co.: 1880.]

At the time of his lamented death it was generally understood that Mr. Rodd had in preparation a general work upon the birds of his native county. This work, however, as we are now informed by Mr. Harting, had only so far advanced as to "consist of a transcript of various notes on the ornithology of Cornwall, communicated by the author to the pages of the 'Zoologist,' arranged in chronological sequence." "It was obvious," Mr. Harting remarks, "that in order to render these notes of practical utility it was necessarry to recast and rewrite the whole."

This has been ably executed by the editor; and we have now Mr. Rodd's interesting and original observations, which were continued over a period of nearly forty years, reduced into method and order.

24. *Salvadori's 'Prodromus,'* Part 9.

[Prodromus Ornithologiæ Papuasiæ et Moluccarum.—IX. Menuridæ, Certhiidæ, Nectariniidæ, Dicæidæ, Meliphagidæ. Ann. Mus. Civ. Genov. xvi. pp. 62–82.]

Prof. Salvadori enumerates 1 Menuridæ, 2 Certhiidæ, 17 Nectariniidæ, 23 Dicæidæ, and 80 Meliphagidæ as belonging to the Papuan Fauna. The following genera are newly used:—*Urocharis* (Dicæidæ), type *U. longicauda*, Salvad.; *Meliarchus* (Meliphagidæ), type *M. sclateri*, G. R. Gray; *Pycnopygius* (Meliphagidæ), type *P. stictocephalus*, Salvad.; *Philemonopsis* (Meliphagidæ), type *P. meyeri*, Salvad. These genera are shortly characterized. Two new species of *Ptilotis* are named *P. montana* (from Mount Arfak) and *P. flavirictus* (from the Fly River).

25. *Schlegel's 'Muséum des Pays-Bas.'*

[Muséum d'Histoire Naturelle des Pays-Bas. Par H. Schlegel. Revue

Méthodique et Critique des Collections déposées dans cet établissement. Tom. viii. Leide: E. J. Brille.]

The eighth livraison of this valuable work contains Prof. Schlegel's account of the Tinamous and Megapodes in the Leyden Museum. Of the former group 31 species are recognized, divided into five genera; of the latter 19, belonging to to 4 genera. Prof. Schlegel complains much of the insufficiency of his materials as regards the *Tinami*, in which group he confines his remarks to the species in the Leyden Museum.

26. *Schmeltz on the Fruit-Pigeons of the Genus* Ptilopus.

[Elliot, D. G.: On the Fruit-Pigeons of the Genus *Ptilopus*. Besprochen von J. D. E. Schmeltz. Verhand. d. Vereins für naturw. Unterhaltung, Hamburg, iv. p. 177.]

Herr Schmeltz gives notices of such species of *Ptilopus* as are in the Museum Godeffroy from Eastern Australia and Polynesia, in reference to Elliot's paper (P. Z. S. 1878, p. 500) and Salvadori's critique (P. Z. S. 1879, p. 61). Eighteen species are mentioned.

27. *Schmeltz on the Fauna of the New Hebrides.*

[Ueber die Thierwelt der Neu-Hebriden. Von J. D. E. Schmeltz. Verh. d. Vereins für naturw. Unterhaltung, Hamburg, iv. p. 71.]

Contains a list of the birds of the New Hebrides. About 70 species are enumerated; but some are doubtful. A useful list of publications on the subject is prefixed.

28. *Sclater's 'Jacamars and Puff-birds.'*

[A Monograph of the Jacamars and Puff-birds, or families *Galbulidæ* and *Bucconidæ*. By P. L. Sclater, M.A., Ph.D., F.R.S., &c. Part iv. 4to. London: 1880. Published for the author by R. H. Porter, 6 Tenterden Street, W.]

The new part of this work deals solely with the typical *Buccones*, of which nine species are figured, namely:—

Bucco macrodactylus
—— ruficollis.
Bucco maculatus.
—— striatipectus.

Bucco bicinctus.
—— tamatia.
—— pulmentum.
Bucco chacura.
—— striolatus.

29. *Smith's Miscellaneous Ornithological Papers.*

[Sir Andrew Smith's Miscellaneous Ornithological Papers. Reprinted by the Willughby Society; edited by Osbert Salvin, M.A., F.R.S., &c. Royal 8vo. London: 1880.]

The present reprint of Sir Andrew Smith's Ornithological Papers, so difficult of access to most workers, will, we doubt not, be generally appreciated, and much increase the popularity of the Willughby Society.

30. *Steere on the Mammals and Birds of Ann Arbor.*

[A List of the Mammals and Birds of Ann Arbor and Vicinity. By Prof. J. B. Steere. 8vo. 1880.]

Not a complete list, but (with the exception of a few, given upon the authority of labelled specimens in the Museum) the result of about three years' collecting and observing: 111 species of birds are enumerated. Ann Arbor is in the State of Michigan.

31. *'Stevenson on the Pomatorhine Skua.'*

[On the Abundance of Pomatorhine and smaller Skuas on the Norfolk Coast in October and November 1879. By Henry Stevenson, F.L.S. Trans. Norfolk and Norwich Nat. Soc., 1880.]

Mr. Stevenson gives us an account of the "appearance, in extraordinary number, of Pomatorhine Skuas (*Stercorarius pomatorhinus*), with Richardson's and Buffon's Skuas in very much smaller numbers," on the Norfolk coast in the autumn of 1879. The invasion, it is well known, extended to other parts of the English coast. A fine opportunity thus presented itself of studying the singular variations in plumage of this species, of which we need hardly say our excellent fellow-worker does not fail to avail himself.

32. *Stieda on the Bursa Fabricii.*

[Ueber den Bau und die Entwicklung der Bursa Fabricii. Von Dr. Ludwig Stieda. Zeitsch. f. wissensch. Zool. Bd. xxxiv. p. 206.]

In this paper Dr. Stieda shows, from a study of the histology and development, that the central substance of the follicles of this peculiar organ is composed of, and derived from, the epithelium of the "hind gut." The bursa Fabricii, therefore, can neither be a secreting gland, nor can it be compared to a Peyer's patch, as has been done by some previous authors. He has no additional information to give as to its function in birds, but suggests a comparison with another problematical organ, the thymus gland.

XIV.—*Letters, Extracts, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Sirs,—In Part xi. of his 'Birds of New Guinea' (which has just reached me) Mr. Gould says that we do not know the exact part of the island of Celebes from where *Gymnophaps pœcilorrhoa* (Brügg.) comes. He supposes that it is "probably from the south-eastern portion of the island, where Dr. Fischer collected." Now Dr. Fischer only collected in the northern portion of Celebes, viz. the Minahassa; and the specimen described by Dr. Brüggeman as *Carpophaga pœcilorrhoa* (Abh. naturw. Ver. Bremen, v. p. 85, 1876) was actually collected there. A short time afterwards Herr von Pelzeln described and figured (Verh. zool.-bot. Ges. Wien, xxvi. p. 720, pl. xiii. 1876) a specimen of the same species as *Gymnophaps pœcilorrhoa*; this one was sent to the Vienna Museum by Dr. von Drasche, who had procured on the Philippines a collection of bird-skins from various localities of the East. An exact habitat was not attached to the specimen; but I suppose it was from North Celebes, as the Menilla traders mostly only go there. Lastly, the Dresden Museum got the specimen which Mr. Gould has figured, from Mr. van Musschenbroek, who had killed it near Menado, as the label attached to the bird proves. Therefore the habitat of *Gymnophaps pœcilorrhoa* (Brügg.) is not doubtful: it is North Celebes; and the bird has not yet been recorded from

South Celebes. This only proves that, even after much collecting in the Minahassa, new species still remain to be discovered in that interesting part of the globe.

This last remark also applies to *Ptilopus fischeri*, Brügg. The typical specimen described and figured by Dr. Brüggemann (*l. c.* p. 82, pl. iv.) was collected by Dr. Fischer in the Minahassa. Subsequently the Leiden Museum got a series of specimens from South Celebes, which Prof. Schlegel immediately recognized as of a new species, as he told me, not yet knowing of Brüggemann's paper. To this series belongs the Dresden specimen, which Mr. Gould has figured in the same part of his 'Birds of New Guinea.' *Ptilopus fischeri*, Brügg., therefore is known from North *and* South Celebes, and Mr. Gould's supposition, that it is possibly confined to Southern Celebes alone, does not hold good; neither do I share Dr. Brüggemann's view (*l. c.* p. 84) that it only went astray to Menado.

I am, yours, &c.,

A. B. Meyer.

Royal Zoological Museum, Dresden,
October 25th, 1880.

Sirs,—When in Sydney, at the commencement of last year, I inspected, in the cabinets of Mr. Macleay, at his Museum, in Elizabeth Bay, a *Pachycephala*, marked by Mr. Ramsay, in his own handwriting, *Pachycephala kandavensis*; and I pointed out to the Curator that this was the true *P. vitiensis* of Gray. Mr. Masters informed me that the bird had been purchased from my old servant Pierce, who had collected it in Kandavu (Fiji), and that it had been inspected and labelled by Mr. Ramsay.

I saw Pierce's collection on his return from Kandavu, and, at his request, labelled all the specimens with a slip of paper under the wing. I particularly remember this species, as previously I had mistaken the narrow-collared pale *yellow*-throated species for *P. vitiensis*, and was proportionately pleased to find the true species, and the only *white*-throated species in Fiji. Mr. Masters was at once convinced of the justness of my identification, and altered the label.

I find, however, that the error has gone further, and that Mr. Ramsay, in the first volume of the 'Proceedings of the Linnean Society of New South Wales,' p. 65, has perpetuated it, by describing this bird as a new species! It is a pity that, before "rushing into print," Mr. Ramsay had not consulted me, knowing, as he did, that I had been working so long at the Fijian ornis.

The same sort of error seems to have occurred in the *Merula* from the same locality, which I pointed out and labelled as *Merula bicolor*, Layard, *having expressly sent Pierce to Kandavu to procure it for Mr. Ramsay*, but which the latter, ignoring my label and information, has renamed *M. ruficeps*, P. L. S. N. S. W. vol. i. p. 43. In the same paper *Vitia ruficapilla*, Ramsay, is described. This I *also labelled as having been sent home to Dr. Finsch*, who was then describing it in Europe under the name of *Drymochera badiceps*.

E. L. Layard.

Noumea, June 25th, 1880.

Sirs,—We have to chronicle two bits of ornithological information that may be deemed not unworthy the pages of 'The Ibis.'

First, four specimens of that very rare bird *Campephaga analis*, Verr. et Des Murs (Revue Zoologique, 1860), have been purchased in the market; and one has been presented to me by my liberal friend M. Savés, in the flesh.

Messieurs Verreaux and Des Murs had only one example, a young bird, before them when they described the species. M. Marie, although he includes it in his list (*cf.* Ibis, 1877, p. 362), never saw it, as appears from the omission of the (*), which, he says, in his paper published in the 'Actes de la Société Linnéenne de Bourdeaux,' t. xxvii. 1870, he affixed to all the species which passed through his hands. We have been here over four years; and these are the first specimens we have seen. We therefore look on it as one of our rarest species.

Our specimen is a ♀; but the sexes are undistinguishable in colour. It measures in the flesh 11 inches, wing 5·416,

tail 5·5, tarse 1·25, bill 1. It is throughout of a uniform cinereous colour, darkest on the wing- and tail-feathers. Vent, under tail-coverts, inner wing-coverts, small patch on the side, under the wing, and edge of shoulder deep cinnamon. Iris red-brown; bill, legs, and feet black. Stomach contained berries of the banian, swallowed whole, no insect-remains whatever.

Our next prize is the nest and eggs of the Greca Dove (*Drepanoptila holosericea*), found by L. L. in the high ranges near the "Cardinal's Hat" mountain, not far from Noumea. The nest, a pretty thick structure of small sticks, was placed in a lowish tree, on a tangled mass of creepers; we could look right down on to it from the path along the steep mountain-side. The eggs, two in number, are of a pale nankeen-white (not a *pure* white), and similar at both ends.

A young friend who collected for us some time since round Noumea, informs us that lately, while in the mountain ranges near Moindu, he saw a small green Parrakeet in some numbers; he describes it as not unlike *Trichoglossus palmarum* in size and colour. This must be an unrecognized species to the New-Caledonian list.

Though neither New-Caledonian nor New-Hebridean, we take this opportunity of adding a little information on Norfolk-Island birds that has come to hand.

From our kind correspondent there we have received the eggs of *Merula poliocephala*, which much resemble some forms of the European species, being of a greenish white, profusely speckled and blotched throughout with reddish brown and faint purple markings. Axis 14 lines, diameter 10. The nest, also sent, is identical with that of the European bird, being formed of rootlets, bents of dried grasses, dried leaves, and such like; there is no special lining; interior diameter 5 inches, depth 2. From the label on the box it appears to have been found in a cave.

My kind friend also sends eggs of "the Kingfisher" and the "Whale-bird," but without the parent birds. The former are, with the exception of being white, unlike those of any other Kingfisher with which we are acquainted. The

eggs of the "Whale-bird" show it to be some species of Tern.

Additional specimens of a small form of *Platycercus pennanti* of Norfolk Island have also been sent. They confirm the opinion which we had previously entertained of the necessity of distinguishing this local race by a name which at once fixes the habitat*.

E. L. & E. L. C. Layard.

Sirs,—The following particulars relative to the breeding of the Flamingo (*Phœnicopterus antiquorum*) in the Lake of Tunis, in 1880, may interest your readers.

On the 3rd of May, as nearly as I can recollect, I started at 12.30 A.M., with Giuseppe and Victor Emmanuele, two Sicilian cacciatori, for the island of Chikli, in the Lake of Tunis. Here we anchored the felucca for a short time, and proceeded to stalk some Flamingos which were sleeping in the shallow pools with which the island abounds. Though I was told they bred here, I failed to find any nests, though the eyries of Storks, Herons, and Cormorants abounded. After varying sport, we quitted the island about 4 A.M., when it was getting light. Giuseppe steered the boat to the southern or right-hand side of the lake. In the marshes skirting the shore he informed me I should find many Flamingos breeding. The Esparto grass grew abundantly in certain spots; and about these numbers of Flamingos were standing. We were not able to land, on account of the shallowness of the water, and the thick and viscous mud, out of which, if a boat once gets stranded, it is difficult to float her. At length there was an opening in the reeds, and Giuseppe, directing my attention to an islet of mud, told me there were two Flamingos sitting. I took up my opera-glass and saw on two mounds, some foot and a half high, two Flamingos sitting, *with their legs under them*. Of this I am certain; I could see the tarsi protruding beyond the loose plumes of the wings, just as I have seen in Flamingos in my possession, when they have

* [Messrs. Layard have not yet sent us examples of this supposed new species for comparison.—H. B. T.]

reposed on straw. I approached the nests as near as I possibly could, and the Flamingos, taking fright, flew off. There was no sign of eggs, though a Flamingo egg (of a dirty whity-brown colour) was afterwards procured from the same locality. The nests seemed to be mounds of black mud, scraped up from the surrounding ground. Reeds were sticking out of them in all directions, apparently without design. The appearance of the nests suggested to me that the Flamingo had crushed and trodden down the low-growing reeds and piled wet mud on them. The tame Flamingos I was keeping in my garden at the same time were always scraping up dirt with their feet, and dragging it about. I intended to return to the same spot the following day, and pursue my investigations; but, unfortunately, this part of the lake is very unhealthy, and the night and morning I had passed on its fetid waters had inoculated me with the Morah fever, of which I had so severe a bout that I was obliged to return to England as soon as I was convalescent.

I am told that Flamingos breed not only on the Lake of Tunis but on that of Bizerta, in the north of the Regency, and on the brackish lakes in the extreme south, near Gaks and the Sahara.

Much information may be procured from Mme. Elisa Noël, Rue Lidi Morgiani, Tunis, who is a dealer in and exporter of water-birds.

I am, Sirs, yours, &c.,

H. H. Johnston.

Zoological Society's Gardens, Regent's Park,
London, N.W., December 1st, 1880.

Sirs,—As many of the readers of 'The Ibis' probably already know, and as I have incidentally stated above (p. 2), I am now engaged in the completion of the unfinished work left by the late Prof. Garrod on the Anatomy of Birds. Thanks to the stores of specimens accumulated by him, and my prosectorial advantages, I have in my possession (or, at all events, have prospectively) specimens in the flesh of nearly all of the most important forms of birds.

There are, however, still left a considerable number of which I have not as yet succeeded in obtaining any examples; and of these I append a list. It is naturally my wish to make the 'Anatomy of Birds' as complete as possible, and to examine, for that purpose, as many forms of birds as can be obtained. I hope, therefore, that any members of the B. O. U., or travellers or naturalists generally, who may have it in their power to obtain specimens of any of these my "desiderata," will do all they can to enable me to acquire these forms.

Passeres.—In this group of birds there is so much uniformity in anatomical structure that my desiderata are comparatively few, and mostly confined to some of the more obscure forms and to the *Mesomyodæ*. I may mention the following as being desirable:—

Of the Old-world forms, Eurylæmidæ, especially *Corydon* and *Calyptomena*; *Philepitta*; *Hydrornis* and *Melampitta*; *Orthonyx* (particularly wanted); *Atrichia*; *Climacteris, Sittella, Xenicus, Acanthisitta*; *Drepanis*, or any of its allies (*Psittirostra* &c.); *Grallina*; *Drymodes, Psophodes, Petræca*; *Eupetes*; *Irena* and any *Dicruridæ*; *Euryceros*; *Falculia* and *Buphaga*.

Of American forms, *Chamæa*; *Procnias* and *Pipridea*; also any of the Mesomyodian (Formicarioid) groups, especially *Phytotoma* and *Oxyrhamphus*, both particularly wanted, and any of the larger Cotingine forms, such as *Ptilochloris, Cephalopterus, Gymnoderus, Querula, Phœnicocercus*, &c.

Bucconidæ. This is the only group of birds, of any size, of which I have as yet been utterly unable to procure spirit-specimens. *Any* will be therefore most acceptable.

Meropidæ, Galbulidæ, and Trogonidæ. Any species will be acceptable, particularly any of the Old-world Trogons.

Coraciidæ. *Eurystomus* and any of the anomalous Madagascar forms (*Atelornis, Brachypteracias*, &c.).

Alcedinidæ. Almost any except *Alcedo, Dacelo*, and *Ceryle*.

Upupidæ. Any, especially *Irrisor*. (It is uncertain whether it really belongs here.)

Cypselidæ. Any.

Trochilidæ. Any large form, especially *Patagona*.

Caprimulgidæ. *Batrachostomus, Ægotheles, Podager, Nyctibius,* and almost any others.

Picidæ. Any except the three commoner English species. *Sphyrapicus* I particularly want; also *Picumnus, Vivia,* and *Sasia*.

Capitonidæ. Any except *Megalæma*.

Cuculidæ. Nearly any forms, especially *Phœnicophaes, Scythrops, Centropus,* and *Coua*.

Psittacidæ. In this group nearly the only forms required are *Cyclopsitta* and *Pezoporus*. Young nestlings of *Stringops* (the younger the better, or even well-incubated eggs) would also be very interesting.

Gallinæ. *Oreophasis, Agelastus* and *Phasidus, Leipoa,* and *Megapodius* are my chief desiderata here.

Columbidæ. Here also my wants are few; any species of *Carpophaga* and *Ptilopus* would be welcome; also *Otidiphaps,* if it can be got!

Tubinares. Any species will be very acceptable, as I am engaged on a memoir on the anatomy of the group for the voyage of H.M.S. 'Challenger.'

In the remaining groups the following genera are still very imperfectly, or not at all, known anatomically; all present special features of interest:—

Platalea (except *P. leucorodia* and *ajaja*), *Anastomus, Balæniceps, Esacus, Mergulus, Phaleris,* &c., *Plotus* (exc. *P. anhinga*), *Thinocorus, Mesites,* and *Attagis*; also the Turnicidæ—*Pedionomus* (particularly wanted); *Rhynchæa, Ibidorhynchus, Tachydromus, Pterocnemis* (=*Rhea darwinii*), *Tinamotis* and *Calodromas* (both particularly wanted; the latter, at least, ought to be obtainable); *Parra* and *Hydrophasianus, Heliornis* and *Podica, Dromas, Rhynchops,* and *Palamedea* (not *Chauna*).

It is also greatly to be desired that the osteology and anatomy of the lately discovered short-winged Rails of the genera *Megacrex* and *Pennula* should be properly examined before they become (as they almost certainly will shortly) extinct.

I may remark that any tolerably strong spirit will do to preserve birds in, but that it will be better, especially in the case of larger birds, to change it two or three times during the first few days that the birds remain in spirit. All that is necessary in the way of preparation is to open the abdominal cavity by a slit down the median line, so as to allow the spirit access to the *viscera*. The viscera should *not* be removed in any case.

In default of spirit-specimens, carbolized ones, or skeletons of many of the forms mentioned would be useful; but spirit-specimens in all cases are to be preferred. The specimens need not, of course, be in good plumage; and the wing and tail-feathers, and even others, can be cut short to save space. But, unless the birds are named, enough of the feathers should always be left on to secure identification.

I may add that I shall be very grateful if some of the many ornithologists resident in India would procure me about half a dozen specimens (adult) of wild-shot *Gallus bankiva*, in spirits, or even skeletons. As the first part of Prof. Garrod's treatise is devoted to the anatomy of the Fowl, it is desirable to have wild specimens of it for dissection, or at least to describe the bones from them, and not from any of our domestic races. W. A. Forbes.

The College, Durham,
Dec. 4, 1880.

Sirs,—I had been making inquiries as to the birds found on St. Ambrose Island, in the South Pacific, off the coast of Peru, which is rarely visited. I had some hope that something like the fauna of the Galapagos might occur there.

I hear from a friend who has recently visited it, that there are no land-birds. The only birds procured were specimens of *Œstrelata defilippiana* and *Anous cæruleus*. Of these Lieut. Gunn, R.N., my correspondent, has sent me specimens, together with the eggs of the former.

Yours &c.,
H. B. Tristram.

Obituary.—Mr. T. C. Eyton. We regret to have to chronicle the death of one of the original members of this Union. Mr. Thomas Campbell Eyton, of Eyton, and Walford Manor, Shropshire, died at his residence, near Wellington, Shropshire, at the end of October last. Mr. Eyton was the eldest son of the late Mr. Thomas Eyton, of Eyton, by his marriage with Elizabeth, eldest daughter of Major-General Donald Campbell, and was born in the year 1809. He was educated at St. John's College, Cambridge, was a magistrate and deputy-lieutenant for the county of Salop, and formerly held a commission in the South Salop Yeomanry Cavalry. He was a member of the Linnean, Geological, and Zoological Societies. His museum at Eyton Hall contains a large collection of birds and bird-skeletons, of which, we believe, the types and more important specimens will go to the British Museum. Mr. Eyton's name is well known to ornithologists as the author of the 'History of the rarer British Birds' (1836), the 'Monograph of the Duck tribe (1838), the 'Osteologia Avium' (1861), and other works and papers.

The Range of Porphyrio cæruleus.—In my note on the name of the Purple Waterhen of South-western Europe (Ibis, 1879, p. 195), I speak of that species as "restricted to Spain and Algeria." This is not quite correct, as it certainly also occurs in Sardinia, whence Prof. Giglioli has kindly supplied me with a specimen, killed in the marshes near Cagliari in October 1877. Prof. Giglioli also assures me that it is met with, though rarely, in Sicily, whence he has likewise received examples.—P. L. Sclater.

Prejevalsky's last Expedition.—Col. Prejevalsky is expected to arrive shortly in St. Petersburg from his last expedition. The collections he brings with him are stated to comprise 2000 specimens of birds; so that there is every reason to expect a great advance in our knowledge of the ornithology of Tartary and Tibet.

The new Otidiphaps.—Count Salvadori kindly informs us that the new Pigeon described in 'The Ibis' for July last (1880, p. 364) as *Otidiphaps regalis* has also been named by

Mr. Ramsay, of Sydney, *Otidiphaps nobilis*, var. *cervicalis*, in a paper read before the Linnean Society of New South Wales on December 31st, 1879, which name is subsequently, in the same paper, altered to *O. cervicalis*. Mr. Ramsay has not yet favoured us with a copy of this paper, nor has the fourth part of the journal in question for 1879 (which would, we suppose, contain Mr. Ramsay's article), so far as we know, been anywhere received in this country. It is therefore not possible for us to give the exact date of its publication.

Note on Chlorophonia cyanodorsalis.—Graf v. Berlepsch sends us the following extract from a letter from M. Alph. Dubois, of the Royal Museum of Brussels, in reply to his inquiries concerning that problematical species *Chlorophonia cyanodorsalis*, Dubois, Rev. de Zool. 1859, p. 49, t. 2:—

"Pour ce qui regarde le *Chloroph. cyanodorsalis*, je ne puis vous donner aucun renseignement. Ce n'est pas moi, mais feu moi père qui a décrit et figuré cet oiseau. Je ne sais ce que son type est devenu; car peu de temps avant sa mort il a vendu sa collection à un amateur étranger que je ne connais pas. Je suis également d'avis que cet oiseau n'est qu'une variété accidentelle de l'*occipitalis*."

The Birds of Socotra.—The birds' skins obtained in Socotra by Prof. Balfour in February last year have been determined by Sclater and Dr. Hartlaub. Their report on the subject will be read before the Zoological Society on the 18th inst. Examples of thirty-four species are in the collection, of which seven appear to be new. The remainder are mostly well-known East-African forms.

Works in preparation.—Mr. Dresser, having completed his 'Birds of Europe,' has in contemplation a companion work on the birds of the eastern half of the Palæarctic Region, and a monograph of the Meropidæ. For the latter many of the plates, by Mr. Keulemans, are, we understand, already drawn. The next three volumes of the British-Museum Catalogues of Birds to be issued are the Turdidæ and Sylviidæ, by Mr. Seebohm; the Timeliidæ, by Mr. Sharpe;

and the Laniidæ and Paridæ by Dr. Gadow, whom we are glad to welcome to England to aid us in our ornithological labours. Mr. Gould, it is stated, has in progress a volume of illustrations of the genus *Pitta*.

Expeditions in progress and projected.—From our Foreign Member, Dr. Finsch, we have just received a *seventh* ornithological letter, which will be given in our next number. He is now in Matupi Island, Blanche Bay, New Britain, where he will probably remain some time. Our excellent Secretary, Mr. F. DuCane Godman, is away with Mr. Elwes, on a trip to Sikkim, in which, although not projected with any ornithological object, birds will, no doubt, not be lost sight of. Canon Tristram will leave England very shortly, in conduct of a learned party, for Palestine, where again, although ornithology is but a subordinate object, we may be quite sure that our energetic coadjutor will not fail to note every bird that he comes across. Later in the spring, Canon Tristram will make an excursion into Eastern Syria and the valley of the Upper Euphrates, where he expects to be just in time to find *Geronticus calvus* breeding*, and will, no doubt, meet with other rare birds. Professor Balfour, who has so successfully explored Socotra, is now meditating an expedition into the interior of Arabia from Aden, in company with Capt. Hunter, the Assistant Political Resident at that port. Professor Balfour's main object will of course be the plants; but he is endeavouring to make arrangements to take a zoological collector with him into this unknown and highly interesting district. Major Biddulph, whose excellent notes on the Birds of Gilgit we give in this number, has returned again to that very dangerous station, only to be besieged, it seems, by the unruly natives. Now that order is restored, he will be able to resume his most interesting ornithological observations. Mr. W. A. Forbes has, as many of our readers know, returned safely from his trip to Pernambuco, and promises us an account of his adventures for our next number.

* *Cf.* Ibis, 1880, p. 88.

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XV.—*Notes on the Avifauna of Italy*. By Henry Hillyer Giglioli, Sc.D., C.M.Z.S., F.M.B.O.U., Professor of Zoology and Comparative Anatomy of Vertebrates in the R. Istituto di Studii Superiori, Florence.

These notes are based upon the extensive ornithological series of the Central Collection of Italian Vertebrates in the Royal Zoological Museum of Florence. I began such a collection about five years ago, for the purpose of illustrating the vertebrate fauna of Italy. I have been most fortunate, and in that short period have been able to get together and place in systematic order more than 16,000 specimens of Italian Vertebrates, representing 1052 species, of which no less than 150 are *new* to the Italian fauna. As I take the utmost care only to accept for this collection specimens the localities of which are well authenticated, the value of the collection itself is patent.

The Italian birds are represented in the collection by 1695 specimens, belonging to 390 species; they are all mounted by my excellent taxidermist, Signor Magnelli; but, besides many skins, I have a good collection of skeletons and sterna kept separately, and an incipient collection of eggs and nests.

I have also commenced forming a collection of unfledged young, most of which, for obvious reasons, are preserved in alcohol. It is on this portion of the Italian faunistic collection that I have taken a few notes which will, I hope, interest the readers of 'The Ibis.' I may add that the ornithological series may be considered nearly complete; only a few species of accidental occurrence are not represented as yet. Amongst these I cite the following, undoubtedly authentic Italian specimens of which are in existence :—

Aquila wahlbergi, Sundev.
Pisa Museum; shot near Florence, March 6th, 1843.

Buteo ferox (S. G. Gm.).
Genoa Civic Museum; shot near Genoa, April 8th, 1869.

Hierofalco saker (Gm.).
Cagliari Museum (*fide* Salvadori).

Coccyzus erythrophthalmus (Wils.).
Pisa University Museum; shot near Lucca in 1858.

Caprimulgus ruficollis, Temm.
In the collection of C. A. Wright, Esq.; shot in Malta at the end of May 1860. A second specimen was shot in that island on the 12th of May 1865.

Cypselus pallidus, Shelley.
In the collections of Capt. Feilden and C. A. Wright, Esq.; both females; shot in Malta in May 1874.

Turdus obscurus, Gm.
Turin University Museum, shot in the neighbourhood in November 1827; Pisa Museum, shot near Turin in November 1828: the types of *T. werneri*, Gené. A third specimen, caught near Siena in the autumn of 1878, is in the collection of Prof. Magni-Griffi at Siena.

Turdus atrigularis, Temm.
Turin University Museum; shot in the neighbourhood in January 1826. A second specimen is in the Pavia Museum, captured near Casteggio in the winter of 1849. A third, an adult male, is in the collection of Signor Apelle Dei, at Siena;

it was shot in the Maremma, at Belforte, on the 30th of November 1863.

Dromolæa leucopygia (Brehm).

Collection of C. A. Wright, Esq.; shot on the 18th of April 1872 in Malta.

Saxicola leucomela (Pall.).

Male, in the Civic Museum, Genoa; shot at Cornegliano in December 1860.

Anthus obscurus (Lath.).

One specimen is mentioned by Mr. C. A. Wright as having come into his hands in Malta.

Melanocorypha yeltoniensis (Forst.).

A specimen caught in Piedmont in 1808 was figured by Bonelli, but unfortunately not preserved.

Ammomanes cinctura (Gould).

A single female, obtained by Mr. C. A. Wright in Malta in April 1867, and now in Mr. Dresser's collection. The *A. deserti* mentioned by Mr. Wright as being in Dr. Schembri's possession in Malta is probably to be referred to the lesser species. Salvadori includes it in his work as *A. lusitana*.

Calandrella minor (Cab.).

A single specimen, in Mr. Dresser's collection, obtained in Malta by C. A. Wright, Esq., in November 1862.

Erythrospiza githaginea (Licht.).

One male specimen, netted near Pisa in the spring of 1839, now in the Pisa Museum; a second, female, netted at Cologno (Verona) in the autumn of 1850, now in Signor Carraro's collection at Verona (Municipal Palace). In Malta it is not unfrequent; and specimens exist in the collections of Schembri, Wright, and Dresser, caught on that island.

Agelæus phœniceus (Linn.).

A male, caught at Bellinzago in October 1864, is in Count Camozzi's collection at Bergamo. I have reason to believe that a specimen of this species was plucked and roasted in the Florence market in November 1877.

Pterocles arenarius (Pall.).

In the small University Museum at Messina, mostly formed by Benoit's collection, is a female of this species. Benoit himself assured me that it had been captured in Sicily, but he could not remember when. In his well-known 'Ornitologia Siciliana,' at p. 117, however, he mentions this species as unknown to him; thus the specimen I mention must have been caught after 1840.

Houbara undulata (Jacq.).

There is a *Houbara* in the University Museum in Malta, which, if I remember rightly, is of this species. I was told that it had been shot on the island many years ago, and it might be the male described by Schembri as shot by G. Borg Madiona in 1841 (Cat. Orn. di Malta, p. 85). On this unique specimen rests, as far as I am aware, the evidence of the occurrence of this species in our subregion.

Hoplopterus spinosus (Linn.).

A female, shot in Malta on the 11th October 1865, is in Mr. Wright's collection. A second specimen, captured at Cattaro in May 1859, is in Finger's Collection in the Vienna Museum. A male from Sicily (??) is in the Civic Museum at Pavia.

Charadrius fulvus, Gm.

A specimen is in the collection of Signor A. Zammit in Malta (*fide* Wright), where it was shot in May 1861. Other instances of the occurrence of the Eastern Golden Plover in the island are recorded.

Actiturus longicaudus (Bechst.).

A splendid specimen is in the Genoa Civic Museum; it was shot in the neighbourhood in October 1859. A second specimen was secured by C. A. Wright, Esq., in Malta, on the 17th of November 1865, and is, I believe, still in his possession.

Anthropoides virgo (Linn.)

Has been recorded from Tuscany (Savi, 1828), Sicily (Doderlein, 1833), and Malta (Wright, March 1861); but none have been preserved, so far as I am aware. A specimen of

this species is in the University Museum at Padua, with the indication "Valli Padovane," without any date.

Bernicla leucopsis (Bechst.).

A very fine specimen is in the Naples Zoological University Museum; it was shot near Foggia, in the winter of 1877, and bears the name of *B. brenta*, under which Prof. A. Costa published a note on its occurrence.

Chenalopex ægyptiacus (Linn.).

A single specimen was said to be in the small Natural-History Museum at Syracuse, shot in the neighbourhood many years ago (*fide* Doderlein). I visited that museum in September 1878, but saw no such specimen; it is therefore with much hesitation that I include this species in the present list.

Oceanites oceanicus (Kuhl).

One specimen was shot near Cagliari (*fide* Cara), and now in the University Museum there (*fide* Salvadori).

Thalasseus medius (Horsf.).

A specimen of this species in spring plumage, from Sicily, is in the Leyden Museum (*fide* Schlegel). I believe that a second specimen is in the Palermo Museum.

Larus glaucus, Brünn.

I know of two specimens undoubtedly Italian:—one, adult, in the Genoa University Museum, without date of capture; a second, also adult, in the private collection of Dr. Orsini at Genoa, where it was shot in the harbour on the 10th of April 1877.

Lestris crepidatus (Banks).

Specimens, captured in Piedmont, have been seen and referred to this species by Salvadori; one other, caught in the Marche, is in the possession of the same author. I have seen in the Naples University Museum a specimen of this species, said to have been shot in the neighbourhood in 1870. Another is at Venice, in the Ducal-Palace Museum.

With the addition of the above, which have nearly all un-

doubtedly occurred in Italy, the sum of the species of the Italian avifauna would be 418. In the catalogue which I recently gave in the first part of my 'Avifauna Italica,' 424 species are enumerated, and I have since added five more; but recent investigations have convinced me that the following species, included in that list, are, so far as our present knowledge goes, to be excluded:—

Milvus ægyptius (Gm.); *Falco minor*, Bp.; *Carine glaux* (Savigny); *Turdus naumanni*, Temm.; *Saxicola melanoleuca* (Güldst.); *Lusciniopsis fluviatilis* (Wolf); *Aedon galactodes* (Temm.); *Gallinago brehmi* (Kaup); *Balearica pavonina* (Linn.); *Adelarus leucophthalmus* (Licht.); *Megalestris catarrhactes* (Linn.).

Some of these will call for further remarks in the following notes; others of them *may* have occurred, but no authentic Italian specimens are known; others, again, as *Carine glaux*, *Saxicola melanoleuca*, and *Gallinago brehmi*, cannot, I believe, be considered good species. I have not mentioned the notorious *Synœcus lodoisiæ*, of which the unique and type specimen is in the Turati collection of Milan; for, having carefully examined it, I quite agree with several distinguished ornithologists who have seen it, that it is merely a variety of the Common Quail. Our collection possesses an equally singular variety of the Grey Partridge.

While concluding these general remarks on the Italian ornis, I may add that, besides some of the species mentioned in the preceding list, some of the following are likely to occur in our subregion, and may even have already been caught, but escaped the ornithologist's eye:—

Accipiter brevipes (Severtz.); *Melierax gabar* (Daud.); *Buteo desertorum* (Daud.); *Aquila mogilnik*, S. G. Gm.; *A. adalberti*, L. Brehm.; *A. nipalensis*, Hodgs.; *A. rapax* (Temm.); *Elanus cæruleus* (Desf.); *Asio capensis* (Smith); *Ceryle rudis* (Linn.); *Acredula tephronota* (Günth.); *Turdus ruficollis*, Pall.; *Calliope camtschatkensis* (Gm.); *Saxicola isabellina*, Rüpp.; *Accentor montanellus* (Pall.); *Daulias philomela* (Bechst.); *Sylvia rueppelli*, Temm.; *Reguloides superciliosus* (Gm.); *Hypolais caligata* (Licht.); *H. opaca* (Licht.);

H. olivetorum (Strickl.)*; *Locustella lanceolata* (Temm.); *Motacilla citreola*, Pall.; *Calandrella bætica*, Dresser; *Ammomanes deserti* (Licht.); *Otocorys penicillata* (Gould); *O. bilopha* (Rüpp.); *Certhilauda duponti* (Vieill.); *C. desertorum* (Stanley); *Emberiza cinerea*, Strickl.; *Passerculus chrysophrys* (Pall.); *Garrulus krynicki*, Kalenicz; *Turtur senegalensis* (Linn.); *T. risorius* (Linn.); *Phasianus colchicus*, Linn.; *Glareola melanoptera*, Nordm.; *Tryngites rufescens* (Vieill.); *Ardea melanocephala*, Childr. & Vig.; *Cygnus immutabilis*, Yarrell; *Chen hyperboreus* (Pall.); *Anser erythropus*, Linn.; *A. brachyrhynchus*, Baill.; *Querquedula formosa* (Georgi); *Œdemia perspicillata* (Linn.); *Cosmonetta histrionica* (Linn.); *Microcarbo africanus* (Gm.); *Procellaria leucorrhoa* (Vieill.); *Chroicocephalus ichthyaetus* (Pall.); *Alca troile* (Linn.).

The following species, represented in the collection of Italian Vertebrates, call for special remarks :—

Aquila maculata (Gm.).

This species is not common in Italy; but Genoa is the locality where, to my knowledge, it can be more easily obtained than elsewhere. Specimens, however, exist in most of our museums; and although those I have examined vary in size, I have been unable to find amongst them examples of the two forms distinguished by most modern ornithologists, viz. *A. pomarina* and *A. clanga*. The four specimens in the Florence Museum appear to belong to the smaller race. I must, however, confess that I am very loath to admit true specific distinction between the two, as I consider the practice of founding such distinctions merely on difference of size very hazardous in ornithology.

Nisaetus fasciatus (Vieill.).

It may be of interest to know that this Eagle, so common in Sardinia, is not unfrequently caught in the woods of Rossore, near Pisa.

* Prof. T. Prada, in his 'Avifauna di Pavia,' p. 79, footnote, mentions a specimen of this species from Nice!?, as existing in the Pavia Civic Museum. I much doubt if such be really the case, not having examined the specimen; it may be one of *H. pallida*.

Nisaetus pennatus (Gm.).

I possess two fine specimens of this rare bird—one shot at Vado (Savona) in October 1854, the other near Rome in the autumn of 1872; both are males.

Milvus migrans (Bodd.).

The Florence collection has no less than five specimens of this rare Kite:—a pair, male and female, from Escarene (Nice), December 1877; a male in juvenile plumage, shot near Florence in the autumn of 1856; and two magnificent specimens, male and female, from Terracina, April and May 1879.

Cerchneis naumanni (Fleisch.).

This Kestrel is a straggler with us on the continent, but appears to be pretty common during summer in Sicily. I have one from Genoa (April 1873); and another was shot by myself at Burano in the Maremma in March 1876: both are adult males. Females are much scarcer in our museums.

Falco communis (Gm.).

Our collection has now a fine series of this species, both young and adults, male and female. I have now come to the conclusion that the specimens caught in Italy, and referred to *F. minor*, are merely the males of this species, in which the two sexes differ greatly in size.

Falco barbarus, Linn.

I have an undoubtedly genuine specimen of this species, a nearly adult female, shot by my friend Marquis Nerli at Papillonis, near Oristano (Sardinia), on the 27th of February 1878.

Falco feldeggi, Schleg.

While writing these notes I have had the good fortune to receive a magnificent specimen of this rare species. It is an adult male, and was shot on the 28th of November last at Mesa, near Velletri, by Count E. di Mirafiore. It answers very well to the description of the adult male of *F. biarmicus* in Sharpe's 'Cat. Birds Brit. Mus.' i. p. 392. This is the

second instance of the occurrence of this Falcon in Italy proper: a first specimen was found in the market at Rome by Salvadori in 1853, and is in his collection; its description tallies well with our specimen. This species has a very good feature in its short toes in comparison with those of the peregrinoid Falcons. The type, shot in Dalmatia, is in the Leyden Museum; and I have lately seen two more of Baron Feldegg's specimens in the Prague Museum, also from Dalmatia; they still bear Schlegel's labels, and the date of capture (1829).

Falco eleonoræ, Gené.

Our collection has a fine series from Vacca and South Antioco (Sardinia). The light and dark forms evidently breed together; and two of my dark specimens are males.

Circus cineraceus (Montag.).

This is a very rare species with us. I possess three specimens—an adult male, shot at Pigna d'Andorra (Ventimiglia) on the 1st of May 1878, and two young birds, both males, one shot at Genoa in September 1875, the other at Greve, south of Florence, in June 1873.

Glaucidium passerinum (Linn.).

This is a rare species, and only occurs in our higher Alps. I have seen three specimens—two from the Italian Tyrol, one of which I possess; the third, in Count Ninni's collection at Venice, is from the Alps above Belluno.

Carine noctua (Scop.).

This is a very common bird all over Italy, and generally used as a decoy for catching small birds with bird-lime; it varies much in size and colour, and often presents intermediate stages between the two extremes, *C. noctua* and *C. glaux*; I therefore believe that the latter cannot be considered a distinct species.

Nyctala tengmalmi (Gm.).

A rare species with us. Our collection at Florence possesses two specimens—one shot near Nice on the 19th of November 1876, the other at Pinerolo in the winter of 1860; the latter is a female, as is probably the former also.

Picus lilfordi, Sharpe & Dresser.

The Italian collection has four specimens of this Woodpecker:—a pair from Genoa, both females, one shot on the 12th of January 1874 at Livellato, the other on the 15th of January 1880 at Rivarolo; a male from Ancona, December 1870; and a second male from Dalmatia, shot on the 10th of November 1880. I did not observe this species in Corsica; but Prof. Kolombatovic, of Spalato, assured me that it is not rare in Dalmatia. All these have the white of the back crossed by thick black bars.

Picus leuconotus, Bechst.

Our collection possesses a male, caught near Genoa in the autumn of 1855, and received in exchange from Signor De Betta, of Verona, which, on account of its white back faintly streaked with black, must be referred to this species. A second specimen, a female, caught in the neighbourhood, is in the Genoa Civic Museum, if I remember rightly. No other distinction exists between these two Woodpeckers; and I would fain ask my brethren of the B. O. U. whether, under the circumstances, I ought to regard *P. lilfordi* and *P. leuconotus* as really distinct species, both occurring in Italy, or whether I should not rather follow the older authors, and consider both as one species under the old name of *P. leuconotus*?

Picus medius, Linn.

Not common. I have one adult male and two adult females from Spoleto and a female from Prato. It is a bird not often seen in Italian collections.

Picoides tridactylus (Linn.).

Very rare, and, as far as I know, only found in the Tyrol and Venetian Alps. I have a male, shot in the autumn of 1862 in the Alps near Trento.

Dryocopus martius (Linn.).

Not rare in our Alpine forests; and I have received specimens from Valdieri, Ossola, and Cadore. I can hardly believe that this species is found in Sicily; but I may state that in the University Museum at Naples is a specimen said to

have been shot on Aspromonte, at the extreme end of Calabria, opposite Messina.

Gecinus viridis (Linn.).

Our commonest Woodpecker. In Signor De Betta's collection at Verona is a beautiful albino specimen, entirely of a light canary-yellow, except the head, which is red; it was shot in the neighbourhood a few years ago. I may add that in Herr Finger's collection in the Vienna Museum is an albino of *Dryocopus martius*, wholly white, except the top of the head, which is red.

Gecinus canus (Gm.).

Very rare and exclusively alpine; it appears to be less uncommon on the Eastern Alps. Our collection possesses two specimens—a male from the Valle di Non (Trento), November 1852, and a female shot near Cremona in December 1869.

Coccystes glandarius (Linn.).

Quite accidental, but more frequently occurring near Genoa. I have two specimens—one from near Pisa, April 1831, the other shot at Borzola, near Genoa, 20th March 1876; this is a male.

Merops persicus, Pall.

Very rare. I know of one specimen shot at Bari a few years ago; and our collection possesses one of those mentioned by Marquis Durazzo as having been captured near Genoa in the spring of 1834, received in exchange from the Genoa University Museum.

? Caprimulgus tamaricis, Tristram.

A curious small Goatsucker, which agrees very fairly with the description and plate of this species (*vide* P. Z. S. 1864, p. 170, and Ibis, 1866, p. 75, pl. xi.), has been received by me from a dealer in Genoa, with the assurance that it was shot near that city. It is a male, in good condition, but with the hallluces rubbed off, and has all the appearance of having been mounted from the flesh. The dealer, Signor Borgioli, received it from a friend who had kept no record of the date

of its capture, which, however, from the condition of the specimen, cannot date many years back. It is with much doubt that I have included this bird in the Italian collection; and further comparisons are necessary for its specific determination; for, as every ornithologist knows, it is no easy matter to identify some of the *Caprimulgi*. This would be the first instance of the occurrence of *C. tamaricis* in Italy and in Europe. On examining my specimen some time ago Prof. Doderlein assured me that he had shot a similar one at Ustica (Sicily) a few years since, but had not preserved it.

Caprimulgus ægyptius, Licht.

While on a visit to the small University Museum in Malta in October 1878, my attention was called to three specimens of this species, one of which was labelled *C. europæus*, and considered by Dr. A. A. Caruana (who assured me that they had been all shot on the island about two years before) merely an *isabelline variety* of that common species. I obtained one specimen in exchange, a female; it was labelled *C. ruficollis*! On having it remounted I found that it had evidently been recently prepared. Even this species is an addition to the Italian avifauna. Baron G. Caruso, of Girgenti, told Prof. Doderlein (Avif. Sicil. & Mod. p. 344) that he had shot some years ago in that neighbourhood an isabelline *Caprimulgus*, most likely of the present species.

Hirundo rufula, Temm.

A rarity with us, and occurring less unfrequently at Genoa and at Bari, as far as my information goes. On the 25th of March 1877, the first Swallow I saw flying over the Arno in Florence, between S. Trinità bridge and Ponte Vecchio, was a specimen of this species, its reddish rump glowing conspicuously in the sunlight. I saw it again the next day, together with a *Chelidon urbica*; it afterwards disappeared. Our collection possesses two specimens—a male shot near Genoa in May 1859, and a female shot at Bari in August 1874. I believe that a few couples breed with us.

Cotile rupestris (Scop.).

My first communication to this Journal, in 1863, was on the

stay during winter of this species in some parts of Italy. I have since ascertained that it is abundant during that season in Sardinia and some parts of the Maremma. I have seen it myself flying in numbers at San Germano di Cassino, between Rome and Naples, in January 1879. It is most common in the mountains of Corsica.

Erythrosterna parva (Bechst.).

Quite accidental. Our collection possesses a single specimen, received in exchange from the University Museum, Genoa, which I have good reasons to believe to be the one mentioned by Marquis Durazzo as having been captured near that city in the spring of 1835. A second specimen, caught also in that neighbourhood a year before, is in the Civic Museum at Genoa.

Lanius meridionalis, Temm.

Salvadori, in his excellent work on the Italian avifauna, expresses considerable doubt as to the occurrence of this species in Italy. Such a doubt can no longer be entertained; for the Florence collection of Italian vertebrates possesses no less than four specimens of this Shrike, two of which I received in the flesh. The first is a male, shot at Spoleto in February 1875, the second a female, shot at Borgheri, in the Maremma, on the 21st January 1878. The other two are from the neighbourhood of Nice—a male, captured on the 28th of December 1876, and a female, shot in February 1877. I have seen, besides, two other specimens, recently shot near Genoa, and now in Marquis Doria's museum.

Acredula irbyi, Sharpe & Dresser.

This is, beyond doubt, the prevalent and only species in Central and Southern Italy, to the south of a line drawn across the Tuscan Apennines; I have also shot it in Corsica. It is a most distinct species, and, so far as I know, does not occur in Northern Italy. This would account for the apparent confusion which Salvadori made between this and the following species, and the statement of Messrs. Sharpe and Dresser that some of the specimens sent to them from Piedmont by Count Salvadori differed very little from the British Long-tailed

Tit. One can easily understand this; for they were one and the same.

Acredula rosea (Blyth).

Our collection possesses a fine series of this species, *all* from Northern Italy, where it is the prevalent and, as far as my knowledge goes, the *only* species. I have seen no specimens shot as far south as Tuscany.

Acredula caudata (Linn.).

I doubt very much if this species can be kept distinct from the preceding one, from which it differs only in having, when fully adult, a white head. It occurs sparingly in Northern Italy along with *A. rosea*; and our collection possesses two specimens—one, a male, from Genoa, winter 1857, received in exchange from the Civic Museum; the second, a female, was shot at Marcellise (Verona) in October 1870, and received in exchange from Signor De Betta.

Parus ater, Linn.

I have two specimens in the Italian collection—one from Sesto (Florence), and the other from Domodossola, both females, in which the upper part of the back is decidedly tinged with olive-brown. I shall gather further facts bearing on the case; yet I may be allowed to express a doubt as to the specific validity of *Parus britannicus*, Sharpe & Dresser, which may prove to be no more than a strongly marked local race.

Pœcile borealis (Selys).

Rather rare, and, I believe, wholly confined to the alpine region. Our collection has received a fine male from Domodossola, shot in December 1876.

Pœcile lugubris (Natt.).

Salvadori includes, doubtfully, this species in the Italian ornis; but I must state that he excluded Dalmatia, where this Titmouse is pretty abundant, from the Italian subregion, while I have reasons to entertain an opposite opinion. I must, however, add that, besides two Dalmatian specimens,

our collection possesses a fine adult male shot on the 2nd of February 1878, near Nice.

Lophophanes cristatus (Linn.).

According to my experience, this is a strictly alpine bird in Italy; and the specimens I have came from Nice and Domodossola; I was therefore rather surprised to find a specimen in the University Museum at Naples said to have been shot in that neighbourhood.

Sitta neumayeri, Michah.

Including, as I now do, the whole Dalmatian coast as far as Budua in the Italian zoological subregion, I must add this interesting species to our ornis. I found it pretty abundant along the precipitous rocks between Ragusa and Breno in October 1879, and was able to secure eight specimens.

Certhia familiaris, Linn.

Typical specimens of the northern Creeper are only found with us in the Alps; and I have received a series from Domodossola, in all of which the distinctive characters in opposition to those of the following species hold good, viz. larger size, lighter coloration on the upper parts, pure white beneath, shorter bill, and a much longer claw to the hallux.

Certhia brachydactyla, Brehm.

This is our common form all over Italy; it is constantly a smaller bird than the alpine one, with darker upper parts, the white of the underparts more or less tinged with buff, a longer bill, and the claw of the hallux considerably shorter. I shall continue to gather data on the subject; but for the present I believe I am warranted in keeping these two forms distinct. I see that Mr. Dresser has very exceptional synthetic opinions regarding the Palæarctic and Nearctic *Certhiæ*; but such views are rare with him, as may be seen in the case of the following species.

Cinclus aquaticus, Bechst.

The European Dippers have been divided into no less than three distinct species—*C. aquaticus*, *C. melanogaster*, and *C. albicollis*; and, as I have recently shown in the eighth part

of my 'Avifauna Italica,' although there may be good reasons for distinguishing local races amongst the European Dippers, I cannot bring myself to admit of specific distinction. This species is subject to considerable individual variations of colour; and, although Italian specimens may generally be referred to what is called *C. albicollis*, I have from the same localities (and it is a sedentary bird) specimens which have all the characters of *C. melanogaster*, and I have seen others quite undistinguishable from typical *C. aquaticus*. Now I can scarcely admit the presence in Italy of three species of *Cinclus*, two of them actually breeding together in the same locality. I opine therefore that it is safer to return to the old notion, and to include the three forms under one specific denomination.

?? Turdus sibiricus, Gm.

Strange cases now and then startle and puzzle the working ornithologist; and amongst the strangest which have happened to me is, no doubt, the present one. On the 22nd of January, 1878, Signor Magnelli picked up in the Florence market, from amongst a lot of common Thrushes, the subject of the present notice, shot the day before near Grosseto (Maremma). At the moment I could refer it to no known species, but, after much searching and comparing, found that it nearly agreed with the young *T. sibiricus* figured in the 'Fauna Japonica,' I therefore set it down provisionally as that species, having no specimens for a better comparison. On dissection it proved to be a female; and before it was skinned I took the following measurements:—Long. tot. 260 millimetres, rostri 32, alæ 115, caudæ 100, tarsi 33. The inside of the mouth and the naked skin around the eye were orange-yellow; the bill horn-colour, yellowish at the base and along the edges; the tarsi and feet were dark horn-colour, lighter in front on the tarsi; claws black; iris chestnut-brown. Wings short; bill and legs heavy. The upper parts are of a grey colour, tinged with olivaceous, except the two external upper tail-coverts, which have a triangular white terminal spot. A broad but not clearly defined whitish eyebrow; a light circle

round the eye; and ear-feathers with whitish shafts. Sides of throat and breast with dark lanceolate blotches on a whitish ground-colour tinged slightly with yellowish. Abdomen white; sides of body also whitish in front, with dark lanceolate and crescentic blotches, greyish behind. Feathers on tibiæ and under tail-coverts grey, each of the latter with a large white apical spot. Under wing-coverts whitish. The rectrices and remiges are of the same colour as the back, the former with a lighter inner web.

Only lately have I been able to examine in German museums specimens of *T. sibiricus*, and was quite surprised to find that it is a smaller bird than the one I have described, which is quite as large as a Missel-Thrush or a Blackbird. This puzzled me much; and I began to doubt whether our specimen was *T. sibiricus*, a careful comparison with female specimens of which can alone settle the question. Some ornithologists who have examined it opine that it may be a large *T. sibiricus*; but others remain in doubt. Very recently a high authority on ornithic matters shook his head at any such determination, and suggested hybridism as a way to solve the difficulty. But hybridism between which of our *Turdi*?! Could it be an undescribed species? I might have thought so; but the supposition of an unknown Thrush in Europe seems too preposterous to be entertained. When I can see my way out of this case, I shall hasten to inform my colleagues of the B. O. U.; but for the present I shall retain the name I first gave to this bird.

Turdus dubius, Bechst.

A magnificent male of this species was bought in the flesh in the Florence market; it was shot at Radda, in Chianti (Tuscany), on the 25th of November 1879, and is now in the Italian collection.

Turdus varius, Pall.

Our collection possesses a beautiful male of this fine species, shot in the Tuscan Casentino (Apennines), at Poggio Scali, on the 14th of October 1873. In the Roman University Museum

is another specimen, shot in that neighbourhood in the autumn of the same year.

Turdus swainsoni, Cab.

The specimen figured by Durazzo is now in the Florence Museum; it was captured near Genoa in the autumn of 1843, and is the only specimen which has occurred in Italy. I received it in exchange from the Genoa University Museum; it is in excellent condition.

Dromolæa leucura (Gm.).

This species is not rare along the Riviera between Nice and Genoa, whence I have received several specimens. It is much scarcer in Sardinia and Sicily, from what I have gathered; I did not meet with it in Corsica. A specimen was shot near Orbetello on the first of May 1865.

Saxicola stapazina (Linn.).

I have seen Italian specimens of this species with the russet colour bleached out, and with a greater amount of black on the throat, thus presenting the garb of the so-called *S. melanoleuca*. The same often happens to the allied *S. albicollis* (Vieill.), alias *S. aurita*, Temm.

Cyanecula suecica (Linn.).

I cannot conceive how any specific distinction can be maintained between the different forms presented by the males of this bird. I have in our collection a large series, some with a white, some with a reddish, and others with a yellowish gular spot, while others, again, have no spot at all. Marquis Doria has in his museum a specimen, shot near Genoa, in which the gular spot is half red and half white! Such being the case, it is quite impossible to keep up the distinction between *C. suecica*, *C. wolfi*, and *C. leucocyane*, which are one and the same species.

Melizophilus sardus (La Marm.).

Our collection possesses a specimen of this species, a male, shot at Sestriponente, near Genoa, on the 17th of March 1873.

Hypolais pallida (Ehr.).

This species is pretty abundant in Dalmatia, according to Prof. Kolombatovic. I have a male from Salona near Spalato, shot on the 30th of May 1880.

Acrocephalus palustris (Bechst.)

Appears to be nearly restricted to the upper valley of the Po; the specimens I have all come from the neighbourhood of Turin.

Lusciniopsis luscinioides (Savi).

Our collection now possesses a splendid series of this fine species, which is very local, but especially abundant in the reed-marshes of Massaciuccoli (Luca).

I have mentioned *L. fluviatilis* amongst the species to be excluded from the Italian ornis, because I know of no authentic instance of its capture on this side of the Alps; I must, however, add that Count Ninni recently assured me that specimens had been lately captured in Piedmont; but he had not seen them.

Aedon familiaris (Ménétr.).

I have received three specimens of this species from Nice:—two males, captured, the first on the 5th of January 1878, the second on the 3rd of December 1879; and a female, shot on the 10th of March 1880. All belong undoubtedly to this form. I do not know any instance of the occurrence of the allied *A. galactodes* in Italy; and the specimen mentioned by Mr. C. A. Wright under that name (Ibis, 1874, p. 236) as captured alive in Malta on the 23rd of May 1873, may possibly have been *A. familiaris*. The same may be said of the specimen captured by Prof. Doderlein in the south of Sicily, and which I have not seen. It is, however, no doubt quite possible that the former species may also occur in Italy.

Motacilla lugubris, Temm.

There are two specimens of this eminently English Wagtail in the Italian collection, both in spring plumage; one was shot near Genoa in 1843, the other near Verona in 1855. There are two specimens of this species in the museum at Syracuse, said to have been caught in the neighbourhood.

Budytes rayi, Bp.

Our collection possesses a single specimen of this species, which is exceedingly rare in Italy; it was received in exchange from the University Museum of Genoa, and was undoubtedly caught in that neighbourhood; it has no date, but is most probably one of those collected by Marquis Durazzo.

Budytes flavus (Linn.).

Budytes viridis (Gm.).

Budytes melanocephalus (Licht.):

Our collection possesses a good series of these three forms, which appear to keep sufficiently distinct; and yet I am doubtful whether they are destined to remain separate.

Anthus cervinus (Pall.).

This species is less rare with us than is generally believed. Our collection has four specimens, three of which were shot near Florence, and the fourth at Bari.

Agrodroma richardi (Vieill.).

This is our rarest Pipit. The Italian collection possesses two specimens, both shot in Tuscany, one in 1830, the other in 1843, the latter, a male, near Florence.

Alauda arvensis, Linn.

This is a most variable species, as can be seen by looking at the fine series in the Florence Museum; and I can easily understand how it has received divers specific appellations. The residents are always to be distinguished from the migrants. In the "Campagna" about Rome a curious melanistic variety is very common.

Melanocorypha sibirica (Gm.).

On the 14th of May last, while visiting the small Natural-History Museum of Trento, in the Tyrol, which contains a good local collection, I was struck by a specimen of this interesting species: it was labelled "*Alauda arvensis*;" and no one had any idea of its value! I easily obtained it for our museum, and ascertained that it had been shot in the neighbourhood about the middle of November 1869; it is a male. This is very interesting, because a female of this

species was caught near Brighton on the 22nd of November of the same year. This is the first recorded instance of the occurrence of this Lark in Italy.

Calandrella pispoletta (Pall.).

The specimen which I determined several years ago, and which is mentioned by Salvadori in his Appendix, is now in the Florence collection. It is a male, and was caught near Grosseto in March 1870. I believe this to be the only Italian specimen of this species.

Otocorys alpestris (Linn.).

A very rare species with us. Our collection possesses two specimens—one shot near Verona in January 1867, the other, a male, caught near Genoa during the winter of 1860. There is a specimen in the Naples University Museum, shot on the "Campo di Marte," Naples, in the winter of 1871.

Passerina melanocephala (Scop.).

This is a common summer species in Dalmatia and Istria, and breeds also in Puglia and Terra d'Otranto, on the opposite side of the Adriatic; it is not uncommon in the Riviera di ponente, but very rare in other parts of Italy. I have specimens from Nice, Trieste, and Bari, and have seen it caged at Zara.

Passerina aureola (Pall.).

Our collection has received in exchange from the Civic Museum at Nice one of the two type specimens of the *Emberiza selysii*, Verany, which is merely the immature form of this species. Both were caught alive a short time before the Science Congress of Genoa in 1846, and lived some time in confinement. Our specimen is a young male.

Emberiza cæsia, Cretzschm.

Our collection possesses five specimens of this rare Bunting—four from the neighbourhood of Nice, male 19th December 1877, female 4th January 1878, male and female March 1880: the fifth was netted at Sinigaglia on the 31st of March 1879; it is an adult male.

Emberiza leucocephala, S. G. Gm.

This is also a rare species; our collection contains four specimens, all males. The first was shot at Mentone on the 8th of January 1877, the second at Marraddi, in the Tuscan Apennines, in February 1874: the last two are both from the neighbourhood of Prato, near Florence; one bears the date of November 1868, the other that of the 5th of November 1878; the latter was netted, and kept alive for some time.

Emberiza rustica, Pall.

Our collection possesses two specimens of this scarce Bunting, both caught at Genoa, where it not unfrequently occurs. The first is apparently one of the type specimens of *E. lesbia*, Calvi, and was received in exchange from the University Museum, it bears the date of December 1845; the second, a female, was caught during the winter of 1869, and was kept alive up to the 27th of May of that year by Marquis Doria, who presented it to me.

Emberiza pusilla, Pall.

We possess also two specimens of this species, both males and from Genoa. The first, a type specimen of *E. durazzi*, appears to have been presented to the Florence Museum either by Durazzo or Bonaparte during the Science Congress of 1841: I received the second in exchange from the Genoa University Museum; it has no date but looks fresh.

Emberiza pyrrhuloides, Pall.

I cannot agree with Mr. Dresser's mode of distinction between this species and *E. schœniclus*, and his uniting Italian thick-billed specimens with the latter. It would have been far more logical to have abolished altogether any specific distinction between the two forms of Reed-Bunting. I have a large series of Italian specimens of both, and feel perfectly warranted in keeping them distinct. No doubt intermediate specimens do occur now and then; but hybridism might well account for them, both species breeding with us.

Plectrophanes lapponicus (Linn.).

Our collection has a fine specimen of this northern bird, a female, netted near Pistoia about November 1875.

Plectrophanes nivalis (Linn.).

This is far from being scarce with us during winter, although not every year in the same proportions; and I can assure Mr. Dresser that Italian naturalists are not in the habit of confounding this species with *Montifringilla nivalis*. I don't believe that the Snow-Bunting has ever bred in our Alps.

Passer italiæ (Vieill.).

This is the only species which is exclusively Italian; and I may add that it professes "Conservative opinions;" for it keeps strictly within our present political frontiers, with the exception of Corsica and Trento, being replaced by *P. domesticus* at Nice and at Trieste, and by *P. hispaniolensis* in Sardinia, Sicily, and Malta.

Chloroptila citrinella (Linn.).

Our specimens are all from the Alps, and, as far as I am aware, very rarely go beyond Northern Italy, even during the winter. It does, however, reach Corsica; for Lord Lilford shot specimens at Porto Vecchio in February 1875, and Mr. C. B. Wharton noticed it about the same time congregating with allied species. I did not see any during my extensive tour in that island in September and October 1877; but it might possibly be a resident in the higher mountains.

Cannabina flavirostris (Linn.).

This is a very rare species with us; and the Florence collection possesses only one specimen, a male, caught near Genoa in 1839. I have seen a similar specimen in the Trento Museum, caught in that neighbourhood.

Ægiothus linarius (Linn.).

By no means common, and of irregular occurrence during winter. Our collection possesses three specimens—a male shot near Udine in November 1869, and a pair caught near Nice, the female in 1863 and the male on the 7th of January 1878. I can hardly believe that it breeds in Italy.

Ægiothus rufescens (Vieill.).

This species, although not frequent, appears to be decidedly more so than the preceding one. I have specimens

from Domodossola, Como, Mezzolombardo (Tyrol), and Barberino (Tuscany). The one from Ossola, a female, was taken off the nest (which I also have) on the 18th of July 1877, by my friend Dr. Pertusi. The nest was in a shrub on the slope of the Veglio Alps, about 2000 metres above the sea-level.

Pyrrhula europæa, Vieill.

At first I was inclined to separate the two races of this species, which are yet considered specifically distinct by some authors under the names of *P. europæa* and *P. major*; but on examining carefully a large series I found that intermediate forms are not rare; and as size alone constitutes the difference between the extremes, I have come to the conclusion that there is only one species of European Bullfinch. Northern specimens are always larger; and even in Italy I have noticed that those shot on the Alps are bigger and have a stouter bill than those found in the plains of Central Italy during the winter.

Carpodacus erythrinus (Pall.).

Our collection possesses two specimens of this northern species. The first is that which was presented by Signor Bruscoli to the Science Congress held at Florence in 1841, as *Fringilla incerta*; it is a female and was netted near Florence in August 1840. Our second specimen, also a female, was caught in November 1872 at Palaia, near Empoli.

Pinicola enucleator (Linn.).

We have one specimen of this species, which is of quite accidental occurrence; it is a female, and was caught in the winter of 1876 near Trento (Tyrol). I got it in exchange from Signor De Betta.

Loxia pityopsittacus, Bechst.

Our collection possesses a fine male, shot near Verona in December 1869; it is quite accidental with us.

Loxia bifasciata (C. L. Brehm).

Even scarcer than the preceding; our collection has a male shot in November 1851 near Bolzano in the Tyrol, and

received in exchange from Signor de Betta. A specimen shot in Cadore in 1846 is in the Doglioni collection at Belluno.

Sturnus unicolor, La Marm.

Only found in Sardinia and Sicily, and sedentary; I know of no instance of the capture of this species on the continent. I did not see any in Corsica; neither did Mr. Wharton, who has published in this Journal an interesting list of the birds of that island.

Pastor roseus (Linn.).

We possess a fine series of this species, which appears to breed in Italy oftener than is generally known. I have in the series a young male shot at Marraddi in the Tuscan Apennines in January 1874, which has nearly assumed the adult plumage and is curiously patched; another, in complete immature garb, was caught near Florence on the 12th of October 1879. Early in June 1875 hundreds arrived at Villafranca, near Verona, following in the wake of a column of locusts; they took possession of the castle, ejecting the Starlings, Swifts, and Owls, and settling in their holes, which they left towards the middle of July, after rearing their young.

Corvus corone, Linn.

A scarce bird in Central and Southern Italy, but not so in Piedmont; our collection has a specimen, a male, shot at Calcinaia, near Greve, Tuscany, in October 1874. Our collection possesses also a specimen of *C. cornix* with the grey of the back and abdomen nearly entirely black; I consider it a melanism rather than a hybrid between the two allied species. I should hardly have thought that *C. corone* would breed so far south as Corsica; but Mr. C. B. Wharton tells us he saw one building its nest in that island ('Ibis,' 1876, p. 24).

Pterocles alchata (Linn.).

This species is of accidental occurrence in Italy; our collection possesses a fine male shot near Nice on the 17th of May 1872. Birds appear to have been caught also in Sicily,

as there are two specimens in the museum at Messina, and a male in that of Syracuse. The latter is, I believe, the bird called by Mr. H. Saunders *Syrrhaptes paradoxus* (Ibis, 1869, p. 397), of which species I saw no trace in that museum in 1878.

Syrrhaptes paradoxus (Pall.).

Our collection is in possession of the first specimen which was captured in Italy, during the memorable invasion of 1863. It is a female, and was caught at Predazzo (Valle di Fieme), in the Tyrol, in May 1863, and was kept alive up to the 21st of March 1867. In the Natural-History Museum at Modena is a fine male, shot in the hills of Pavullo on the 4th of May 1876, evidently a solitary straggler, as no others were seen.

Tetrao urogallus, Linn.

This noble bird is becoming extinct in the Italian Alps, and at the present time limited to the eastern portion; our collection has a fine series of specimens, both male and female, from the Alps of Cadore and Friuli. In the museum at Trento I saw a fine specimen of the hybrid, *T. intermedius*, a male, caught at Monte Tattoga, in Canal S. Bovo (Trentino), about twenty years ago. It is said that similar birds are still to be met with in that locality.

Bonasia betulina (Scop.).

This fine species is also getting rarer and rarer with us, and is now only to be met with in the eastern Alps. Our collection possesses a fine male from Mezzolombardo, 8th of November 1877, and another from Fondo, near Mendola, also in the Trentino, 12th of October 1879, and a pair from Rakek (Carniola), 17th of September 1877. They vary much in the general tint; some are more reddish, others grey; and I doubt whether the distinction between *B. betulina* and *B. sylvestris* can be kept up.

Francolinus vulgaris, Steph.

No doubt as to the complete extinction of this species in Sicily, its last refuge in Italy, can be entertained. Our col-

lection possesses no less than seven specimens. Of these, two males and a female are Tuscan, amongst the last killed at Artimino, near Empoli, where it appears that this bird was introduced under the Medici; two of these specimens were in the Florence Museum as far back as 1790. The four others are all Sicilian: a pair, male and female, were shot near Caltagirone in April 1850; I received them in exchange from the University Museum at Catania; I have not the dates of the remaining two, which are evidently older. There are two specimens, male and female, still at Messina, two at Catania, and one at Syracuse; a genuine Sicilian specimen is in the Civic Museum at Genoa.

Perdix saxatilis, Meyer.

This species ranges along the Alps and down the central chain of the Apennines into Sicily, where it is the only species. It is also common in Dalmatia, where this species, and not *P. chukar* (if that be really distinct), is found.

Perdix rubra, Briss.

Occurs in the lesser branches of the northern and central Appenines, in the islands of Elba and Montecristo, and all over Corsica, where it is the *only* species *.

Perdix petrosa (Gm.)

Is entirely confined to Sardinia.

Turnix sylvatica (Desfont.).

Very local, and only found in Sicily. Our collection pos-

* While in Corsica I was repeatedly assured of the presence in the island among the hills of Aleria, on the eastern coast, of the Pheasant (*Phasianus colchicus*) in a perfectly wild condition. I see that Mr. Jesse reports the same thing, though Mr. C. B. Wharton does not mention this species in his list of Corsican birds. I am still making inquiries on the subject; but, so far as I can see, no record of its introduction by man is forthcoming. Should such remain the case, I shall not hesitate to add the Pheasant to the list of our indigenous species. The fauna of Corsica has stranger points; and the island which held (up to Neolithic times) living *Myolagus*, and now divides with Dalmatia the home of that curious lizard *Podarces oxycephalus*, may have retained from an epoch not more remote than the days when the Argonauts sailed from Colchis, the famed φασιανὸς, which is to our day wild in the forests of Albania.

sesses a male shot in the spring of 1857 near Caltagirone. I have seen specimens in the museums at Catania and Syracuse.

Houbara macqueeni (J. E. Gray).

Our collection possesses a very fine female specimen of this species, shot near Rome on the 16th of December 1859; another specimen, also a female, was captured during the last days of November the same year, also in that neighbourhood, and is still in the University Museum at Rome. These are the two specimens mentioned by Salvadori (who had not examined them) under the name of *H. undulata*; and they are the only specimens of this species caught in Italy which have been preserved. As to the Houbara mentioned as in the Syracuse Museum by Mr. H. Saunders (Ibis, 1869, p. 397), and after him by Prof. Doderlein, there must be some mistake; for I carefully went over that museum in October 1878, and the only Bustard there was an *Otis tarda*! I was assured by the keeper that none of the specimens had been removed. I have found in this species, as well as in the other two Bustards which occur in Italy, that the basal portion of most of the body-feathers is of a vivid lilac-vinaceous colour; I have never met with any mention of this singular character.

Chettusia gregaria (Pall.).

Our collection possesses a young female, picked up in the market near the Pantheon at Rome in November 1872 by Prof. V. de Romita, from whom I received it in exchange. It is worthy of remark that, of the three specimens of this species which have been captured in Italy, two were taken near Rome, and a third not very far off, viz. at Siena.

Chettusia villotæi (Audouin).

Our collection has the second specimen caught at Malta, and mentioned by Mr. Wright (Ibis, 1870, p. 491). It is a female, and was captured on the 24th of October 1869; I received it in exchange from the Malta University Museum.

Cursorius gallicus (Gm.).

A rare bird with us; our collection has two specimens—

one captured at San Rossore, near Pisa, in the spring of 1837, the other shot in the Marsa, near La Valletta, Malta, on the 15th of March 1843.

PHALAROPUS HYPERBOREUS (Linn.).

Quite of accidental occurrence, but has been caught on several occasions near Genoa; our collection has one specimen, shot in the neighbourhood of that place in the winter of 1843.

PHALAROPUS FULICARIUS (Linn.).

It is worthy of remark that this species, which is also very rare in Italy, has been more often caught near Genoa. I have a specimen from that locality shot in August 1845, and mentioned by Marquis Durazzo; it was in the University Museum. A second specimen in our collection was, strange to say, also shot in August, 1870, at Borgo S. Lorenzo, not far from Florence; it is in full winter plumage! I have seen a specimen in the Naples University Museum, caught in December 1869 at Capo d'Agnano; a second one was shot near the same locality in February 1870.

LIMICOLA PLATYRHYNCHA (Temm.).

We have a large series of this species. Up to a few years ago it was considered a great rarity in Italy, until my friend Count Ninni showed that it often made its appearance in the Venice lagoons during August. This summer I received no less than twelve specimens, part of forty-three shot from a large flock on the 25th of August near Venice. In August 1873 several were shot near Pavia.

PELIDNA MARITIMA (Brünn.).

Of very rare occurrence in Italy. Our collection has two specimens, both in winter dress—one shot in Tuscany in the autumn of 1838, the other at Genoa in the autumn of 1858.

TRINGA CANUTUS, Linn.

This is also a rare species with us, and more frequently occurs along the Genoa Riviera. Our collection possesses seven specimens, three from Nice (30th April 1863), and a

male and two females, 7th June 1880; the seventh, a male, was shot at Palo, near Civita Vecchia, in April 1871.

Terekia cinerea (Güldst.).

I was fortunate enough to pick up a fine specimen of this very rare bird in the market at Florence; it was a female, shot at the Saline near Barletta, on the 20th of November 1876. The only other instance I know of the occurrence of this species in Italy is that mentioned by Savi and Salvadori, when three were shot out of a small flock on the 9th of May 1869, at Vecchiano, near Pisa.

Limosa rufa, Briss.

A scarce bird with us; our collection possesses a single specimen, shot in autumn 1839, near Florence.

Gallinago major (Gm.).

This species, as well as the common Snipe, presents individual variations in the number of the rectrices; and I have in the collection a specimen with eighteen tail-feathers (the number given by Savi, Orn. Tosc. ii. p. 309), the normal number being sixteen. Thus the specific distinction between *G. scolopacinus* (or *cœlestis*!) and *G. brehmi*, founded merely on a like character, falls to the ground.

Porphyrio cæruleus (Vandelli).

This is *the* Italian species, and is not rare in Sardinia and in Sicily, but is not easy to be got at; for it keeps to the thickest of the marsh-reeds, which must be sometimes fired to make it rise. It breeds beyond doubt in the former island; and as recently as the 26th of last September four specimens in juvenile garb were shot in the marsh of Assemini, not far from Cagliari: I have received one of them, a male. In Sicily it is a resident species in the marshes at Lentini, between Catania and Syracuse, whence I have a pair, male and female, shot in December 1879; moreover all the Purple Waterhens I have seen in the museums at Messina, Catania, and Syracuse belong to this species. I am not aware of its occurrence in Corsica; but there is no reason why it should not be found in the marshes of Biguglia

and Alcria. It has repeatedly occurred on the continent; and, besides the cases mentioned by Salvadori (Faun. d'Ital. Ucc. pp. 236, 320), I have seen a specimen shot at Ancona, which was found in the Florence market during the winter of 1872. This and, I believe, all other species of *Porphyrio* have a rudimentary spur on the wing.

Porphyrio smaragdonotus, Temm.

This is of rare occurrence in Italy; our collection possesses but one specimen, caught in the marshes whence flow the rivers Cyane and Anapo, near Syracuse, in October 1851. Besides two specimens from Sardinia in the Turin Museum, and several living ones received by the King of Italy from Sicily ten or twelve years ago, which are mentioned by Salvadori, I have seen two specimens in the Naples University Museum, said to have come from Lentini (Sicily); and there is another in Finger's collection at Vienna, caught on the Narenta in Dalmatia.

Hydrornia alleni (Thomps.).

Our collection possesses the fine nearly adult specimen which I have figured in part ii. of my 'Avifauna Italica,' shot on the 20th of December 1874, at Massaciuccoli, near Lucca, by Count G. Ottolini. I have since examined again the first specimen of this species captured in Italy (autumn 1857) and now in the Pisa Museum; it is a young bird with scarcely any trace of the blue and green, and in a condition which precludes the doubt that it may have escaped from captivity. It is strange indeed that both these specimens should have been captured near Lucca.

Fulica atra, Linn.

Our collection possesses two interesting specimens of this very common species. One, shot at Cagliari in November 1877, has the underparts white and looks like a young bird; the other, caught at Massaciuccoli on the 3rd of January 1879, is a female, and has the wings curiously tinted with rose-colour.

Fulica cristata, Gm.

This is a very rare species with us, but appears to have

been more abundant some years ago, at least in Sardinia. Our collection possesses two specimens—a male from Lentini, October 1864, and a female from Cagliari, not dated, and received in exchange from that museum.

Grus communis, Bechst.

It is not generally known that the Crane breeds in Italy. A few pairs do so every year in the extensive marshes along the Adriatic, north of Venice; I have received a chick in down from that locality, presented by Count Ninni. The peasants there are in the habit of robbing the nests, and place the eggs to hatch under hens; they sell the young birds alive to be kept in gardens.

Egretta alba (Linn.).

Not common on our continent, more so in Sardinia; it occurs more frequently in the Venetian province, but rarely during the spring passage. I have never seen specimens with a black bill.

Bubulcus ibis (Hasselq.).

Of accidental occurrence in Italy, and more frequently along the "Riviera;" our collection has a single specimen from Genoa. There is a specimen in the Malta University Museum said to have been captured in the island.

Platalea leucorodia, Linn.

A rare species. Our collection possesses four specimens:—an adult male, Pisa, spring of 1836; an adult female, Siena, 1842; a female, Cagliari, March 1877; and a young bird with a curious short bill of a yellowish-white colour, shot near Rome in the spring of 1873.

Phœnicopterus roseus, Pall.

I know of few species of birds which vary so much in size as the present one; our collection possesses a fine series of specimens, showing admirably such individual variations. The following are the proportions of two adult males, one, the largest, shot at Orbetello (Tuscany) on the 3rd of March 1879, the other shot at Cagliari in February 1879; they are

the extremes of my series amongst the perfectly adult specimens :—

	a. Orbetello.	*b*. Cagliari.
	metre.	metre.
Height	1·490	1·120
Tibia (naked)	0·250	0·170
Tarsus	0·350	0·260
Bill (length from rictus) .	0·113	0·100

It is on such pygmy specimens, as the one from Cagliari, which are not uncommon, that *P. erythræus*, Verr., was founded.

I believe there can be no doubt that the Flamingo does occasionally breed in Sardinia; I have quite recently received a young and very small specimen shot on the 30th of October on the Stagno of Quartu, near Cagliari, where Flamingoes have been taken in July.

Cygnus olor (Gm.).

Not common in the wild state, and only met with during severe winters; I have one shot near Genoa in 1860. All the specimens I have examined in Italian Museums belong to this species, and not to the closely allied *C. immutabilis*.

Cygnus minor, Pall.

I have had the good fortune to add this fine species to the Italian avifauna; our collection possesses a magnificent adult female, shot in January 1874 at Massaciuccoli, near Lucca, out of a small flock, and presented by my friend Count E. Minutoli. It is the only specimen I know of in Italian Museums.

Anser albifrons (Scop.).

Our rarer species. The Italian collection at Florence possesses a specimen shot near Rome in December 1874; I have besides seen one caught in the neighbourhood of Naples in February 1870, in that University Museum. This species has been shot in 1860 and in 1874 in the neighbourhood of Pavia.

Bernicla brenta (Briss.).

Quite accidental with us, but less unfrequent in Northern

Italy; we have a fine male shot on the 4th of March 1862 near Nice, and another from Venice.

Bernicla ruficollis (Pall.).

One of the gems of our Italian ornithological series is an adult male of this splendid Goose, shot at Scarperia, near Florence, on the 12th of February 1869 (*vide* Ibis, 1869, p. 242). I have since seen another specimen, which looks like a female, in the private collection of Count D'Arco, at Mantua; it was shot in that neighbourhood many years ago.

Casarca rutila (Pall.).

Our collection possesses two fine specimens of this beautiful bird, which is a great rarity in the Italian ornis. The first, an adult male, was shot in Tuscany in 1839; the second, a female, was shot in December 1842 at Lentini. I received the latter in exchange from the Catania University Museum, where a second female still remains; I saw a third Sicilian specimen in the Syracuse Museum. Apropos of the latter, I almost believe that it may have been the innocent cause of the alleged presence in that museum of a Sicilian specimen of *Chenalopex ægyptiacus*; such curious blunders appear to have been made in the Syracuse Museum!

Tadorna cornuta (S. G. Gm.).

According to my experience this is by no means a rare Duck in Italy: and I can add that it occasionally appears to breed here; for our collection has a very young female shot at Massaciuccoli on the 14th of August 1878.

Marmaronetta angustirostris (Ménétr.).

This is a very rare species in Italy, and occasionally occurs in Sardinia and Sicily. Our collection possesses the specimen which was figured in Bonaparte's 'Fauna Italica,' a male, shot near Cagliari in June 1839, and still in perfect condition. It was received in exchange from the Genoa University Museum, and once belonged to Marquis Durazzo. A male of this species is in the Naples University Museum, shot with two more, one of which is now in Switzerland, at Vico in 1858.

Harelda glacialis (Linn.).

This northern species occurs not unfrequently in Upper Italy, especially in the Venetian province; our collection has three specimens—two males from Nice, one nearly adult, shot on the 12th of January 1878, and a young female shot on the lake of Garda during the winter of 1865.

Œdemia nigra (Linn.).

I know only of a single instance of the capture of this species in Italy: our collection possesses the specimen which was taken at Massaciuccoli in November 1830; it is an adult male, and is mentioned by Savi. I may add that two adult males of this species, said to be Italian, are at Verona—one at the Academy, the other in the Perini collection.

Œdemia fusca (Linn.).

During the last three years this species has been more frequently caught in Italy; and our collection possesses a fine series, both adult and young, shot at Massaciuccoli, Venice, and Comacchio.

Somateria mollissima (Linn.).

I only know of two authentic instances of the occurrence the Eider in Italy proper, both young birds. The first was shot many years ago near Pisa, the second, a male, in October 1856 at Savona; this specimen is in our collection, to which it was presented by that distinguished ornithologist the Abbé Armand David, who got it in the flesh while professor at Savona. An adult male in Finger's collection in the Vienna Museum is said to have been caught on the 7th of May 1859, at Trau, near Spalato, in Dalmatia.

Erismatura leucocephala (Scop.).

This is a rare species even in Sardinia, where it most frequently occurs. Our collection possesses four specimens, male and female, from Lentini (Sicily), Cagliari, Barletta, and Ostia; the last, a magnificent male, was shot with three others on the 29th of March 1880.

Mergus merganser, Linn.

A rare species in Italy. Our collection contains four speci-

mens—two adult males and two females, one in juvenile garb; they are respectively from Comacchio, Lugo, Borgo S. Lorenzo (Florence), and Mantua.

Pelecanus onocrotalus, Linn.

Of accidental occurrence; our collection possesses two specimens—a male shot in autumn 1868 at Castelfiorentino, near Siena, and a female shot in June 1836 at Empoli.

Pelecanus crispus, Bruch.

Salvadori doubts of the occurrence of this species in Italy proper; and, as far as his informations went, he was perfectly correct; but our collection possesses a magnificent male which was shot at Norantola, near Modena, in 1865, and placed until very lately in that museum under the name of *P. onocrotalus*, being so called by Prof. Doderlein (Avif. Mod. e Sicil. p. 224). I discovered the mistake, and secured the specimen through exchange. A second *P. crispus* in our collection is a female which was shot at the mouth of the Narenta on the 18th of May 1880.

Microcarbo pygmæus (Pall.).

This is our rarest Cormorant; but it has several times been caught in Italy; our collection has a single specimen from Cagliari, May 1831. Besides the specimens mentioned by Salvadori, I have seen one in Count D'Arco's collection at Mantua, shot there; and two at Verona, both said to have been shot on the lake of Garda: one is in the museum of the Academy, the other in Signor De Betta's private collection. A male shot in the Royal Park of Racconigi, near Turin, is in the Craveri collection at Brà, Piedmont.

Sula bassana (Linn.).

I have had the good fortune to add also this interesting species to the Italian avifauna during the short space of five years that I have been engaged in collecting Italian Vertebrata. Our collection possesses a young male still in dusky plumage, caught with a harpoon in the Piombino channel on the 5th of November 1877, by a fisherman; it is as yet unique.

PUFFINUS ANGLORUM (Temm.).

This species is not rare on some parts of our coasts, but never as abundant as *P. kuhli*. It varies much in size; and our collection has a very diminutive specimen obtained in exchange from the Genoa University Museum, where it stood as *P. obscurus*; it is a female, and was shot near Genoa in August 1845. I quite agree with Mr. Dresser and others in uniting *P. yelkouan* with *P. anglorum*.

PROCELLARIA PELAGICA, Linn.

Usually this species is met with abundantly about ten or fifteen miles off the Mediterranean coasts, very rarely nearer shore. Our collection has a fine series, mostly from Genoa. I found the egg on Lisca Nera, one of the smaller Lipari islands.

SYLOCHELIDON CASPIA (Pall.).

Quite accidental within our subregion. Our collection possesses a single specimen, shot in March 1862 at Cagliari. I have seen two specimens in the University Museum at Padua, said to have been caught in the neighbouring "valli." I doubt considerably whether the two males in the Pavia Civic Museum were really captured in Tuscany, as is recorded on their labels.

THALASSEUS CANTIACUS (Gm.).

Our collection possesses specimens of this species from Nice, Genoa, Portoferraio (Elba), Lesina (Gargano), and Comacchio; it is less rare than is generally believed. During the breeding-season the silky white underparts are tinged with a lovely salmon-colour.

STERNA HIRUNDO, Linn.

Italian authors have usually applied this name to our commonest Tern, viz. *S. fluviatilis*. The northern bird is exceedingly rare with us; and I know only of the single specimen now in the Florence Museum, which was in that of Genoa, and is the specimen mentioned by Durazzo and Salvadori.

Sterna dougalli, Montag.

I was fortunate enough to secure by exchange the only specimen I know of caught in Italy. It was formerly in Baron Ricasoli's collection, which was presented to the Siena Natural-History Museum. Baron Ricasoli assured me that it was sent to him from Massaciuccoli in May 1835.

Onychoprion fuliginosus (Gm.).

Our collection possesses the only specimen caught in Italy: it is the one mentioned by Salvadori, and was caught on the 28th of October 1862, in a net for trout on the torrent Chisone, near Perosa-Argentina (Fenestrelle), in Piedmont. I purchased it from Signor Scarafia, who mounted it himself from the flesh.

Gelochelidon anglica (Montag.).

Uncommon. Our collection possesses fine specimens from Pisa, Massaciuccoli, and Bari.

Hydrochelidon hybrida (Pall.).

Rather rare. Our collection has specimens from Genoa, Massaciuccoli, and Pisa: the latter is the place where it most frequently occurs.

Hydrochelidon leucoptera (Schinz).

This species is far from being as abundant as *H. nigra*; but I have several times seen both flying together over the Arno, at Florence, in May.

Chroicocephalus ridibundus (Linn.).

Our commonest Gull. It often varies in size; and it was on small specimens that Bonaparte founded his *Xema capistratum*.

Chroicocephalus melanocephalus (Natt.).

Of eight adult specimens in our collection (one alone in winter plumage and one with incipient hood), six have the primaries perfectly white at the extremity; two alone, with full black hoods, present the primaries largely tipped with black.

Chroicocephalus minutus (Pall.).

Rather scarce. Our collection possesses seven specimens

in different stages of plumage—two from the neighbourhood of Pisa, two from Massaciuccoli, one from Spezia, another from Montepulciano, and the last from Barletta.

Gelastes genei (Bréme).

Our collection contains four specimens of this beautiful Gull—one an adult male, richly tinted with rose-colour; all are from Cagliari. I have seen specimens of this species in most Sicilian museums.

Rissa tridactyla (Linn.).

As Salvadori rightly observes, this is a rare bird with us; and yet I have succeeded in securing no less than six specimens—one an adult male caught near Lucignano, in Val di Chiana, Tuscany, on the 25th of February 1879. The others are from Pinasca (Pinerolo), Portoferraio (Elba), Genoa, and Bari.

Larus audouini, Payraud.

Our collection contains four specimens of this rare and interesting Gull, and three eggs. The specimens are all fully adult. The first was shot in March 1877 in the Gulf of Palmas (Sardinia); it is a male; the two next, male and female, on the island of Vacca (Sardinia) on the 4th of May 1878; the eggs were collected on that occasion; the last was shot at Portoferraio (Elba) on the 30th of January 1879, and is a female. These are the only specimens I have seen in our Italian museums; the one quoted by Salvadori as in the Genoa Civic Museum is merely an adult *Larus canus*.

Larus cachinnans, Pall.

An abundant species. The adults in all seasons have the head and neck pure white without any trace of brown specks, and the legs and feet of a bright yellow. The young have always flesh-coloured legs, and cannot possibly, I believe, be distinguished from the young of *L. argentatus*. I have found it breeding on the small islands of the Piombino channel and at Gianutri; it also breeds on the islands off Sardinia, and in the Venetian lagoons.

Larus fuscus, Linn.

According to my experience this species is not common in Italy. Our collection has two adults, male and female, and a young specimen from Genoa, and an immature bird from Cagliari.

Larus marinus, Linn.

Quite accidental. I have a single immature specimen from Genoa, received in exchange from the University Museum of that city. I have seen several adult specimens in the Carraro and Perini collections at Verona; but it is very doubtful whether they were captured in Italy.

Lestris pomatorhinus, Temm.

This is a rare species in Italy, but less so than its two smaller congeners. Our collection possesses three specimens —an adult female shot at Genoa on the 31st of May 1876, and two young birds in dark plumage, one shot during the winter of 1855 near Pinerolo (Piedmont), the other in the winter of 1839 near Pisa.

Lestris parasiticus (Brünn.).

Salvadori gives this name to *L. crepidatus*, and mentions this species as *L. buffoni*, assigning doubtfully to it a specimen in the Turin Museum shot in that neighbourhood. Our collection possesses three undoubted *L. parasitici*, all immature: the first was shot during the winter of 1854 near Pinerolo; the second, a male, on the 17th of October 1876, at Nice; the third, a female, was shot on the 15th of September 1880, near Pisa.

Fratercula arctica (Linn.).

Our collection has no less than eleven specimens of this species, of both sexes and in every possible stage of plumage and of bill; most are from Genoa, one from Viareggio, one from S. Vincenzo (Maremma), and one from Nice. Most of them of them were shot during the winter; but I have two caught as late as the 27th of May, and I should not at all be surprised to hear that the Puffin occasionally breeds in the Mediterranean. I have seen three specimens of this species

in the Syracuse Museum, said to have been shot in that neighbourhood; and Prof. Doderlein has six from Palermo!

Utamania torda (Linn.).

What I have said regarding the probable breeding of the Puffin along our shores may be equally applied to the Razorbill, of which our collection has five specimens, two of them in full summer garb, the latter having been shot near Genoa on the 16th of May 1880. This species has occurred much further south; and I noted two specimens in the Syracuse Museum.

Colymbus glacialis, Linn.

Amongst the gems of our ornithological series is a beautiful adult female of this species in full nuptial plumage, shot on the 19th of June 1878, at Monterosso, near Spezia. Our collection has besides a male in winter garb, shot at Massaciuccoli in November 1875. This is the scarcest Diver with us.

Colymbus arcticus, Linn.

According to my experience, and in opposition to that of my friend Salvadori, this species more frequently occurs in Italy than either of the others. It presents great individual variations in size; and, were it not for the different shape of the bill, the male of this species might in the uniform winter plumage be easily taken for the larger *C. glacialis*. Our collection possesses a fine series, and amongst them a splendid female in full summer garb, shot in May 1877 at Zaule, near Trieste.

Colymbus septentrionalis, Linn.

Our collection also possesses a fine series of this species, shot mostly at Massaciuccoli and Fucecchio, one as far south as Velletri; one from the first-named locality has nearly donned its summer plumage.

Podiceps griseigena (Bodd.).

One of the rarest Grebes in Italy, but less so in the northern provinces. Our collection possesses six specimens, one of which was shot at Mirandola (Modena), a male in full

summer dress; the rest are all in winter garb. Two, male and female, are from Elba; and one was shot in August near Palmaria (Spezia).

Podiceps auritus (Linn.).

A very rare species with us, and, I believe, has only occurred in winter. Our collection possesses three specimens —one from Genoa, the other two shot at Massaciuccoli on the 1st of December 1878; they are male and female. Most Italian authors have applied the name of this species to our common *P. nigricollis*.

XVI.—*Notes on Woodpeckers.*—No. I. *On the Piculets of the Old World.* By Edward Hargitt.

(Plate VII.)

The present paper is the first of a series of small articles which I trust to be able to contribute to the pages of 'The Ibis' on the family of Picidæ, in which I have been for years interested, and of which I have managed to get together a considerable collection. Not long ago, in examining some of the birds at the British Museum, I discovered among the specimens of *Vivia* an example from China which was evidently referable to a new and hitherto undescribed species; and in giving a description of this interesting bird, I have added some notes on the other Piculets of the Old World, with a view to determine the present state of our knowledge of this little group. There are now five species known, which, in my opinion, may be referred to three well-characterized genera, which may be diagnosed as follows:—

a. digitis 4.
  a'. regione oculari plumosa; cauda longiore, ultra remigum extremitates extensa; cauda longiore quam tarsus cum digito medio ungueque conjunctus .. *Vivia*.
  b'. regione oculari nuda; cauda breviore, alas haud attingente, et tarsum cum digito medio ungueque conjunctum vix æquante ..... *Verreauxia*.
b. digitis 3,
  regione oculari nuda ..... *Sasia*.

Of these three genera *Vivia* is best known from the Himalayas, but has also occurred in the forests of the Wynaad. It ranges into China, and has also been found in the Karen hills, in Burmah, by Capt. Wardlaw Ramsay; and a specimen has also been obtained by Dr. Beccari in the mountains of Sumatra. *Sasia* is an Indo-Malayan genus, inhabiting the Sunda Islands, and extending throughout the Malayan peninsula, through the Burmese countries, into the Eastern Himalayas. *Verreauxia* is a very interesting form, confined, as far as we yet know, to the forests of the Gaboon in West Africa. It affords us another instance of the strong Malayan element which reappears in so many instances in the West-African forest-region; and this little Piculet is the more remarkable as it unites the characters of the two oriental genera, having the bare face and external aspect of a *Sasia* and the four-toed foot of a *Vivia*.

1. Vivia.

Picumnus, Burton, P. Z. S. 1835, p. 1854 (nec Temminck).

Vivia, Hodgs. J. A. S. Beng. vi. p. 107 (1837). Type *V. innominata*.

Piculus, Hodgs. J. A. S. Beng. x. pt. 1, p. 29 (1841). Type *V. innominata*.

Pipiscus, Cab. & Heine, Mus. Hein. Th. iv. p. 9 (1863). Type *V. innominata*.

Range. Forests of the Wynaad, and South-Western Himalayas and Assam, extending through the hill country of Burmah to Western China; Maychee, in Eastern China; Sumatra.

Clavis specierum.

a. minor; pileo et collo postico olivascentibus ..... *innominata*.
b. major; pileo et collo postico rufescenti-brunneis ..... *chinensis*.

1. Vivia innominata.

Picumnus innominatus, Burton, P. Z. S. 1835, p. 154; Blyth, J. A. S. Beng. xii. p. 1005 (1843); Gray, Gen. B. ii. p. 433 (1845); id. Cat. Mamm. &c. Nepal coll. Hodgs. p. 114 (1846); Lafr. Rev. Zool. 1847, p. 79, note; Blyth, Cat.

B. Mus. As. Soc. p. 65 (1849); Malh. Monogr. Picidæ, ii. p. 278, pl. cxvii. figs. 5, 6 (1862); Sundev. Consp. Av. Picin. p. 105 (1866); Gray, List Picid. Brit. Mus. p. 28 (1868); id. Handl. B. ii. p. 180, no. 8531 (1870).

Vivia nipalensis, Hodgs. J. A. S. Beng. vi. p. 107 (1837); id. Icon. ined. Brit. Mus. App. pl. 35. figs. 1, 2 (No. 161 ♂, 162 ♀).

Piculus nipalensis, Blyth, J. A. S. Beng. xii. p. 1005 (1843); Hodgs. in Gray's Zool. Misc. p. 85 (1844, ♂).

Piculus rufifrons, Hodgs. in Gray's Zool. Misc. p. 85 (1844, ♀).

Vivia innominata, Jardine, Contr. Orn. i. p. 300; Bp. Consp. p. 140; Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 677 (1856); Jerd. B. Ind. i. p. 300 (1862); Gray, Cat. Mamm. &c. Nepal coll. Hodgs. 1863, p. 62; Gould, B. Asia, pt. xxii. (1870); Blyth & Wald. B. Burm. p. 78, no. 128 (1875); Brooks, Str. F. 1875, p. 232; Hume, op. cit. 1877, p. 351; id. & Davison, op. cit. 1878, p. 148; Scully, tom. cit. pp. 250, 365; Hume, op. cit. 1879, p. 88; Salvad. Ann. Mus. Civic. Genov. xiv. p. 184 (1879).

Vivia nepalensis, Reichb. Handb. spec. Orn. Pic. p. 342, Taf. dcxviii. figs. 4120, 4121 (1854).

Pipiscus innominatus, Cab. & Heine, Mus. Hein. Th. iv. p. 9 (1863).

Adult male. Above, including the rump and upper tail-coverts, uniform bright yellowish olive; wing-coverts dusky brown, broadly margined with yellowish olive; primaries dusky brown, externally edged with bright yellowish olive, the basal half of the inner webs edged with whitish; secondaries dusky brown, the outer webs bright olive-yellow, with the tips greyish, the inner webs edged with greyish, whiter near the base: the innermost of the secondaries rather lighter in colour, and more washed with yellowish olive; shafts dark brown; tail black, the inner webs and part of the basal portion of the outer webs of the central pair of feathers white, the three outermost pairs having part of their outer webs and the ends white, the tips of the outer webs edged with dusky black; shafts of the central pair white, of the remainder

black, but where the webs are white the shafts are also the same; forehead reddish orange, the tips of the feathers being of this colour, the middle portion black, and the bases grey; near the upper mandible the feathers are edged with yellowish olive; crown olive; lores yellow; a stripe over and under the eye, and extending down the sides of the face and neck, white; the stripe which is over the eye and runs down the side of the neck extends to the hind neck, and forms a partial collar of white and black, the inner webs of the feathers being of the latter colour; ear-coverts and the space between the white stripes blackish brown; moustachial stripe dusky black, the feathers tipped with yellowish white; chin and throat whitish, the feathers having blackish tips; chest, breast, and entire under surface of the body, including flanks and thighs, pale yellow, the chest, breast, and upper part of the abdomen being spotted with intense black, the flanks and thighs barred with the same; under tail-coverts yellowish, barred with dusky black; under surface of the tail repeating the colours of the upper surface, but the black and white not so strongly pronounced; shafts as upon the upper surface; under wing-coverts of the primaries dusky, of the secondaries white, with pale yellowish and dusky bars; edge of the bastard wing yellow; axillaries white; under surface of the wing dusky, the margins of the inner webs pale brown near the tip, and white at the base; shafts of some of the outermost primaries brownish white, the remainder white, dusky towards the tip; "bill plumbeous; irides brown; legs plumbeous" (*Jerdon*); "bill plumbeous black; irides brown; feet darkish plumbeous" (*J. Scully*).

Total length 3·3 inches, culmen ·48, wing 2·2, tail 1·2, tarsus ·5, toes (without claw), outer anterior ·4, outer posterior ·4, inner anterior ·27, inner posterior ·2.

Younger male. The upper parts are less rich in colour than in the adult; the crown is more ashy brown than in the adult female, but it has a tinge of olive; the tips of the feathers of the forehead are more orange than in the older bird; the ear-coverts and sides of the neck, between the two white stripes, are browner; there is more white upon the throat, and the

entire under surface of the body is whiter than in either the adult male or female.

Total length 3·2 inches, culmen ·45, wing 2·2, tail 1·2, tarsus ·47.

Adult female. Resembling the adult male, but having the upper parts less brilliant; the crown and hind neck are more ashy olive; the forehead yellowish olive; the lores are not of such a deep yellow; and this colour upon the under surface of the body is also paler. "Females in *May* and *June*: bill plumbeous, or dusky plumbeous, lighter below; irides brown; feet plumbeous; claws dusky" (*J. Scully*).

Total length 3·6 inches, culmen ·5, wing 2·27, tail 1·22, tarsus ·48.

Younger female. Less brilliant upon the upper parts than the young male; the crown is the same, but the forehead is yellowish olive; in other respects similar to the young male.

On comparing specimens from the North-western Himalayas with others from Nepal I cannot find that they are in any way separable; but one of Captain Stackhouse Pinwill's birds in the British Museum is somewhat remarkable, showing white tips to some of the outermost of the greater wing-coverts, while some of the exterior median coverts also show a white streak, interrupted near the tip. A young male from Nepal, however, also shows white tips on some of the outermost greater coverts. At present I have seen no other birds exhibiting this peculiarity, which I am not able to account for, and must leave the point open for future investigation. These white tips to the coverts are not a sign of immaturity; for the bird from the North-west Himalayas is certainly quite adult.

As above mentioned, the Indian Speckled Piculet was procured by Captain Pinwill in the North-western Himalayas; but the exact locality was not recorded on the labels of the birds; it was probably near Mussoorie, between which place and Gangaotri the species was noticed by Mr. W. E. Brooks, as well as near Dangali. According to Jerdon, it is found throughout the whole Himalayan range, extending, so far as is known, from 3000 to 6000 feet or so. Quite re-

cently a specimen was obtained by Mr. Darling in the Wynaad (as recorded by Mr. Hume, Str. F. 1877, p. 351), "a fertile valley, elevated about 2500 feet above the sea, and lying between the Nilgheris and those portions of the Western Ghats overlooking Cannanore, Calicut, &c.," a locality quite unexpected for the species. It is also met with in the Khasia hills, whence Mr. Hume states that he has specimens; and he also mentions having received it from the hills of Tenasserim. This is apparently since he wrote his paper on the birds of the latter province (Str. F. 1878, vol. vi.), as he there stated that Mr. Davison, up to the time of publication, had not met with the bird. Capt. Wardlaw Ramsay found it in the Karen hills at an elevation of 2000 feet; and it extends into the mountains of Western China, as Père David procured it in Kokonor. Dr. Beccari obtained a female bird in Sumatra, on Mount Singalan, which Count Salvadori has identified doubtfully as the present species, having found it similar to a bird from Nepal. A comparison with Himalayan specimens will be necessary to settle this point. In the Himalayas, according to Jerdon, it is found in tangled brushwood, and among dead and fallen trees in damp spots, hunting about among the decaying bark for various insects. It is said to breed in holes of trees. Dr. Scully remarks, in his "Contribution to the Ornithology of Nepal" (Str. F. 1879, vol. viii. p. 250), "The Speckled Piculet is fairly common in the woods in the central part of the valley of Nepal, and in some part of the forests at the foot of the hills. I found it quite a tree-bird, and never noticed it in tangled brushwood &c., as mentioned by Jerdon."

I have examined the following specimens of *Vivia innominata*:—

E Mus. Brit.

a, b. ♂ ♀ ad. sk. N.W. Himalayas (*Capt. Stackhouse Pinwill*).

c, d, e. Ad. st. Nepal (*B. H. Hodgson*). Types of *Picullus nipalensis* and *P. rufifrons*.

f, g, h. Ad. sk. Nepal (*B. H. Hodgson*).
i, k. ♂ ♀ ad. sk. Nepal (*B. H. Hodgson*). India Museum.

E. Mus. E. Hargitt.

a. ♀ juv. Native Sikhim, July 1874 (*L. Mandelli*).
b, c, d. ♂ ad. *e.* ♀ ad. Darjeeling (*L. Mandelli*).
f. ♀ ad. *g.* ♂ juv. Assam. Purchased.

2. Vivia chinensis, sp. n. (Plate VII.)

Male. Above, including the rump and upper tail-coverts, uniform yellowish olive; wing-coverts from olive-brown in the lesser series to yellowish olive in the greater; quills dusky brown, edged externally with yellowish olive, the inner webs margined with greyish white; the apical half of the outer webs of a few of the outermost primaries greyish brown; edge of the wing and the basal three fourths of the outer web of the bastard primary white; shafts of the quills black; tail black, the inner webs of the central pair of feathers white, the dwarf feather having a large portion of the outer web white; the two penultimate have the apical portion of the outer webs, and the extreme tip of the inner webs white, the outer margined with blackish at the tip; the fourth outer feather has the margin of the outer web whitish at the tip; the one next to the central pair is entirely black; shafts of the central pair white, of the remainder black; but where the webs are white, so is that part of the shaft; the crown light brownish rufous; the feathers of the forehead are crossed with a dark, blackish bar and tipped with orange; but the latter is not very distinct; lores, a stripe over and under the eye and down the neck, white; ear-coverts and sides of the neck, between the white stripes, chestnut, darker than the crown; moustachial stripe black, with a mixture of brown and white upon the upper webs and tips of the feathers; chin and throat white with a yellow tinge; breast and entire under surface of the body white with a tinge of yellow; the breast and abdomen covered with large spots of black, the flanks barred with the same; under tail-coverts yellowish white, the feathers having at their tips a spot of black upon each web, but they appear

J.G.Keulemans lith. Hanhaert imp.

VIVIA CHINENSIS.

as if barred; under surface of the tail repeating the upper; under wing-coverts sooty black; edge of the wing, to the carpal joint, yellowish white; axillaries a mixture of dusky and white; under surface of the wing dusky, the margin of the basal half of the inner webs whitish; shafts white at the base, light dusky brown towards the tip; some of the shafts of the outermost primaries are white at the extreme base, the remaining part being light yellowish grey or brown. "Eyes brown-black; bill plumbeous; feet plumbeous" (MS. label).

Total length 4·5 inches, culmen ·5, wing 2·3, tail 1·35, tarsus ·5; toes (without claws)—outer anterior ·4, outer posterior ·4, inner anterior ·27, inner posterior ·17.

The unique specimen of this bird was presented by Mr. Bowdler Sharpe to the British Museum, and is marked as being from May-chee. He procured it out of a number of Chinese birds offered for sale in London some years ago, and apparently duplicates from the Shanghai Museum. The label states that the sex could not be ascertained, as the parts were damaged by shot; but I have no doubt, in my own mind, that it is a male. The species appears to be a very distinct one, differing from *V. innominata* in its larger size, and in the colour of the crown, which is rufescent brown, instead of olive-brown.

2. Verreauxia.

Sasia, pt., Verr. Rev. et Mag. de Zool. p. 217 (1855).

Verreauxia, Hartl. Orn. W.Afr. p. 176 (1857). Type *V. africana*.

Picumnus, pt., Malh. Monogr. Picid. ii. p. 284 (1862).

Nannopipo, Cab. & Heine, Mus. Hein. Th. iv. p. 9 (1863). Type *V. africana*.

Range. Confined to the forests of the Gaboon.

1. Verreauxia africana.

Sasia africana, Verr. Rev. et Mag. de Zool. 1855, p. 218; Gray, List Pic. Brit. Mus. 1868, p. 29; id. Hand-l. B. ii. p. 180. no. 8535 (1870).

Verreauxia africana, Hartl. Orn. W.Afr. 1857, p. 176. no. 523; id. J. f. O. 1861, p. 263.

Picumnus verreauxii, Malh. Monogr. Pic. ii. p. 284, pl. 118. fig. 1.

Nannopipo africana, Cab. & Heine, Mus. Hein. Th. iv. p. 9 (1863).

Picumnus africanus, Sundev. Consp. Av. Picin. p. 106 (1866).

General colour above, including the rump and upper tail-coverts, uniform olive, slightly tinged with golden olive; the head a little darker, the bases of the feathers leaden grey; wing-coverts similar to the back; quills blackish, the outer webs of the primaries edged narrowly, and those of the secondaries more broadly, with bright olive; the margins of the inner webs light grey, white near the base; shafts black; tail blackish, edged with olive, shafts black; forehead orange-chestnut, ochreous yellow near the bill; a narrow super-ciliary stripe of white; cheeks and sides of the face and neck a mixture of bluish grey and light chestnut; chin, throat, and entire under surface of the body, including flanks and thighs, a mixture of bluish grey (tinged with olive) and light chestnut, the tips of the feathers being of the latter colour; the bases are leaden grey; under tail-coverts bluish grey, tipped with light chestnut; under surface of the tail dusky; under wing-coverts white; axillaries white; under surface of the wing dusky, the margins of the inner webs greyish white; shafts white near the base, dusky towards the tip.

Total length 2·6 inches, culmen ·4, wing 1·9, tail ·55, tarsus ·42; toes (without claws)—outer anterior ·3, outer posterior ·3, inner anterior ·22, inner posterior 1·17.

The only specimen of this bird which I have seen, as yet, is in the British Museum, and appears to me to be not quite adult. It is not, however, very dissimilar to the bird figured by Malherbe; and Dr. Hartlaub gives full descriptions of both sexes from examples in the Bremen Museum, though these again would seem to be scarcely mature. Should they prove to be so, the resemblance of adult *Verreauxia* to the imma-ture plumage of the Eastern *Sasia* is remarkable. According

to Hartlaub the female differs from the male in having the head and the entire belly greyish olive.

3. Sasia.

Picumnus, pt., Is. Geoffr. St. Hilaire, Nouv. Arch. du Mus. 1832, p. 397.

Sasia, Hodgs. J. A. S. Beng. v. p. 778 (1836). Type *S. ochracea*.

Microcolaptes, Gray, List Gen. B. p. 54 (1840). Type *S. abnormis*.

Comeris, Hodgs. J. A. S. Beng. x. p. 27 (1841). Type *S. ochracea*.

Dryaltes, Gloger (teste G. R. Gray). Type *S. ochracea*.

Picumnoides, Malh. Mon. Picid. ii. p. 286 (1862). Type *S. abnormis*.

Range. Eastern Himalayas, from Nepal and Sikhim to Assam, Arakan, Burmese hills, and Tenasserim, through the Malayan peninsula to Java, Sumatra, and Borneo.

Clavis specierum.

a. fronte aureâ (mares).
  a'. fasciâ supraparoticâ fulvescenti-albâ; collo postico rufescenti lavato ..... *ochracea.*
  b. fasciâ supraparoticâ rufâ, regioni paroticæ concolori; collo postico dorso concolori, nec rufescente ..... *abnormis.*
b. fronte rufâ (feminæ).
  c'. fasciâ supraparoticâ fulvescenti-albâ ..... *ochracea.*
  d'. fasciâ supraparoticâ rufâ ..... *abnormis.*

1. Sasia ochracea.

Sasia ochracea, Hodgs. J. A. S. Beng. v. p. 778 (1836); id. icon. ined. Brit. Mus. App. pl. 35. fig. 3 (659); Blyth, J. A. S. Beng. xii. p. 1005 (1843); Gray, Gen. B. ii. p. 433 (1845); Gray, Cat. Mamm. &c. Nepal pres. Hodgs. p. 115 (1846); Blyth, Cat. B. Mus. As. Soc. p. 65 (1849); Bp. Consp. Av. Gen. i. p. 140 (1850); Reichb. Handb. Spec. Orn. Picin. p. 342 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 678 (1856); Jerd. B. Ind. i. p. 301 (1862); Gray, Cat. Mamm. &c. Nepal pres. Hodgs. p. 62 (1863); Gray, List Picid. Brit. Mus. p. 29 (1868); id. Handl. B. ii. p. 180,

no. 8532 (1870); Jerd. in Ibis, 1872, p. 10; Blyth & Wald. B. Burma. p. 78 (1875); Hume & Oates, Str. F. iii. p. 75 (1875); id. & Davison, op. cit. vi. p. 148 (1878); Hume, op. cit. viii. p. 88 (1879).

Comeris ochracea, Blyth, J. A. S. Beng. xii. p. 1005 (1843).

Microcolaptes ochraceus, Blyth, J. A. S. Beng. xiv. p. 191 (1845); Cab. & Heine, Mus. Hein. iv. p. 8 (1863).

Picumnoides ochraceus, Malh. Monogr. Picid. ii. p. 287 (1862).

Comeris (*Sasia*) *ochracea*, Hodgs. in Gray's Zool. Misc. 1844, p. 85.

Sasia lacrymosa, Lafr. Rev. et Mag. Zool. p. 208 (1854).

Picumnoides lacrymosa, Malh. Monogr. Picid. ii. p. 287 (1862).

Picumnus ochraceus, Sundev. Consp. Av. Picin. p. 106. no. 27 (1866).

Sasia abnormis, Hume & Davison (nec Temm.), Stray F. ii. p. 472 (1874); Blyth & Wald. B. Burma, p. 78 (1875).

Adult male. Above, general colour yellowish olive, tinged with orange-rufous; lesser, median, and greater wing-coverts uniform olive; primary-coverts dusky black; bastard wing dusky black, edged with buff; quills dusky black, edged externally with olive; the outer web of the bastard primary edged with white; two or three of the innermost of the secondaries pale brown tinged with rufous and edged with golden olive; the basal half of the inner webs of the primaries edged with greyish white; the secondaries have a white patch covering the base of the inner webs, shafts black; rump orange tinged with rufous; upper tail-coverts and tail deep velvety black, shafts black; forehead golden yellow near the upper mandible, shading into rufous; crown olive; a trace of a rufous collar on the hind neck; a white stripe from behind the eye; cheeks, sides of the face, and neck rufous; the chin, throat, and entire under surface of the body orange-rufous, brighter and more deep golden on the breast and abdomen: under tail-coverts rufous; under surface of the tail and shafts black; under wing-coverts nearly white; under surface of wing dusky; the margin of the basal half of the inner webs of the

primaries, and nearly the entire margin of the inner webs of the secondaries whitish, the base of the inner webs of the latter white; shafts of the primaries ashy brown, those of the secondaries being white. "*Male*—bill dark brown on the upper mandible, plumbeous on the lower, inside of the mouth dusky; eyelids naked and very conspicuous dusky red; iris crimson; legs yellowish red; claws yellowish" (*Oates*). "Legs and feet dull orange; claws very pale brown; upper mandible and tip of lower mandible dark horny brown, rest of the lower mandible pale bluish; irides from pale red to dark crimson; orbital skin dull crimson." (*W. Davison*). "Bill plumbeous; orbital skin pink; irides pale brown; legs pale red" (*Jerdon*).

Total length 3·1 inches; culmen ·53, wing 2·12, tail ·9, tarsus ·5; toes (without claws)—outer anterior ·47, inner anterior ·3, posterior ·45.

Adult female. Closely resembling the adult male, but having the forehead rufous chestnut, and the rufous tint on the under surface of the body rather deeper in colour than in the male.

Total length 3 inches, culmen ·55, wing 2·12, tail ·9, tarsus ·55.

Younger male. The upper parts are less rich in colour than in the fully adult male; the yellow upon the forehead is not so brilliant; the crown, wing-coverts, and outer webs of the quills are not of so bright a yellowish olive; those parts which are orange-rufous in the fully adult, are of a very pale ochreous, except the ear-coverts, which are of a deeper rufous; the chest is tinged with golden; in other respects like the fully adult, but more dingy in colour.

Another bird, not fully adult, evidently a female, has the upper parts not so rich in colour as the younger male described; the crown is more dusky; the forehead is also more dusky, but mixed with dingy rufous; the wing-coverts of the same colour as the crown; under the eye there is a dusky patch; the parts which are orange-rufous in the fully adult, are of a dingy rufous.

The Indian Rufous Piculet was first described by Mr.

Hodgson, who found it in the forests of the lower regions of Nepal, and bestowed on it the generic name of *Sasia*, from its native title among the Nepalese. Later on he wished to change this name to the more classical one of *Comeris*; but, if any change at all be necessary, it appears from the synonymy given above that *Microcolaptes* of Gray would have priority. *Sasia*, however, has been so universally adopted and is in such general use that any change in nomenclature seems to me unnecessary. Dr. Jerdon states that this little bird is found in Nepal and the Eastern Himalayas, as also in Assam, Sylhet, and Arracan. It is not rare at Darjeeling, from about 3000 to 6000 feet or so. Like *Vivia innominata*, it hunts chiefly among the brushwood, and more especially among fallen and decayed trees, near the banks of streams. It lives entirely on insects. He never saw it climb on large trees. It is said to breed in holes of trees. Lieut. Wardlaw-Ramsay met with the species on the Tonghoo hills, and Mr. Oates procured a single specimen on the Pegu hills, where he considers it must be rare, though, from its small size, it may escape notice. He observes, "I shot one while pecking very hard at a bamboo about twenty feet from the ground. It was making a very loud noise, tapping incessantly for some minutes. To judge from appearances presented on dissection, they must breed towards the end of April." In Tenasserim, according to Mr. Hume, it is found throughout the province, but not ascending the higher hills. Mr. Davison gives similar notes on the habits to those recorded above. There appears to have been considerable confusion regarding the colouring of the sexes in this species. Malherbe states that they are alike, but does not appear to have examined specimens himself. Mr. Hodgson also says that the sexes are alike. The late Dr. Jerdon mentions that the forehead is ochreous in females, from which I suspect he had a young male before him, as, in my experience both of this species and *S. abnormis*, the females differ from the males in having the forehead entirely rufous.

I have examined the following specimens :—

E Mus. Brit.

a, *b* [♀ ad.]; *c*, imm. Sk. Nepal (*B. H. Hodgson*).
d, *e*, *f* [♂ ad.]. Sk. Nepal (*B. H. Hodgson*). India Museum.
g [♂ ad.], *h*, *i* [♂ ♀ imm.]. Sk. Nepal (*B. H. Hodgson*).
k [♂ ad.]. Sk. Nepal. Purchased.
l. St. Nepal (*B. H. Hodgson*). Type of the species *.

E Mus. E. Hargitt.

a. ♂ imm. Nepal. Purchased.
b, *c*, *d*. ♂; *e*. ♀ ad. Darjeeling (*L. Mandelli*).
f. ♂ ad. Native Sikhim, January 1874 (*L. Mandelli*).

2. Sasia abnormis.

Picumnus abnormis, Temm. Pl. Col. vol. iv. pl. 371. fig. 3 (1825); Less. Man. d'Orn. ii. p. 115 (1828); Wagl. Isis, 1829, p. 647; Less. Traité, p. 231; Swains. Classif. B. ii. p. 311 (1837); Jerd. B. Ind. i. p. 302; Sundev. Consp. Av. Picin. p. 106 (1866).

Microcolaptes abnormis, Gray, List Gen. B. 1840, p. 54; id. List, 1841, p. 70; Blyth, J. A. S. B. xiv. p. 191 (1845); Cab. & Heine, Mus. Hein. Th. iv. p. 8 (1863).

Sasia abnormis, Gray, Gen. B. ii. p. 433 (1845); Blyth, Cat. B. Mus. As. Soc. p. 65 (1849); Bp. Consp. i. p. 140 (1850); Reichb. Handb. Spec. Orn. Pic. p. 342, pl. dcxviii. fig. 4119 (1854); Wallace, Ann. & Mag. Nat. Hist. [2] xv. p. 96 (1855); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 678; Sclater, P.Z.S. 1863, p. 211; Pelz. Reis. Novara, Vog. pp. 101, 162 (1865); Gray, List Picidæ Brit. Mus. p. 29

* Mr. Moore, in the Catalogue of the East-India Company's Museum, states that the three specimens presented to that institution by Mr. Hodgson were the types of the species. These specimens are now in the British Museum, and are enumerated above as *d*, *e*, *f*. Mr. Hodgson's figure in his unpublished drawings appears to represent a male, but is not so well drawn as is usually the case. It appears to me, however, to have been taken from specimen *l*, which was presented about the same time as the drawings to the British Museum, some years before any were given to the India Museum. It is, in all probability, the actual type of the species, though this question is now of less moment, since the addition of the India-Museum collection to the British Museum, in which institution the typical specimen now exists without doubt.

(1868); Gould, B. Asia, part xxii. (1870); Gray, Hand-l. B. ii. p. 180. no. 8533; Salvad. Ucc. Born. p. 60 (1874); Sharpe, P. Z. S. 1875, p. 103; Tweedd. Ibis, 1877, p. 292; Sharpe, P. Z. S. 1879, p. 327; id. Ibis, 1879, p. 243; Hume, Str. F. 1879, pp. 53, 88.

Picumnoides abnormis, Malh. Monogr. Picid. ii. p. 287, pl. cxv. fig. 1 (1862).

Adult male. Above uniform yellowish olive, brighter on the rump, the tips of the feathers of the latter orange-rufous; primary-coverts blackish, edged with olive; the other series of wing-coverts uniform yellowish olive; edge of the wing rufous; quills dusky black, the outer webs yellowish olive, the inner edged upon their basal half with greyish white; a few of the innermost of the secondaries are paler and washed with olive; shafts black; upper tail-coverts deep black; tail uniform black, likewise the shafts; forehead golden orange; crown and hind neck uniform yellowish olive; lores and sides of the face and neck orange-rufous; the ear-coverts more chestnut; chin, throat, and entire under surface of the body orange-rufous, a few silken feathers of a bright golden yellow on the breast; upon the sides of the upper breast a patch of olive; under tail-coverts rufous orange, tipped with yellowish white; under surface of the tail uniform black, as are likewise the shafts; under wing-coverts buffy white; under surface of the wing dusky, the margins of the inner webs buff near the base; shafts pale greyish brown, white at the base. "Iris crimson; orbital patch dull crimson; legs chrome; bill black, the mandible greenish yellow" (*Everett*).

Total length 3·3 inches, culmen ·55, wing 2·07, tail ·95, tarsus ·5; toes (without claws)—outer anterior ·37, inner anterior ·27, posterior ·37.

Adult female. Resembling the adult male, but less bright in colour on the upper parts, wing-coverts, and outer webs of the quills; the rump more rufous; the forehead rufous, the crown scarcely so bright a yellowish olive; in other respects similar to the adult male. "Iris crimson; orbital patch dull crimson; legs chrome; bill black, the mandible greenish yellow" (*Everett*).

Total length 3·2 inches, culmen ·53, wing 2·1, tail ·85, tarsus ·55.

Young. Above uniform yellowish olive; wing-coverts similar to the back; quills dusky black, edged externally with olive; the margin of the basal two thirds of the inner webs whitish, at the extreme base white; shafts black; rump olive, the feathers tipped with dingy rufous; upper tail-coverts black; tail and shafts black; forehead and crown uniform dusky olive; sides of the face dingy rufous; sides of the neck olive; chin and throat a mixture of olive dusky and dingy rufous; under surface of the body olive dusky, tinged with dingy rufous on the flanks and thighs; under tail-coverts dingy rufous; under surface of the tail and shafts black; under wing-coverts white, with a very faint buffy tinge; the carpal joint and edge of the wing dusky; under surface of the wing dusky, the basal two thirds of the margin of the inner webs whitish, with a tinge of buff; shafts light grey, white at the base.

Total length 3·1 inches, culmen ·48, wing 2·1, tail ·9, tarsus ·55.

Another young bird, closely resembling the above, has the feathers over the nostrils rufous, likewise the ear-coverts and the fore part of the cheeks and chin.

Total length 2·9 inches, culmen ·45, wing 2·0, tail ·85, tarsus ·55 (*Mus. Brit.*).

This little species represents the Himalayan *Sasia ochracea* in the Indo-Malayan subregion, where it seems to be well distributed. It is frequent in Malaccan collections, and was at first supposed to range, like many Malayan species, into Southern Tenasserim, Mr. Davison having procured a specimen near Ye, which Mr. Hume referred originally to *Sasia abnormis* (cf. Str. F. 1874, p. 472); more recently, however, he has come to the conclusion that it was only *S. ochracea* (cf. Str. F. 1878, p. 148).

As far as we know at present, it does not range very high in the Malayan peninsula, as Dr. Stoliczka did not meet with it in Province Wellesley. In Sumatra it was procured by Mr. E. C. Buxton, and also by Mr. Wallace; but Dr. Beccari

did not come across it, nor did Mr. C. Bock meet with it in the same district. Lord Tweeddale has already remarked on the identity of specimens from Malacca, Borneo, and Sumatra; and this I find to be the case in the birds I have examined from these localities. I have not been able, personally, to compare Javan specimens; but Mr. Sharpe, at my request, has been kind enough to examine the types from Java in the Leiden Museum, and he fails to discover any difference between these and Bornean specimens with which I had supplied him.

I had been led to suspect that Javan birds might prove distinct—recollecting Malherbe's extraordinary figure, in which this *Sasia* is represented *with four toes* and with the outside tail-feathers *white*. What has become of the bird from which the figure was taken I am not able to say; but if it is in Count Turati's collection with the rest of Malherbe's Woodpeckers, it is desirable that it should be reexamined.

In collections from North-western Borneo the present species is generally to be found, being numerous in those of Mr. Hugh Low; and it was also sent from Lumbidan by the late Governor Ussher and Mr. Treacher; and in the Sarawak district it also occurs, as we know from the researches of the Marquis Doria and Dr. Beccari. By some oversight, however, Mr. Sharpe has omitted to record, in his papers on Mr. Alfred Everett's collections, the finding of this bird near Sibu and Simunjon; but in Mr. Sharpe's copy of Salvadori's 'Uccelli di Borneo" the fact is not only duly entered, but the colours of the soft parts are copied from one of Mr. Everett's labels. These I have embodied in my description. As yet, Mr. W. B. Pryer has not met with the species in Sandakan; but the late Mr. Motley procured it near Banjermassing, whence also specimens collected by Schierbrand are in the Leiden Museum. In Count Salvadori's work on the birds of Borneo, he records a pair of birds from Sarawak, and very properly points out the silky golden appearance on the breast in both sexes, though less distinct in the female. This character is not shown in Temminck's figures, nor in Malherbe's, the latter author figuring the base of the outer

tail-feathers as whitish, an appearance not shown in any of the specimens examined by me, which have been as follows:—

E Mus. Brit.

a. [♀] ad. sk. Malacca. India Museum. [Horsf. & Moore, Cat. p. 678.]
b, c. [♂ ad.] sk. Malacca (*W. Harvey*).
d. [♂ ad.] sk. Malacca (*Hugh Cuming*).
e. ♀ ad. sk. Mount Ophir, Malacca (*A. R. Wallace*).
f. ♂ ad. sk. Sumatra (*A. R. Wallace*).
g, h. [♂ ♀ ad.] sk. N.W. Borneo (*H. Low*).
i. Juv. sk. N.W. Borneo (*H. Low*).

E. Mus. E. Hargitt.

a [♂], *b, c* [♀]. Sk. Borneo.
d. Juv. sk. N.W. Borneo (*Hugh Low*).
e, ♂; *f, g*, ♀. Sk. N.W. Borneo (*Hugh Low*).

XVII.—*On some necessary Changes in the Nomenclature of South-American Birds.*—By Hans, Graf von Berlepsch.

Ornithologists will generally find me unwilling to change long-established nomenclature, especially when there is no other reason for doing so than to call into usage obscure old names which may have a slight advantage of priority, but in other respects had better be ignored. I mean such names as those of Müller, Boddaert, and others, which have only during the last few years come into usage, and have been called forth to supersede denominations which had become quite familiar to us, being founded on descriptions unmistakably intended for the species bearing them. Nevertheless I am of opinion that we ought to change (or erase from our list) even the most familiar denomination if it can be proved that it was originally intended for another species, or if the description is so vague that it is quite impossible to say what bird the author of the name really meant by it.

In the following pages I propose to refer to some such, or similar, cases in which I believe it is necessary to change the names usually applied to certain species:—

1. "Basileuterus vermivorus (Vieill.)," auctt. plur.

The "Nouv. Dict. vol. ii. p. 278," is generally cited as the place where Vieillot's name "*vermivorus*" was first given to this species. But "vol. ii." is a misprint for "vol. xi." where a "*Sylvia vermivora*, Lath.," is described by Vieillot. It would appear that no author can have read Vieillot's description since the publication of Lafresnaye and d'Orbigny's 'Synopsis,' where, I think, the term *vermivorus* was first used for this *Basileuterus*, and referred to "vol. ii.," instead of "xi.," of the Nouv. Dict. Nevertheless Dr. Coues, in his most elaborate work on the Birds of the Colorado Valley (p. 212), is an exception. He gives correctly the synonym "*Sylvia vermivora*, Vieill. Nouv. Dict. xi. (1817) p. 278," and refers it to *Helmintherus vermivorus* (Gmel.), to which it strictly belongs. Vieillot (*l. c.*) begins as follows:—"Le Pitpit vermivore, *Sylvia vermivora*, Lath., pl. 305, des Oiseaux d'Edwards, se trouve dans la Pensylvanie;" and after having described the *Helmintherus* at full length, he continues, "c'est le 'demi-fin Mangeur de vers' de Buffon. Il paroît qu'il se trouve aussi au Paraguay, ou plutôt qu'il y existe une race voisine à laquelle M. de Azara rapporte le '*mangeur de vers*,' qu'il appelle '*contre-maître couronné*.' Il le décrit ainsi," &c.

Vieillot then describes the latter bird (which is certainly the same as the *Basileuterus vermivorus*, auct.) after Azara, without giving a name to it. It is therefore quite evident that Vieillot did not give to this *Basileuterus* a particular name, and that we must find another for it. The next name in priority seems to be *Setophaga auricapilla* of Swainson, Two Cent., &c., in 'Animals in Menageries' (1838), p. 293, sp. 41. (*Hab.* Mexico and Brazil.) Here our species is well described; and the name, which is chosen from its similarity in the coloration of the head to *Siurus auricapillus*, is not inappropriate. It follows that in future the *Basileuterus* usually termed *B. vermivorus* (Vieill.) must stand as *Basileuterus auricapillus* (Swains.).

2. Dacnis cayana (Linn.), auctt. plur.

The *Motacilla cayana* of Linnæus (Syst. Nat. ed. 12, i. p. 336)

is based on *Sylvia cayanensis cærulea*, Briss. Orn. iii. p. 534, tab. 28. fig. 1. Further, the "*Elotototl*, Fernand. Mex. 54," is there given as a synonym of it. The diagnosis, "*M. cærulea; capistro, humeris, alis caudaque nigris*," is evidently taken from Brisson's description. This in general agrees closely with the male of *Dacnis cayana* of authors; but no mention is made (in the otherwise very full and long description) of the black throat, a characteristic feature of the male of that species. This omission has been the cause of Brisson's description being, by some authors, applied to *D. angelica*, Filippi, which has a blue throat, but otherwise does not at all answer to Brisson's description.

The consequence has been that great confusion has arisen, two species having been called *Dacnis cayana*, viz. *D. angelica*, Filippi, and *D. cyanomelas* (Gm.).

This alone would induce me to drop the name *cayana* altogether.

It is certainly true that we know no other bird to which Brisson's description is better applicable than the species which I call *D. cyanomelas* (Gm.); and therefore it might be assumed that Brisson intended to describe this species, and forgot to mention the black throat. This, however, is not very probable, as the description is long and full, and the plate also does not show any black on the throat. It may be, however, that his description belongs to a different species, differing from *D. cyanomelas* (Gm.) in possessing a blue (instead of black) throat, and one which has not been seen by naturalists since the days of Brisson, and perhaps is to be rediscovered in the interesting district of Cayenne, where many species exist which, though described by Brisson or Buffon, are now very scarce in collections. I do not say this is probable; but it is not quite impossible; and, for the sake of having a well established nomenclature, it becomes necessary to avoid such denominations of that of *cayana*. Linn. It is hardly necessary to remark that the "*Elotototl*" of Fernandez (cited by Linnæus as a synonym of his *cayana*), being a Mexican bird, has nothing to do with our *Dacnis cyanomelas*.

Prof. Cabanis has already adopted the term *cyanomelas* of Gmelin for the *D. cayana* of authors; and I think he is quite right in doing so.

Fringilla cyanomelas, Gm. Syst. Nat. (ed. xiii. 1788) p. 924, no. 93, is based on Koelreuter's "*Fringilla cærulea, mento, gula etc. nigris*," described in Nov. Comment. Petrop. xi. (1767) p. 434, and figured there, tab. 15. fig. 6 (no locality given). Koelreuter's description and plate accurately represent the *D. cayana* auctt. (which I know from having carefully studied it), and has nothing to do with *Cæreba cærulea*, to which Mr. Cassin (Proc. Acad. Nat. Sci. Philad. 1864, p. 266) incorrectly refers it.

Finally, I may remark that "Blue Manakin," Edwards, pl. 263, and *Dacnis nigripes*, Cass. (nec Pelz.), Proc. Acad. Philad. 1864, p. 269, are also synonyms of *D. cyanomelas* (Gm.)*, and have nothing to do with *D. nigripes*, Pelz., which is quite distinct from it.

3. Dacnis plumbea (Lath.), auctt. plur., ought to be called *D. bicolor* (Vieill.).

I scarcely need repeat on this subject what Cassin (Proc. Acad. Philad. 1864, p. 270) has pointed out, that Latham's very short description (without any indication of locality) of his *Sylvia plumbea* is barely applicable to this species of *Dacnis*, for which Vieillot's name "*bicolor*" (first published in 1807, Ois. Am. Sept. ii. p. 32, pl. 90. figs. 1 & 2, and then in Nouv. Dict. xi. p. 167, where "Amérique Sept. et Cayenne" is given as the habitat) should be used.

4. Chlorophanes atricapilla (Vieill.), auctt. plur., ought to be called *C. spiza* (Linn.).

In regard to this species I shall proceed in the contrary direction and propose to bestow an old name upon a bird now mostly called by Vieillot's denomination. As an apology for so doing, I may remark that the Linnæan appellation

* I have worked out very carefully the synonymy of this and other species of Cœrebidæ, it having been at one time my intention to prepare a monograph of this family. The synonymy of some of the species is very intricate.

has been, and is now, often used for this species, and that I see no ground whatever for rejecting it.

Motacilla spiza, Linn., was first published in the tenth edition of the 'Systema Naturæ,' and was based on the upper figure of Edwards's pl. 25, which closely represents our *Chlorophanes*. The lower figure on the same plate, which Edwards thought to represent the female of the other bird (but which is certainly the female of *Dacnis cyanomelas*) is given as a variety β in the twelfth edition, where the species is called *Certhia spiza*. A diagnosis is given which strictly refers to our *Chlorophanes*; but, as synonyms, are added :—

1. *Motacilla spiza*, Linn. Syst. Nat. ed. 10.

2. *Certhia Cras. virid. atricap.* p. 635 (which is our *Chlorophanes*).

3. Edwards, tab. 25. figs. 1, 2 (fig. 2 being *Dacnis cyanomelas*).

Hab. Brazil and Surinam.

It is thus evident that "*Certhia spiza*, Linn." is chiefly intended for the *Chlorophanes*, only the synonym "Edwards, fig. 2" belonging to another species, and that the species must be called *Chlorophanes spiza* (Linn.).

5. Procnias tersa (Linn.), auct. plur., ought to be called *P. cærulea* (Vieill.).

Although I do not know to what other species Linnæus's description of his *Ampelis tersa*, Syst. Nat. ed. xii. p. 289, refers than to *P. tersa* of authors, everybody must concede that it is hardly applicable to it. *P. tersa* never has any black on the back, and in some other points also does not agree satisfactorily with Linnæus's description.

The latter seems not, as in most other cases, to be copied from a more full description of some other author, but must have been drawn up from a specimen. Where this type exists is not stated; and unless it is found, which is very improbable, the determination of *Ampelis tersa*, Linn., must remain very doubtful.

"*Hirundo viridis*, Temm.," and "*Procnias ventralis*, Illig.,"

often cited for this species, seem never to have been published. Temminck only describes a *Hirondelle verte*; and Illiger does not mention his name (which was certainly bestowed upon the present species in the Berlin Museum) when he establishes the genus *Procnias* (Prodr. p. 228), but only cites "*Hirundo viridis*, Temm."

Therefore *Procnias cærulea* (Vieill.), Nouv. Dict. xxxiii. (1819) p. 401 (Brésil et Pérou), seems to be the correct appellation for this bird.

6. THAMNOPHILUS ATRICAPILLUS (Gmel.), auctt. plur., ought to be called *Th. cirrhatus* (Gmel.).

The oldest name for this species is certainly *Lanius canadensis*, Linn. (Syst. Nat. ed. xii. p. 134), based on Brisson, Orn. ii. p. 171, tab. xviii. fig. 3 (Canada), which represents clearly the female of our species. But I do not like to employ this name, as it is geographically erroneous.

The *Lanius atricapillus* of Gmelin (Syst. Nat. ed. xiii. p. 302. sp. 32) is based mainly on Merrem, Av. Icones et Descr. p. 26, Taf. viii., which is not at all the *atricapillus* of authors, but without doubt the species now generally called *T. nævius* (Gmel.) *.

The next name given to *Th. atricapillus*, auctt. (nec Gmel.), is *Turdus cirrhatus*, Gmel. S. N. p. 826. sp. 91, based on the *Fourmilier huppé* of Buff., Hist. Nat. Ois. p. 476, which is

* If we are forced so strictly to follow the rules of the Stricklandian code (to which I otherwise shall render the highest respect) even where they prove to be unsatisfactory or unpractical, as a learned Professor at Cambridge seems to think, we shall be driven to the unpleasing necessity of calling the *Th. nævius* (Gm.) in future *Th. atricapillus* (Merrem), the latter name having a priority of two years. But I do not at all like to transfer names from one species to another, such a practice being the source of great confusion and general misunderstanding. For instance, I shall never accept the practice of some English authors who now call our old friend *Calamoherpe arundinacea* "*C. strepera*, Vieill.," and *C. turdoides*, Meyer, "*C. arundinacea* (L.)," even should I be in danger of being called a "franc-tireur" (cf. Ibis, 1870, p. 513). I take this opportunity to express my full sympathy with what my friend Mr. Seebohm has said regarding this and some other points of nomenclature in 'The Ibis' for 1879.

certainly the species in question. The term *cirrhatus* has already been used for this bird by Prof. Cabanis (cf. Schomb. Reise Brit. Guian. iii. p. 687, & Mus. Hein. ii. p. 16).

I may be allowed here to remark that the bird from Santa Marta which belongs to a closely allied species to *T. cirrhatus*, or perhaps should be termed a subspecies, is not entitled to bear the name *T. leucauchen*, Scl. (originally described as from the Upper Amazons), but that of *pulchellus*, Cab. et Heine, Mus. Hein. ii. p. 16 (well described from Cartagena). *T. pulchellus* differs from *T. cirrhatus* in possessing a bright rufous back, more white in the otherwise black head, and a rusty suffusion on the flanks, and in showing a continuous white outer web on the outer tail-feathers (up to the white end). Venezuelan examples are somewhat intermediate between *T. cirrhatus* and *T. pulchellus*, but agree better with the former.

The differences of *T. pulchellus* are not pointed out in the description of *T. leucauchen*, Scl.; and as *T. cirrhatus* is also mentioned from the Upper Amazons by Sclater and Salvin (P. Z. S. 1873, p. 273, sub *T. atricapillo*), I believe that *T. leucauchen* will prove to be only a synonym of it *.

On the other hand, *T. albinuchalis*, Sclater, from Ecuador and Northern Peru (given also from New Granada by Cab. et Heine), is a very distinct and fine species, in no way to be confounded with *T. cirrhatus*. There is a third species, allied to *T. cirrhatus*, found at Bahia by the Prince of Wied, viz. *T. cristatus*, which is evidently well marked, but seems not to have been met with since its discovery by that illustrious traveller.

XVIII.—*Ornithological Letters from the Pacific.*—VII. *Nawodo* (*Pleasant Island*). By Otto Finsch, Ph.D., H.M.B.O.U., &c.

Pacific Ocean, on board the German steamer 'Pacific.' July 29, 1880.

It is my privilege to be today among the innumerable

* [*T. leucauchen* (from Upper Amazonia) is *much* nearer to *T. pulchellus* than to *T. cirrhatus*; and if (as it seems to us) *T. leucauchen* and *T. pulchellus* are barely separable, the species must go by the former name, as oldest. —Edd.]

islands of the Pacific in a spot, which, so far as I know, has never been visited before by any naturalist. This is the small island Nawodo (Onawero), as the natives call it, or "Pleasant Island" of the whalers and other mariners, situated in (according to Findlay's Directory) 0° 25′ S. lat., 167° 5′ E. long. Although discovered as early as 1795 by Capt. Fearn, there exists no chart of this island, the circumference of which is estimated to be about fifteen miles. We sighted Pleasant Island at daybreak on July 24th; and by the kindness of Capt. Hernsheim, partner of the well-known firm "Hernsheim & Co.," with whom I had the pleasure of travelling on board his steamer 'Pacific,' I was allowed to go on shore and, more than that, to make a trip into the interior. Pleasant Island is quite different from all the low coral islands I had previously seen, and, although throughout of coral formation, is considerably elevated, reaching an altitude of about 100 to 120 feet. The island is surrounded by a reef, which apparently is of the same formation as the island itself, and has been elevated at the same time by submarine energy. It is hilly, and shows some picturesque wall-like rocks, about 20 to 30 feet high, which, like all the rest of the island, consist of coral. There is a rich vegetation, chiefly of cocoanut-trees, intermingled with *Pandanus* and some other trees and scrub, which gives the interior a garden-like appearance, quite different from that of the low islands. In the centre of the island is a fresh-water lagoon, which I visited; but I found it to be merely a small lake, the water of which must have connexion with the ocean, as it rises and falls with the tides. During my short visit of only six hours I observed only five species of birds, namely *Calamoherpe syrinx*, *Strepsilas interpres*, *Anous stolidus*, *Gygis alba*, and *Tachypetes aquilus* (sive *minor*). I was surprised not to find *Charadrius fulvus*, *Actitis incana*, or *Ardea sacra*, species which may be, as a rule, expected to be met with in all the coral islands, and which I am convinced must occur also on this small island.

Among the small number of birds observed by me, *Calamoherpe syrinx* is, no doubt, the most interesting; for I think there can be scarcely any other locality where this little

songster is so plentiful. As I wrote you in a former letter, this species adapts itself to very different localities. In Ponapé it is a true Reed-warbler, confined to the reed-swamps, and building its nest in the reeds, in the same manner as our *Calamoherpe turdoides*. In Ruk and the Mortlocks *Calamoherpe syrinx* leads an arboreal life, and nests in trees, as also is the case on Nawodo, where swampy grounds and reeds are absent. As I have remarked already, this species is very common in Pleasant Island—as common as the House-Sparrow in England. It lives singly or in pairs, and keeps, like its congeners, hidden in the thick foliage of trees or the bush. But you may hear its song everywhere, both from the highest cocoanut-palms or other trees and in the dense foliage of the lowly *Pandanus*, or even in the lowest scrub. The singing male loves to rest on a dry twig of a high branch, and is not at all shy. When disturbed it only takes a short flight to one of the next trees or bushes, where it recommences immediately its interrupted song. Although *Calamoherpe syrinx* is reputed one of the best singing birds of the Pacific, I must confess that I found its song far inferior to what I had expected. It is intermediate between that of the true Reed-Warbler and a *Phylloscopus* (e. g. *P. trochilus*), but lacks the continuous melodious notes which make the song of our *C. turdoides* so agreeable. On the other hand, *C. syrinx* has not those harsh-sounding notes which are so significant in our *C. turdoides*, chiefly at the commencement of its song. *C. syrinx* breeds on the island; and I got fresh eggs, although the greater part of the specimens obtained by me were in moult. This species feeds on insects, chiefly Libellulidæ, which are the commonest among the few insects of the island.

Gygis alba also belongs to the breeding-birds of Pleasant Island; for I got a freshly hatched young bird, in the singular, quite Tern-like, down plumage.

Anous stolidus and *Strepsilas interpres* I saw only as pets near the huts of the natives. The latter bird seems to be highly esteemed by the natives, who keep them singly or in pairs in nicely made cup-shaped cages. The reason for keeping these birds is very peculiar, and was quite new to

me, as it will be perhaps to most of my ornithological friends. Here the Turnstone is used solely for fighting-purposes, just as fighting-cocks used to be in England! Still more astonishing is what I observed of the Frigate-bird, or rather in regard to its capture; for "bird-lassooing," I suppose, has never been yet recorded, and will be a novel sport to nearly all readers of 'The Ibis.' This sport seems to be a privileged amusement of the chiefs of Pleasant Island, and is followed only during the month of July, apparently in accordance with a certain migration of this species during that season. My attention was called first to a large bower or shelter, about 7 to 8 feet high and 20 feet long, made of sticks and some green trees, which were partially cut down, but were still growing and covered with leaves. On this bower were placed eight living *Tachypetes*, apparently perfectly tame; for I could not make out that they were fastened by a cord. These tame specimens serve as decoys, and attract the wild individuals who pass by the reef where the bower stands. The bower is always erected near to the shore, so that it may be seen at a great distance at sea. The bird-catchers are ever on the watch to be ready in case a straggler should make its appearance. These men are "tabooed" during the time of their duties in this sport, and may do no other work. They get their food separately cooked, and may not have intercourse with women. The sole apparatus for catching the Frigate-bird is, as I said before, a sort of lasso, consisting of a fine cord of cocoanut-fibre, 70 to 80 feet long, on which a "bola," of long conical form, about 3 inches long, made of shell (*Tridacna gigas*) or iron, is fastened. As soon as a wild bird approaches the stand where the decoys sit, the bird-catcher watches it with the greatest care, endeavouring to hide himself under the leaves of the trees. In wide revolving lines of flight the *Tachypetes* (the best and most elegant flyer of the Pacific) comes nearer and nearer, hovering by and by above and near to its tame comrades, but without resting in their company. Apparently it does not care for the dark-skinned native, although it may see him. Anyhow the bird-catcher is more careful than the bird, and taking a shot when

the latter skims along just above his head, like a flash of lightning throws his bola above the bird, which, entangled in the cord, falls and becomes his prey. The captured bird is fastened by a cord around the wings and placed on the platform of the bower among the other victims of this sport. As far as I could ascertain, the natives make no peculiar use of the birds, and the only prize of the sport seems to be the possession of the greatest number of these birds, which is considered as a privilege and attribute of chieftainship. One of the chiefs was bent on getting sixty Frigate-birds alive, and required only one dozen to make up the number, thirty having been captured for him by one bird-catcher and eighteen by another.

If I find time I will give you a further account of this peculiar mode of catching birds; but I must finish now, as my attention is absorbed by the view of the glorious mountainous coast of the Solomon Islands, along which we are now steaming, and which is, of course, a country of great promise to a naturalist.

XIX.—*Notes on a Collection of Birds from the Marquesas Islands.* By H. B. Tristram, F.R.S.

I have lately received a jar of birds from the Marquesas Islands in spirits; and so little is known of the avifauna of that the most distant group of the Pacific, that a few remarks on this collection may have some interest for my brother ornithologists.

The collection contains twenty-nine specimens of fourteen species, most of them well known as natives of these islands. Of the fourteen only four are land-birds; and the rare and curious Pigeons, *Ptilopus mercieri*, *Serresius galeatus*, and *Calœnas rubescens*, are, I regret to say, not represented.

1. Coriphilus smaragdinus, Hombr. & Jacq.

There are four specimens of this gorgeous little Parrot. Unfortunately, as comparison with a few skins in my collection shows, their sojourn for nine months in a jar of spirits

has dimmed the lustre of their plumage. Three of the specimens exactly agree with my own and with those I have examined at Leiden and in the British Museum, in having the underparts spotted and mottled, as well as the broad patch on the inner webs of the tail-feathers. But these spots and patches are (I presume, from the effects of the spirit) ochreous yellow instead of white. In all these specimens the light colour varies much in extent. In one the throat, cheeks, and ear-coverts are buff, and the whole breast and abdomen are spotted with buff, excepting a broad belt of dark blue across the breast. In the second specimen this belt is much broader; in the third the throat, cheeks, and ear-coverts only are spotted, and the under surface is dark blue, excepting the abdomen, which is spotted. The fourth specimen, evidently a very adult bird, has the whole under surface dark blue, without a vestige of white or buff, excepting on the rectrices, the inner webs of which, except the outer pair, are light-coloured. The flanks are of a lighter and brighter blue, like the wings. I cannot find that any specimen has been yet recorded in this evidently adult state of plumage.

I have assumed that the buff would, in a natural state, be white; yet it is curious that various other white or partially white-coloured birds in the same jar, as *Pomarea* and *Gygis*, have not been in the slightest degree affected by the spirit. It may be that these aberrant birds belong to a distinct species from some particular island. Unfortunately, my correspondent has sailed for Europe, and I have not been able to ascertain on which island of the group the collection was made.

2. Tatare longirostris (Gm.).

The two adult specimens of this bird are identical with specimens in my collection from Tahiti and Huaheine. There are also two very interesting specimens, nestlings in the first plumage, in different stages, but both having lost all traces of the down. They show a remarkable contrast to the early plumage of the Sylviidæ, being in coloration and markings precisely similar to the adult; in fact, at first sight, they might pass for a pygmy species.

3. Pomarea nigra (Sparrm.).

Of this there are three specimens, all in distinct states of plumage:—one male, uniform jet-black; two female, black, with snow-white tail, and remiges and secondaries pure white, with brownish black tips to the former; and one younger bird, with the upper surface and tail umber-brown, the throat and breast lighter, and the abdomen and inner webs of the secondaries whitish buff.

4. Ptilopus dupetithouarsi (Neboux).

Of this, the only Pigeon in the collection, there are two specimens, neither of them in very good plumage.

5. Charadrius fulvus, Gm.

Two specimens in winter plumage.

6. Ardea sacra, Gm.

Two specimens, both in pure black plumage.

7. Numenius femoralis, Peale.

There is one fine specimen of this bird, showing very conspicuously the long fine hairs terminating the tibial feathers, some of them more than an inch long, from which Peale first named it. I cannot help thinking that the *Numenius tahitiensis* of Gmelin is identical. No type specimen can be traced; indeed I cannot find that a specimen claiming to be *N. tahitiensis* exists in any museum. The peculiar termination of the tibial plumes probably escaped the notice of the early writers; but their description of the plumage, and especially the chestnut rump, well agrees with Peale's bird. It has not hitherto been reported from the Marquesas; and we should hardly expect to find a distinct species of a bird of such powers of flight in an island intervening between the Marquesas and the Low Islands, whence the type of *N. femoralis* was originally described.

8. Totanus incanus (Gm.).

Two specimens, one in winter plumage, the other rapidly assuming the breeding-dress.

9. Gygis candida, Forst.

One specimen.

10. Gygis microrhyncha, Saunders.

There is also one specimen of this scarce and peculiar species. On taking the two birds out of the spirit, I was struck by the contrast in the shape of the bill, and especially by that of *G. candida* being very much more expanded at the base. This does not appear in the dried specimens. The bill of *G. microrhyncha*, on the contrary, is compressed at the base, and terminates sharply and abruptly. The quills of the larger species are very distinctly black, while those of the other are pure white before being dried.

11. Sterna fuliginosa, Gm.

Two specimens, nestlings, in different stages of plumage, the first not having lost the down, with the curious black and white barrings all across the plumage, both above and below. The second is more advanced, with the same chequering or barring still retained on the whole plumage.

12. Anous stolidus, L.

One specimen, not fully adult, and with traces of the nestling-plumage still remaining.

13. Anous cæruleus, Bennett.

Two adult specimens of this rare and beautiful miniature Tern, of a uniform sooty black, rather lighter on the head. It is a mere pygmy, even when compared with our least Tern, and one third less in size than the *Anous cinereus*, Gould, with which it has sometimes been confounded.

14. Procellaria macgillivrayi, G. R. Gray.

A small Petrel, exactly corresponding in all respects to *P. bulweri*, excepting that the bill is thicker at the base, and that the colour is more uniformly black, without any tendency to sooty brown on the wings. One adult specimen.

N.B. I have been kindly assisted by Mr. Howard Saunders in the determination of the Terns.

XX.—*On the proper Generic Designation of the European Woodpeckers.*

By Henry T. Wharton, M.A., F.Z.S.

At the present day the original Linnæan genus *Picus* consists of at least two hundred and eighty species; and for these very nearly one hundred and fifty distinct generic names have been proposed. Waiving the question of how far the genus requires generic subdivision at all, it is obvious from this fact alone that in a redistribution of the group a considerable sifting of the results of what Dr. Hartlaub has so happily called the "furor genericus" is of peremptory necessity.

Linnæus himself was acquainted with but twenty-one species referable to his genus *Picus*; of these, *P. passerinus* has never been satisfactorily identified (*cf.* Sundevall, Consp. Av. Picin. p. 34), *P. aurantius* is admitted to be the female of *P. bengalensis*, and *P. semirostris* is named from a mutilated specimen of *P. viridis*; so that only eighteen well-defined species were really known to him.

The object of the present paper is to show the species which, according to the Stricklandian code, should be legally regarded as the type of the Linnæan genus *Picus*; and in this consideration it is only necessary to refer to the eight well-marked European species.

Now, in an inquiry of this kind no use whatever can be made of the popular "argument from authority." The family Picidæ has been fortunate in obtaining three admirable monographers. But of these, Malherbe (Monogr. des Picidées, 1859–62) restricted the genus *Picus* to the Spotted Woodpeckers; Cabanis and Heine (Mus. Hein. iv. 2, p. 30, note, 1863) would apparently confine it to the Green Woodpeckers; while Sundevall (*l. c.* 1866) used the name for all the members of the family which were distinguished "rectricibus firmioribus." And among those who have not particularly in a single work confined their attention to this family alone, opinion has been equally diversified. For instance, Swainson (Classif. Birds, ii. p. 306, 1841) took the type of the genus to be *P. robustus*, a species undescribed by Linnæus; George R. Gray regarded at one time (List of the

Genera of Birds, ed. 1, p. 54, 1840; Hand-list, ii. p. 181, 1870) *P. major* as the typical species, at another (Cat. of Genera & Subg. of Birds contained in the Brit. Mus. p. 91, 1855) *P. martius*; and Koch, one of the earliest to subdivide the group (*l. c. infra*, 1816), agreeing with Cabanis and Heine, held *P. viridis* most worthy of the honour.

Obviously, then, a strict application of the "Rules for Zoological Nomenclature," which long ago received the imprimatur of the British Association, is imperatively necessary; and the result fortunately is of no doubtful import.

Now rule 3, "A generic name, when once established, should never be cancelled in any subsequent subdivision of the group, but retained in a restricted sense for one of the constituent portions," demands that some species or group of species should still bear the distinctive generic name *Picus*. This every one would nowadays grant.

Rule 4, "The generic name should always be retained for that portion of the original genus which was considered typical by the author," is, however, what the whole question strictly turns upon. Certainly it is not in many cases evident that Linnæus had any ever-present idea of what we now mean by a type at all—

> "A primrose by a river's brim
> A yellow primrose was to him,
> And it was nothing more."

But here we have a case which may be stated syllogistically, thus:—

Picus, meaning any Woodpecker, was held sacred to Mars;

Linnæus called the Black Woodpecker *Picus martius*:

∴ he meant *P. martius* to be taken as the typical *Picus*.

And the case is by itself so preeminently typical that it may well be specially discussed.

The mythological history of Picus is a very curious one. Among the Romans—and he appears to have no Greek counterpart—he was held as a divinity of no mean degree; for Saturn was his father, and Faunus was his son. As a famous soothsayer, he made use of a Woodpecker in his auguries; indeed the fable ran that he was himself turned into a Wood-

pecker by the goddess Circe (a hawk?) when she found that her love for him was not requited, but was possessed by Pomona, the divinity of the fruit of trees. But, however that was, the voice of the "Rainbird" (*P. viridis*) is to this day in much repute as a prophecy of rain in many rural parts of England, without any reference to the pun that might catch a Frenchman's ear in the bird's reiterated cry sounding like "plui, plui," as Salerne writes it. The same superstition lingers, according to Malherbe, who quotes the authority of J. G. Gmelin and Carl Bolle respectively, in some parts of Siberia and in the Canary Islands; while the North-American aborigines hold the heads of *P. principalis* and *P. pileatus* as precious amulets. And a strange colour is given to the legend by the etymologists who trace in "picus" the root of "specio"=I look out—the very word, be it noticed, of which, with "avis," the word "auspex" is compounded; they even adduce the German equivalent "Specht," the Flemish "Spicht," and our provincial "Woodspite," as proof of a lost initial S.

There are difficulties, it is true, in the way of identifying the classical Picus with our *P. martius*. The evidence certainly seems all against it. That Linnæus, after mature consideration, dedicated the soldier-like Black Woodpecker to Mars is the one paramount fact.

Ovid gives the story of Picus at some length (Metam. xiv. 308–440); but he adduces no particular indication of the aspect of the bird; his only lines referring to colour (393–396)—

> "Purpureum chlamydis pennæ traxere colorem:
> Fibula quod fuerat, vestemque momorderat aurum,
> Pluma fit; et fulvo cervix præcingitur auro;
> Nec quidquam antiqui Pico, nisi nomina, restat"—

are too ambiguous; the epithet "purple" is explained by some commentators as here meaning "black;" but, as in other places it is applied to such diverse objects as snow, roses, waves, eyes, spring, &c., we must conclude, with Lemaire—"plura sunt picorum genera; sed nullum eos colores refert quos hic commemorat."

Virgil (Æn. vii. 189–191) definitely says—

> "Picus ..... quem .....
> Fecit avem Circe, sparsitque coloribus alas."

This may have meant any green or spotted Woodpecker*—and Count Salvadori says that *P. viridis* is the most common species at this day in the neighbourhood of Rome—but clearly cannot refer to *P. martius*.

Moreover a bird nearly as large as a Crow can hardly have been intended by Pliny (Hist. Nat. x. 18, 20) when he said, "sunt et parvæ aves uncorum unguium, ut pici, Martio cognomine insignes et in auspicatu magni." It is true that the passage is celebrated as "insigniter vitiatus;" but all who have endeavoured to amend it seem to be agreed in retaining the opposition between "parvæ" and "magni."

And, in the face of Linnæus's final practice, it is noteworthy that no authority referred to by him or by those to whom he refers ever uses *Picus martius* as designating the Black Woodpecker. To him, before the issue of his tenth edition of the 'Systema Naturæ' (p. 112, Holmiæ, 1758), the bird was *P. niger* alone; nor in his own copy, in the possession of the Linnean Society, is there any note on the reason of the change.

Yet, to take some of his references to authors (Syst. Nat. ed. 12, p. 173, 1766) seriatim, Gesner (Hist. Anim. lib. iii. p. 675, 1555) writes "de picis martiis et picorum genere in universum," saying (p. 680) "sunt pici Martii tria genera" in the most general way; Willughby (Ornith. p. 92, f f. 1676) has no *P. martius* at all; Ray (Syn. Meth. Av. p. 42, 1713) treats vaguely of "pici martii iisque affines," while his translator and amplifier Salerne (Hist. Nat. des Ois. p. 104, 1767) says of *P. viridis* that one of the names by which it was then known in France, "Pic-Mart, Pimard, ou Picumart, vient de *Picus martius*," besides that "chez les Romains il [*i. e. P. viridis*] étoit consacré au Dieu Mars, et c'est de là que lui est venu le nom de *Picus martius*;" Brisson's "*Picus mar-*

* [We believe the "*Picus*" here referred to by Virgil was the Roller (*Coracias garrulus*), called "*Pica marina*" to this day in Italy.—Edd.]

tius" was our *P. viridis* (Ornith. iv. p. 22, 1760), as was, by his references, Gesner's (Icon. Av. p. 36, 1555), Rzaczynski's (Auctuar. hist. nat. reg. Polon. p. 413, "1735"), Borlase's (Nat. Hist. of Cornwall, p. 246, 1758), and Bélon's (Portr. d'oys. p. 74, 1557).

Nevertheless, and notwithstanding all this, there seems to have been no doubt in Linnæus's mind that the Black Woodpecker was the species which ought in future to be by his followers consecrated to Mars; and as such, following the determination of Prof. Newton (Ibis, 1876, p. 99), we must ever regard it as the type of the genus *Picus*.

As for the subsequent divisions of this eminently natural genus, the first to break it up was Lacépède, who (Mém. de l'Inst. vol. iii. p. 509, 1801, in a paper "lu le 6 fructidor an 6" [=Aug. 23, 1798]) proposed *Picoides* for the three-toed species. Then Koch (Syst. Baier. Zool. i. 72, 1816) distinguished the Spotted Woodpeckers (including *P. tridactylus*) as *Dendrocopi*. And Boie (Oken's Isis, col. 542, 1831) established *Gecinus* for the Green Woodpeckers; his previously-founded genus *Dryocopus* (Isis, col. 977, 1826) for the Black Woodpeckers having been, by the present showing, an unnecessary addition to synonymy.

For it seems clear, beyond all cavil, that Linnæus took *P. martius* to be the bird most typically a *Picus*, the very fact of his having no precedent seeming to add weight to his decision; for he cannot have been ignorant of the usage of his predecessors and contemporaries. And if this be so, it remains that the Woodpeckers (which alone I now review) must hereafter be named as follows, viz. :—

Picus martius.
Dendrocopus major, leuconotus, medius, minor.
Picoides tridactylus.
Gecinus viridis, canus.

Nor can the use of any other type or generic name, it seems to me, be any thing but a wilful violation of accepted laws. If other cases were similarly clear, the problems of nomenclature would be simple indeed.

And since by this line of reasoning we are able to determine conclusively, as it seems to me, the type species of the genus *Picus*, it is quite unnecessary to employ the method by which Mr. Sharpe divides the genus *Strix* (Ibis, 1875, p. 324 *f*), useful though that method is when the type cannot be ascertained at all. If we were to reason in the present instance as Mr. Sharpe might, we should conclude that *Picus viridis* was the typical species, and that *Dendrocopus martius* was the proper name for the Black Woodpecker—a view from which I must entirely dissent.

XXI.—*Notes on some Hawks of the Subgenera* Cooperastur *and* Urospizias. By John Henry Gurney.

(Plate VIII.)

Accipiter, or, to speak more exactly, *Cooperastur poliogaster* (Temm.), has been for many years only known by the type specimen at Leyden. It has now ceased to be unique, as a second specimen, said to be from the Amazons valley, has been acquired by Messrs. Salvin and Godman, who have very kindly permitted me to examine it. It is an adult bird; and the following are its measurements compared with those of the type specimen in the Leyden Museum, the latter being taken from Mr. Sharpe's Catalogue, vol. i. p. 121.

	Culmen without cere. in.	Wing. in.	Tail. in.	Tarsus. in.	Middle toe *s. u.* in.
In coll. of Salvin & Godman	·70	9·10	6·80	1·90	1·45
In Leyden Museum	·85	9·80	7·80	2·15	1·40

An inspection of this specimen convinces me that Bonaparte was quite right in assigning this species to his subgenus *Cooperastur**, it being a typical species of that section of the subgenus in which the underparts are immaculate, and which includes *C. pileatus* and *C. bicolor*, and is designated

* *Vide* Rev. et Mag. de Zool. 1854, p. 538.

1/2

J.G.Keulemans lith.

Hanhart imp.

UROSPIZIAS ALBOGULARIS.

as "Section A" in the summary of this subgenus given in the 'Exotic Ornithology,' p. 170.

Messrs. Salvin and Godman's specimen of *C. poliogaster* agrees with Mr. Sharpe's description of the type in the Leyden Museum, with the following exceptions:—The wing-coverts are not "darker" than the back, though they are somewhat browner, as are also the primaries and secondaries; but the tertials are rather more slaty, like the scapulars; there is no tint of rufous on, or adjacent to, the shafts of the wing- and tail-feathers; the first primary has one white bar on the inner web, and the other primaries have two such bars; the flanks, abdomen, and under tail-coverts are white, like the throat; but the upper breast and the thighs are slightly tinged with grey.

Next to *C. poliogaster*, the scarcest species of the subgenus is *C. pectoralis*, a specimen of which has also been recently added to the collection of Messrs. Salvin and Godman; this example is a fine adult female from Sarayacu, in Ecuador; the following are its principal measurements:—

Wing.	Tail.	Tarsus.	Middle claw s. u.
in.	in.	in.	in.
11·55	8·50	2·30	1·80

The Norwich Museum has lately been indebted to the good offices of the Rev. Canon Tristram for the opportunity of acquiring an immature specimen of *Urospizias albigularis* (G. R. Gray), which was obtained at Makira harbour, San Christoval island, in the Solomon group, by Lieut. Richards, R.N.

This specimen, which was killed on 27th August 1878, is in immature plumage, with the exception of a few feathers of the adult dress, which are apparent both on the upper and under surface, and which suffice to identify it satisfactorily with *U. albigularis*, the type specimen of which was also obtained in the island of San Christoval.

The immature plumage of this species has not, I believe, been hitherto described; and the following particulars and accompanying figure (Plate VIII.) of the specimen in the

Norwich Museum may therefore prove acceptable to the readers of 'The Ibis :'—

The forehead is black next the cere, the adult dress having apparently been there assumed; on the remaining upper part of the head the feathers are white at the base, then bright rufous for a short space, and beyond that are largely tipped with dark rufous brown, the white bases of the feathers being most conspicuous on the hinder head; the nape is blackish brown, slightly tinged with rufous, and probably shows the commencement of adult coloration on that part; the sides of the head are coloured like the nape, but are hardly so dark; over the eye is a yellowish-white eyebrow, with dark hair-like shaft-marks on each feather; the entire mantle, with the exception of three adult black feathers, is a rich rufous, broadly crossed with blackish-brown transverse bars; all the wing-feathers are similarly coloured and cross-barred; but the tertials and the inner webs of the secondaries and primaries have a ground-colour which, except towards the tips, is a paler rufous than the rest of the upper surface; the ground-colour of the tail is rufous, considerably suffused with slaty grey on the basal moiety of the rectrices, this tint being strongest on both webs of the central pair, and limited on the other rectrices to the external webs only, the tail is crossed by dark blackish-brown bars, of which there are eight on the central, and sixteen on the external rectrices; the ground-colour of the entire under surface, from the chin downwards, is a paler rufous than the upper parts; the centre of the throat and the chin exhibit pure white feathers intermixed with those that are fulvous; and the sides of the throat are fulvous white, mingled with blackish brown; these parts show evident marks of the commenced assumption of adult plumage, as does also a single pure white feather on the breast; with the exception of this feather the breast and flanks are a clear rufous, with broad sagittate marks of dark rufous brown on the centres of the feathers; the under wing-coverts are a bright rufous brown, with a few dark shaft-marks and one white adult feather; the axillaries are pale rufous, crossed with bars of dark rufous brown; the tibiæ are

pale rufous, with faint sagittate marks of darker rufous; the under tail-coverts are pale rufous. According to a note attached to the skin by the collector, the irides were bright yellow, the feet were orange, and the bird was a male.

The wing-measurement of this specimen is 8·35 inches, the tarsus 2·1, and the middle toe *s. u.* 1·4. According to Mr. Sharpe's Catalogue of Accipitres, p. 120, the wing of the type specimen in the British Museum measures 10 inches, and the tarsus 2·65, indicating that the example in the British Museum is a female, and that the still larger *Urospizias meyerianus* (Sharpe) is not, as supposed by Count Salvadori*, the female of *U. albigularis*, but a distinct and larger species.

The Norwich Museum is also indebted to Canon Tristram for the acquisition of an immature female of *Urospizias approximans* from the island of Lifu, in the Loyalty group, which fully bears out the observation of the Messrs. Layard in 'The Ibis' for 1880, p. 222, as to the "singularly rufous" coloration of some of the young specimens obtained by them from that locality, of which this individual is one. Like those gentlemen, I at first doubted whether this specimen was really referable to *U. approximans*†, never having seen a young example of that species so rufescent, especially as regards the broad rufous edgings to the feathers of the mantle, the dimensions being also rather less than is usual in females of *U. approximans*; but the Norwich Museum having subsequently obtained an immature South-Australian male of that species in a very similar stage of plumage, and almost as rufous as the Lifu specimen, I have now no doubt that the latter was correctly referred by the Messrs. Layard to *U. approximans*; and I think it likely that these unworn rufous margins to the feathers of the mantle may indicate that the specimens on which they are found have but recently left the nest.

The adult birds of *U. approximans*, and also of *U. torquatus*, are subject to considerable variation, both as regards the tint and the intensity of the transverse rufous bars on

* *Vide* Orn. Pap. e Molucc. vol. i. p. 45.

† *Conf.* Canon Tristram's remarks *suprà*, p. 135

the underparts. In *U. approximans* the commonest cast of colouring on these parts is that represented in the figures of this species in Gould's 'Birds of Australia'*; but specimens with a more rufous colouring of these bars are not infrequent. A male of this description from the Swan River, which closely agrees with Mr. Gould's plate of his "*Astur cruentus*," is preserved in the Norwich Museum; but another male and a female from the same locality, which are also preserved there, are of the ordinary type of colouring most frequent in adults of *U. approximans*. These three specimens agree in size with the usual dimensions of *U. approximans*.

I may add that Mr. E. P. Ramsay's remarks on West-Australian examples of *U. approximans*, in the 'Proceedings of the Linnean Society of New South Wales,' vol. iii. p. 174, may be consulted with advantage, and are the result of a wider series of observations than I have had the opportunity of making.

The specimen in the Cambridge Museum from which Mr. Sharpe drew up the description of "*Astur cruentus*" in his Catalogue of Accipitres, p. 127, seems to me to be an adult female of *U. approximans*; and I believe that Mr. Sharpe is also now disposed to refer it to that species†; but it has the rufous bars on the underparts paler than is the case in any other example that I remember to have examined. The locality where it was obtained is, if I mistake not, unknown.

New-Caledonian specimens of *U. approximans* do not appear to me to differ from Australian, the colouring of the adult bird resembling, so far as I have observed, the ordinary type represented in Mr. Gould's plate already referred to.

The following measurements are taken from specimens of

* Since the above reference to Mr. Gould's great Australian work was penned, that veteran ornithologist has been removed from amongst us; and I cannot omit this opportunity of paying a tribute of respect to the memory of so eminent a naturalist, and one whose friendship I was privileged to enjoy for more than forty years.

† *Conf.* Sharpe on "Ornithology of S.E. New Guinea," in Journal of Linnean Society, Zoology, vol. xiii. p. 489.

U. approximans in the Norwich Museum; the sex of those marked with an asterisk was determined by Mr. Layard; in the other cases the sex has been inferred from the dimensions.

	Wing.	Tarsus.	Middle toe *s. u.*
Males.	inches.	inches.	inches.
New Caledonia	9·80	2·60	1·40
*Ditto	10·85	2·90	1·60
Queensland	10·50	2·80	1·50
Ditto, Port Curtis	10·40	2·75	1·40
Melbourne	10·70	2·90	1·70
Adelaide	10·50	2·90	1·55
Ditto	10·55	2·90	1·50
Swan River	10·40	2·75	1·40
Ditto	10·30	2·70	1·50
Females.			
*Lifu, Loyalty Islands	10·80	2·60	1·70
*New Caledonia	10·80	2·70	1·60
*Ditto	11	2·70	1·60
*Ditto	11·60	2·80	1·70
Ditto	11·20	2·60	1·50
Swan River	11·70	3·20	1·90
Tasmania	11·55	3·20	1·90

It may be useful to compare with the foregoing measurements the following, taken from specimens of the nearly allied species *Urospizias torquatus*, all which have been measured by myself, with the exception of those in the British Museum, for the particulars of which I have been indebted to the kindness of Mr. Seebohm. The sex has been inferred from the dimensions in those cases in which no authority is given.

	Wing.	Tarsus.	Middle toe *s. u.*
Males.	inches.	inches.	inches.
East Timor (British Museum, ♂ according to Mr. Wallace)	8·70	2·50	1·30
Yule Island (Norwich Museum, ♂ according to Sig. d'Albertis)	9·30	2·30	1·30
Females.			
East Timor (British Museum, ♀ according to Mr. Wallace)	9·75	2·60	1·65
Ditto, ditto	9·80	2·70	1·60

Females.	Wing. inches.	Tarsus. inches.	Middle toe *s. u.* inches.
East Timor (British Museum, ♀ according to Mr. Wallace)	10	2·60	1·54
Ditto, ditto	9·50	2·80	1·65
Ditto, ditto	9·50	2·65	1·50
Ditto, ditto	10·60	2·50	1·65
East Timor (Norwich Museum, ♀ according to Mr. Wallace)	9·50	2·30	1·40
East Timor (Norwich Museum)	10·20	2·60	1·50
Yule Island (Norwich Museum, ♀ according to Sig. d'Albertis)	10·30	2·50	1·50
Port Moresby, New Guinea (Norwich Museum)	10·40	2·60	1·60
New Ireland (♀ according to the Rev. G. Brown)	9·50	2·40	1·50
Aneiteum, New Hebrides (in collection of Canon Tristram)	9·80	2·40	1·40

The specimen from Aneiteum, above referred to, was kindly lent to me by Canon Tristram, who has mentioned it already in 'The Ibis' (*suprà*, p. 136). Allowing for individual variations of tint, to which, as I have previously observed, this species is liable, I do not think that this example, the only one I have seen from the New Hebrides, is separable from those which I have examined from New Guinea.

The only specimen I have seen from the New-Britain group is that from New Ireland recorded in the P. Z. S. for 1879, p. 447, by Dr. Sclater, who recently was so good as to lend it to me. On comparing it with adult specimens from New Guinea and with Canon Tristram's Aneiteum bird, which is also adult, I observed the following differences, due, I have no doubt, to the New-Ireland specimen's not having fully, although very nearly, attained its adult livery:—It has the transverse bars on the breast browner and less rufous, and they are also not quite so well defined, showing slight central prolongations downwards along the shafts of the feathers; the thighs are rufous, with the bars of a darker rufous, but somewhat irregular and ill-defined; the interspaces between the cross bars on the under wing-coverts are much tinged with

dark rufous; and the interspaces on the axillaries are similarly but less strongly tinged; the mantle is dark brown, with dull rufous edgings to the upper tail-coverts; the rufous nuchal collar is imperfect, being limited to the sides of the nape.

This New-Ireland specimen resembles that from Aneiteum, and all those that I have examined from New Guinea, in having the white under tail-coverts transversely barred with rufous; but in two adult females from East Timor that are preserved in the Norwich Museum, these coverts are an immaculate white, with no cross bars; and Mr. Seebohm, who has been so good as to examine for me the specimens in the British Museum, all of which are also from East Timor, informs me that such is likewise the case in six out of the seven specimens contained in that collection, but that in the seventh, which is immature, the under tail-coverts are barred.

On the other hand, Count T. Salvadori, referring to this species in his 'Prodromus' (p. 7, note), wrote thus, "Specimina in Nova Guinea meridionali collecta cum speciminibus Timoriensibus .... omnino conveniunt," a statement which he subsequently confirmed in 'The Ibis' for 1879, p. 319.

Professor Schlegel, in his 'Museum des Pays-Bas,' *Astures*, p. 39, speaks of this species as having, when adult, "couvertures inférieures de la queue blanches; dessous de l'oiseau depuis la gorge jusqu'à l'anus d'un blanchâtre traversé par de nombreuses bandes étroites d'un roux pâle," and enumerates the following adult specimens as then existing in the Leyden Museum—viz. one from Sumbawa, two from Timor, and two from Samao, near to Timor.

Of these specimens the Professor figures on pl. 17 of his 'Valk-vogels' two adults, viz. No. 1, a male from Samao, and No. 3, a male from Sumbawa*, in both of which the under tail-coverts are white, and apparently quite free from bars; but figure No. 2, on the same plate, represents a female

* Mr. Sharpe, in his Catalogue of Accipitres, p. 104, refers this specimen to *U. sylvestris* (Wallace), which, from the locality, seems to be a very probable identification.

from Timor, in which these coverts are given as white, transversely barred with rufous; this female appears to be in full adult dress, with the exception of the tail, on which a brown tint appears in the coloured figure, and may perhaps indicate the remains of immaturity.

Temminck's figure of an adult of this species in the Pl. Col. pl. 43, represents the under tail-coverts as white and unbarred: the locality whence the specimen drawn was obtained is not mentioned; but it would seem to have been an example preserved in the Paris Museum, according to the rule quoted in 'The Ibis' for 1879, p. 339 (footnote). Count Salvadori states that Temminck's type specimen was from Timor, and is preserved at Leyden (*vide* Ibis, 1879, p. 319, and 'Ornitologia della Papuasia e delle Molucche,' vol. i. p. 62).

Further investigation is desirable as to whether there is a constant difference, as regards adult birds, in the coloration of the under tail-coverts, between the northern and southern races of *Urospizias torquatus*; and if such a difference is established, the latter should be distinguished as *U. sharpei* (Ramsay*).

I may here observe that Count Salvadori, both in his 'Prodromus' and in his larger work, appears to omit all mention of the peculiar Flores Hawk, *Urospizias sylvestris* (Wallace), either as a distinct species or as a synonym of *U. torquatus*; but he speaks of *U. torquatus* as having been brought from Flores by Mr. Wallace. I have never seen a bird which appeared to me to be referable to the true *U. torquatus* from that island; and a pair of *U. sylvestris* from thence which are preserved in the Norwich Museum, seem to me to be readily distinguishable from *U. torquatus* by their much smller size; they measure as under:—

	Wing.	Tarsus.	Middle toe *s. u.*
	in.	in.	in.
♂	7·30	2·0	1·05
♀	8·20	2·10	1·30

* *Vide* Proc. Linn. Soc. New S. Wales, vol. iii. pp. 173, 248.

These measurements differ but very little from those given by Mr. Wallace in the P. Z. S. 1863, p. 487, and by Mr. Sharpe in his Catalogue of Accipitres, p. 105, but will be seen, by a reference to the measurements which I have given above of *U. torquatus*, to be considerably less than those of the smallest examples, of the like sex, in that species.

XXII.—*Descriptions of some new Species of South-American Birds of the families* Tyrannidæ *and* Formicariidæ. By P. L. Sclater and Osbert Salvin.

(Plate IX.)

Amongst the recent additions to our collections are examples of certain species of the families Tyrannidæ and Formicariidæ, which seem to be undescribed.

They may be characterized as follows:—

1. Todirostrum signatum.

Todirostrum maculatum, Scl. & Salv. P. Z. S. 1873, p. 278 (nec Desm.).

Supra olivaceum, capite summo et nucha plumbeis, frontis et pilei antici plumis medialiter vix nigricantibus; alis et cauda fusco-nigris distincte olivaceo limbatis; gula alba, hac et pectore nigro vittatis, abdomine toto flavo, hypochondriis olivaceo striatis; rostro nigricante, mandibulæ basi subtus albicante; pedibus plumbeis: long tota 3·5, alæ 1·9, caudæ 1·5.

Hab. Amazonia: Nauta (*Bartlett*), Pebas (*Hauxwell*), Yquitos (*Whitely*).

Obs. T. maculato, Desm., affine, sed capite summo plumbeo nec nigro facile distinguendum.

The recent acquisition of specimens of the true *T. maculatum* from Bartica Grove, British Guiana, which were sent us by Mr. H. Whitely, has enabled us to compare with them Amazonian specimens formerly referred by us to that species. We now find that the birds from Amazonia are really quite distinct, having a grey instead of a black crown, and want-

ing the hidden white median spot in the centre of the crown, which is present in the true *T. maculatum*.

2. Euscarthmus pelzelni, sp. n.

Euscarthmus margaritaceiventer, Pelz. Orn. Bras. p. 101 (exempl. ex Cuyaba); Scl. & Salv. Nomencl. Av. Neotrop.? p. 45 (nec. d'Orb. & Lafr.).

Supra brunnescenti-cinereus, dorso postico et uropygio olivaceo indutis, loris albis; alis et cauda fuscis extus olivaceo limbatis, illis sordide albo bifasciatis; subtus sericeo-albus, pectore pallido fusco lavato; campterio et subalaribus flavidis, his pallidioribus; rostro et pedibus carneis: long. tota 4·0, alæ 1·9, caudæ 1·5.

Hab. Cuyaba, Brazil (*Natterer*, no. 545).

Mus. P. L. S.

Obs. E. margaritaceiventri affinis, sed capite et dorso antico brunneis nec cinereis, rostro quoque omnino carneo distinguendus.

The differences between this bird and *E. margaritaceiventer* of d'Orbigny and Lafresnaye have already been alluded to (Salvin, Ibis, 1880, p. 357). There can be little doubt that the grey-headed bird is the true *E. margaritaceiventer* obtained by d'Orbigny at Corrientes and elsewhere, and identified by him with the *Tachuris pardo vientre de perla* of Azara, of which we have before us a specimen from Tucuman obtained by Durnford and others from Maranura (*Whitely*) and Bahia (*Wucherer*). These last were described by us as *E. wuchereri* (Nomencl. Av. Neotrop. p. 158); for we then believed the Cuyaba bird to be *E. margaritaceiventer*, as it had been determined by Von Pelzeln.

Under this name Von Pelzeln mentions eight specimens of the present species as having been obtained by Natterer in various localities in Southern Brazil.

Tyranneutes, gen. nov.

Tyranneutes gen. nov. ex fam. Tyrannidarum, generi *Tyrannulo* affine, sed rostro crasso, ad basin dilatato et cauda brevi rotundata diversum. Vibrissæ rictales nullæ. Pedes parvi debiles. Alæ longiusculæ, remige tertio longissimo, secundo et quarto vix brevioribus.

3. Tyranneutes brachyurus, sp. nov.

Olivaceus, alis caudaque fuscis olivaceo limbatis; crista verticis brevi, celata, flava; subtus dilutior, medialiter flavicans, subalaribus ventre et crisso pallide limonaceis; rostri maxilla cornea, mandibula ad basin albicante; pedibus fuscis: long. tota 2·7, alæ 2·0, caudæ 0·9.

Hab. Guiana Britannica (*Whitely*).

Mus. S.-G. et P. L. S.

Mr. Whitely has sent several skins of this little Tyrant in his collections from Bartica Grove (Sept. 1879 and February 1880). It is quite unknown to us, and we are constrained to refer it to a new generic section.

The feathers on the vertical line are yellow at their bases; but this colour is scarcely apparent unless the feathers are disturbed. The short tail is slightly rounded.

4. Myiarchus apicalis, sp. nov.

Obscure olivaceus; alis nigris, secundariis extus flavido limbatis, primariorum marginibus externis (in quibusdam exemplis) anguste rufescentibus; subtus ad medium pectus pallide cinereus; abdomine et subalaribus sulphureo-flavis; caudæ nigricantis rectricis externæ pogonio externo et ceterarum apicibus latis flavido-albicantibus: long. tota 7·0, alæ 3·5, caudæ 3·3.

Hab. Columbia interior.

Mus. P. L. S. et S.-G.

Obs. Similis *M. tyrannulo*, sed rectricum apicibus late albidis distinguendus.

We are sorry to be obliged to add to the difficult series of this genus, but cannot avoid recognizing the claims of this bird to an independent status. We characterize it under the term by which it has been designated in Sclater's collection since 1870. Four examples of it are now before us (all of the peculiar Bogotá make); and we have seen others.

5. Myrmotherula gutturalis, sp. nov.

Supra pallide brunnea; alis intus nigris, extus dorso concoloribus; harum tectricibus maculis rotundis apicalibus albis ornatis; subtus cinerea, gutture nigro, albo striato; lateribus et crisso rufescenti perfusis; subalaribus et remigum marginibus internis pallide fulvis;

cauda tota brunnea dorso fere concolori; rostro plumbeo, pedibus corylinis: long. tota 3·8, alæ 1·8, caudæ rotundatæ rectr. med. 1·7. *Fem.* Supra brunnea, subtus fulva, alarum tectricibus, sicut in mare, maculatis.

Hab. Guiana Britannica (*Whitely*).

Mus. S.-G. et P. L. S.

Obs. Species inter *M. fulviventrem* et *M. gularem* ponenda, ab hac ventre dilutiore et dorso minus rufescente, necnon cauda longiore, ab illa colore corporis inferi cinereo diversa.

Of this little Ant-bird Mr. Whitely has recently transmitted from Bartica Grove, British Guiana, examples of both sexes. Its nearest ally is certainly *M. fulviventris* of Panama and Western Ecuador; but we think it not possible to regard it as otherwise than specifically distinct.

6. Terenura spodioptila, sp. n. (Plate IX. fig. 1.)

Supra fusco-cinerea, pileo summo et nucha nigris; stria superciliari, loris, capitis lateribus et corpore subtus cinereis, gula albicantiore; dorso toto læte castaneo, alis nigricantibus, albo distincte bifasciatis, tectricibus alarum minoribus nigricantibus; rostri maxilla nigra, mandibula albicante, pedibus plumbeis: long. tota 3·7, alæ 1·95, caudæ 1·5, rostri a rictu 0·65, tarsi 0·6.

Hab. Guiana Britannica (*H. Whitely*).

Obs. T. humerali affinis, sed tectricibus alarum minoribus nigris nec castaneis distinguenda.

Of this distinct species Mr. Henry Whitely has sent us a male example from Bartica Grove, British Guiana. In its general coloration it much resembles *T. humeralis* and *T. callinota*; but its greyer tint and black lesser wing-coverts at once distinguish it, the latter in *T. humeralis* being chestnut and in *T. callinota* bright yellow. The only other species of the genus with which we are acquainted is *T. maculata* of South-eastern Brazil. In this species the head and the throat are distinctly striped and the wing-coverts are white.

In our 'Nomenclator' we included another species, *Formicivora caloptera*, Sclater (P. Z. S. 1859, p. 142) in the genus *Terenura*. This on further examination proves to be not a Formicarian at all, but a Tyrant-bird closely allied to *Serphophaga pœcilocerca*, and identical with *S. leucura*, Lawrence (Ibis,

J.G.Keulemans lith. Hanhart imp.

1. TERENURA SPODIOPTILA.
2.3. " HUMERALIS.

cauda tota brunnea dorso fere concolori; rostro plumbeo, pedibus corylinis: long. tota 3·8, alæ 1·8, caudæ 1·6.

...a Tyrant-bird closely allied to *Serpophaga pœcilocerca*, and identical with *S. leucura*, Lawrence (Ibis,

J.G.Keulemans lith. Hanhart imp.

1. TERENURA SPODIOPTILA.
2.3. " HUMERALIS.

1875, p. 384, pl. ix. f. 2). This bird must therefore stand as *Serphophaga caloptera*, Mr. Lawrence's name being a synonym. The position of *S. pœcilocerca* and *S. caloptera* in the genus *Serphophaga* is open to question, as their affinity to members of the genus *Ochthœca* is obvious. The last-named bird has already been assigned to *Ochthœca* by Taczanowski (P. Z. S. 1879, p. 233).

On the Plate the type of *T. spodioptila* is figured (fig. 1), and also the type specimens of *T. humeralis* (figs. 2 male and fig. 3 female), the latter obtained by Mr. Buckley near Sarayacu, in Ecuador.

XXIII.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

[Continued from p. 124.]

The genus *Harpagus* would seem to be most naturally followed by the group of oriental Dwarf Falcons, or Falconets as they have been sometimes called, for which Vigors in 1824 proposed the generic appellation of *Hierax*; but this name having been preoccupied, has been changed by Mr. Sharpe to *Microhierax*, which will no doubt be henceforward accepted as the title of the genus.

In three species of *Microhierax*, viz. *M. eutolmus*, *M. fringillarius*, and *M. erythrogenys*, there is, in some specimens, a bidentation of the mandible, almost as complete as in the genus *Harpagus*; but in most individuals the hinder tooth is merely represented by a sinuation, more or less strongly pronounced and sometimes scarcely noticeable; and it is a curious circumstance that this variation does not in the genus *Microhierax* appear to be dependent upon age, but to be simply a matter of individual peculiarity.

I have not examined the bills of *M. melanoleucus* and of *M. sinensis*, or of more than two specimens of *M. latifrons*. In one of the last-named birds the hinder tooth was absent; and in the other it was represented by a sinuation, which, though perceptible, could not properly be called a tooth.

The White-naped Falconet (*M. eutolmus* of Jerdon, ex Hodgson) is thought by Mr. Sharpe to be probably the original of Edwards's "Little Black and Orange-coloured Hawk"*, and on that account appears in his catalogue under the title of "*Microhierax cærulescens*;" but I agree with the opinion expressed by Mr. Hume in 'Stray Feathers,' vol. v. p. 126, that the absence of the white nuchal collar in Edwards's figure and the statement in his text that the bird from which he drew it had the "upper side of the neck . . . black, shining with a blue and purplish gloss," is fatal to the identification proposed by Mr. Sharpe. The suggestion of Mr. Hume that Edwards's plate represents a phase of plumage of *M. melanoleucus* which, from the rarity of that species, is as yet unknown to modern naturalists, seems to me to be a more feasible one; but in any case I think it would be best to allow the specific name of *cærulescens* to remain in abeyance, and to use for the White-naped Falconet that of *eutolmus*, under which it was first indicated by Hodgson and subsequently described by Jerdon.

Specimens of *M. eutolmus* from countries lying to the east of the Bay of Bengal have the white frontal band and nuchal collar broader than is the case in specimens from Northern India; Mr. Hume also observes that in the former "the white spot, which forms the representative of the fifth bar on the inner web of the outer tail-feathers, approaches much nearer to the point of the feather" than in the latter; and he gives measurements, taken from several dissected specimens, from which it appears that the distance of this spot from the tip of the feather varies in Himalayan males from 0·68 to 1·1 inch, in Himalayan females from 0·55 to 0·87, in Pegu and Tenasserim males from 0·35 to 0·43, and in Pegu and Tenasserim females from 0·37 to 0·50.

The Norwich Museum possesses two adult, or nearly adult, specimens from Nepal which show a curious variation from the Himalayan examples cited by Mr. Hume: in one of them the lowest spot on the outer rectrice to the left is ·80 inch from the tip of the feather, while on the external rec-

* *Vide* Edwards's Nat. Hist. of Birds, vol. iii. p. 108.

trice to the right the lowest spot is only ·44 from the tip, this spot being a very small one and there being no corresponding spot on the left-hand rectrice; in the other Nepalese specimen the lowest spot on each of the external pair of rectrices is distant ·50 from the tip of the feather, both these spots are extremely small, and that on the right-hand rectrice is very indistinct, and in fact nearly obsolete.

The only specimen of *M. eutolmus* which I have seen from the more southern parts of India is one that I purchased many years ago for the Norwich Museum from Mr. Leadbeater, at that time a leading birdstuffer in London, who informed me, and, I believe, correctly, that it had been obtained at Bangalore. In this specimen the nuchal collar is as narrow as in examples from Nepal, the frontal band and the white markings on the sides of the head are intermediate in width between these and specimens from Burmah; but the tail resembles the latter, the lowest spot on each rectrice of the outer pair being well marked and only ·40 of an inch from the tip of the feather.

I may add that the Norwich Museum possesses an example from Camboja which does not differ from those obtained in Burmah.

The changes of plumage which occur in *M. eutolmus* have been carefully explained by Mr. Hume in 'Stray Feathers,' vol. v. p. 127; and some interesting details of the nidification of both this species and of *M. fringillarius* will be found at p. 80 of the same volume.

With regard to *M. erythrogenys*, the species peculiar to the Philippine Islands, I may remark that it was received and recorded by the late Lord Tweeddale from three of the islands of that group, Luzon, Zebu, and Mindanao*. I examined the female specimen received by Lord Tweeddale from Monte Alban in Luzon, and found the wing-measurement 4·3 inches; and I find that in two specimens (sex undetermined) from Manilla in the Norwich Museum the corresponding measurements are respectively 4·3 and 4·4 inches. The female obtained by Lord Tweeddale from Zebu was recorded as

* *Vide* P. Z. S. 1877, pp. 689, 757, 937.

having a longer wing-measure, viz. 4·87. The measurements of the male and female which Mr. Everett obtained for Lord Tweeddale at Zamboanga, in Mindanao, have unfortunately not been recorded.

With regard to the most abundant species of the genus *Microhierax*, *M. fringillarius*, I have nothing to add to the information contained in Mr. Sharpe's work; and the same remark applies to the remaining species there mentioned, the very rare *M. melanoleucus*. But I may briefly allude to two additional species of the genus which have been made known to science subsequently to the publication of Mr. Sharpe's volume. One of these, a native of China, has been described by Mr. Sharpe in 'The Ibis,' for 1875, p. 254, under the title of *M. sinensis*, and in the work of Messrs. David and Oustalet on the birds of China, where it is also figured, under that of *M. chinensis*. At p. 31 of the latter work M. David mentions three specimens obtained by himself in the province of Kiangsi, and a fourth which had been previously procured by M. Heude in the neighbourhood of Nankin. These are the only examples of this species of which I have heard.

The second new species, *M. latifrons*, was described by Mr. Sharpe in 'The Ibis,' for 1879, p. 237, where it is also figured; this species is a native of Borneo, but, judging from Bornean collections, would seem to be less abundant there than its widely spread congener *M. fringillarius*. Mr. Whitely, of Woolwich, well known as a dealer in ornithological specimens, has also received two skins of this species from the Nicobar Islands, one of which has passed into the collection of Count Turati at Milan, and the other into that of the Norwich Museum. Being desirous of ascertaining whether these two examples had been really obtained in the Nicobars, I wrote to Mr. Whitely on the subject, and was favoured by him with the following reply:—"The person I receive the birds from at the Nicobars has never been to Borneo; his business lies between the Nicobars and the Andamans; from the Andamans he has not yet sent me any thing; all I have received came from the Nicobars. In the collection were specimens of *Calœnas nicobarica*, *Macropygia rufipennis*,

Myristicivora spilorrhoa, &c. I have faith in the collector that he would not deceive me."

The genus *Microhierax* is followed in Mr. Sharpe's volume by that of *Poliohierax*, which, for many years, was only composed of one sparsely distributed African species; but in 1871 the very interesting discovery was made of a second species inhabiting Burma. The African species, *P. semitorquatus*, is nearly as small as the Falconets of the genus *Microhierax*; but the Burman *P. insignis* is considerably larger, though also quite one of the smaller Falconidæ. The character of the plumage is curiously the same in both species, the adult males being grey on the back, whilst the females have the upper part of the back rufous; but in *P. insignis* this colour is brighter than in *P. semitorquatus*, and extends to the head *.

The adult male of *P. semitorquatus* is figured in Sir A. Smith's 'Illustrations of South African Zoology,' Aves, pl. i., and the female or young male in 'The Ibis' for 1861, pl. 12; both sexes of *P. insignis* are figured in the late Mr. Rowley's 'Ornithological Miscellany,' vol. iii. pl. 103.

It may, perhaps, be desirable to point out that *P. semitorquatus*, besides occurring in North-eastern and South-eastern Africa, as mentioned in Mr. Sharpe's volume, has also been observed in Great Namaqua and Damara Land (*vide* Andersson's 'Birds of Damara Land,' p. 19).

With regard to *P. insignis*, Mr. Hume's remarks on its variations of plumage, incident to age and sex, and Captain Feilden's on its habits (both in 'Stray Feathers,' vol. iii. pp. 20, 21, 22), should be referred to; the article by the late Lord Tweeddale accompanying the plate of this species in the 'Ornithological Miscellany' should also be consulted.

Still following the order in which the genera are arranged in Mr. Sharpe's volume, we arrive next at the genus *Spiziapteryx*, containing a single very scarce South-American

* It is a remarkable coincidence that a very similar coloration of each sex, involving a corresponding difference between the male and female, exists in a widely distant Raptorial form, *Buteo erythronotus* of South America.

species, *S. circumcinctus*, of which, so far as I am aware, nothing is known beyond what is contained in Mr. Sharpe's article on this species and in that by Dr. Sclater in 'The Ibis' for 1862, p. 23, the latter also embodying Dr. Kaup's original description contained in the P. Z. S. for 1851, p. 43. Dr. Kaup there mentions that the type specimen was obtained by Mr. Bridges in Chili; and if this was really so, Mr. Sharpe is not quite accurate in stating that the species is "confined to the Argentine Republic," though it is recorded from thence by Professor Burmeister, as cited in Dr. Sclater's article above referred to; and Messrs. Salvin and Godman's specimen, of which Mr. Sharpe gives the description and measurements, was also obtained in that Republic, its locality being Mendoza; I may add that this specimen was marked by the collector as a female.

Dr. Kaup in describing the type specimen speaks of it as belonging to a subgenus characterized, *inter alia*, by the possession of "two slender indistinct teeth;" but an excellent life-size drawing of the type specimen by Mr. Wolf, which is in my possession and which was the original of the figure contained in 'The Ibis' for 1862, though it shows two somewhat indistinctly marked festoons on the side of the mandible, represents them as very obtuse, and by no means corresponding with Dr. Kaup's epithet of "slender." I may add that the specimen in the collection of Messrs. Salvin and Godman possesses but one such festoon on the tomium, and that by no means strongly marked, and hardly meriting the designation of a tooth.

As regards the New-Zealand genus *Harpa* and the Australian *Hieracidea*, to both which it may be most convenient here to refer, I can add nothing worthy of record to the articles contained in Mr. Sharpe's volume and to his remarks on the birds of the former genus contained in 'The Ibis' for 1873, p. 327. It is much to be regretted that the New-Zealand Hawks which reach this country very seldom have the sex noted as ascertained by dissection. Such information would be very serviceable in distinguishing between the two species of the genus *Harpa*, as the males of the larger and

the females of the smaller apparently differ but little in size. The larger of the two species (*H. novæ-zealandiæ*) would seem to have become very scarce; and I know no recent instance of its having been sent to this country.

I propose now to consider the cluster of species which Mr. Sharpe has associated under the generic title of *Cerchneis*, and which appears to me to include three natural groups sufficiently distinct to be treated as at least separate subgenera, bearing the several names of *Dissodectes*, *Tinnunculus*, and *Erythropus*.

The subgeneric name *Dissodectes* was proposed by Mr. Sclater in the P. Z. S. for 1864, p. 248, for the following species—*D. ardesiacus*, *D. dickinsoni* *, and *D. zoniventris*; MM. Milne-Edwards and Grandidier introduce into their article on the last-named species the following apposite remarks, which are equally applicable to the other two members of the subgenus † :—"Le faucon à ventre rayé a les ailes courtes et n'appartient point par conséquent au sous-genre *Hypotriorchis*, . . . ce n'est pas non plus un *Æsalon*; sans sa coloration spéciale, il se rattacherait plutôt au genre de Crécerelles; son bec gros et fort, ses pattes puissantes, et surtout sa queue allongée rappellent en effet, tout en les exagérant, certains caractères de ce groupe, trop naturel cependant pour qu'on y introduise, sous peine d'en rompre l'uniformité, un oiseau aussi dissemblable sous le rapport du plumage."

Mr. Sclater (*l. c.*), after describing the type specimens of *D. dickinsoni*, adds the following remark :—"The general form of this bird is completely that of *Falco ardesiacus* (Vieill.) of Western Africa; together with that bird and *Falco zoniventris*, Peters, of Madagascar, it evidently forms a distinct section among the Hobbies (*Hypotriorchis*), for

* Mr. Sharpe gives this name as "*Dickersoni*," following an error of my own in 'The Ibis' for 1869, p. 444; but Dr. Sclater assures me that the name of the discoverer of this species was correctly given in his original description of the bird as Dickinson, and the specific name must therefore stand as *dickinsoni*.

† *Vide* Ois. de Madagascar, vol. i. p. 35.

which I suggest the subgeneric name *Dissodectes*, indicating thereby the peculiarity of their double-toothed mandible, a feature in which they resemble the *Harpagi* of South America."

This peculiarity, however, is by no means a constant characteristic of the subgenus *Dissodectes*: although observed by Mr. Sclater in *D. dickinsoni*, it is not present in all specimens of that species; and though distinctly indicated in MM. Milne-Edwards and Grandidier's figure of the adult of *D. zoniventris* *, an immature specimen of that species in the Norwich Museum has the hinder tooth merely represented by a slight sinuation. Such is likewise the case in two specimens out of three of *D. dickinsoni* in the same collection, whilst in the third the hinder tooth is absolutely wanting, as it also is in all the examples (three in number) of *D. ardesiacus* which are there preserved.

The colour of the iris in the birds of this subgenus seems also to be somewhat variable, not only as between the different species, but in some instances even between different individuals of the same species.

Von Heuglin speaks of *D. ardesiacus* as "iride umbrinâ"†; and Barboza du Bocage, on the authority of Anchieta, describes its iris as chestnut-coloured ("châtain") ‡. On the same authority he mentions the iris in *D. dickinsoni* as being brown §, and elsewhere as chestnut-coloured ("castanho") ‖. Dr. Dickinson described the iris of the last-named species as "dark brown" ¶; but a specimen obtained by Dr. Miller in the Zambesi country and preserved in the Norwich Museum was noted by the collector as having the iris "light orange;" and that this is not an impossible variation may perhaps be inferred from the circumstance of the nearly allied *D. zoniventris* being said by MM. Milne-Edwards and Grandidier to have the iris "d'un beau jaune" **.

Mr. Sharpe gives the habitat of *D. ardesiacus* as "Western

* Ois. de Madagascar, vol. i. pl. 10.
† Orn. N.O.-Afr. vol. i. p. 34.
‡ Orn. d'Angola, vol. i. p. 54.
§ Orn. d'Angola, vol. i. p. 55.
‖ 19th List of Birds of Portuguese West Africa, p. 3.
¶ Ibis, 1864, p. 305.
** Ois. de Madagascar, vol. i. p. 35.

and North-western Africa," but does not refer to its Eastern range, except incidentally by including in the list of specimens at the British Museum one from Bogos Land, where, according to Von Heuglin, it is resident, as also about Lake Tana and on the Blue and White Niles *.

The Leyden and Norwich Museums contain specimens from Nubia, and that of Brussels one obtained in Arabia †.

In Western Africa *D. ardesiacus* is found as far north as the river Gambia, specimens from thence being preserved in the British and Leyden Museums; whilst on the other side of the equator it has been found to extend to the southern parts of Angola in the vicinity of the river Cunéné ‡.

The geographical range of the other two species of *Dissodectes* is much more limited than that of *D. ardesiacus*; but that of *D. dickinsoni* nevertheless extends across the African continent, it having been originally obtained in the Zambesi district of East Africa, and subsequently in West Africa at Caconda in Benguela §, where it appears, in very numerous flocks, in the month of August, the time of the forest-fires, chasing the insects which are disturbed by the flames.

The remaining species of the subgenus, *D. zoniventris*, appears to be entirely confined to Madagascar.

XXIV.—*Notices of recent Ornithological Publications.*

[Continued from p. 169.]

33. *Agassiz's Report on the Museum of Comparative Zoology.*

[Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College for 1879–80. Cambridge: 1880.]

The report gives a most gratifying account of the progress of this noble institution. During the twenty years that have

* Orn. N.O.-Afr. vol. i. p. 35.

† Schlegel, Mus. des Pays-Bas, Falcones, p. 21.

‡ Du Bocage, Orn. d'Angola, vol. i. p. 54.

§ Du Bocage, Orn. d'Angola, vol. i. p. 55; also 17th List of Birds of Portuguese West Africa, p. 9, 19th List, p. 3, and 20th List, p. 15.

elapsed since its foundation, the building has more than trebled in size, and rapid progress has been made in the arrangement of the extensive collections. As regard the portion of them more especially interresting to the readers of this Journal, we are told:—

"The department of oology has been increased by the addition of the valuable collection of eggs left to the museum by the late Dr. Thomas M. Brewer, of Boston, numbering about three thousand five hundred lots, and not far from one thousand species.

"Besides the identification and intercalation of the additions, a systematic catalogue of the birds' skins has been begun during the last year; and already upward of one thousand species have been critically revised or determined, covering the Psittaci, the Trochilidæ, and the Oscines from the Turdidæ to the Icteridæ. This catalogue, when completed, will show at a glance not only what species are in the collection, but the number of specimens of each and the localities represented.

"Of the considerable number of families thus far revised, about twenty to seventy-five per cent. of the known species are represented, the average being not far from one third."

34. *Bocage on the Birds of Zambesia.*

[Aves da Zambezia e do Transvaal, colligidas pelo major Serpa Pinto, por J. V. Barboza du Bocage. Jor. Sc. Math. Phys. e Nat. Lisboa, No. xxvii. p. 133.]

Prof. Bocage gives a list of forty species represented in the collection made by Major Serpa Pinto in his recent journey across the southern portion of the African continent, and adds remarks. Of these thirty-eight were obtained in the Luchuma—a large territory drained by the Upper Zambesi. None are new; and almost all are species already recorded from Mossamedes and Benguela.

35. *Bulletin of the Nuttall Ornithological Club.*

[Bulletin of the Nuttall Ornithological Club. Vol. v. No. 4. October, 1880.]

This part concludes vol. v., and contains title, index, &c.

Mr. Frank W. Langdon describes and figures a supposed new Warbler of the genus *Helminthophaga*, proposed to be called *H. cincinnatiensis*, based on a single specimen obtained by the describer in Ohio in May 1880. In a subsequent note Mr. Ridgway suggests that this singular bird may be a hybrid between *Helminthophaga pinus* and *Oporornis formosa*.

36. *Burbridge's 'Gardens of the Sun.'*

[The Gardens of the Sun: a Naturalist's Journey on the Mountains and in the Forests and Swamps of Borneo and the Sulu Archipelago. By F. W. Burbridge. 8vo. London: John Murray, 1880.]

Mr. Burbridge is a well-known collector of plants, and gives us an interesting account of his journey *viâ* Labuan to Northern Borneo and the Sulu Islands in quest of botanical novelties. Two expeditions were made up the celebrated mountain Kina Balou by different routes, in search of Pitcher-plants (*Nepenthes*). On the Lawas river Mr. Burbridge met with *Lobiophasis bulweri* and other fine Pheasants (see p. 61). Mr. Burbridge reprints in an appendix the two papers published by Mr. Sharpe (P. Z. S. 1879) on birds from Kina Balu and the Sulu Islands. It would appear, however, from from Mr. Burbridge's footnote (p. 359), that in the former case the specimens obtained by "Mr. Treacher's collectors" were *not got on the Kina Balou*, but on the "route between Gaya Bay and Kivan (alt. 3000 feet)," where the ascent of the mountain commences. It follows that we are, as yet, very little acquainted with the birds of the elevated range of Kina Balou.

37. *Cory's 'Beautiful and Curious Birds.'*

[Beautiful and Curious Birds of the World. By Charles B. Cory, F.L.S., F.Z.S., &c. Part i. October, 1880. Elephant folio. Boston, Mass., U. S. A.]

The contents of part i. of this work, which measures 2 feet 3 inches by 1 foot 10 inches, are figures of *Didus ineptus* and *Ptiloris paradiseus*, and accompanying letterpress.

We trust Mr. Cory will excuse us if we say, in our opinion, the production of expensive illustrations of enormous size

will not so much advance ornithological science as his humbler efforts on the birds of the Bahamas and the inhabitants of the Magdalen Islands. Let us suggest to Mr. Cory that a companion volume to the former, devoted to the birds of St. Domingo, is one much wanted by naturalists.

38. *D'Albertis's 'New Guinea.'*

[New Guinea: what I did and what I saw. By L. M. D'Albertis. 2 vols. 8vo. London: Sampson Low. 1880.]

Mr. D'Albertis's narrative of his first voyage to New Guinea (1872–72), as of his three expeditions up the Fly River in 1875 and the two following years, will be read with the greatest interest by every naturalist. Perhaps the most attractive part is the account of his visit to Hatam and the Arfak Mountains in September 1872, where he succeeded in attaining an elevation of about 5500 feet. Notes on the birds observed and obtained are interspersed throughout the narrative, which is in the form of a journal; but the scientific names are not always correctly spelt. A short general account of the collections of birds made during the several expeditions, with references to the memoirs in which they have been described, would, perhaps, have been more useful than the lists of names printed in the appendix. Coloured figures are given of *Lophorina atra*, *Parotia sexpennis*, and *Drepanornis albertisi*, copied, the two former from Gould's 'Birds of New Guinea,' the last from the figure in the P. Z. S. (1873, pl. xlvii.). The occurrence of *Dasyptilus pesqueti* on the Fly River (ii. p. 103) is noteworthy, as also the results of the examination of the stomachs of *Seleucides alba* (ibid. p. 278). The following passage (i. p. 67), so far as we know, gives us a new fact in the history of *Pomatorhinus isidorii*:—

"I have remarked, without being able to explain the fact, that the *Pomatorhinus* is in the habit of following Birds of Paradise. At Ramoi I saw it following the *Cicinnurus* and the *Seleucides*; today it was following the Papuan or Minor Bird of Paradise. Perhaps it is attracted by the bright colours of the latter. I should think this was the case, if I had only seen it following the males; but as I have often seen

it following the females of the above-named species, there must be some other reason for the habit."

39. *Fischer and Reichenow on Birds from East Africa.*

[Ueber eine dritte Collection von Vogelbälgen aus Ost-Afrika, gesammelt von Dr. G. A. Fischer. Von Dr. G. A. Fischer und Dr. Ant. Reichenow. J. f. O. 1880, p. 139.]

The authors give an account of the third collection made by Dr. G. A. Fischer in Zanzibar and on the opposite coast. The collection contained examples of twenty-six species. One of them is referred to a new species (*Cinnyris fischeri*), and one to a new subspecies (*Dryoscopus major mossambicus*).

40. *Giglioli on Fish-eating Birds in Italy.*

[Elenco dei Mammiferi, degli Uccelli e dei Rettili ittiofagi appartenenti alla Fauna italica e Catalogo degli Anfibi e dei Pesci italiani. Per Prof. Enrico H. Giglioli. 8vo. Firenze: 1880.]

A part of the catalogue issued in connexion with the Italian Section at the International Fish-Exhibition in Berlin last year. Sixty-three Italian birds are classed as more or less ichthyophagous.

41. *Hartlaub on new African Birds.*

[Ueber einige neue von Dr. Emin Bey, Gouverneur der Aequatorialprovinzen Aegyptens, um Lado, Central-Afrika entdecte Vögel. Von Dr. G. Hartlaub. J. f. O. 1880, p. 210.]

Lado, the capital of the new equatorial provinces of Egypt, lies upon the high bank of the Bahr Djébel, about 5° north of the equator, at an elevation of 1530 feet above the sea-level. Dr. Emin Bey is the governor. The new species now described, from a collection transmitted by Dr. Emin Bey, are named *Sorella emini-bey*, *Dryoscopus cinerascens*, *Acrocephalus albotorquatus*, and *Anthreptes orientalis*. *Sorella* is a new genus allied to *Nigrita*.

42. *Harting on Hawks and Hawking.*

[Hawks and Hawking. By J. E. Harting, F.L.S., F.Z.S. Zoologist, 1880, p. 273.]

Mr. Harting gives us here the substance of one of the "Davis Lectures," which he delivered at the Zoological Society's Gardens on June 24th last year.

43. *Lawrence on a new* Chrysotis.

[Description of a new Species of Parrot of the Genus *Chrysotis*, from the Island of Dominica. By George N. Lawrence. Proc. U.S. Nat. Mus. vol. ii. p. 254.]

The species is named *C. nichollsi*, after Dr. Nicholls, who discovered it, and belongs to the group of *C. bouqueti*. The existence of a second large *Chrysotis* in Dominica is very singular.

44. *Nehring on Prehistoric Bone-deposits.*

[Die Raubvögel und die prähistorischen Knochenlager. Von Dr. A. Nehring. Corresp.-Blatt der deutschen Gesell. f. Anth., Eth. u. Urgeschichte, 1879, p. 57.]

Dr. Nehring discusses the question how far birds of prey, and especially Owls, can be considered to have contributed to the formation of bone-deposits in caverns. He comes to the conclusion that they have played a not unimportant part in this matter.

45. *Reinhardt on* Loxia leucoptera.

[Er *Loxia leucoptera*, Gm., virkelig truffen i Danmark? Af J. Reinhardt. Vidensk. Med. Kjöbenhavn, 1881.]

Prof. Reinhardt discusses the four alleged occurrences of the North-American *Loxia leucoptera* in Denmark. He comes to the conclusion that two of these birds are really *L. bifasciata*, and that the other two cases cannot be depended upon.

46. *Reinhardt on* Lanius major.

[Om *Lanius major*, Pall. og dens Forekomst her i Landet. Af J. Reinhardt. Vidensk. Med. Kjöbenhavn, 1879-80.]

Two examples of *Lanius major* of Pallas occurred in Denmark in 1874 and 1875, and are now in the collection of Danish birds in the Museum of Copenhagen. Prof. Reinhardt discusses at some length the relationship of this form to the nearly allied *L. excubitor*.

47. *Seebohm's 'Siberia in Europe.'*

[Siberia in Europe: a Visit to the Valley of the Petchora, in North-east Rûssia; with descriptions of the Natural History, Migration of Birds, &c. By Henry Seebohm, F.L.S. &c. 8vo. London, 1880. (John Murray.)]

No ornithologist can fail to read Mr. Seebohm's 'Siberia in Europe' with unflagging interest. Some of the passages will be already familiar to readers of 'The Ibis,' but even they will be glad to reperuse the narrative of his stirring adventures and brilliant discoveries in a connected form. The following extract gives a summary of the results of the expedition:—

"Of the half dozen British birds, the discovery of whose breeding-grounds had baffled the efforts of our ornithologists for so long, we succeeded in bringing home identified eggs of three—the Grey Plover, the Little Stint, and Bewick's Swan.

"Of the remaining three, two, the Sanderling and the Knot, were found breeding by Captain Feilden, in lat. 82°, during the Nares Arctic Expedition; but the breeding-grounds of the Curlew Sandpiper still remain a mystery. We added several birds to the European list, which had either never been found in Europe before, or only doubtfully so, such as the Siberian Chiff-chaff, the Petchora Pipit, the Siberian Herring-Gull, the arctic forms of the Marsh-Tit, and the Lesser Spotted Woodpecker, the Yellow-headed Wagtail, and the Asiatic Stonechat. We brought home careful records of the dates of arrival of the migratory birds which breed in these northern latitudes, besides numerous observations on the habits of little-known birds. Our list of skins brought home exceeded a thousand, and of eggs rather more than six hundred."

The understanding of the journey is much facilitated by an excellent map of the route. The woodcuts are very nice, especially those representing the nests, eggs, and young of the Grey Plover and Little Stint. (These plates are only given in a few presentation copies.)

48. *Seebohm on the Nesting of the Spoonbill.*

[A Visit to the Colony of Spoonbills near Amsterdam. By Henry Seebohm, F.Z.S. Zoologist, 1880, p. 457.]

Mr. Seebohm and Capt. Elwes, on the 23rd May last year, made an excursion to the breeding-place of the Spoonbills on the Horster Meer, between Amsterdam and Utrecht, which was visited by Sclater and Mr. A. W. Forbes in 1877, as already recorded in this Journal (Ibis, 1877, p. 412), and obtained a fine series of eggs.

49. *Sharpe on new Birds from New Guinea.*

[Description of two new Species of Birds from South-eastern New Guinea. By R. Bowdler Sharpe, F.L.S., F.Z.S., &c., Senior Assistant, Department of Zoology, British Museum. Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 313.]

The species are *Pœcilodryas flavicincta* and *Aprosmictus broadbenti*, both in a collection transmitted by Mr. Broadbent.

50. *Sharpe on two new Kingfishers.*

[Description of two remarkable new Species of Kingfishers. By R. Bowdler Sharpe, F.L.S., F.Z.S., &c., Department of Zoology, British Museum. Ann. & Mag. Nat. Hist. ser. 5, vol. vi. p. 231.]

From a collection made by Mr. Charles Huntein on the East Cape, Milne Bay, and its vicinity, Mr. Sharpe describes two fine novelties, *Tanysiptera danae*, allied to *T. nympha*, and *Clytoceyx rex*, something like *Dacelo gaudichaudi*, but with a much thickened bill.

XXV.—*Letters, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Turin, Dec. 28th, 1880.

Sirs,—Mr. Hume, in the last Nos. 1–3 of 'Stray Feathers,' p. 117, mentions my *Stachyris bocagei* (Ann. Mus. Civ. Gen. xiv. p. 223), and says that he should like very much to know how it can be distinguished from *Stachyris assimilis*, Wald.

(J. A. S. B. 1875, extra no., p. 116). I must confess that when I described *S. bocagei* I was unacquainted with *S. assimilis*; and even now I have not seen a specimen of this bird. If Mr. Hume will kindly send me one, I shall be glad to compare it with the type of *S. bocagei*, and certainly will not fail to let him know if they are of the same species or not.

I take this opportunity of correcting a mistake of mine in the original description of *Aprosmictus callopterus* (Ann. Mus. Civ. Gen. xiv. p. 29), which has also crept into the description of the same bird in my 'Ornitologia della Papuasia e delle Molucche,' pt. i. p. 135. The mistake is contained in the first two lines of the description, "Capite, collo et gastræo toto rubro-puniceis; interscapulio, uropygio, supracaudalibus et subcaudalibus pulchre cyaneis." Now *the under tail-coverts* in *A. callopterus* are not *blue* (*cyaneus*), but *red, like the rest of the underparts*. After the correction the description will run as follows:—"Capite, collo et gastræo toto rubro-puniceis; interscapulio, uropygio et supracaudalibus pulchre cyaneis." It is important to point out the mistake, as in the allied species, *Aprosmictus chloropterus*, Ramsay, the under tail-coverts are really *dark bluish, edged with red*.

As I have entered upon the subject of Papuan birds, I may as well dwell upon it a little longer, and say a few words on some species lately described by M. Oustalet in a paper noticed in the last number of 'The Ibis.' Four species are there described—a second species of *Drepanornis*, a *Cyclopsittacus* which M. Oustalet has kindly named after me, *Chloromyias laglaizei*, and *Pomareopsis semiatra*.

As to *Chloromyias laglaizei*, I have already pointed out (Ann. Mus. Civ. Gen. xvi. p. 70) that it is the female of *Parus arfaki*, Meyer, the same sex having been described also by me in 1875 as *Oreocharis stictoptera*.

The *Pomareopsis semiatra* is my *Grallina bruijnii*. Of this I am satisfied, a sketch of the bird having been kindly sent me by M. Oustalet.

Cyclopsittacus salvadorii seems a beautiful and perfectly distinct species; but I am not quite sure that equally distinct from its ally. *Drepanornis albertisi*, is the newly described

D. bruijnii, especially if *D. albertisi* should turn up also from the south-east of New Guinea. I think that the British Museum has quite recently received a specimen of it from Port Moresby.

Yours &c.,

T. Salvadori.

Obituary.—John Gould, who has for many years occupied a leading position amongst our ornithologists, died in February last, at his residence in Charlotte Street, Bedford Square, in his seventy-seventh year. Gould was born at Lyme, in Dorsetshire, in 1804, and in early life came to Windsor, where he passed several years under the care of the late Mr. J. T. Aiton, of the Royal Gardens. He afterwards went to London, and became Taxidermist to the Zoological Society's Museum. Whilst occupying this post in 1830 Gould acquired a collection of birdskins from the Himalaya Mountains, a country then ornithologically almost unknown. In this collection were examples of many species then new to science; and in his use of the opportunity thus afforded him Gould laid the foundation of his fame and fortune. He first obtained the aid of the late Mr. N. A. Vigors in framing the scientific descriptions, which were published in the first volume of the 'Proceedings' of the Zoological Society; he then enlisted the artistic talent of his wife to draw the most remarkable of the species on stone, and upon these foundations commenced his 'Century of Birds from the Himalaya Mountains.' In size this work rivalled the volumes of Levaillant, but far excelled them in the artistic excellence of the plates.

The number of subscribers obtained for his first essay encouraged Gould to proceed; and he soon afterwards commenced his 'Birds of Europe,' which was completed in five volumes. Meeting still with the same success, he continued uninterruptedly up to his death to publish Monographs and Faunas in a continuous stream, all uniform with his first work, and all built on the same plan. The result, as shown below, is a series of forty-one folio volumes, illustrated by 2999

plates, a performance quite unrivalled in any other branch of literature.

To our mind his 'Birds of Australia' is by far the most important from an ornithological point of view of all Gould's works. To obtain materials for this he made an expedition to Australia himself in 1838, and for several years employed skilled collectors in different parts of the country. He was thus the means of adding enormously to what was previously known of the avifauna of that continent. During the publication of 'The Birds of Australia' Mrs. Gould died; and Gould had henceforth to employ artists to do the work so efficiently performed by her who, in fact, first made his career possible, and was the mainstay of his undertaking.

As a collector of specimens Gould was unceasingly watchful. For many years hardly a Humming-bird came to London but he contrived to obtain it, or at least to see it; and it was thus that he amassed a vast collection of these beautiful birds, the subjects of his monograph of the Trochilidæ. A set of these he mounted in glass shades, and exhibited in the gardens of the Zoological Society during the Great Exhibition of 1851. To this mounted series he made additions from time to time; and it still remains a most attractive exhibition.

To review the whole of Gould's works is not our intention here; nor is it necessary, as they are doubtless known to most of our readers. The plates of these works are of great merit; but, to our eye, there is always present in them too much of studied effect, which detracts from their scientific accuracy. To a patient ornithologist, seeking only the correct determination of a species, a reference to one of Gould's plates is not always so satisfactory as could be desired.

With systematic ornithology Gould did not trouble himself much: he always used to say he was follower of his first master, Vigors, and was content with his scheme of arrangement. But in discriminating minute specific differences between allied forms Gould had few equals; and though his judgment on such points sometimes carried him too far, it was seldom at fault.

During the last few years of his life Gould suffered much

in health, yet, though almost confined to his sofa, he never ceased to work.

Of the collections left by Gould the Humming-birds form the largest and most important part; but in addition to these, the subjects of most of his other monographs are well represented. The whole of these have been offered by his representatives to the Trustees of the British Museum for a moderate sum, and, we are glad to add, have been purchased for the national collection. The collection formed in Australia, it will be remembered, was lost to this country, and is now in America, in the Museum of the Academy of Natural Sciences of Philadelphia.

List of Gould's principal illustrated Works :—

A Century of Birds from the Himalaya Mountains, 1 vol., 80 plates.

Icones Avium, 1 vol., 18 plates.

Birds of Europe, 5 vols., 449 plates.

Birds of Australia, with Supplement, 8 vols., 681 plates.

Monograph of the Trogons, 1st edition, 1 vol., 36 plates.

Monograph of the Toucans, 1st edition, 1 vol., 34 plates.

Monograph of the Partridges of America, 1 vol., 32 plates.

Monograph of the Trogons, 2nd edition, 1 vol., 46 plates.

Monograph of the Toucans, 2nd edition, 1 vol., 52 plates.

Monograph of the Trochilidæ, and one Supplementary number, 5 vols. and 1 part, 384 plates.

Birds of Great Britain, 5 vols., 367 plates.

Birds of Asia, 32 parts, equal to 6 vols., 497 plates.

Birds of New Guinea, 11 parts, equal to 2 vols., 141 plates.

Mammals of Australia, 3 vols., 182 plates.

Mr. E. R. Alston.—The untimely death of our friend and fellow-worker Edward Richard Alston, which took place at his rooms in Maddox Street on the 7th of March last, leaves a vacancy in the thin ranks of the working naturalists of this country that will not be easily filled up. At the time of his decease Mr. Alston was Secretary to the Linnean Society, a member of the Council of the Zoological Society, and Treasurer to the Zoological Club, and up to within a few days of his death was engaged in active zoological work. Mr. Alston, who died of phthisis at the early age of thirty-

five, although somewhat retiring in disposition, was of a particularly kind and amiable nature, always most friendly with those with whom he was brought into contact, and ready to help them by advice or assistance. Mr. Alston was of Scotch parentage, and a native of Lanarkshire. Being from infancy of delicate constitution, he was educated chiefly under private tuition, and did not go to school. Notwithstanding these disadvantages, he was a good scholar and a neat and concise writer, and had an excellent acquaintance with comparative anatomy. Taking early to the pursuit of natural history he became a contributor to the 'Zoologist' and to other popular journals, principally upon mammals and birds. Mr. Alston's first important paper was an account (published in this Journal) of his journey to Archangel, made in 1872, in company with his friend Mr. J. Harvie Brown, in which excellent observations are given on the summer migrants and other feathered inhabitants of that previously little explored district. Shortly afterwards Mr. Alston moved his headquarters to London during the first part of the year, and undertook the compilation of the portion of the 'Zoological Record' relating to mammals, which he carried on in a very painstaking and methodical way for six years (1873–1878). A new edition of Bell's 'British Mammals,' which had long been called for, appeared in 1874. Mr. Alston, although he is only credited with having "assisted" in this work, was, we believe, its virtual compiler. From that date also he became a frequent reader of papers at the meetings of the Zoological Society and author of several excellent memoirs in the 'Proceedings.' Amongst these we may call special attention to his revision of the genera of Rodentia, published in 1876, as a most successful exposition of the many difficult points connected with the arrangement of this group of mammals, and to his memoirs on the Mammals of Asia Minor collected by Mr. C. G. Danford (1877 and 1880). In 1880 Mr. Alston also prepared the mammal portion of the 'Fauna of Scotland'*, issued by the Natural-History

* The Fauna of Scotland, with special reference to Clydesdale and the Western District—Mammalia. By Edward R. Alston. 8vo: Glasgow, 1880.

Society of Glasgow. Mr. Alston's last and most important work, which he had fortunately just brought to an end before his untimely death, was the "Mammals" of Salvin and Godman's 'Biologia Centrali-Americana.' The first part of this was published in 1879, the eighth part, containing the completion of the Mammals, in December last. The death of this promising naturalist when in the full tide of work must be a subject of universal regret among all lovers of science. Mr. Alston was elected a member of the British Ornithologists' Union in 1874.

Etienne Mulsant died on the 4th November 1880, at Lyons, at the advanced age of eighty-four. M. Mulsant's name will be chiefly known by his numerous works and papers on Entomology; for in this branch of science he was a most industrious worker. In ornithology his attention was almost exclusively given to the study of the Trochilidæ. His first work in connexion with these birds was published some forty years ago, when he was associated with the well-known French traveller Delattre in the description of some of the novelties brought home by the latter from Central America and Colombia. He afterwards elaborated a classification of the Trochilidæ, based upon the collection of the late Edouard Verreaux. This was preparatory to the commencement of a more serious undertaking—his 'Histoire naturelle des Oiseaux-mouches ou Colibris,' which he lived to complete in four volumes, illustrated by a good many plates.

Mulsant was a methodical and painstaking author; and his final work on the Trochilidæ is on the whole a valuable contribution to our knowledge of this complicated group of birds. One of its chief features is the way in which the genera are divided and subdivided—in our opinion, far beyond what is either natural or convenient.

We also regret to have to report the death of Mr. C. E. Lawson, which occurred very suddenly on the 29th December last. Mr. Lawson was elected a member of the British Ornithologists' Union in May 1880.

J.G.Keulemans lith. Hanhart imp.

PROPASSER RHODOMETOPUS.

THE IBIS.

FOURTH SERIES.

No. XIX. JULY 1881.

XXVI.—*On the Genus* Hylophilus. By P. L. Sclater, M.A., F.R.S., Secretary of the Zoological Society of London.

(Plates X. & XI.)

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I. History of the Genus.

The genus *Hylophilus* was founded by Temminck in 1823, in the 29th livraison of his 'Planches Coloriées,' for two species discovered in Brazil by Natterer, *H. thoracicus* and *H. pœcilotis*.

In 1831 Prince Maximilian of Neuwied (Beitr. iii. p. 720 *et seqq.*) transferred Temminck's term *Hylophilus* to certain Tanagers of the genus *Nemosia*, and placed the *Hylophili* of Temminck in the genus *Sylvia*. Unfortunately, also, Prince Maximilian's *Sylvia pœcilotis* is not *Hylophilus pœci-*

lotis of Temminck, but *H. amaurocephalus*, as was pointed out by Nordmann (in Erman's Reise) in 1835, when he described the latter species. Up to 1835, therefore, only three species of *Hylophilus* were recognized, *H. thoracicus*, *H. pœcilotis*, and *H. amaurocephalus*.

The next addition to the species of this genus appears to have been made in 1837, when Bonaparte described, in the 'Proceedings' of the Zoological Society of London, a "*Sylvicola decurtata*" from Mexico, which, as Prof. Baird has shown (Rev. A. B. p. 380), is the same as *Hylophilus cinereiceps*, Scl. et Salv., of 1864. Bonaparte's name, of course, has priority. Bonaparte subsequently (in 1850) made this species the type of his new genus *Pachysylvia*, which is a mere synonym of *Vireo*.

In 1844 Tschudi described two new species of *Hylophilus* in his Conspectus of Peruvian Birds, published in Wiegmann's 'Archiv,' *H. frontalis* and *H. olivaceus*. The former he likewise subsequently figured in his 'Fauna Peruana.' Both these species are unknown to me.

In 1845 Lafresnaye described two new *Hylophili* from Bogota collections, *H. semibrunneus* and *H. flavipes*. These are both good species, of which I have specimens, and raise the number of species (known to me) up to that date to six.

In his Ornithologische Notizen, published in 1847*, Dr. Cabanis placed *Hylophilus*, with some doubt, next to *Culicivora*, among the Parinæ. It was, I think, Bonaparte, in his Conspectus, three years subsequently, who first associated *Hylophilus* with the *Vireones* and *Cyclorhis* in what I consider to be its correct position.

In 1856 Burmeister (Syst. Ueb. d. Th. Brasil.) gave us a few notes on two species of *Hylophilus* which he had met with in South-east Brazil, *H. pœcilotis* and *H. thoracicus*.

In 1859 (P. Z. S.) I described the "first of this genus I had seen from the country north of Panama," *H. ochraceiceps*, from specimens obtained by M. Boucard in Southern Mexico.

* Wiegm. Arch. 1847, pt. i. p. 318.

This made the species known up to that date seven in number.

In the same year Mr. Lawrence, in his catalogue of Mr. McLeannan's Panama collection, described three new species of *Hylophili, H. pusillus, H. aurantiifrons,* and *H. viridiflavus.* Of these the first appears to be inseparable from *H. decurtatus,* the second and third are good species, and raise the number known up to that period to nine.

In 1861 I described a tenth *Hylophilus* from Tobago (*H. insularis*), and in 1862 an eleventh from Bogota (*H. ferrugineifrons*).

In 1862 I published my catalogue of the birds in my collection. In it I arranged the genus *Hylophilus* among the Vireonidæ, following Bonaparte. I had, at that time, examples of five species only.

In 1865 Mr. Lawrence communicated to the Academy of Natural Sciences of Philadelphia the description of *H. acuticaudus* from Venezuela. This seems to be the young of the species previously described by the same author as *H. aurantiifrons.*

The following year (1866) I added two novelties from Natterer's collections to the genus, under the names *H. pectoralis* and *H. brunneiceps,* raising the number of species to thirteen.

In the same year ('Review of American Birds,' pp. 372 *et seqq.*) Prof. Baird gave a revision of the species of this group in his usual excellent style. He described nine species as known to him, and appended a list of seven others with which he was not acquainted.

In 1867 Mr. Salvin and I described and figured, from Mr. Wallace's Amazonian series, two very distinct new species of *Hylophilus* (*H. rubrifrons* and *H. semicinereus*), thus raising the total species known to fifteen.

Two years subsequently (1869) Mr. G. R. Gray gave a list of the *Hylophili* known to him in the first volume of his well-known 'Hand-list.' Mr. Gray assigned twenty-one species to the genus; but at least seven of these are of a doubtful character.

In 1873 Mr. Salvin and I gave a list of the *Hylophili* known to us in our 'Nomenclator Avium Neotropicalium.' Including one first described in the appendix to that work (*H. muscicapinus*), these were sixteen in number. But we omitted *H. amaurocephalus* (or, I should rather say, did not distinguish it from *H. pœcilotis*), and gave *H. acuticauda* (No. 15) as distinct, whereas the specimen so named cannot, I now think, be separated from *H. hypoxanthus* (No. 7).

In the same year Dr. Cabanis described a new *Hylophilus* from Peru as *H. flaviventris*; and in 1880 Mr. Salvin and I added an eighteenth species to the group as *H. fuscicapillus*, from examples in Mr. Buckley's Ecuadorian collections.

I now describe *H. luteifrons*, and recognize nineteen species of the genus.

II. Synopsis of the Species.

Genus Hylophilus.

Hylophilus, Temm. Pl. Col. sub tab. 173 (1823)*. Types *H. thoracicus* et *H. pœcilotis*.

Pachysylvia, Bp. Consp. i. p. 309 (1850). Type *H. decurtatus*.

For the purpose of more easy identification, I propose to consider the 19 species of the genus with which I am acquainted autoptically, in five categories, as follows:—

Clavis specierum.

A. Species pileo circumscripte cinereo: dorso olivaceo	1. *thoracicus*. 2. *pectoralis*. 3. *decurtatus*. 4. *muscicapinus*.
B. Species pileo circumscripte rufo: dorso olivaceo	5. *pœcilotis*. 6. *amaurocephalus*.

* Three years subsequently (1826) Boie (Isis, 1826, p. 972) proposed to use *Hylophilus* for a genus of Mniotiltidæ, with *Sylvia vermivora*, Lath., as the type.

C. Species pileo rufo, brunneo aut ochraceo, in dorsum plùs minusve descendente ..... { 7. *semibrunneus.* 8. *flaviventris.* 9. *fuscicapillus.* 10. *aurantiifrons.* 11. *insularis.* 12. *brunneiceps.* 13. *ochraceiceps.*

D. Species fronte rubra, rufa, aut flava, pileo dorsoque concoloribus ..... { 14. *rubrifrons.* 15. *ferrugineifrons.* 16. *luteifrons.*

E. Species supra totæ olivaceæ ..... { 17. *semicinereus.* 18. *flavipes.* 19. *viridiflavus.*

Sect. A. *Species pileo cinereo.*

This section contains four species known to me, which may be recognized by the following diagnoses:—

Pectore { flavo, fronte { olivacea ..... 1. *thoracicus.* cinerea ..... 2. *pectoralis.* albo ..... 3. *decurtatus.* rufescente ..... 4. *muscicapinus.*

1. Hylophilus thoracicus.

Hylophilus thoracicus, Temm. Pl. Col. 173, fig. 1; Bp. Consp. i. p. 329; Scl. Cat. A. B. p. 44; Baird, Rev. A. B. p. 375; Pelzeln, Orn. Bras. p. 70; Scl. et Salv. Nomencl. Av. Neotr. p. 12.

Flavicanti-olivaceus, pileo medio cinereo, fronte et lateribus capitis dorso concoloribus; subtus albus, pectore et subalaribus limonaceo-flavis, lateribus cinereis; alis caudaque fuscis olivaceo marginatis; rostro corneo; pedibus fuscis: long. tota 4, alæ 2·3, caudæ 1·8, tarsi ·7.

Hab. Amazonia inf., Guiana et Colombia int.

Mus. P. L. S. et S.-G.

Natterer obtained during his travels in Brazil examples of both this and the next following closely allied species. Unfortunately Temminck appears to have described and figured the northern form, while Prince Maximilian described the southern form under the same name. So far as I can make out, Herr von Pelzeln, in his 'Ornithologie Brasiliens,' has reversed the localities of the two species.

In the present bird the yellowish olive colour of the back is continued on the sides of the head and front, leaving only the top of the head and nape cinereous. In the "Bogota" skin (No. 5) even the cinereous head has a decided wash of olive over it; but I do not consider it distinct.

List of Specimens examined.

1. Cayenne, *Mus. P. L. S.*
2. Guiana (*Brown*), *Mus. P. L. S.*
3, 4. Bartica Grove, Guiana (*Whitely*), *Mus. S.-G.*
5. Int. of Columbia, *Mus. S.-G.*

2. Hylophilus pectoralis.

Hylophilus pectoralis, Sclater, P. Z. S. 1866, p. 321; Pelz. Orn. Bras. p. 70; Scl. et Salv. Nomencl. p. 12.

Sylvia thoracica, Max. Beitr. iii. p. 717 (1831) (?).

Flavicanti-olivaceus, capite cinereo; subtus albus, pectore hypochondriis et subalaribus limonaceo-flavis; alis caudaque fuscis olivaceo marginatis; rostro pallide corneo, pedibus dilute corylinis: long. tota 4·3, alæ 2·3, caudæ 1·9, tarsi ·7.

Hab. Brasil. int.

Mus. P. L. S.

Obs. Similis præcedenti, sed capite toto cinereo distinguenda.

Of this species I have only been able to examine the original typical specimen in my collection, obtained in Matogrosso by Natterer in 1826. I suppose that all his Southern-Brazilian specimens will be found to belong to this form, while those from the Amazons and Rio Negro will belong to *H. thoracicus*.

3. Hylophilus decurtatus.

Sylvicola decurtata, Bp. P. Z. S. 1837, p. 118.

Pachysylvia decurtata, Bp. Consp. 1850, p. 309.

Hylophilus cinereiceps, Scl. et Salv. P. Z. S. 1860, p. 299, 1864, p. 348; Ibis, 1860, p. 397, 1869, p. 313; Scl. Cat. A. B. p. 44.

J.G.Keulemans lith. Hanhart imp.

1 HYLOPHILUS MUSCICAPINUS
2 „ FUSCICAPILLUS

Hylophilus pusillus, Lawr. Ann. N. Y. Lyc. vii. p. 323, et viii. p. 180.

Hylophilus decurtatus, Baird, Rev. A. B. p. 380; Salvin, P. Z. S. 1867, p. 137, et 1870, p. 184; Ibis, 1869, p. 313, et 1872, p. 314; Scl. et Salv. P. Z. S. 1870, p. 836, et Nomencl. p. 12.

"*Hylophilus plumbiceps*, Scl.," Lawr. Ann. N. Y. Lyc. vii. p. 323 (*err.*).

Flavicanti-olivaceus, pileo toto et capitis lateribus cinereis; oculorum ambitu et corpore subtus albis, lateribus et crisso flavicanti-olivaceis; rostro corneo, mandibula inferiore flavicante; pedibus obscure carneis: long. tota 4·1, alæ 2·1, caudæ 1·8.

Hab. America centr. a Mexico merid. usque ad isthm. Panamensem.

Mus. P. L. S. et S.-G.

List of Specimens examined.

1. Cordova, S. Mexico (*Sallé*, 1857), *Mus. P. L. S.*
2. Choctum, Vera Paz (*Salvin*, 1860), *Mus. P. L. S.*
3. Choctum, Vera Paz (*Salvin*, 1860), *Mus. S.-G.*
4. Sources of Rio de la Pasion, V. P. (*Salvin*, 1862), *Mus. S.-G.*
5. Costa Rica (*Carmiol*), *Mus. P. L. S.*
6, 7. Tucuriqui, C. R. (*Arcé*, 1864), *Mus. S.-G.*
8. Chontales, Nicaragua (*Belt*), *Mus. S.-G.*
9. Veragua (*Arcé*), *Mus. P. L. S.*
10, 11, 12. Veragua (*Arcé*), *Mus. S.-G.*
13, 14, 15. Panama (*McLeannan*), *Mus. S.-G.*

I may add that I agree with Mr. Salvin* that it is not possible to separate satisfactorily the southern form of this species, and that, in my opinion, *H. pusillus* therefore = *H. decurtatus*.

4. Hylophilus muscicapinus. (Plate X. fig. 1.)

Hylophilus muscicapinus, Scl. et Salv. Nomencl. p. 156 (1873).

* P. Z. S. 1867, p. 137.

Olivaceo-viridis, pileo cinereo; fronte, loris et capitis lateribus rufescentibus; subtus albus, pectore rufescenti tincto; subalaribus, hypochondriis et crisso pallide limonaceo-flavis; remigibus nigricantibus, extus dorso concoloribus; rectricibus totis olivaceis; rostro superiore corneo, inferiore albicante: long. tota 4·2, alæ 2·4, caudæ 1·9.

Hab. Guiana.

Mus. P. L. S. et S.-G.

Obs. Species rostro longiore, crassiusculo, magis uncinato, necnon fronte et capitis lateribus rufescentibus a præcedentibus valdè distincta.

List of Specimens examined.

1. Oyapok, Cayenne (*Jelski*, 1867), *Mus. P. L. S.* (type).
2, 3. Bartica Grove, B. Guiana (*Whitely*), *Mus. S.-G.*
4. Corentyn river, B. Guiana (*im Thurn*), *Mus. P. L. S.*

This species was originally based upon a single skin in my collection, obtained at Oyapok in 1867, and labelled "*Sylvia muscicapina*" by a collector then unknown to me, but whom I now believe to have been M. Jelski, the well-known naturalist of the Warsaw Museum. As will be seen by the list above given, it has since been obtained by other collectors in the neighbouring colony of British Guiana.

Sect. B. *Species pileo circumscripte rufo.*

Two species only are known of this well-marked section; they are very closely allied, but may be distinguished as follows:—

Loris cinereis, subtus flavicanti-olivaceus..	5. *pœcilotis.*
Loris cum pileo concoloribus, subtus magis cinerascens	6. *amaurocephalus.*

5. Hylophilus pœcilotis.

Hylophilus pœcilotis, Temm. Pl. Col. 173, f. 2 (1823); Bp. Consp. p. 329; Cab. Mus. Hein. p. 64; Sclater, Cat. A. B. p. 44; Baird, Rev. Am. B. i. 375; Pelzeln, Orn. Bras. p. 70; Scl. et Salv. Nomencl. p. 14.

Sylvia pœcilotis, Nordmann, Verz. d. Th. in Erman's Reise, p. 13, t. ix. fig. 3 (1835).

Læte olivaceus; pileo rufo, loris et capitis lateribus cinereis; subtus flavicanti-olivaceus, in gutture cinerascens, in ventre medio magis ochraceus; rostro obscure carneo, infra albicante; pedibus corylinis: long. tota 4·5, alæ 2·2, caudæ 22.

Hab. Brasilia meridionalis.

Mus. P. L. S.

I have only a single specimen of this species in my collection, obtained many years ago from a London dealer. Natterer's localities, Ypanema, Ytararé, and Jaguaraiba, no doubt, belong to this species; the others, given by Von Pelzeln, are, perhaps, doubtful.

6. Hylophilus amaurocephalus.

Sylvia amaurocephala, Nordmann, Verz. d. Th. in Erman's Reise, p. 14 (1835).

Sylvia pœcilotis, Max. Beitr. iii. p. 715.

Hylophilus pœcilotis, Burm. Syst. Ueb. iii. p. 110 (?).

Læte olivaceus; fronte cum pileo concolori et loris rufis; subtus pallide ochraceus, in gutture cinerascens, hypochondriis et subalaribus pallide limonaceo-flavis; rostro obscure carneo; pedibus plumbeis: long. tota 4·4, alæ 2, caudæ 2.

Hab. Brasilia orient. prov. Bahia et Minas.

Mus. P. L. S. et S.-G.

This closely allied species seems to be the prevalent form in collections from Bahia, whence I have seen numerous examples. Two examples in my collection, and three in that of Messrs. Salvin and Godman, are, I believe, alike from this locality.

H. amaurocephalus was distinguished from *H. pœcilotis* in 1835 by Nordmann in the Zoological Appendix to Erman's 'Reise um die Welt;' but it is only lately that I have succeeded in identifying the species.

Sect. C. *Species pileo rufo, brunneo aut ochraceo, in dorsum plus minusve extenso.*

This group contains seven species, which may be divided as follows :—

Pileo	rufo			7. *semibrunneus.*
	grisescenti-fusco			8. *flaviventris.*
	brunneo	subtus flava	gutture concolori	9. *fuscicapillus.*
			gutture albo	10. *aurantiifrons.*
		subtus fusca		11. *insularis.*
		subtus alba		12. *brunneiceps.*
	ochraceo			13. *ochraceiceps.*

7. Hylophilus semibrunneus.

Hylophilus semibrunneus, Lafr. R. Z. 1845, p. 341; Bp. Consp. i. p. 329; Scl. P. Z. S. 1855, p. 144; Baird, Rev. Am. B. p. 374; Scl. et Salv. Nomencl. p. 14, et P. Z. S. 1879, p. 495.

"*Hylophilus castaneiceps*, Verr.," M.S.; G. R. Gray, Handl. p. 383?

Supra olivaceus, pileo nucha et dorso summo rufis; alis nigricantibus, extus olivaceo marginatis; subtus albus, pectore rufescenti tincto, lateribus crisso et subalaribus olivaceo lavatis; cauda olivacea; rostro carneo, mandibula inferiore albicante; pedibus corylinis: long. tota 4·5, alæ 3·3, caudæ 2.

Hab. Colombia.

Mus. P. L. S. et S.-G.

Lafresnaye's description does not perfectly agree with this species; but I have little doubt it is the bird he intended, as it is the only one of the group found in Bogota collections.

Two examples from this source are in my collection, and one in that of Messrs. Salvin and Godman. I have also a single example of this species from Concordia, in the State of Antioquia, obtained by the late Mr. Salmon.

8. Hylophilus flaviventris.

Hylophilus flaviventris, Cab. J. f. O. 1873, p. 64; Tacz. P. Z. S. 1874, p. 509.

Supra olivaceo-viridis; pileo et cervice postica fuscescenti-cinereis; ciliis oculorum albidis; alis intus nigricantibus, extus dorso concoloribus; subtus pallide flavidus, gut-

ture albo cineraceo tincto; subalaribus flavidis, remigum marginibus internis albis; rostro corneo, pedibus cinereis: long. tota 4·5, alæ 2·4, caudæ 1·9, rostri a rictu ·6, rem. primi spurii 1·5.

Hab. Peruvia Centralis.

Mus. Varsoviano.

M. Taczanowski has most kindly sent to me for examination the unique type specimen of this species, which was obtained at Monterico, in Central Peru, by Jelski in 1872. Although somewhat resembling *H. thoracicus* in the colour of its cap (which, however, is not pure cinereous, but rather ashy brown), *H. flaviventris* seems to me to come nearest to *H. fuscicapillus* and *H. aurantiifrons*, and to go best in the present section.

9. Hylophilus fuscicapillus. (Plate X. fig. 2.)

Hylophilus fuscicapillus, Scl. et Salv. P. Z. S. 1880, p. 155.

Supra olivaceo-viridis, pileo toto cum cervice postica dorso superiore et scapularibus cafæo-brunneis; alis nigris, extus olivaceo limbatis; subtus ex olivaceo flavidus, medialiter clarior; gutture sordide albicante; subalaribus et remigum marginibus internis albicanti-sulphureis; cauda olivacea unicolori; rostro corneo, mandibula inferiore pallidiore; pedibus fuscis: long. tota 4, alæ 2·4, rem. primi spurii 1·4, caudæ 1·7, rostri ·6.

Hab. Sarayacu, Ecuador orient. (*Buckley*).

Mus. S.-G. et P. L. S.

Obs. Affinis *H. semibrunneo*, sed capite magis fusco et ventre flavo distinguendus.

Mr. Buckley's specimens are the only examples yet known to me of this distinct species.

10. Hylophilus aurantiifrons.

Hylophilus aurantiifrons, Lawr. Ann. L. N. Y. vii. p. 324 (1861); Scl. et Salv. P. Z. S. 1864, p. 348; Baird, Rev. A. B. p. 377.

Hylophilus hypoxanthus, Pelz. Orn. Bras. p. 136 (1871); Scl. et Salv. P. Z. S. 1868, p. 629, et Nomencl. p. 12.

Supra olivaceus, pileo nuchaque brunneis, fronte aurantiaco tincta; subtus pallide flavidus, gutture albicantiore; pectore in quibusdam exemplis fulvo lavato; subala-

ribus et crisso flavidis; rostro corylino, pedibus fuscis: long. tota 4·5, alæ 2·1, hujus rem. primi 1·2, caudæ 1·8.

Hab. Guiana int., Venezuela litt. et isthmus Panamensis.

Mus. P. L. S. et S.-G.

This species I have hitherto usually called *H. hypoxanthus*, identifying it with the bird described by Herr v. Pelzeln* (*l. s. c.*) under that name. Mr. Lawrence having kindly forwarded to me for examination the typical example of his *H. aurantiifrons* from Panama, described in 1861, I have come to the conclusion that these two supposed species must be united under this latter name. Mr. Lawrence's skin so closely resembles some of the Venezuelan and Guianan birds, that in my opinion it would be impossible to separate them. I may, however, notice that in the Panama skin there is no tinge of fulvous colour on the breast, such as is seen in most adult specimens of the Venezuelan and Guianan bird.

The young and imperfect specimen of *Hylophilus* from Babahoyo, Ecuador (*Fraser*), in my collection, mentioned P. Z. S. 1860, p. 273, is perhaps nearer this species than to any other, but will probably turn out to be distinct when the adult is obtained.

List of Specimens examined.

1, 2. Guiana?, *Mus. P. L. S.*

3. Trinidad?, *Mus. S.-G.*

4. Trinidad?, *Mus. P. L. S.*

5. S. Esteban, Venezuela (*Goering*), *Mus. P L. S.*

6, 7. S. Esteban, Venezuela (*Goering*), *Mus. S.-G.*

8. Valencia, Venezuela (*McLeannan*), *Mus. P. L. S.*

9. Panama (*McLeannan*), *Mus. G. N. L.* Type of *H. aurantiifrons*.

10a. Hylophilus acuticaudus.

Hylophilus acuticauda, Lawr. Pr. A. N. Sc. Phil. 1865, p. 37; Baird, Rev. Am. B. i. p. 378.

* Herr v. Pelzeln has kindly compared one of my Venezuelan skins of this bird (which I sent to him for the purpose) with the typical examples of *H. hypoxanthus* in the Vienna Museum, and is "convinced that they belong to the same species."

J.G.Keulemans lith. Hanhart imp.

1 HYLOPHILUS BRUNNEICEPS.
2 „ FERRUGINEIFRONS.

Hylophilus acuticaudus, Scl. et Salv. P. Z. S. 1868, p. 170, et 1869, p. 252; Nomencl. p. 12.

Hab. Venezuela.

Mr. Lawrence has kindly forwarded to me his typical specimen of this species also for examination. I have a nearly similar skin in my collection (the specimen referred to, P. Z. S. 1868, p. 170), obtained near Caracas by Goering. The only noticeable difference is that the back is darker in my example, and the tail-feathers not quite so much narrowed. I am decidedly of opinion that both are immature, and the young either of *H. aurantiifrons* or of *H. insularis*, if these two last-named species are really different.

11. Hylophilus insularis.

Hylophilus insularis, Sclater, P. Z. S. 1861, p. 128; Baird, Rev. Am. B. i. p. 379; Leotaud, B. of Trinidad, p. 186; Scl. et Salv. Nomencl. p. 12.

Supra olivaceus, pileo et dorso superiore ochraceo-brunnescentibus, dorso inferiore, alis extus et cauda virescentibus; fronte, oculorum ambitu et corpore subtus pallide fuscescenti-ochraceis, tibiis et crisso virescentibus; tectricibus subalaribus pallide citrinis; rostro corneo, subtus pallidiore; pedibus carneis: long. tota 4·7; alæ 2·5, hujus rem. prim. 1·6, caudæ 1·9, tarsi ·7, rostri a rictu ·6.

Hab. Ins. Tobago (*Kirk*); Trinidad (*Leotaud*).

Mus. P. L. S.

The typical specimen of this *Hylophilus*, obtained from the late Sir W. Jardine in 1854, still remains unique, I regret to say, in my collection. Were it not for its larger first primary and stout bill, I should be inclined to suspect that it might be only a young example of the preceding species; and I am by no means sure that these peculiarities may not be merely individual.

12. Hylophilus brunneiceps. (Plate XI. fig. 1.)

Hylophilus brunneiceps, Sclater, P. Z. S. 1866, p. 322; Pelz. Orn. Bras. p. 70; Scl. et Salv. Nomencl. p. 12.

Olivaceus, capite toto cum nucha brunneis; alis obscure fuscis olivaceo limbatis; subtus albus, gutture et pectore brunneo parum tinctis; subalaribus flavicantibus; rostro et pedibus fuscis: long. tota 4, alæ 2·2, hujus rem. prim. 1·3, caudæ 1·6.

Hab. Guiana et Amazonia inf., Rio Negro (*Natt.*).

Mus. P. L. S. et S.-G.

Natterer, the discoverer of this well-marked species, obtained four examples of it on the Rio Vaupé, and at Barcellos on the Rio Negro, upon one of which my original description was based. I have since acquired a second specimen of Madame Verdey of Paris, labelled "Oyapock;" and the collection of Messrs. Salvin and Godman have another from the same source.

13. Hylophilus ochraceiceps.

Hylophilus ochraceiceps, Sclater, P. Z. S. 1859, p. 375, et Cat. A. B. p. 44; Scl. et Salv. Ibis, 1860, p. 397; Baird, Rev. Am. B. p. 376; Salvin, P. Z. S. 1870, p. 184.

Olivascenti-fuscus, pileo toto rufescenti-ochraceo, alis nigricantibus pallido brunneo extus limbatis; cauda pallide brunnea; subtus pallide flavicans, gutture grisescenti-albo, pectore et lateribus ochracescenti-fuscis; rostro pallide corneo, pedibus pallide corylinis: long. tota 4·3, alæ 2·2, hujus rem. prim. 1·2, caudæ 1·5, tarsi ·65.

Hab. America centr. a Mexico merid. usque ad Veraguam.

This species, which I first described from specimens obtained by Boucard in Oaxaca in 1859, is widely distributed throughout the Central-American region. The following specimens of it are before me:—

1. Oaxaca, Mexico (*Boucard*, 1859), *Mus. P. L. S.* (type).
2. Choctum, Vera Paz (*Salvin*), *Mus. P. L. S.*
3. Choctum, Vera Paz (*Salvin*), *Mus. S.-G.*
4, 5. Chisec, Vera Paz (*Salvin*, 1861), *Mus. S.-G.*
6, 7. Sources of the Rio de la Pasion, Vera Paz (*Salvin*, 1862), *Mus. S.-G.*
8. Costa-Rica (*Carmiol*), *Mus. S.-G.*
9. Veragua (*Arcé*), *Mus. P. L. S.*
10. Bugaba, Chiriqui (*Arcé*), *Mus. S.-G.*

Sect. D. *Species fronte rubra, rufa, aut flava, pileo dorsoque concoloribus.*

I am acquainted with three species of this section, which may be diagnosed as follows:—

Fronte	circumscripte rubra	14. *rubrifrons.*
	et pileo antico ferrugineis	15. *ferrugineifrons.*
	luteo tincta, pileo toto olivaceo	16. *luteifrons.*

14. Hylophilus rubrifrons.

Hylophilus rubrifrons, Scl. et Salv. P. Z. S. 1867, p. 569, t. xxx. f. 1, et Nomencl. p. 12.

Cinerascenti-olivaceus, dorso imo virescentiore; fronte angusta, distincte rubra; secundariis extus flavescente rufo tinctis; cauda rufa unicolori; subtus ochraceus, abdomine cinerascentiore, lateribus virescenti perfusis; subalaribus pallide flavis; rostro superiore corylino, inferiore cum pedibus pallidis: long. tota 4·3, alæ 2·1, hujus rem. prim. 1·3, caudæ 1·5, tarsi ·6, rostri ab ang. oris ·7.

Hab. Amazonia inferior.

Mus. P. L. S., specimen typicum et adhuc unicum!

15. Hylophilus ferrugineifrons. (Plate X. fig. 2.)

Hylophilus ferrugineifrons, Sclater, P. Z. S. 1862, p. 110; Baird, Rev. Am. B. p. 377; Pelzeln, Orn. Bras. p. 71; Scl. et Salv. Nomencl. p. 12; Tacz. P. Z. S. 1874, p. 509.

Olivaceus; alis nigricanti-fuscis, extus olivaceis; cauda olivascenti-fusca; pileo antico et fronte ferruginolento-rufis; subtus dilutior, gutture et ventre medio albicantioribus; rostro plumbeo, tomiis pallescentibus; pedibus fuscis: long. tota 4, alæ 2·1, hujus rem. prim. 1·2, caudæ 1·5.

Hab. Colombia int., Æquatoria orient., Peruv. bor., Amazonia inf., et Guiana.

Mus. P. L. S. et S.-G.

I first established this species in 1862 from a Bogotá skin in my own collection, which for some years remained unique. In 1871 I succeeded in obtaining a second example from a collection received from Oyapok by Madame Verdey of Paris. Herr v. Pelzeln also recorded in the same year that Natterer obtained examples of this bird on the Rio Negro.

In 1874 M. Taczanowski included this species in his list of the birds obtained by Jelski in Northern Peru; and in 1880 Mr. C. Buckley brought home several examples of it from Sarayacu in Eastern Ecuador; so that its range is by no means restricted.

The following is a list of the specimens now before me:—

1. Oyapok, Cayenne (*Verdey*), *Mus. P. L. S.*
2. Bogotá, *Mus. P. L. S.* (type).
3, 4. Sarayacu, Ecuador (*Buckley*), *Mus. S.-G.*

16. Hylophilus luteifrons, sp. nov.

Fuscescenti-olivaceus, in cauda paulo magis rufescens; alis intus nigricantibus, extus dorso concoloribus; fronte utrinque usque ad summum oculum anguste lutescenti-fulva; subtus albidus, in ventre flavido perfusus, pectore et hypochondriis saturatioribus; campterio et subalaribus flavicantibus; rostro superiore corneo, inferiore albido; pedibus corylinis: long. tota 3·8, alæ 2·2, hujus rem. primi 1·1, caudæ 1·5.

Hab. Guiana Britannica.

Mus. S.-G.

Species præcedenti affinis, sed fronte solum fulvescenti-lutea, pileo antico dorso concolori dignoscenda.

I base this species on a single skin obtained by Mr. Whitely at Bartica Grove in February 1880. At first I thought this specimen might be a young example of *H. ferrugineifrons*; but after a more accurate examination I have come to the conclusion that such is not likely to be the case, although the two species are certainly nearly allied.

Sect. E. *Species supra totæ olivaceæ.*

In this section three species may be arranged, distinguishable as follows:—

Pedibus cinereis, corpore subtus cinereo		17. *semicinereus.*
Pedibus flavis,	corpore subtus flavicanti-albo	18. *flavipes.*
	corpore subtus flavo	19. *viridi-flavus.*

17. Hylophilus semicinereus.

Hylophilus semicinereus, Scl. et Salv. P. Z. S. 1867, p. 570, t. xxx. f. 2, et Nomencl. p. 12; Layard, Ibis, 1873, p. 377.

Supra viridi-olivaceus, nucha vix cinerascente; subtus pallide cinereus, ventre medio albicante, crisso flavo tincto; subalaribus flavis; rostro læte corneo; pedibus pallidis: long. tota 4·5, alæ 2·1, alæ rem. prim. 1·2, caudæ 1·7, tarsi ·7, rostri ab ang. oris ·6.

Hab. vicin. urbis Para, in Amazon. inf.

Mus. P. L. S.

Two examples of this very distinct species (the type obtained by Mr. Wallace in 1849 and the specimen procured by Mr. Layard in 1873) are in my collection. I have never seen any others.

18. Hylophilus flavipes. (Plate XI. fig. 2.)

Hylophilus flavipes, Lafr. R. Z. 1845, p. 342; Bp. Consp. p. 329; Scl. P. Z. S. 1855, p. 144; Baird, Rev. Am. B. p. 375; Scl. et Salv. Nomencl. p. 12.

Supra grisescenti-olivaceus, pileo et dorso summo obscurioribus; alis intus nigricantibus, extus dorso concoloribus, cauda unicolori grisescenti-olivacea; subtus pallide ochraceo-albescens, in gutture dilutior; subalaribus et remigum marginibus internis pallide sulphureo-flavis; rostro pallide corneo; pedibus flavicantibus: long. tota 4·3, alæ 2·2, hujus rem. primi 1·3, caudæ 2.

Hab. Colombia int. et Venezuela.

Mus. P. L. S. et S.-G.

This species was established on "Bogotá" skins by Lafresnaye in 1845. In my collection and that of Messrs. Salvin and Godman are specimens of the same origin agreeing very fairly with Lafresnaye's description. A specimen (Mus. S.-G.) collected by Goering at Valencia, on the coastland of Venezuela, in May 1879, can with difficulty be separated from *H. viridiflavus*.

19. Hylophilus viridiflavus.

Hylophilus viridiflavus, Lawr. Ann. Lyc. N. Y. vii. p. 324 (1861); Scl. & Salv. P. Z. S. 1864, p. 348; Baird, Rev. Am. B. i. p. 380; Salvin, P. Z. S. 1867, p. 137, et 1870, p. 184; Scl. et Salv. Nomencl. p. 12.

Supra saturate olivaceus, dorso dilutiore; alis intus nigricantibus, extus dorso concoloribus; cauda fuscescenti-

olivacea unicolori; subtus pallide sulphureo-flavus, gula grisescente; subalaribus et remigum marginibus internis ventri concoloribus; rostro pallide corneo; pedibus flavicantibus: long. tota 4·3, alæ 2·3, hujus rem. primi 1·3, caudæ 2.

Hab. Veragua et Isthm. Panama.

Mus. S.-G.

Obs. Species *H. flavipedi* simillima et, sicut videtur, ferè æqualis; ventre flavo solùm diversa.

I have grave doubts whether this bird is really different from *H. flavipes*, but will not for the present unite them under one head. The only difference I can find is in the paler, more "washed-out"-looking hue of the yellow belly which prevails in the Bogotá skins, though one of my specimens is intermediate in this feature between the normal Bogotá form and the Panama bird.

III. List of Species unknown to the Author.

The following species of *Hylophilus* are unknown to me, and are not, I suppose, likely ever to be identified without access to the types:—

(1) Hylophilus flaveolus.

Sylvia flaveola, Max. Beitr. iii. p. 719.

Hylophilus flaveolus, Burm. Syst. Ueb. iii. p. 110, et Baird, Rev. A. B. i. p. 375.

Obertheile hell graubraun, am Rücken röthlich-braun; Unterrücken schön gelbröthlich; Flügel und Schwanz roströthlich-braun; Kehle weisslich; alle Untertheile gelbröthlich, nach hinten hinab immer dunkler und lebhafter werdend.

Hab. Bahia (*Maximilian*).

(2) Hylophilus olivaceus.

Hylophilus olivaceus, Tsch. Wiegm. Arch. x. pt. 1, p. 284 (1844); Fauna Per. pp. 28, 195.

H. affinis *H. thoracico*, Temm. Pl. Col. 173. fig. 1. Supra olivaceus cinereo lavatus, superciliis flavis; remigibus ardesiacis pogonio externo olivaceo-limbatis; campterio stramineo; subtus flavus, crisso albicante; rostro roseo;

pedibus carneis, unguibus flavicantibus; iride fusca: long. tot. 4″ 6‴.

Hab. Eastern Peru (*Tschudi*).

(3) Hylophilus frontalis.

Hylophilus frontalis, Tsch. Wiegm. Arch. x. pt. 1, p. 284 (1844); Fauna Per. pp. 28, 194, t. xiii. fig. 4.

H. supra virescens, fronte helvola; tectricibus alarum superioribus dorso concoloribus, inferioribus olivaceis; remigibus nigro-fuscis pogonio externo olivaceo, interno albicanti marginatis; rectricibus brunneis; subtus ex viridi flavescens, gula lætiore; pectore crissoque subrufis; rostro fusco; pedibus cæruleis; iride brunnea: long. tot. 6″ 3‴.

Hab. Eastern Peru (*Tschudi*).

IV. List of Species wrongly referred to *Hylophilus*.

(1) *Hylophilus cinerascens*, Max. Beitr. iii. p. 723; Burm. Syst. Ueb. iii. p. 111.

This bird I cannot make out, unless it be *Dacnis plumbea* (?).

(2) *Hylophilus ruficeps*, Max. *op. cit.* p. 725, = *Nemosia ruficapilla*, ex fam. Tanagridarum.

(3) *Hylophilus guira*, Max. *op. cit.* p. 729, = *Nemosia guira*, ex eâdem fam.

(4) *Hylophilus cæruleus*, Max. *op. cit.* p. 731, = *Nemosia pileata* ♀, ex eâdem fam.

(5) *Hylophilus cyanoleucus*, Max. *op. cit.* p. 734, = *Nemosia pileata* ♂.

(6) *Hylophilus ruficeps*, d'Orb. Voy. Ois. p. 219, t. xiii. fig. 1, = *Nemosia ruficeps*, ex fam. Tanagridarum.

(7) *Hylophilus leucophrys*, Lafr. R. Z. 1840, p. 227 = *Chlorospingus superciliaris* (Lafr.), ex eâdem fam.

(8) *Hylophilus brevipennis*, Gray, Hand-l. p. 383, ex *Helinaïa brevipennis*, Giraud, Ann. Lyc. N. Y. v. p. 40, t. iii. fig. 2.

What this may be, I cannot say. The plate looks more like *Conirostrum sitticolor* ♀ than any thing else I know; but if the head were grey instead of blue (as figured and described), it might be *Hylophilus decurtatus*, with the locality and dimensions of which it better agrees.

V. Remarks on the Geographical Distribution of the *Hylophili*.

As will be seen by the subjoined Table, the known species of *Hylophilus* are thinly distributed over the northern and more characteristic portion of the Neotropical Region from Mexico to Southern Brazil. They are entirely wanting in the Patagonian subregion and in the arid Pacific coast-region south of Guayaquil. In Western Ecuador one species certainly occurs, but we are only imperfectly acquainted with it. I have not yet met with any examples of this genus in collections from Bolivia, but it is almost certain that some species occur in the forest-region of that country.

	Mexico and Centr. Am.	Panama.	Colombia.	Venezuela & Trinidad.	Guiana.	Lower Amazonia.	Upper Amazonia.	S.E. Brazil.	Western Ecuador.
1. H. thoracicus	...	...	*	...	*	*			
2. H. pectoralis	...	...	...	...	...	...	...	*	
3. H. decurtatus	*	*							
4. H. muscicapinus	...	...	...	...	*				
5. H. pœcilotis	...	...	...	...	...	*	...	*	
6. H. amaurocephalus	...	...	...	...	...	...	...	*	
7. H. semibrunneus	...	...	*						
8. H. flaviventris	...	...	...	...	...	...	*		
9. H. fuscicapillus	...	...	...	...	...	...	*		
10. H. aurantiifrons	...	*	...	*	*	...	...	...	*?
11. H. insularis	...	...	...	*					
12. H. brunneiceps	...	...	...	...	*	*			
13. H. ochraceiceps	*	*							
14. H. rubrifrons	...	...	...	...	...	*			
15. H. ferrugineifrons	...	...	*	...	*	*	*		
16. H. luteifrons	...	...	...	...	*				
17. H. semicinereus	...	...	...	...	...	*			
18. H. flavipes	...	...	*	*					
19. H. viridiflavus	...	*							
	2	4	4	3	6	5	3	3	1

XXVII.—*Eleven Weeks in North-eastern Brazil.* By W. A. Forbes, B.A., Prosector to the Zoological Society of London.

Having been able during the past summer to gratify a wish that every naturalist must feel more or less strongly—to visit

personally some part of the tropics—by making a short excursion to the provinces of Pernambuco and Parahyba do Norte in Brazil, some account of my ornithological doings there may be acceptable to my brother members of the B. O. U.

Although Pernambuco is situated nearer to Europe than any other important city in South America, and is, indeed, the first port usually touched at in that continent by the various lines of mail-steamers to the Brazilian Empire and River Plate, very little appears to be known as regards any branches of its natural history. Mr. Darwin was there for a few days on his homeward voyage in the 'Beagle,' and has given us, in his 'Journal'*, some account of it, but he says nothing about its zoology. Swainson, in 1817, visited this part of Brazil† and collected some bird-skins, some of which are now, I believe, in the Cambridge Museum. Collections of bird-skins made in this locality have also from time to time come into the hands of Parzudaki and other dealers, but nothing, I believe, has been recorded of the avifauna of the district. Pernambuco being thus, as was pointed out to me by Mr. Sclater, comparatively little known and easily accessible from this country, I determined on making a short trip there. I left England accordingly on June 24th, in the Royal Mail Steamer 'Guadiana,' and arrived at Lisbon five days afterwards. Here I landed for a few hours, and of course called on the well-known Portuguese naturalist, Professor Barboza du Bocage. Unfortunately, however, it was a Saint's day, or some similar "*festa*," and he was absent in the country and the Museum closed. The only birds of interest I saw at Lisbon were three nice living Blue Magpies (*Cyanopica cooki*) in one of the numerous bird-shops near the river. Stormy Petrels (*Procellaria pelagica*?) had appeared on June 26th in the Bay of Biscay, and followed the ship for a day or two to Carril, and now, after leaving Lisbon, they were again seen once or twice. St. Vincent was reached on July 5th; but unfortunately the ship was put into quarantine, having taken on board a passenger from the Lazaretto at Lisbon;

* Nat. Voy. (1870) pp. 497–499.

† Lardner's Cab. Cycl. "Tax. and Biogr. of Nat." p. 344.

consequently there was no getting on shore. Thus I had to console myself by watching from the ship the numerous Egyptian Vultures (*Neophron percnopterus*) flying about the town, and was also gratified by seeing, for the first time, one or two Frigate-birds (*Fregata aquila*) soaring high in the air. As I again saw several of these birds (all in immature plumage) on my voyage home in October at the same place, I have little doubt that *Fregata* breeds somewhere in the Cape-Verd group, very likely on the "Bird Rock" that lies at the mouth of the harbour of St. Vincent. After leaving these islands no birds appeared for some days, save a solitary black-and-white Petrel (? *Fregetta grallaria*) seen in the distance; its flight, I noticed, was very different from that of the *Procellaria*! Passing Fernando Noronha on the evening of July 10, a Noddy (*Anous*, sp.*) flew on board and was caught by a sailor.

Numerous flying-fish and *Physaliæ*, the usual accompaniments of an intertropical voyage, helped to break the monotony of the sea, till Pernambuco was reached on July 12.

Pernambuco or, as I shall henceforth call it, Recife (the latter word meaning a reef, from the celebrated sandstone reef, described by Darwin and others, which forms its harbour) lies low, being built on a sort of delta of two small rivers, the Capibaribè and the Beberibè, which here flow into the sea. A little to the north of Recife is the old town of Olinda, situated on a hill of perhaps 200 feet or so above the sea, and commanding an extensive view of the flat and marshy country to the south which immediately surrounds Recife. Looking inland from this, the ground is seen to rise gradually, and then becomes more or less forest-covered, these low hills running to the south and west, and continuing into the hilly country which runs thence, more or less parallel with the coast, both north and southwards.

Recife itself, now probably the second city of the Brazilian Empire, with a population of about 90,000 souls, consists of three towns, connected with each other by excellent iron bridges. That with the port is Recife proper; the other two are called

* I will not venture to ascribe any specific name to this bird, seeing the difficulty that attaches to its correct determination.

San Antonio and Boa Vista. Northwards there lies between Recife and Olinda a low, mangrove-covered, swampy tract, separated from the sea by a beach of sand and shingle, whilst to the south lies Cocoa-nut Island and more swampy country. Towards the west lies the suburb called Boa Vista; and here, and extending more or less to Caxangá (an outlying village celebrated for its pine-apples, with which Recife is connected by a street-railway), are situated the villas and houses of the more wealthy inhabitants. These are generally surrounded by gardens, often well kept and stocked with all kinds of tropical plants, native or otherwise. Here, in a quarter called Estancia, I found excellent accommodation at a boarding-house kept by two American ladies, and tenanted chiefly by Englishmen engaged in business in Recife. As the house stood in a large garden of its own, with numerous fruit-trees, and abutted on a considerable tract of marshy and little cultivated ground, I determined on making this my head quarters, and after safely passing my baggage through the Custom House, set to work on the birds and insects.

There are some considerable patches of wood on the outskirts of the town in this direction, and numerous more or less deserted gardens, orangeries, and pieces of marshy ground, in which birds were fairly abundant, though in the town itself—excepting Urubùs (*Cathartes atratus*), a stray Humming-bird or two, Swallows (*Hirundo leucorrhoa*), and "Lavenderas" (*Fluvicola climacura*), which last are to be seen everywhere and are very tame, like Robins—not a bird is to be seen. No regular forest is met with till near Caxangá, about 8–10 miles from Recife, where the country becomes hilly and covered with thick wood, which, in places, is, I believe, undoubted virgin forest, though most of this has been cleared and replaced by second-growth (*capoeira*) of varying size and thickness.

Unfortunately the weather was not at all favourable to collecting during my stay in Recife, the rainy season, which usually, I was told, ceases about the end of July, lasting on more or less for another month*. As the soil here is, as nearly

* The dry and hot weather (which also is the season for yellow fever

universally elsewhere in Brazil, a thick red clay, the roads and by-paths remained almost impassable, rain falling heavily nearly every day for some hours.

In the "Gymnasium" of San Antonio is a small museum, with a decent, though badly named, series of birds and Mammalia. Most of the birds, however, are either from Pará or Rio, comparatively few from Pernambuco itself. I noticed two specimens of *Rhea macrorhyncha* (of which more below) and an *Ara spixi*, said to be from Angola! Amongst the Mammalia I saw some good specimens of the big Armadillo (*Priodontes*), which were said to be from the Sertoẽs of the interior.

After being in Recife for about ten days, an opportunity occurred of making a flying visit to Goyanna, a town situated near the coast about fifty miles north of Recife, and a great emporium of the sugar-trade. As there is a decent road the whole way, which passes by Olinda and Iguarassu, and the weather was not at all settled, we decided to drive. I was thus enabled to see something of the general features of the country, though there was little chance of shooting birds. Between the two towns the country rises somewhat, the more elevated parts being pretty generally covered with forest, often thick, whilst the lower slopes of the hills, and the moister bottoms between them, are nearly uniformly cleared or planted with sugar, some of the fields being of enormous extent. Birds were plentiful, especially in the more wooded parts; and I now saw Jacamars and Parrots alive and wild for the first time, as well as "Sangre de Boi" (*Ramphocælus brasilius*)

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on the coast) in Pernambuco commences about September and continues till March. November, January, and February are usually about the hottest months. May, June, and July are all very wet months, on the coast at least. The heat, even during the hot season, is never very great; during my stay, the ordinary temperature was about 78°–80° F. in the shade, and about 8°–10° cooler at night. The thermometer rarely falls below 65° even on the coldest nights, and at that temperature one begins to shiver in the tropics and want blankets! Further information on the climate of Pernambuco will be found in a paper by M. Beringer in the 'Annuaire' of the French Meteorological Society, vol. xxvi. p. 28 (1878).

and many other birds not to be found in the immediate vicinity of Recife.

After about three weeks' stay at Estancia, I paid a week's visit to Cabo, a station about twenty miles from Recife on the Recife and Saõ Francisco Railway, and the head quarters of the staff of that Company. Mr. Wells Hood, the general manager of the line, with whom I had gone out from England, possesses a capital residence here, and was kind enough to entertain me during my visit to Cabo. Here the country, which is generally flat so far, begins to rise in low, rounded hills, of no great elevation, which are covered, on their tops and steeper slopes, with the remains of the virgin forest. Unfortunately the weather during my stay at Cabo was exceedingly bad. It rained continuously for about three days, which resulted in a general flood of all the low-lying ground in the vicinity. Hence my collection of birds did not increase much, though I believe from what I saw that Cabo would in more favourable weather be a good locality. On August 12 I returned to Estancia, making excursions thence to Caxangá and other places in the vicinity. Having pretty well exhausted the neighbourhood of Recife by this time, on August 18 I started for a trip to Parahyba do Norte, the capital of the next province to the north of Pernambuco, in company with my friend Mr. C. A. Craven, of the Recife Gas Company, whose acquaintance I had made in Recife, and whom I found much interested in the natural history of the country. Parahyba is about ten hours' run up the coast, and I found the steamers belonging to the Brazilian Steam Navigation Company by no means worthy of the evil reports I had heard of them. They are fine, well-built boats, receiving a heavy government subsidy for each trip made. By their means communication is kept up between the imperial capital and the capitals of the more northern provinces of the empire up to Pará. Parahyba is situated in reality only about four to five miles from the sea-coast, on a river which is navigable, for these steamers nearly up to the town. The river, however, turns off considerably to the north at about the point where the town is situated, so that it is a trip of some ten to

fifteen miles up the river from the bar at its mouth to where the steamer stops. The country is low, and the river is fringed on each side with mangrove-swamps, behind which the forest-covered country, which rises towards the interior, appears. On the mud-banks exposed at low tide many white Egrets (*Ardea candidissima*) might be seen, as well as tens of thousands of a large and brightly coloured land-crab, with vermilion white-tipped claws, which gave quite a bright appearance to the scene. A railway, the Conde d'Eu, has just been commenced at Parahyba, to run inwards for about fifty miles, with the object of developing the sugar business. The inaugural fêtes which celebrated the turning of the first sod had just terminated when we arrived, and the English engineers charged with the construction of the line were now the most important and popular personages in the town. Their then chief, Mr. A. M. Rymer Jones, a son of the well-known naturalist lately deceased, was kind enough to entertain me at the house they occupied, and he and his companions made us very much at home during our stay there.

The country round Parahyba is flat, but rather thickly covered with forest, which extends from near the town to near the sea. I succeeded in securing the services of a Brazilian "Caçador" to shoot and show the way about. Though the number of birds I got did not at all equal the anticipations I had formed from his glowing accounts of the abundance of all kinds of beasts and birds around Parahyba, I nevertheless got a considerable number of new ones, and had several very enjoyable excursions with him and some of my English friends. Besides the thick forests, nearer the town there is a good deal of scrub and bush-covered country, where small birds were rather plentiful. In the forests, indeed, these were far less abundant than in the more open parts; and several times I walked for miles along tracts in the high and thick forests scarcely seeing or hearing a bird of any kind. "Antonio," however, assured us that at the proper season of the year, *i. e.* when the fruits were ripe, these forests abounded with "Tocanos," "Trocas" (*Columba speciosa*), "Gallegas" (*Columba rufina*), and many other birds of which

I saw nothing. Antonio himself was armed, like most Brazilians, with an ancient muzzle-loader of French make; it was quite uncertain whether or not this weapon would go off when needed. Usually it missed fire three or four times in succession, by which time the bird aimed at had generally been prudent enough to retire out of range. Hence he did not increase my bag very much, though his astonishment at the shooting-powers of my own gun, a double-barrelled central-fire of 16 bore, was immense, a successful shot being invariably greeted with much gesticulation of delight and loud remarks of "*Espingarda boa, espingarda ingleza,*" &c.

After a very pleasant week at Parahyba I returned to Recife by the steamer on the 24th. The 'Espirito Santo,' which had come from Pará, had on board as miscellaneous an assortment of passengers as I have ever travelled with, and it would be difficult to say whether there were more parrots or slaves on board; of the latter we had at least 200, on their way south to Rio to be sold for the coffee-plantations. Besides the parrots, chiefly *Chrysotis æstiva*, there were a lot of other birds and beasts, including a nice and tame *Lagothrix* and some electric eels. Of the birds, the most noticeable was an *Icterus chrysocephalus*, said to have come from the Rio Negro. This I bought, and kept alive in Recife, but unfortunately it died on its way home just as we got to Lisbon. I never saw the species alive in Europe nor elsewhere in Brazil.

When I left England I hoped to be able to go overland from Recife to the great waterfall Paulo Affonso, the "Niagara of Brazil," on the S.-Francisco river. However, the state of the roads up to the present time, as well as the difficulty of getting an interpreter (my own knowledge of Portuguese being very rudimentary), had prevented my making a start as soon as I had hoped. At length I succeeded in getting hold of a man who would do, and a day or two after my return from Parahyba, started with him from Recife. I had also endeavoured to get some one to skin and shoot, but in this was unsuccessful, the only man I could hear of wanting terms for his services which were quite unreasonable. The Recife and S.-Francisco railway runs

for about 70 miles in a S.S.W. direction towards the river from which it derives its name. From its terminus at Una (or Palmares) another line of about the same length is now in progress, continuing it on to Garanhuns, which is situated about halfway in a straight line between Recife and the Paulo Affonso. It was originally intended to have continued the line to the river above the falls near Boa Vista, and so to have brought down all the traffic of the upper part of the S.-Francisco river to the port of Recife. This, however, has proved too expensive for the government, and the "Prolongamento," as it is called, is now destined to stop at Garanhuns. There is therefore but little chance at present of the Recife and S.-Francisco railway ceasing to be a misnomer. A line, however, has been made and opened from the river above the falls near Tacaratú to Piranhas, situated below them, so that the traffic that was to have come to Recife now goes down to Penedo and Maceio at the mouth of the river.

The line of railway after leaving Cabo passes through a country similar to that which I have described as commencing there. The cultivation of sugar is general, and it is only on the tops of the hills, which are more or less rounded, hummocky, and low, the highest being perhaps 700–800 feet in height, that any extent of the virgin forest is left. In some places along the line patches of quite open country may be seen, which are covered with grass, without trees or undergrowth, and in general character a good deal resemble our south downs. I at first thought they were natural, but afterwards found out that they were *inclosed* spaces, used for horses and cattle. The grazing has evidently prevented them from becoming covered with a thick growth of *capoeira*, which always covers the hills where these have been cleared for sugar and afterwards allowed to lie fallow for a time. The destruction of the forests is still going on, as new ground is continually cleared by burning and cutting away the undergrowth for more sugar, so that in a few years there will, if this goes on, be little trace of the old forests left.

At Palmares the railway ceases, and henceforward all travel-

ling and traffic has to be done on horseback, there beingno roads in the interior worthy of the name. The earthworks of the "Prolongamento" are now nearly complete, only a few of the deeper cuttings and a tunnel or two being unfinished. The line of railway now forms the chief road to the interior; but at this time, after the end of the rainy season, the stiff red clay had become worked up, in most places, into the most frightful mud conceivable, so that the horses were often up to their knees in it, and the rate of progression in consequence was a walk. At Palmares I was fortunate enough to fall in with the engineer-in-chief of the first section, Dr. Abel, a most pleasant and well-educated Brazilian gentleman. He too was going up country with the paymaster, so that I had the advantage of his company and escort (two Brazilian troopers) for the first part of my ride. As far as Barra do Jangada (a small village situated on the river Pirangi, which falls into the Una near Palmares), about thirty miles from Palmares, the country retains much the same features, though it gradually rises towards the interior. The hills perhaps are higher, and in some places, as around Catende, still pretty thickly covered with "*matto*" (the Brazilian term for the virgin forest), there being less sugar-cultivation here than nearer the coast. Towards Barra do Jangada cotton appears for the first time, a sure sign of the increasing elevation of the country. Riding along in this way I had no opportunity of shooting, but from the saddle I saw many birds already seen or secured. The "Sangre de Boi," however, disappeared soon after leaving Catende, and I saw no more of it as we approached the Sertoës. Another day's ride brought us to Quipapá, the most important town between Una and Garanhuns.

After leaving Barra the country gets decidedly more hilly and open, and the forest begins to disappear, though many blackened and dead trunks of old forest trees standing on the higher hills show that this is due in large part to man's action. The soil is still clayey, resting on solid rock, apparently granite or gneiss, which in some places on the shoulders of the hills is left quite bare in great rounded patches. These

at first suggest glacial action; but I am inclined to think that in reality they are merely the beds of old streams which formerly flowed down over them before the disappearance of the forests on the hills around had reduced the rainfall, and so caused their drying-up. I had no chance of shooting before getting to Quipapá, though between that town and Barra I fell in with a fine specimen of the much dreaded Jararáca (*Trigonocephalus brasiliensis* ?), a rather rash attack on which resulted in nothing further on my part than a narrow escape from being bitten.

Quipapá is distant 12 leagues from Palmares, on the Pirangí, and is at an elevation of about 1450 feet above the sea. The mean annual temperature is about 72°·5 F., the maximum being about 92° and the minimum 62°. For these details I am indebted to my friend Mr. H. E. Weaver, an English engineer who resides there, and who is chief of the second section of the "Prolongamento." He entertained me most hospitably at his house for several days, and aided me greatly in obtaining specimens of all kinds, as well as in other ways. There is no high forest very close to Quipapá, though there are still patches of it on the higher hills here, as elsewhere. The lower slopes, where not cleared for sugar, are covered with a rather thick growth of brushwood, in which, particularly along the river, birds were rather abundant. The weather too had now become markedly finer; in fact, since leaving Recife, hardly a drop of rain had fallen. Soon after leaving Una I had made up my mind that any idea of getting to the S. Francisco in the limited amount of time (about a month) now at my disposal must be abandoned, as I was due at Cambridge by the middle of October. I very much regretted having to give up the Paulo Affonso, but getting there and back in a month would have entailed continual travelling, and I should have had no chance whatever of collecting. I therefore determined to go no further than Garanhuns or thereabouts, staying *en route* at various places to collect. At Quipapá I remained till September 6, and then went on a few miles to a Brazilian friend living at Vista Alegre, two houses in a valley off the main line of the

railway. From here I went, after a couple of nights, to Macuca, where I found a most hospitable (if somewhat primitive) welcome from Mr. J. Watt, also an English engineer employed on the Prolongamento. The country here much resembles that around Quipapá, but there is less forest and sugar and more *capoeira*. I continually added new birds to my list, and no doubt if I had had any assistance could have much increased the number both of species and specimens. But I had to do all my skinning myself; the Brazilians, though they talked much, did little, and that chiefly in snakes and lizards: my interpreter was useless for any purpose but to interpret (I doubt if he had ever fired a gun in his life), and my English friends were too busy with their professional duties to be able to spare much time to shoot; moreover, there were no guns available except those of the natives, and, as I have already said, the capabilities of these weapons as firearms were small.

After a few days most agreeably spent at Macuca I went on to Garanhuns, the termination of the "Prolongamento," distant about 80 miles from Una. Garanhuns is situated in the zone of country called the "Agreste," that intervenes between the forest-clad "Matto," which extends inwards 60 to 70 miles from the sea-shore, and the open, elevated country, or Sertoēs (pronounced "Sertongs"), of the interior. The "Agreste" zone participates to some extent in the features of both "Matto" and "Sertaõ"; the forests have not altogether disappeared, but are smaller in size and of a different character; the climate is much drier, and the vegetation lower and more scrubby in character.

In the Sertoēs, I am told (for I did not actually get into the real Sertoēs country), the vegetation becomes still more low and scrubby, and the aspect of the country generally arid and stony. There is little water, and cultivation is confined chiefly to the ridges of hills that intersect the general level of the plateaux of 3000–5000 feet forming the Sertoēs. In the height of the dry season many of the shrubs and trees lose their leaves. The growth of cotton and the raising of stock are the two great industries pursued in the Sertoēs,

which probably extend over nearly the entire area of the interior of the province of Pernambuco. The distance from Macuca to Garanhuns is about 33 miles; after leaving Canotinho, about an hour and a half's riding from Macuca, the aspect of the country begins to alter visibly. The soil becomes sandy, and the vegetation generally lower and more scrubby, with patches of forest in places. Great *Cacti*, too, some 40–50 feet high, and forming large trees in some places, become conspicuous features in the landscape, and two or three species of *Begonias* also appear. In bird-life the "Salta Caminho" (*Zonotrichia pileata*) for the first time appears, hopping about the sandy roads, and marking the changed nature of the country.

Garanhuns is a large village (although called a city) of perhaps more than 2000 inhabitants, and lies at an elevation of about 3000 feet above the sea. The country round is hilly, though none of the hills attain any great elevation; these are pretty uniformly covered with a thick scrub of low bushes and aromatic herbs, with, in some places, small patches of "*matto*." There is little water. The temperature is noticeably cooler than nearer the coast, though sufficiently hot when the sun shines; indeed, on account of its dry soil and rather bracing atmosphere, Garanhuns is acquiring some celebrity in Pernambuco as a sanatarium, during the dry season, for the residents in the lower parts. I was most hospitably entertained, during my week's stay at Garanhuns, by Senhor Doutor José Aloes Lima, the Juiz Municipal, who most kindly placed an empty house at my disposal, where I slept and kept my apparatus. The country round Garanhuns seemed to be rather rich in birds; but partly from the thickness of the scrub, which in some cases was nearly impenetrable, and partly, I think, from the recent occurrence of a prolonged "*Secca*," or drought, during which everybody who could went out and shot small birds indiscriminately, thereby rendering them very shy, I failed to get several species I saw there and did not elsewhere meet with. A more prolonged stay would, I feel sure, have added numerous species to my lists. I also believe that Garanhuns would

prove a very rich station for a botanist, judging from what I saw of its flora during my rambles after birds or insects.

Garanhuns is the principal town of a considerable district, and every Saturday a fair takes place there, which is largely attended by the "*Matutos*," or peasants of the country round. I was told this fair would be a capital chance of obtaining animals and birds from the country people who come in to attend it; and I therefore decided to stay a couple of days to witness it, rather than going on to S. Bento, in the Sertões, about 35 miles north of Garanhuns, and returning thence by a different route to Macuca, as I had originally intended. However, the fair, though it certainly gave me an excellent chance of seeing "the natives" (and, perhaps I should add, of their seeing me), produced nothing, or next to nothing, in the way of "*bichos*," a most convenient term used in Brazil for denominating all and any animals from an elephant to a blackbeetle. I managed, however, to pick up a live "Ema" (*Rhea macrorhyncha*), of which more anon, at Garanhuns, as well as a lot of Tinamus, sundry Hawks, Guans, and other live birds, so that when I left I had a regular caravan of living animals, which necessitated my taking on an extra horse or two and man for their safe conveyance to Palmares. I finally left Garanhuns on September 19th, and returning by the same way as I came, stopped *en route* a night at Macuca and two days at Quipapá, and reached Recife September 24th. A few days were spent in packing up and settling things generally; and on September 29th I left, with my live animals, which had now increased to about 35 in number, in the Royal Mail Steamer 'Neva,' and arrived at Southampton October 15th.

Before concluding this account of my trip, I ought to return my best thanks to the numerous gentlemen in Brazil who did all in their power to help me, and especially to my friends Mr. Wells Hood of Cabo, who most kindly procured me numerous valuable introductions, to Messrs. W. Elliott and C. A. Craven of Recife, to Mr. Curling of Parahyba, as well as to Messrs. Weaver, Watt, Abel, and the other engineers of the "Prolongamento," and to Dr. Lima of Garanhuns.

The total number of species of birds of which I obtained or observed specimens during my trip was 116. In the following list they are treated of in systematic order, according to the nomenclature of Messrs. Sclater and Salvin's 'Nomenclator Avium Neotropicalium,' unless otherwise stated. I am much indebted to Mr. Sclater for having kindly gone through and named the greater number of my birds for me, whilst Mr. Salvin was good enough to give me the names of the few others.

As far as can be judged from the results of a short trip like mine, the avifauna of Pernambuco is essentially South-east Brazilian, with few, if any, Amazonian forms. It would appear from my observations on the birds, and from the general features of the country, that Pernambuco is far less rich in birds than either Bahia or Pará, the comparative poverty no doubt being due to the long time that the country, at least near the sea, has been colonized, and to the consequent destruction of the primæval forests. Moreover, as the forest only forms a comparatively narrow zone along the coast, with a dry and elevated "campos" country behind, there has been no possible retreat towards the interior for the original inhabitants of the coast forests, and many of the most characteristic forms have, in consequence, disappeared or become scarce. Of course my collections do not represent any thing like the total number of species to be found in Pernambuco; but I think the above conclusion will be confirmed by further collections from that district.

From what I heard of the nature of the country, Ceará, and most likely Maranhão as well, must probably be included within the limits of the South-east Brazilian fauna, so that the boundary between it and the Amazonian province must lie still further north-west on the coast, whilst in the interior it may correspond to the watershed between the Tocantins and the Paranahyba.

The following is an account of the birds of which I obtained or observed specimens. The specimens are mostly deposited in Mr. Sclater's collection.

1. Turdus fumigatus.

I am not quite certain as to the correctness of the above name, though it is probably this species that occurs in this part of Brazil, as the only specimen of this Thrush that I shot fell into a swollen stream and was lost. Two I bought alive also escaped.

The "Sabiá," as it is called by the Brazilians, is very much esteemed by them as game, and therefore relentlessly shot down; hence it has become a very shy bird, at least in the neighbourhood of towns. It has a rather pleasant song, and is also on this account sought after by the natives, who keep it as a cage-bird very commonly. I saw caged specimens in nearly every place I visited from Parahyba to Garanhuns, but only a few times observed it in its native state at Cabo and Recife, so can say nothing further on its habits.

2. Turdus rufiventris.

I found this Thrush common all over the districts I visited, except in the immediate neighbourhood of Recife. In its habits it much resembles the common Thrush of England (*T. musicus*), spending a good deal of its time on the ground in pursuit of its food. It is usually to be seen in paths in the lower second growth, or in the clearings for railways, or on the line itself, and is not found in the thick forests. The Brazilians call this Thrush, as well as the preceding species, "Sabiá," and esteem it highly for eating-purposes. Hence probably it has become rare near Recife, and shy elsewhere in the neighbourhood of towns.

Eyes brown; beak greenish yellow, the upper mandible greyer; feet dirty flesh.

3. Polioptila leucogastra.

I first met with this elegant little bird near Parahyba, and subsequently saw it frequently in the interior between Quipapá and Garanhuns. It goes about in small companies of two or three, and is a most active little creature, in almost perpetual motion from twig to twig, the meanwhile constantly flipping its tail up and down.

Eyes brown.

4. Donacobius atricapillus.

This bird I first observed from the train on the railway between Cabo and Una, frequenting the marshy bottoms of the valleys. I subsequently saw it at Cabo, and found it more or less abundant in suitable situations all along my route thence to Macuca. It is a very noisy bird, with a loud chattering cry. It flies about in small companies of three or four, and is found among the marshy vegetation that grows along the banks of the streams. The bird is a very conspicuous one, both owing to its noisy cry and the habit it has of fluttering its short and rounded wings, when the white bar at the base of the primaries forms a very much more striking mark than would be imagined from the skins. I heard the name "Casaca do Couro," signifying "Leathern Jacket," applied to this bird by a Brazilian friend who had paid some attention to animals; but whether it is the same bird as that mentioned by Capt. Burton ('Highlands of Brazil,' ii. p. 316) under the same name, and noticed by him on account of its remarkable nest, I do not know. I never saw *Donacobius* nesting. As mentioned by Burmeister (Thiere Bras. ii. p. 130) there is a narrow naked space, about an inch long, on the neck of this bird, behind the angle of the jaw, which shows conspicuously in the shot bird. It is coloured bright chrome-yellow (Burmeister says "*fleischroth*"), and with the bright yellow irides makes a freshly shot *Donacobius* a far more beautiful object than one that is skinned. This brightly coloured nude space is probably present in both sexes, as the only specimen I procured was a female. I do not at present recall any precisely similar case of ornamentation by a bright nude skin-space on this part of the neck in any other bird—certainly not in any other Passerine. The feet are grey.

5. Troglodytes furvus.

This is the common Wren of the country, and is very abundant everywhere in the neighbourhood of houses or gardens, though it is not much of a forest-bird. It has a remarkably strong song for such a small bird, and may often be seen perched on the roofs of the houses of the

villages in the early morning, carolling. For its notes it is, I think, on the whole the best singing-bird I heard whilst in Brazil.

Eyes brown; feet flesh-coloured.

6. Basileuterus auricapillus (Sw.)*.

I shot a single female specimen of this bird, the only one I saw, in the depths of some high forest near Quipapá.

7. Cyclorhis albiventris.

I found this curious bird rather common nearly all over the country I visited, though nowhere abundant. It is found amongst the vegetation of the more open parts, usually singly, and seems to be a very quiet bird, hopping about from leaf to leaf of the bush or tree it is in, and not uttering any cry; at least I never remarked any.

The irides are beautiful bright orange-yellow; the strangely shaped bill has the upper mandible dark flesh-coloured, the lower pale bluish slate. The feet are pale dirty fleshy.

8. Hirundo leucorrhoa.

This Swallow I found very common in Recife, where it might be seen flying about in numbers in some of the streets, as well as over the rivers which separate the various parts of the town. I also observed it at Parahyba; but in the interior it seems to disappear, and be replaced by the *Atticora* next mentioned.

9. Atticora cyanoleuca.

I did not bring home any specimens of this Swallow, the only one I shot having been too much damaged to skin; I have, however, little doubt that this is the species I met with, as I continually saw it in numbers, and was able to examine it often through my field-glasses. It was very abundant at Cabo, and might be seen there sitting in numbers, particularly in the morning, on the telegraph-wires of the railway opposite Mr. Hood's house; I also saw it at Parahyba and Garanhuns, perched on the roofs and eaves of the churches, and therefore not to be shot at with impunity. In Recife,

* *Cf.* Berlepsch, *antea*, p. 240.

on the other hand, I never saw it at all, though the last species, as already mentioned, abounded there.

10. Stelgidopteryx ruficollis.

This Swallow I found common in numerous places from Recife and Parahyba on the coast inland as far as Macuca. It perches freely, and may be often seen along the roads and railway, where there are cuttings exposed.

Eyes brown.

11. Dacnis cayana.

I only rarely met with this species, once near Caxangá, and another time near Recife, where I came across a small flock of three or four in an old, overgrown garden some two miles from Estancia; of these only one was a full-plumaged male. I also saw one or two near Parahyba.

Irides red-brown; beak blackish brown, with the base of the mandible fleshy; legs fleshy, the claws greyer.

12. Dacnis plumbea.

I only met with this bird in the garden at Estancia, and there only saw it a few times. It hops about the trees and bushes in a systematic sort of way, going from leaf to leaf in search of small insects and other food, which it picks up off the leaves. I did not observe any full-plumaged male.

Eyes (in the female) greyish brown; legs dirty flesh-coloured; beak pale fleshy, with the culmen broadly darker, horny black.

13. Cœreba cyanea.

Only once did I come across this bird—a single specimen in immature plumage that I saw in the garden at Estancia.

14. Certhiola chloropyga.

This little bird is one of the very commonest in those parts of Brazil I was in, being most abundant in all the gardens near Recife, and almost equally so elsewhere in the neighbourhood of houses, though sometimes seen in the wilder parts. It assiduously visits all the shrubs that may happen to be in flower in any particular spot, collecting from the

blossoms its meal of insects, mixed, no doubt, with the nectar of the flowers. It has a weak, though rather pleasing, song of a few notes, the last note being considerably more powerful than those that precede it. It is known by the Brazilians as "Guarratan," a name, however, which it shares with the *Euphonia* and some other Tanagers.

Eyes brown.

15. Euphonia violacea.

This violet-and-yellow Tanager I found sparingly round Recife, and also at Parahyba, both in gardens and in the vicinity of high forest. I did not, unfortunately, see enough of its habits to throw any light upon the *raison d'être* of the peculiarly-developed stomach of this genus, a feature first observed by the late Dr. Lund, and lately redescribed and figured by myself*. This bird is kept commonly as a cage-bird by the Brazilians, who call it "Guarratan," a name, as already observed, also applied to several other small brightly plumaged birds.

16. Calliste fastuosa.

This very beautiful Tanager, to my mind one of the finest of the beautiful genus it belongs to, is believed to be peculiar to the province of Pernambuco, from which skins are occasionally received by the dealers in Paris and elsewhere. It is a species often seen, too, alive in the larger Zoological Gardens of Europe, though no naturalist seems to have yet met with it in the wild state. It does not appear to be common in Pernambuco—at least I only met with it twice, once near Macuca, where I shot a female out of some bushy *capoeira*, and again at Quipapá, where I saw what I believe was this species in the virgin forest. The bird, however, was perched at a great height from the ground, in the topmost branches of a large tree, and only the brilliant orange-yellow of its rump was visible. Whilst staying at Cabo, a freshly shot adult of this bird was also brought to me to skin, so that probably

* P. Z. S. 1880, pp. 143–147, "On the Structure of the Stomach in certain Genera of Tanagers."

it is also to be found considerably nearer to the coast than the localities I saw it in.

Eyes brown.

17. Calliste festiva.

I only saw this beautiful *Calliste* once, when I fell in with a small party of it in a patch of virgin forest near Quipapá, and succeeded in shooting a fine male.

Eyes brown.

18. Calliste flava.

This beautiful, though peculiarly coloured, bird is, perhaps with the exception of *Tanagra cana*, the commonest Tanager in the provinces I visited. I met with it everywhere from Recife to Garanhuns; and though never seen in numbers, it appeared to be fairly abundant. It frequents chiefly gardens or plantations of fruit-trees, but I have also seen it in thick forest country. It was abundant in the garden at Estancia, frequenting the orange-trees, sapotís (*Achras sapota*), and other fruit-bearing plants; and I have also met with it feeding on the flowering shrubs of the virgin forest. It goes about either singly or in small companies, and most of the specimens seen are either immature or females. The adult males are usually met with singly, though I have seen three perched close together in the same tree. I failed in my endeavours to bring living specimens to England, though I got one as far as St. Vincent.

Eyes brown; feet lead-grey.

19. Tanagra sayaca.

This Tanager is abundant all over the country. It is found, like the last species, in small flocks of four or five, and is common near the vicinity of houses and gardens wherever there are fruit-trees. At Estancia it abounded, visiting the orange- and lemon-trees, also the sapotís, mamans (*Carica papaya*), and other fruits in season. It did not apparently mix with *T. palmarum*, and left the cocoa-palms to the latter species, preferring the lower and bushy trees. The Brazilian name is "Sayaçu," a name, however, which they also apply to *T. palmarum*.

Eyes brown.

20. Tanagra palmarum.

This Tanager is very abundant near the coast, and may be seen in numbers quite close to Recife. In the interior it is less common, though I saw it once or twice near Macuca. The specific name is very appropriate, as the bird frequents the cocoanut-palms, flying in small flocks from one tree to another, and settling about the root of the "crown," where it probably finds abundant food in the shape of insects and spiders.

Eyes brown; feet leaden grey.

21. Ramphocœlus brasilius.

I first met with this splendid bird on the road between Iguarassu and Olinda, and subsequently found it abundantly, in favourable situations, nearer Recife, as well as at Parahyba and all along the line of railway as far as Catende. It seems, however, an essentially low-country bird, and as the country rises in the interior disappears. This bird goes about, like several of the other Tanagers, in small parties, composed chiefly of immature or female birds, so that the number of those seen in the gorgeous crimson and black dress of the adult male is comparatively small. It is always to be found in the low bushes and vegetation that grow about the lower slopes and bottoms of the valleys in the neighbourhood of water, and is never, according to my observation, found in gardens or the virgin forests. It has a quick, rather loud, sharp, chirping note, of a single syllable, repeated several times in sharp succession, which one soon gets to recognize. The Brazilian name is "Sangre de Boi," *i. e.* ox's blood, from the brilliant crimson of the plumage of the male.

Irides orange-brown.

22. Tachyphonus melaleucus.

This Tanager is widely spread over the province of Pernambuco, where I met with it at nearly all the places I visited, from Caxangá to Garanhuns; and I also obtained it at Parahyba. It is usually seen singly or in pairs, the black male with the chestnut female. The stomach of one I examined contained insects.

Eyes brown.

23. Nemosia pileata.

I obtained this species of *Nemosia* in the garden at Estancia, where, however, I only observed it once or twice. The only other place I met with it was at Cabo, where I once saw two or three in Mr. Hood's garden.

Eyes bright yellow; legs horny yellow, with the claws horny.

24. Nemosia fulvescens.

I first met with this Tanager at Quipapá, where it was not uncommon in the low bushy *capoeira* near the river. It was usually seen in small companies of three or four, hopping about amongst the leaves like a *Dacnis*. I also saw it at Garanhuns, but not nearer the coast.

Eyes brown; beak and legs grey.

25. Saltator magnus.

I only once met with this bird, which I shot in thick and high forest some miles from Parahyba.

Eyes brown.

26. Orchesticus capistratus.

This curious Bullfinch-like Tanager I first met with near Vista Alegre, about halfway between Quipapá and Macuca. I subsequently saw it at both those places, as well as at Garanhuns; indeed it seems rather a common bird in this part of the province. It is nearly always seen singly near, but not in, high forest, and perches in the larger trees that rise above the bushes and undergrowth of the *capoeira*. It appears to be not at all shy, and is easily shot. The sexes are similar.

Eyes reddish brown; feet black-grey.

27. Orchesticus ater.

This bird was rather abundant round Parahyba in the neighbourhood of the forest, and in its habits resembles the last species. At Vista Alegre I found both species together in the same locality, but beyond that point it seems to be replaced by *O. capistratus*.

At Parahyba I obtained a specimen which is in all proba-

bility the *young* bird of this species, though it was the only one seen in that plumage. It is of a dark olive-green above, lighter below, with the forehead, chin, breast, and angle of the wing greenish yellow. It is probably *O. ater* in this phase of plumage that was described by Sclater as *Tanagra olivina* (cf. Sclater, P. Z. S. 1881, p. 213).

I bought a single living specimen of this bird in a shop in Recife, and brought it safely to London, where it is still living in the Zoological Society's Gardens. I never before saw it living in Europe.

Eyes reddish brown; the beak leaden grey, with the tip broadly black (in the adult).

28. Guiraca cyanea.

The Blue Grosbeak I first saw on the road between Iguarassu and Olinda, and I subsequently met with it at most of the places I stayed at as far as Parahyba and Garanhuns. It frequents low bushy ground, and is usually seen singly or in pairs. The Brazilians call it "Azulin."

Eyes brown.

29. Oryzoborus torridus.

I only twice met with this little Finch, which I saw singly near Cabo and Parahyba.

An allied species (*O. maximiliani*?) is kept as a cage-bird by the Brazilians, who give high prices for them, they being much esteemed for their song, which is supposed to be only surpassed by that of the "Patitiva" They call it "Bicuda," from its large beak.

30. Amaurospiza unicolor.

Whilst staying at Quipapá a Brazilian servant of Mr. Weaver's brought me a fresh specimen of this rather rare little Finch, which he had obtained near the town. This was the only specimen I saw.

Eyes brown; feet fleshy grey.

31. Spermophila nigro-aurantia.

I obtained this species at Recife, frequenting the same localities as the next two, but it appeared to be less common.

I also saw, and shot, what I believe was a specimen of this bird near Vista Alegre, but did not succeed in finding it. The Brazilians call it "Caboclo," a name applied to the tamed aboriginal Indians in Pernambuco. It may sometimes be seen in Recife in cages with crowds of sundry other *Spermophilæ*, Canaries (*Sycalis*), Cardinals (*Paroaria*), &c.

32. Spermophila gutturalis.

This little *Spermophila* was very abundant in the garden at Estancia, frequenting the reedy and marshy parts, where it congregates in small flocks, feeding on the seeds of the grasses, sedges, and other similar plants. I also saw it abundant afterwards at Quipapá, as well as in the low bush-covered country round Garanhuns, so that it is by no means confined to the sea-board or even to the neighbourhood of water. It is often kept as a cage-bird.

Eyes brown.

33. Spermophila hypoleuca.

This species of *Spermophila* is also common and widely distributed, frequenting grassy or open places, and often coming into gardens. It appears to feed mainly on grass-seeds, and is social in its habits. The females are brown. Called by the Brazilians "Papa Cupim," *i. e.* grass-eater. This name it shares with *S. gutturalis*.

Eyes brown; bill (in the male) fleshy red.

A closely allied species (*S. plumbea*, distinguished easily by its smaller and black beak) I never succeeded in identifying for certain in a wild state, though it is greatly esteemed by the Brazilians as a cage-bird. They call it "Patitiva de Parahyba" (those caught at that place being supposed to be particularly excellent songsters) and often pay considerable prices for good singers. The song is loud for the size of the bird and rather pretty, though monotonous, and not at all comparable to a Nightingale's, or even a Red Cardinal's (*Cardinalis*).

34. Volatinia jacarina.

This little Finch, though not very common as a rule, I found widely spread, extending from Parahyba and Recife on

the coast to Quipapá and Vista Alegre in the interior. The adult males may often be seen singly, and they have a peculiar habit of selecting some particular twig on a bush or small tree as a pet perch. Here they sit for a long time, twittering out a little song of a few notes, and then jumping vertically up some little way in the air, and, turning a somersault, alighting in the same place. I have watched them on several occasions repeat this performance a number of times consecutively, continuing, in fact, till they were disturbed. They would then fly off to some other place, and go on with their performance. The females and young birds are brown, and these seem to be more sociable, going about in small flocks. The Brazilians call the bird "Saltadó."

The eyes are brown.

35. Paroaria larvata.

The Red-headed Cardinal I found common at Parahyba, and again saw it in the neighbourhood of Garanhuns, so that it occurs all over the district I traversed. It is usually seen singly or in pairs in the more or less cleared and open ground near cultivation. Many dozens are brought into the market at Recife to sell as cage-birds.

The Brazilians call it "Gallo do campina."

36. Zonotrichia pileata.

This bird marks the approach of the traveller, as I have already mentioned, to the Sertoēs of the interior. I never once saw it on the coast, or anywhere in the "*matto*" zone, though on passing Canotinho and getting on to the sandy soil of the interior, it almost at once becomes abundant. Round Garanhuns it was very common, hopping about the highroads, often two or three together, and very tame.

The Brazilian name is "Salta Caminho," or "Road-Hopper."

37. Coturniculus manimbe.

I only got this bird at Caxangá, where it seemed rather common, frequenting the heaps of rubbish left near the railway station.

Eyes brown.

38. Chrysomitris yarrelli.

Of this pretty little bird I obtained a living specimen at Parahyba, which is now alive in the Zoological Gardens. I subsequently saw one near Garanhuns, and a pair near some forest close to Quipapá. The Brazilian name was, I understood, "Pinta Silva" (? Pintasilgo=Goldfinch).

39. Sycalis flaveola.

The "Brazilian Canary" is a very abundant bird in the parts of Brazil visited by me, being found from the coast, at Parahyba and Recife, to the interior. Large flocks of it, sometimes containing one or two hundred individuals, may be seen in suitable localities, which are usually the more or less cleared grounds in the neighbourhood of *engenhos*, or sugar-farms. In these places it frequently consorts with numbers of the little green Tapacú Parrakeets (*Psittacula passerina*). A specimen which I shot near Cabo "towered" in the air, as wounded Partridges and other birds often do, to a height of fifty or sixty feet or more, and then dropped down dead; on examination I found it had been shot through the brain.

The "Canario" is a very common cage-bird with the Brazilians, nearly every house having one or more pairs.

40. Cassicus persicus.

This is one of the commonest and most characteristic birds of the country near the coast, where it is very abundant, and may be seen commonly, even in the neighbourhood of Recife, nearly anywhere where cocoa-palms grow. It usually goes about in small parties of about four or five, which keep up, when perched, a continuous chattering, often leading to their discovery before being seen themselves. Towards evening they seem to collect in larger parties, as at that time numbers might often be seen returning homewards, always flying in the same direction, and usually making for a clump of palms, on which, no doubt, to pass the night. In the interior it is much less common, and I often went several days without seeing one. The Brazilians call it "Sheshou," and keep it often in cages.

Irides deepish blue.

41. Icterus tibialis.

This bird I first observed at Quipapá, where it was not uncommon in the vicinity of the town, flying about in small companies of twos and threes. I afterwards found it at Macuca and Garanhuns, and saw a single specimen in the garden at Cabo a few days before I sailed, though I did not see the species at all during my previous stay there. The bird is also found at San Lorenzo, a village about 20 miles west of Recife, as a living specimen I bought in Recife came from there. The bird is not rarely to be seen caged in the houses of the Brazilians, who call it "Sheshou de Bananeira," to distinguish it from the common "Sheshou" (*Cassicus persicus*). It is also sometimes called "Soldado," or soldier. I succeeded in bringing three specimens alive to London, two of which are still living in the Zoological Gardens, where it has not before, I believe, been exhibited alive.

Eyes reddish brown; feet bluish grey.

42. Molothrus bonariensis.

I never met with this species in the wild state, but saw several in cages in Recife, Quipapá, and elsewhere, and was told that it was found in the neighbourhood.

43. Leistes superciliaris.

This Red-breasted Hangnest I only saw at Cabo. Here it was abundant in the open, down-like fields that are found on the *engenhos* where the forest has been cleared and subsequently inclosed for the use of cattle and horses. I only once or twice saw the full-plumaged birds; all the others were immature, and these kept in large flocks like Starlings, feeding, like them, largely on the ground on the insects and other creatures always present where cattle are feeding.

This is, I believe, the most northern locality from which the species has yet been recorded. It is replaced further north by a representative (*L. guianensis*) which has no white supercilia.

44. Aphobus chopi.

A single female skin that I brought home is apparently referable to a small form of this species, which I found rather abundant at one or two localities, Vista Alegre and Macuca,

in the interior of Pernambuco. Though local, the bird was common where it occurred, flying about in large flocks, like Starlings, in the neighbourhood of sugar-plantations. They were rather wary and not easily approached. The Brazilians called it "Arumará."

Eyes brown.

45. Fluvicola climacura.

This bird is, I consider, the most characteristic of the country of all the species met with during my trip. Save in the thick forest, it may be seen nearly everywhere, even in the busiest parts of the town of Recife, close to the sea, and everywhere it is conspicuous alike by its tameness and its sharply contrasted colours. To the structure of a Tyrant-bird it unites the habits of a Wagtail and a good deal of the appearance of a *Saxicola*. It spends a great part of its time on the ground, running swiftly, like a Wagtail, after the insects which it puts up, and seizing them as they rise from the ground. It is by no means afraid of man, coming up to within a few yards of the houses, and mixing freely with the poultry and dogs of the establishment. Usually it is seen in two or threes, but never, so far as my experience goes, in flocks or larger parties. Frequently two may be seen perched on the top of a wall or house, "standing up" to each other, with fluttering wings, spreading tails, and outstretched necks, chattering away vigorously at each other the whole time. It is nearly the only bird that is not shot or eaten by the Brazilians. They call it the "Lavendera," or Washerwoman, from a legend of its having formerly performed those functions to the Virgin Mary. Hence they hold it almost an act of sacrilege to kill one, and think very much the same of a man who shoots a "Lavendera" as we do in England of one who kills a Robin. In consequence of this immunity from destruction, the Lavendera is, as I have already said, exceedingly tame and familiar everywhere, and even nests close to the houses. One or two nests that I observed were built in low bushes, and composed of a loose fabric of grass-stems, vegetable fibres, &c. Both the birds seemed to take

part in the construction of the nest, and made a great business of it, though it was apparently done in a desultory sort of way, and as much for pleasure as business. At least two nests I observed closely were never finished, and apparently ultimately abandoned.

46. Arundinicola leucocephala.

This bird I only observed near the sea-coast round Recife, at Caxangá, and near Parahyba. It frequents the margins of ponds or rivers, as its name well indicates, and is usually seen solitarily, though near Caxangá I came across three or four together on the edge of the same pool, a family party of parents and young birds, the latter being distinguishable by their less-defined colouring.

Eyes brown; beak blackish horny, the lower mandible at base (normally) yellowish; legs and claws black, the soles paler.

47. Machetornis rixosa.

I obtained this bird at Recife, and subsequently saw it at Cabo. Its habits resemble those of *Myiozetetes*, from which, indeed, I did not, at the time of getting my specimen, distinguish it.

48. Todirostrum cinereum.

This little Tody-like Tyrant I found rather common from Recife and Parahyba to Garanhuns. It is usually seen singly, but I have sometimes seen two or three together, chasing each other and fighting furiously, like Humming-birds. It hops about nimbly from twig to twig of the particular bush or shrub it is in, in search of insects, and does not, as far as I saw, select a particular perch from which to dart off at any passing insect, like so many of its congeners.

49. Euscarthmus gularis.

I only met with this bird once or twice round Garanhuns, where it occurred usually singly, actively hopping and creeping about the thick scrub which is so prevalent there, very much in the same way as the last species.

Irides brown.

50. Serphophaga subcristata.

I shot a single specimen of this bird in the thick scrub near Garanhuns.

51. Phyllomyias semifusca.

This little bird was abundant in gardens round Recife, resembling in its habits *Elainea pagana*.

52. Elainea pagana.

This Tyrant I also met with commonly, from the sea-coast to Garanhuns. In its habits it resembles the other larger Tyrannidæ, but has no loud call-note. It is common in gardens, and has rather a pleasant, low, warbling-like song of a few notes; when the bird sings, its throat-feathers are considerably puffed out. The elongated head-feathers form a sort of crest, which is erected when the bird is excited.

Eyes brown.

53. Myiozetetes similis.

This species of Tyrant-bird is very abundant in those parts of Brazil I visited. In its habits it resembles *Pitangus sulphuratus*, being usually seen singly or in pairs, perched in conspicuous positions on the projecting or topmost branches of the trees, and flying off from them in pursuit of its prey. It is common in gardens, even in the neighbourhood of houses, and, compared with the *Pitangus*, it is a silent bird, without the characteristic notes of that species. The Brazilians, however, do not discriminate between the two, and call both alike "Bentivi."

Eyes greyish brown.

54. Pitangus sulphuratus.

This bird is one of the very commonest and most characteristic of the country, being seen nearly everywhere, and from its habits most conspicuous, even to the casual observer. The "Bentivi," as it is called, from its note, almost always selects some prominent twig or branch of a tree on which it perches, and from that post of vantage flies off after any passing insect; then, having captured it, it returns to its favourite spot to repeat the process, varied only by con-

tinually uttering its loud, somewhat plaintive, but screaming cry, *ben-ti-vi, ben-ti-vi,* &c. Frequently two may be seen together, but they are not at all gregarious in their habits. Where these birds are common, as in most gardens in the neighbourhood of houses, the ear soon gets to recognize their continued *ben-ti-vis* as a pleasant evidence of the Neotropical fauna. The flight is weak and undulating and never long sustained.

55. Hirundinea bellicosa.

The first specimen of this curiously coloured Tyrant I saw was just after landing at Parahyba, where it was perched on the roof of one of the houses close to the river. Subsequently I saw it again several times, both there and at Quipapá, in similar positions, but being always in the towns, and on houses, or, more frequently, churches, I was unable to get a shot at one, for fear of consequences in the shape of a "row" with the police or other authorities. From its post of vantage it flies off after passing insects, and after capturing them returns to its former perch, in the manner of other Tyrannidæ. I was rather surprised to meet a pair of the same birds a few days afterwards at Macuca, both of which I got. They were met with in *capoeira,* a long way from any houses, perching in the larger trees which rose above the thick scrub and bushes below.

Eyes brown.

56. Myiobius nævius.

I shot a single specimen of this Tyrant in a patch of high forest near Macuca.

Eyes straw-yellow.

57. Myiochanes cinereus.

I only got this species twice, in the high trees of the forest near Quipapá and at Macuca. It appears to be solitary in its habits.

Irides brown; feet black; upper mandible blackish brown, lower one pale orange.

58. Myiarchus tyrannulus.

I first met with this bird near Quipapá, and afterwards

obtained several specimens between there and Garanhuns. It is a quiet solitary bird, which usually I met with perched on the sides of paths or tracts through the brushwood, and was not shy.

Irides brown.

59. Tyrannus melancholicus.

This is nearly as common as *Pitangus sulphuratus* or *Myiozetetes affinis*, and occurred at every place I collected in. It is solitary, and in its habits does not materially differ from those species, though it is perhaps less frequently found near houses, resorting more to the open country, and being often seen in large fields where there are few or no trees. It then selects a stone, post, or some small shrub for its perch. It is a quiet bird, unlike the *Pitangus*. Brazilians and strangers alike confound all these yellow-breasted Tyrant-birds under the common appellation of "Bentivi."

60. Pipra rubricapilla.

I first met with this bird in the outskirts of the forest near Caxangá, where I obtained a pair of specimens and saw others. I also afterwards saw what I believe to have been a young male (just acquiring the red colour of the head) in some scrubby forest between Recife and Beberibé, but not having a gun at the time, could not get it. My experience of this *Pipra* was that it was nearly always found in the thickest and most dark parts of the forest, where no other birds were to be seen or heard. They feed, I think, on berries.

The irides (of the male at least) are pale yellowish white, in the female or young bird they are darker.

61. Chiroxiphia pareola.

I shot a single male specimen of this bird, the only one I saw, in some thick and dense forest near Parahyba.

62. Pachyrhamphus atricapillus.

I obtained a single female specimen of this bird from a small boy at Macuca, who had shot it with an earthern pellet discharged from a bow—a style of shooting much indulged in

by the youthful Brazilians, who become very good marksmen in this rather primitive method.

Irides brown.

63. Conopophaga lineata.

I only once met with this bird, and that was one day when out shooting with Mr. Weaver in a patch of forest on the top of the hills near Quipapá. We were going along a narrow path in the forest, which was so thick as to prevent our seeing more than about a yard in any direction. We could hear a number of birds with a very loud chattering cry around us, and occasionally could get a glimpse of one as it hopped about in the dense undergrowth. A lucky shot on my friend's part secured a specimen; but further efforts were fruitless. The silvery-white tufts of feathers on the sides of the head are very striking on the freshly shot bird.

Irides brown.

I may here remark that the genus *Conopophaga* has been wrongly placed by Messrs. Sclater and Salvin in their valuable 'Nomenclator.' By them it is included as a member of the "Oligomyodæ," the Conopophaginæ being placed as the first subfamily of the Tyrannidæ. We know, however, from the researches of Müller (Stimmorgane d. Passerinen, p. 39, and, *ibid.*, Garrod's edition, p. 32), that *Conopophaga aurita* possesses a typically *Tracheophone* syrinx, so that it is amongst those forms that the genus must be correctly located (*cf.* Garrod, P. Z. S. 1877, p. 452, also a paper by the writer, P. Z. S. 1881, p. 435).

64. Furnarius figulus.

The Oven-bird does not appear to be found in the immediate neighbourhood of Recife, but I found it at nearly all the other places I stayed at, from Parahyba to Garanhuns. At Cabo, where I first saw it, it was abundant close to Mr. Hood's house, both in the garden and on the line of railway adjoining. It is a very noisy bird, and, in the mornings particularly, may often be seen, sometimes two or three together, perched on the roofs of houses or on the telegraph-wires, pouring forth a loud song of peculiar chattering notes,

It also spends a good deal of its time on the ground, and when there walks in a peculiar way, with an action that somewhat reminds one of a high-stepping horse. Unfortunately I never saw a nest of the *Furnarius*, nor did I hear from the Brazilians any stories of it similar to those narrated by Burmeister.

65. Synallaxis frontalis.

This bird and the next I did not distinguish on the spot, so I can give no exact particulars as to the exact range of the two species, which may very possibly occur together. I met with these birds at all the localities I stayed at, from the coast to Garanhuns, and usually they were abundant. They frequent low shrubs and bush-covered ground, and creep about actively in the thick vegetation, singly or in pairs, uttering continually a loud cry, repeated several times, sounding like *acqui, acqui*.

Irides brown; feet dirty fleshy; beak grey, the upper mandible, except at base, darker.

66. Synallaxis albescens.

I did not at the time distinguish between this and the last species, which it much resembles in habits.

The eyes are red-brown.

67. Synallaxis cinnamomea.

This is one of the most abundant birds in Pernambuco and Parahyba, being found nearly everywhere in suitable positions; that is, where the country is not densely forest-clad and in the vicinity of water. It was very abundant in the garden at Estancia, and is a very noisy bird, with a peculiar loud chattering cry. A couple of males, which are larger and brighter than the females, might often be seen flying after and chasing each other, and in these cases a female bird was usually not far off. It builds a large nest of sticks, many of which are of considerable size and thickness. In Mr. Hood's garden at Cabo a pair of these birds had a nest in a low bush a few yards from the windows, and I used often to watch the bird flying in from the garden with sticks, sometimes considerably longer than the birds themselves. I think both

sexes took a share in the construction, in which they were most assiduous. The nest was a large, somewhat triangularly shaped mass of sticks and twigs, thickly matted together, and with an opening for the birds at one end. Very possibly the same nest is used for a number of years in succession, being repaired and increased in size every breeding-season.

Eyes chestnut-brown; legs blue-grey, with the soles lighter.

68. THAMNOPHILUS PALLIATUS.

This bird is abundant in some places and its presence is betrayed by its very curious loud chattering notes, which are commenced in a high key, and fall lower as their conclusion is approached. The bird creeps about, singly or in pairs, the bushes and small trees of the more open parts, and is by no means shy. I got specimens at Cabo and Parahyba, and also saw it near Macuca and Garanhuns, so that it is probably widely distributed.

The irides (in both sexes) are pale yellowish white; the beak and legs are leaden grey.

69. THAMNOPHILUS TORQUATUS.

I only once got a specimen of this bird, which I shot near Quipapá; afterwards I obtained one from my friend Herr Müller, who had shot it near Recife, where also I believe I saw it once or twice. The bird I shot at Quipapá attracted my attention by its remarkable cat-like miauling cry, very different from that of *T. palliatus*.

The irides are chestnut-brown.

70. HERPSILOCHMUS PILEATUS.

This little bird was rather abundant near Garanhuns, frequenting the thick scrub, and flying actively about, in small parties of three or four, amongst the tops of the bushes, like a *Parus* or *Polioptila*. I did not meet with it elsewhere.

71. HERPSILOCHMUS, sp. inc.

I shot a single specimen of a second species of the genus near Macuca, but, having been preserved in spirit, it is not

in sufficiently good order to describe or identify. Mr. Sclater, who thinks it is probably new, has kindly given me the subjoined note on it :—

"A single example of a species allied to *H. pileatus* of Pelzeln, but probably distinct, having the head striated with white."

72. Formicivora grisea.

I obtained specimens of this bird at Parahyba and Quipapá, and also believe that I saw it in the second-growth woods outside Recife, but it was nowhere common.

Eyes brown; beak black; feet dark grey, the nails blacker.

73. Formicivora rufatra.

I got this bird in the bush-covered country around Parahyba, but did not afterwards meet with it.

Irides brown; legs lead-coloured.

74. Aphantochroa cirrochloris.

I shot a single specimen of this Hummer out of a large tree, in which it was perched high above the ground, in a patch of forest covering the top of a hill near Macuca.

75. Chrysolampis moschitus.

I shot a specimen of this widely distributed species out of a high tree in some forest near Garanhuns.

76. Chrysobronchus virescens.

The commonest Humming-bird at Recife, where it may be seen all round the town in gardens, coming sometimes into houses; and I have also seen it once or twice hovering round the flowering bushes in the gardens in the town itself. I also got it at Cabo. The name applied to all Humming-birds is "Bejaflor," or "Kiss-Flower."

77. Eucephala cærulea.

This Hummer I believe I saw several times near Recife, in the lanes and roads outside the town. At Parahyba it was rather common, and there I shot specimens.

78. Hydropsalis forcipata.

Whilst staying at the house of my friend Dr. Lustoza,

situated in a valley off the line of railway between Quipapá and Macuca, I shot a single specimen of this bird. It was with another flying about at dusk over the ground near the house, and settling occasionally on the pathway. The long outer rectrices gave it a curious appearance on the wing. Brazilian name "Bacuráu."

79. Chloronerpes affinis.

I shot a single specimen, a young bird, of this species in the outskirts of some forest near Macuca. This was the only Woodpecker I obtained specimens of, though I saw at various times at least three others, but always out of shot. The Brazilian name for Woodpeckers generally is "Pica-pao."

Irides brown; legs and beak dark grey, the lower mandible whitish grey.

80. Ceryle americana.

This species of Kingfisher I found abundant in the neighbourhood of the coast round Recife and at Parahyba. It occurred even just outside the town, a couple of these birds haunting the small stream and ponds in the gardens round Estancia, perching on the walls and on the mangrove-bushes on the look out for small fish and other animals as prey. When perched the tail is directed nearly straight backwards, in a line parallel with the axis of the beak, an attitude which gives the bird a remarkable character.

81. Galbula rufo-viridis.

I saw my first live Jacamars when driving between Iguarassu and Goyanna, in the thick forests that in many places border the highroad between the two towns. Here they seemed to be rather abundant, coming out in the early morning and perching on the trees or telegraph-wires (!) lining the road. I once saw as many as three close together, though they are usually solitary. They seemed quiet and apathetic, and not at all shy, flying off, like Tyrannidæ, from their perch after food and again returning. Subsequently I again met with Jacamars, but only singly, in the woods near Caxangá and at Parahyba. I tried very hard to obtain live specimens, but, in spite of offering good rewards, the

Brazilians were much too lazy to trouble themselves about procuring living birds. The name "Jacamar" I never heard used by them; they call the birds "Bejaflor do matto," or "Bejaflor Grande," evidently thinking the bird only a kind of gigantic Hummer.

The irides are brown.

82. Crotophaga ani.

The "Anu," or, as it is called by many Englishmen, the "Black Parrot" (I suppose from some fancied resemblance in the bill), is one of the most characteristic birds of Brazil. They may be seen everywhere in the neighbourhood of cultivation, coming even into the gardens round Recife, and being most abundant in the neighbourhood of cattle. They are eminently social birds, the flocks usually numbering about 20 individuals, though sometimes much less. They like to perch on low trees and bushes, and a bush may often be seen with a dozen or more of these "black birds" settled on it. If alarmed one rises and flies slowly away, the others following with a chorus of their low, plaintive, rather whistling note, which sounds a good deal like *ennui*, with the last syllable accented. In flight the long tail is extended straight out behind the body, and the wings are kept rather horizontal and move but slowly and feebly. The Anu seems very fond of the sun; and I have sometimes seen twenty or more perched in a row on the top of a wall sunning themselves and preening their feathers. Whilst so engaged they often elevate their tail and bring it forward over the head, in much the same way as Toucans sometimes do.

83. Guira piririgua.

This Cuckoo I only saw at Parahyba, where I once or twice came across a small flock of three or four individuals in the garden near the town. In flight and cry it much resembles *Crotophaga*; and the Brazilians rightly recognize the affinity of the two genera by calling the present species "Anu branco," or "White Anu," as opposed to the common or black species.

84. Diplopterus nævius.

I only once saw this bird, at Garanhuns. It was feeding in the road, from which it flew up, as I approached, into a neighbouring tree. Thence it flew down again into an adjoining maize-field, where its colour matched well with that of the soil. A successful stalk on my part ended its career.

The irides are palish brown.

85. Piaya cayana.

This Cuckoo I first saw at Cabo; afterwards I met with it at Parahyba, and again at Quipapá. It is usually seen singly, and is apparently by no means rare. Though generally seen in trees, it seems awkward and by no means at its ease off the ground. It sits quietly for a long time, and then, when disturbed, creeps off through the leaves and flies away on the other side. It has a loud screaming cry, which frequently betrays its presence. Once, at Quipapá, I saw one being mobbed by some small birds, just as Owls or Hawks often are in this country. The Brazilians know the bird well, as it is rendered conspicuous both by its colour and cry, and call it "Almo do Gato." The colouring of the soft parts makes this bird, when alive or freshly killed, far handsomer than would be inferred from the skin alone.

The irides are bright ruby-red and the eyelids scarlet; the beak is yellowish green; the feet grey, with the soles yellowish.

86. Conurus jendaya.

This Parrakeet, called by the Brazilians "Jandaia," may often be seen tamed in houses, and to this species no doubt belonged most of the *Conuri* that I continually saw flying in small flocks of from four to twenty or so, both at Parahyba and between Quipapá and Garanhuns. These birds, however, were so wary that I only once succeeded in at all making out what they were by means of a glass, which clearly revealed their yellow undersides. At other times they were invariably high in the air, far out of gun-shot and almost out of sight; indeed their presence was usually first indicated by their cries, which were audible long before they them-

selves became visible. Only once, in a patch of forest near Quipapá, did I get anywhere within shot of these birds, and then they were off directly they became aware of the presence of a stranger.

87. Conurus cactorum.

Numerous living specimens of this little Parrakeet were brought to me by the natives at Garanhuns, who called it simply "Perriquito." I have already noticed the abundance of large *Cacti* in the sandy districts around Garanhuns, and on these, no doubt, these Parrakeets largely subsist. I never succeeded in identifying the bird in a wild state, though I every day saw or heard flocks of a *Conurus* flying high in the air around Garanhuns. Prince Maximilian also met with it in the Sertoës of Bahia (*cf.* Burmeister, Thiere Bras. ii. p. 170).

88. Chrysotis æstiva.

This was the only species of *Chrysotis* I saw at all in the districts I traversed. Of it, however, one sees many dozens for sale in all the shops where live birds &c. are sold in Recife, and nearly every hut in the country has also its "Papagaio." In the wild state I only met with it in the forests near Parahyba, where we several times saw it, usually flying high over the trees in small flocks, and, like other Parrots, vociferating vigorously whilst on the wing. With the aid of my "Caçador," Antonio, we succeeded, after a long hunt, in finding a lofty forest tree where the Parrots were feeding, as evidenced by the heaps of its "shelled" fruit that lay on the ground below, or came pattering down from above as we stood beneath the trees. Hoping to get a good view of some Parrots "at home," I proceeded to lie down on my back beneath the trees, in order to have a good look at the birds above through my glasses. However, they saw us before we could "spot" them, hidden as they were by the thick canopy of leaves, and flew screaming off to some less disturbed spot, no doubt to resume their meal on some other tree.

The Brazilians call *Chrysotis æstiva* the "Papagaio" *par excellence*. Artificially produced varieties, with more or fewer

yellow feathers, are called "contrafeitos," and are considered to be both more beautiful and more valuable than those that have not been thus tampered with.

89. Psittacula passerina.

I first saw the South-American "Love-bird" on the road between Iguarassu and Olinda, and subsequently in nearly every place I stayed at. In the interior it is very abundant, flying about in large flocks, often in company with the Brazilian Canary (*Sycalis flaveola*), generally frequenting the gardens or plantations round houses, especially where there are castor-oil (*Ricinus*) trees. Its flight, though quick, is not prolonged. You see two or three alight in a bush or small tree, which sit there quietly till they are joined by two or three more; then perhaps a few more arrive, and so on, till twenty or thirty are assembled in the same tree, and after a while they fly off, together or in small batches, as they arrived. Mr. Weaver, at Quipapá, told me that a few weeks before my visit these Parrakeets were immensely numerous there, and that the numbers we then saw were nothing to what there had been previously, before the greater part had gone more inland towards the Sertoẽs, as they do towards the commencement of the dry season. The Brazilians call it "Perriquito Tapacú."

Eyes brown.

90. Strix flammea.

Whilst staying at Quipapá a boy brought me a specimen of a Barn-Owl, which, as far as I could see, differed in no important respect from English specimens.

91. Gampsonyx swainsoni.

I shot a single specimen of this pretty little Hawk out of a high tree near Parahyba.

Irides red; feet orange-yellow; beak and claws black.

92. Herpetotheres cachinnans.

Whilst staying at Garanhuns I bought a beautiful pair of living specimens of this Hawk, which had come, with some other birds, from Aguas Bellas, a village in the Sertoẽs, some

seventy miles beyond Garanhuns. Unfortunately they succumbed to the jolting and heat of the journey down to Palmares, dying the day before we reached Recife. The Brazilians considered it a rare bird, and called it "Couaõ." As noticed by Burmeister (Thiere Bras. ii. p. 92), these birds, after a good meal, showed a naked "craw" protruding through the breast-feathers.

Irides dark brown.

93. Polyborus tharus.

The "Cara-cará" I saw several times on the coast, both near Recife and aroud Parahyba. In the interior I did not identify it. On the wing it has a decidedly fine appearance.

94. Cathartes aura.

The Red-headed "Urubú" is never, as far as I saw, to be met with in towns, though it was by no means rare in the country. I first saw it at Goyanna, and afterwards met with it plentifully at Parahyba and near Cabo. It is usually seen singly or in pairs; but on one occasion, at an "engenho" near Cabo, I saw a considerable number, perhaps twenty, of it together. The Brazilians, as a rule, did not distinguish between *C. aura* and *C. atratus*. *Gypagus papa*, however (a species I did not meet with, though it occurs sometimes not far from Recife), is well known to them as the "Urubú Ré," or King Urubú.

95. Cathartes atratus.

The "Urubú" is one of the first birds to attract the stranger's eye on his landing in Recife, as every day several of these birds may be seen flying heavily about in the outskirts of the town, or even over waste places in it, on the look out for offal of any kind. Before Recife boasted of a drainage company (a benefit it now possesses) the Urubús are said to have been much more numerous than they now are, and, indeed, they were then the main agents for sanitary purposes. Even now they are useful in this way, to some extent, as scavengers, and a considerable fine is imposed for shooting one. The white patch on the remiges is very conspicuous on the bird when flying, and diminishes somewhat

the monotony of its appearance. Outside the large towns this Urubú is replaced, apparently, by *Cathartes aura*.

96. Ardea candidissima.

When on the Parahyba river, between the bar at its mouth and the anchorage below the town, I saw great numbers of this beautiful white Egret, either flying slowly up stream in twos and threes, high in the air, or wading about on the mud-flats left bare by the tide in search of food.

97. Butorides cyanurus.

This small Bittern was very common in marshy ground round Recife, and a pair or two frequented the reed-beds at the bottom of the garden at Estancia. These had a nest in the mangrove-bushes near the stream. The nest was a loose platform of sticks, a couple of feet or so, I was told, above the ground.

The native name is "Socoa."

98. Sarcidiornis carunculata.

Of the South-American Black-backed Goose I found a fine living pair in the garden at Estancia, and their owner was kind enough to send them to London for the Zoological Gardens, where they now are. These birds had been brought down some months before from the Sertoes of the interior by a "matuto" for sale in Recife.

According to Mr. Sclater (P. Z. S. 1876, p. 695), in the American *Sarcidiornis* "the sexes are nearly equal in size, the female bears a comb on the head as well as the male, and the flanks are conspicuously black." These remarks were based upon the examination of three specimens then living in the Zoological Gardens, supposed to be "an adult male and an adult and younger female," and to have been imported from Maranham. The pair of birds I brought back, however, do not agree with the above-quoted description, inasmuch as the female bird is much smaller than the male and has no wattle at all on the head, in those respects agreeing with the hen of the Indian species (*S. melanonota*). Of the three birds mentioned by Mr. Sclater, two have since died, and on dissection turned out to be males; the third is still (February 10) alive,

and in all respects agrees with the male of my pair, having a large comb, and being much bigger than the female. There can be no doubt, therefore, that this specimen too is a male, and that Mr. Sclater's so-called "females" were, in reality, only young males. The female of my birds has little, if any, more black on the flanks than a female *S. melanonota* in the adjacent inclosure, so that the only remaining available distinction between the two forms is the black sides of the male of the American bird; and this character, as far as I have yet seen, seems to hold good.

[P.S. Since the above was written, both my birds have, unfortunately, died. Their sex was verified by dissection.—May 19, 1881.]

99. Columba picazuro.

This Pigeon is well known to the Brazilians as the "Azu Branca," or White-winged Dove. I was told it was sometimes abundant round Parahyba, and also heard of it at Quipapá, Garanhuns, and other places. However, I never succeeded in seeing it wild, though I got several living specimens at Parahyba and elsewhere.

100. Columba rufina.

I obtained a single living specimen of this Pigeon at Parahyba, where I was told that, at some seasons of the year, when certain fruits were ripe, it was common in the forests around.

The Brazilians know it as the "Gallega."

101. Scardafella squamosa.

I first met with this pretty Dove in some of the gardens in the outskirts of Parahyba. Afterwards, when riding between Macuca and Garanhuns, I several times flushed little coveys of it, which rose up from the road and took refuge in the nearest tree. Usually these parties consisted of about four. When rising they make, apparently with their wings, a curious rattling noise, whence they are called by the Brazilians "Rôla Cascavel,"—*Cascavel* meaning a rattle, and being also the name applied by the natives to the Brazilian rattlesnake (*Crotalus horridus*), which is by no means rare in the district.

102. Chamæpelia griseola.

I got specimens, through Herr Müller, of this little Ground-Dove from the neighbourhood of Recife, where, I think, I also saw it several times, as well as near Parahyba.

103. Chamæpelia talpacoti.

The Rôla, as this little Pigeon is called by the Brazilians, is a very common bird all over the parts I visited. It is found solitarily or in pairs, and is much esteemed for the pot, and persecuted in consequence.

104. Leptoptila ochroptera.

Of this Dove, or a closely allied species, I got one or two living specimens at Garanhuns, which had been caught in the surrounding country. The Brazilians know it as the "Juruté."

105. Penelope superciliaris.

I obtained a single living specimen of this bird at Garanhuns, which had been caught originally at Panellas, a small village north of Quipapá. I was told that further in the interior, towards Aguas Bellas, the present species is not uncommon in some of the Serras that intersect the plateau of the Sertoēs. Its Brazilian name is "Jacú."

106. Ortalis albiventris.

Whilst staying at Macuca, one evening, a little before sunset, I was surprised by the very loud calls of a bird I had never heard before, and which proceeded from the wooded hills on the other side of the valley where Mr. Watts's house lay. On inquiring of him what bird it was, I was informed it was the "Aracuaõ," which was described as a sort of small Pheasant, of a brownish colour, that was sometimes met with in small parties in the forests, and was well known to the natives. A few days after, at Garanhuns, a live Aracuaõ was brought to me which had been caught in the neighbourhood. This I bought and brought alive to London; and it turns out to be the present species, which was also found by the late Dr. Wucherer in the neighbouring province of Bahia. I subsequently saw other living examples of the species in Recife.

With regard to the peculiar loud cry of the present species, it may be remembered that, like many other Cracidæ, the male bird has a convoluted trachea, the fold (which lies outside the pectoral muscles) in some cases extending as far as the posterior end of the sternum.

107. Rallus longirostris.

My friend Herr Müller, of Recife, during my absence in the interior, got a specimen of this bird for me, which he had shot in the close vicinity of Recife.

108. Rallus nigricans.

A second species of Rail, also brought to me alive at Quipapá, I identified with with this species from Burmeister's description. It fell a victim to rats during my absence.

Irides bright red; feet dull red; beak yellowish green, greyer at the tip.

109. Aramides cayennensis.

Whilst staying at Quipapá some boys brought in for sale a living specimen of this Rail, which they had caught near the town.

110. Cariama cristata.

The occurrence of the Cariama in the Sertoẽs of Pernambuco is a fact of some interest, as it marks, I believe, at present the most northern limit of this curious genus. I did not myself see the Cariama in the wild state; but I saw, at Garanhuns, one that had been captured by the Indians near Aguas Bellas, a town some seventy miles further S.W. in the direction of the Paulo Alfonso falls. I was also told that it occurs not rarely in the open country near San Bento, another small town about thirty-five miles north of Garanhuns, and, like Aguas Bellas, also in the Sertoẽs. The Brazilian name of the Cariama is, I may observe, "Siri-ema," a form also used by Burmeister in his elaborate treatise on this bird. "Ema," as we shall presently see, is the name given to the Rhea (*R. macrorhyncha*), which is found along with the present species in the open plains of the Sertoẽs, and "Siri" is a diminutive of Indian extraction, the word thus signifying "little Ema."

111. Parra jacana.

The "Jaçaná" (the *c* is soft, and the final *a* strongly accented) is a very common and conspicuous bird in the low country near the sea, and may be seen on nearly every large weed-covered pool of any extent. Near Recife it might be seen in numbers on some large ponds on the Beberibé road, about a mile outside the town; and at Parahyba it was equally abundant close to that place. I did not see it further inland than Catende. In its actions the Jaçaná strongly resembles a Waterhen. It is not apparently shy, but usually keeps well out of reach on the weeds in the middle of the pond. When flying, the canary-yellow-coloured primaries are very conspicuous, and, with the light colour of the soft parts, greatly show off the chestnut and black plumage of the bird. Near Recife I saw three or four of the young birds in down, of a mottled black and white colour, walking about with their parents on the weeds.

112. Gallinago frenata?

A Snipe is not uncommon at some time of the year in the more marshy districts of Pernambuco, and affords some sport to the English and other residents in Recife. I saw the bird once or twice at Cabo, and between Quipapá and Macuca got from a Brazilian friend a nest of two eggs, on which the hen bird was sitting. Unfortunately my friend omitted to shoot the bird; but I believe there is no doubt that it belongs to the present species.

The Brazilian name is "Agaxadera."

113. Crypturus tataupa.

The "Nambu," as the present species of Tinamou is called, is not at all an uncommon bird in the neighbourhood of Macuca and Garanhuns, where I several times heard its cry, and once or twice flushed it. Its flight, however, though strong, is short, the bird soon settling again; and the country is so thickly covered with brushwood and undergrowth that it is, in consequence, no easy matter to shoot these birds, at least without the aid of dogs. Sometimes they are stalked and shot by the Brazilian sportsmen; but more usually they

are snared. At Garanhuns I bought a lot of seventeen Nambus and a pair of the next species for 2500 reis (about five shillings)—not a bad bargain perhaps!—from a boy who had just caught them; and afterwards I had many more offered to me for sale.

The beak is vermilion-red, the feet dirty pink-red, and the irides rich red-brown.

114. Crypturus noctivagus.

This Tinamou is known as the "Zabillé;" of it, too, I got living specimens at Garanhuns, which had been caught in the district round. One of these that died, and which I preserved in spirit, Mr. Salvin has identified with the above-named species.

115. Rhynchotus rufescens.

I saw one or two living birds of this species in confinement at Garanhuns, and was informed that it too occurred in that neighbourhood.

116. Rhea macrorhyncha.

Rhea macrorhyncha was originally described by Mr. Sclater some twenty years ago (P. Z. S. 1860, p. 207, & Trans. Z. S. iv. p. 356, pl. lxix.), from a specimen living in the Zoological Society's Gardens, of unknown origin. Since then several more specimens (some half dozen in all, perhaps) have been secured at intervals; but the exact locality of any of these has never, I believe, been precisely ascertained, though it has been supposed to be the "campos" of Northern Brazil or Guiana (*cf.* Sclater, P. Z. S. 1877, p. 160).

When I arrived in Pernambuco I made anxious inquiries about the existence of any Rhea in that part of Brazil, and was told by several persons that it existed in the interior, in the dry and open Sertoes; and the dry country near the falls on the S. Francisco river was especially mentioned as a locality where it was to be found abundantly. In the small museum in the "Gymnasium," I found two stuffed Rheas, one adult, and one in the tawny-brown plumage of immaturity, which, as far as I could see, were probably *R. macrorhyncha*; these were said to have come from the Sertoes. At Garanhuns I

was fortunate enough to come across a living specimen of this bird, brought along with a Cariama and two *Herpetotheres cachinnans*, from Aguas Bellas, where it had been captured young by the Indians. This bird was not yet adult, though nearly full-grown. As I was very anxious to make out for certain the species, I bought it, and, after a good deal of trouble, succeeded in getting it alive to Recife, and eventually to London, where, however, unfortunately, it did not live long. The "Ema," as the Rhea is called by the Brazilians, is well known to the people in the Sertoēs; it is now said to be rare near Aguas Bellas, but, I was told, is still found pretty numerously (as is the Cariama) in the open grass-covered country near San Bento. Indeed during the *secca*, or drought, that has prevailed for the last few summers in this part of the country, and which resulted in a general famine, the "Emas" became so tame through hunger that they might be found close to the town itself, and even came into the gardens, and so were caught. My friend Mr. Weaver, of Quipapá, told me he had had a young live Ema for some time in his house, which had been sent him as a present by a lady. This specimen came from Pianco, a small town in the province of Parahyba; so that evidently the range of *Rhea macrorhyncha* extends to the north of Pernambuco. I hope, ere long, to obtain, through the agency of some of my Brazilian friends, specimens of the eggs and young of this bird to compare with those of the commoner species. What the exact northern extension of the latter is I do not exactly know, though it certainly extends north of the River Plate into Uruguay; probably the barrier between the two species is a continuously wooded country lying between that district and the Sertoēs of Bahia, where the species is also most probably found. Capt. Burton, who alludes to the existence of a Rhea in Brazil several times, saw one himself on the banks of the S. Francisco near the Rio do Corrente, above Bom Jardim ('Highlands of Brazil,' ii. p. 296), and others at Jaguára (*l. c.* ii. p. 26), in the province of Minas.

I hope on some future occasion to be able to compare the skeletons of *Rhea americana* and *R. macrorhyncha*; exter-

nally, though certainly closely allied, the latter species is distinguishable by its generally browner colouring, by the darker crown, which is nearly black, and by its longer bill.

XXVIII.—*Ornithological Notes made in the Straits Settlements and in the Western States of the Malay Peninsula.* By Lieut. H. R. Kelham, 74th Highlanders. (Part I.)

Comparatively little having been written concerning the ornithology of the Malay peninsula, the following notes may prove of some interest, more especially to those ornithologists fated to pass most of their life in the far East. That something about Malay birds, however meagre it may be, is much wanted, I well know from personal experience, having still fresh in my memory the up-hill work of my first few months in the country. These I spent among the jungles of the peninsula, daily shooting heaps of specimens, yet without the means of satisfactorily determining their identity or finding out any thing about them beyond what I myself observed, only knowing this bird to be a *Pitta*, that to belong to the Picidæ or Cuculidæ, but in most cases being quite in the dark as to their particular species, though afterwards Jerdon's 'Birds of India,' a few volumes of 'Stray Feathers,' and some of the monographs, notably Mr. Sharpe's beautiful work on the Kingfishers, gave me much assistance. So, with the view of helping any one, very likely without a library close at hand, about to take up the study of Malay birds, I have put down my experiences, however slight, about each species I met with, at the same time adding details which, with very few exceptions, have been taken from my own specimens before they were skinned.

Regarding the Malay peninsula in an ornithological point of view, the range of mountains running down the middle of the country may be said to divide it into two divisions—the Western or Indo-Malayan, where the avifauna has much in common with that of India and Ceylon, and, on the other hand, the Eastern, of which the ornithology shows a strong

relationship with that of China, Borneo, and the Eastern Archipelago.

My observations are confined entirely to the Indo-Malayan division, and, though extending over a period of nearly three years' continuous and most essentially practical work, are necessarily of a fragmentary and incomplete nature, as in a country so rich in birds there must be many species of which I know but little: several I never even saw.

During a good deal of my time in the country I was stationed with my regiment at Singapore, in itself by no means a bad collecting-ground, while from it I made many bird-hunting expeditions to the mainland, visiting Malacca, Penang, Province Wellesley, Johore, the Moar river, and many islands of the Singapore Archipelago.

My first seven months were passed in the native States of Perak and Larut; and during that time I personally obtained examples of over two hundred different species—though, if I had but had an assistant to help in the skinning, I could have collected many more. Often after a hard day's shooting I had far more on hand than I could possibly manage, particularly in that hot, damp climate, where, in spite of carbolic acid, nothing would keep for any length of time. Nor must I forget to mention those mortal enemies to the naturalist, the ants; for though I stood the legs of my tables in oil-jars, hung my boxes to strings passed through bottles of water, used any amount of camphor, and tried every ingenious precaution that man could devise against their attacks, I have to thank them for the loss of many a specimen.

I found the oil-jar plan to answer best; but as sure as a straw, or even dust in any quantity, blew onto the oil, so surely would the ants at once find out the bridge, cross it in myriads, and in a few minutes one's cherished skins were a moving mass of these pests.

I have known them attack in thousands, and even eat holes in the skin of, a sickly bird in my aviary some time before it was actually dead; and in this way, among other specimens, I lost my only one of that curious pheasant-like bird, *Rhizothera longirostris*, Temm.

The peninsula, more particular its western half, is now being extensively worked by ornithologists from India; so before very long, doubtless, its birds and their habits will be much better known than they are at present.

Otogyps calvus (Scop.).

Early in February 1877, near Kwala Kangsar, on the Perak river, I came across one of these Vultures in company with several of the common brown species, *Pseudogyps bengalensis*. They were all busily engaged feeding on the decaying carcase of a buffalo, but rose at my approach; and this bird flew so close over head that a charge of snipe-shot brought it flapping to the ground. Except on this occasion, I never met with *O. calvus*; nor did I see any specimens in the Malaccan or Singapore collections. My bird was an adult, of such dark plumage as, at a short distance, to look quite black; legs, bare skin of head and neck pinky red, irides yellow.

Pseudogyps bengalensis (Gm.).

The common Vulture of the country, collecting in the most marvellous manner wherever there is carrion.

One evening in Perak I lay concealed at the edge of the thick jungle, and watched for a long time a crowd of these scavengers squabbling over a dead buffalo, which had died on some open ground within 50 yards of where I was. They became so gorged that, on my coming out of the bushes, it was with difficulty they took to wing, then flying but a short distance and squatting in rows along the upper branches of a large dead tree, from which I picked off three of their number with my pea-rifle.

Across the wings, from tip to tip, they measured slightly under 7 feet; irides dark brown; legs, bare skin of head and neck black.

Microhierax fringillarius (Drap.).

This tiny Falcon, not much larger than a Sparrow, is plentiful in the south of the peninsula, and on the island of Singapore.

I noticed it was particularly fond of perching on the upper branches of dead trees, from its elevated position making

short flights into the air after beetles and other insects, but each time returning to the same bough, after the manner of the Flycatchers.

One afternoon, near Tanglin, Singapore, I stood within a few yards of one of these Falcons, and watched it feeding on a large beetle, which it held firmly in one foot and tore to pieces with its strongly notched beak. Possibly they sometimes prey on small birds; but they themselves are so small that I doubt if they could kill any thing more powerful than a Sun-bird or small Warbler. Certainly, as a rule, they are insectivorous; for I have dissected several, and in every case the stomach contained only fragments of beetles, dragonflies, and other things of a like nature, no bones of mice or small birds.

The sexes appear to be of similar plumage, in colour a deep blue-black, marked on the face and wings with white, the underparts are also white; length between 6 and 7 inches.

Butastur indicus (Gm.).

The only one I obtained I shot near Kota Lama, Perak, on February 17, 1877. I had just killed a Snipe; and at the report of my gun this bird rose from the topmost limb of a large tree, and, passing within range, fell to my second barrel.

Accipiter virgatus (Temm.).

The Besra Sparrow-hawk appears to be migratory, as, though common in Singapore during October and November, I did not meet with it at any other time of year, and a friend who, early in November, was a passenger on one of the small steamers plying between Sarawâk and Singapore, informed me that when near the latter place fifteen or twenty of these little Hawks settled on the rigging; and being weary, seven of them were easily caught by the seamen.

My first acquaintance with the species was from seeing one dash along under the verandas of the bungalows in the Tanglin barracks right into the midst of a flock of tame pigeons, scattering them in all directions. During the

following week I obtained two, which, in the excitement of their chase after the pigeons, flew into the barrack-rooms and were caught. One of these I kept for some weeks; and it became fairly tame, taking raw meat and small birds from my hand. It was a young male, its irides being pale yellowish brown, and the dark brown feathers of the upper parts blotched with white and edged with rusty brown. Length 10½ inches, tarsus barely 2 inches, legs greenish yellow, beneath white with a slight rufous tinge, and having long, oval, brown drops on the breast, and bands on the abdomen and flanks; tail ashy grey with brown bars.

In November 1879, while collecting on Pulo Battam, one of the thickly wooded islands near Singapore, I saw a pair of these Hawks, and shot one of them while in hot pursuit of a small bird. It was a male; length about 11¼ inches, tarsus 2 inches, legs yellowish green, tail ashy grey crossed with dusky bars. The plumage of the upper parts were of a much darker brown than in the above-described specimen; still the feathers were all edged with rufous-brown, and the underparts white, which, according to Dr. Jerdon, is characteristic of the immature bird; he also states the mature male to have the breast and flanks almost ferruginous.

Limnaetus caligatus (Raffles).

This Hawk-Eagle breeds in Perak. Near Kwala Kangsar, during May 1877, I obtained a nestling, so young that it was a mere ball of fluffy down. It throve wonderfully, its appetite being simply insatiable, and rapidly grew into a very handsome bird, so tame that I could handle it with impunity.

Its usual perch was on a rung of the ladder leading up into one of the huts occupied by the men of my company, with whom it was a great favourite; and when the troops were withdrawn from Perak it accompanied us, along with wild cats, monkeys, lorikeets, and pets of all kinds, to Singapore, where I placed it in the aviary of the Botanical Gardens.

In December 1880, when I left the Straits, the bird, then nearly three years old, was in a very flourishing state, but had

changed very little either in size or plumage from what it was at the age of six months; in fact, it appeared to attain its full size when about three months old. At that time its upper parts were dark brown, marked with white on the wing-coverts, tail brown barred with a darker shade of the same colour, underparts and legs white, the breast slightly streaked with brown; the feathers of the head were brown with dark tips, and formed a short crest, which, when surprised or startled, the bird had a habit of raising, at the same time moving its head from side to side; its irides were clear brown, cere and bill bluish black, legs pale yellow, and feathered to the toes.

Pandion haliaetus (Linn.). The Osprey.

One November afternoon (very unlike an English one though, the thermometer standing at between 85° and 90° F. in the shade), while snipe-shooting in the Mount-Echo valley, Singapore, I saw two large birds coming towards me; so I crouched down in hopes of a shot. On they came, sailing along about forty yards over the swamp, every now and then swooping down to seize some luckless fish or other prize. When quite close to me one of them suddenly stopped, as if to make sure of its aim, then dashed down at a tremendous pace into a small stream which wound through the valley, and sent the water flying all directions, the next moment rising with something in its claws. This, however, it did not live to enjoy, as my shot brought it down; and I found I had got a magnificent Osprey, a male, measuring 5 feet 8 inches across the wings.

Polioaetus ichthyaetus (Horsf.). The White-tailed Sea-Eagle.

In January 1877, I shot one of these Eagles, which for some time had frequented a jheel near Saiyong, on the banks of the Perak river. Several days passed before I managed to get a chance at it, as it was generally far out in the middle of the jheel, sitting on a fallen tree which rose a few feet above the surface of the water, in a part devoid of reeds or other covert.

Its head and neck were grey, upper parts brown, irides dull yellow, tail white with a broad black bar.

Haliaetus leucogaster (Gm.).

The Grey Sea-Eagle is common round the southern coasts of the peninsula, particularly at the mouths of the rivers, where I often used to see it sitting on the fishing-stakes.

I found it very plentiful about the mud-flats at the entrance to the Larut river. An officer of my regiment, stationed at Penang, tells me it breeds there, making a large nest near the tops of high trees.

Circus æruginosus, Linn. The Marsh-Harrier.

During November, while shooting Snipe near Bukit Miniâk, Province Wellesley, I shot a Marsh-Harrier as it was quartering over the paddy-swamps; it was a young bird, with the irides brown instead of yellow as in the adult.

Circus cineraceus, Montagu. Montagu's Harrier.

In August 1877, while travelling down the Moar river, and when within about thirty miles of its mouth, one of our party shot a Harrier as it flew over our boat. Besides being much knocked about by the shot, it fell into the water, and was such a draggled mass of feathers when we picked it out that I did not think it worth preserving. I also unfortunately neglected to write down a more acurate description of it than that it was a Harrier of ashy grey plumage, vent and thighs white, irides yellow, length from 18 to 20 inches; still, probably, it was *C. cineraceus*.

Haliastur indus (Bodd.).

The Brahminy Kite is common throughout the Straits Settlements, particularly about the harbours, where it may be seen in considerable numbers picking up the refuse from the ships.

I found them plentiful in Perak. At Kwala Kangsar, in company with the Crows, they used to collect at the place where all the offal from our camp was deposited, and carry off any filth they could find, often chasing the Crows and making them drop any particularly dainty morsel, which was

quickly picked up by the pursuing Kite, though he, in his turn, frequently had to run the gauntlet of his comrades.

In the Straits Settlements, both this species and *Milvus affinis*, on account of their foul feeding, have obtained a most expressive, but very objectionable, nickname.

Milvus affinis, Gould.

On October 21, 1879, I shot a Pariah Kite in the Mount-Echo valley, Singapore.

Pernis ptilorhyncha (Temm.). The Crested Honey-Buzzard.

I am able to record but a single specimen of this Buzzard, shot during November, near Changie, Singapore; it showed no signs of the crest.

Length nearly 27 inches; legs yellow, beak dusky yellow at its base; the wings reach to within 3 inches of the end of the tail; feathers of face very scale-like, tarsi well plumed; entire plumage rich brown with a decided rufous tinge, particularly about the head and neck; all the feathers are dark-shafted; central streak and one on either side from the gape dark brown, very distinctly marked; tail dull brown faintly barred with white.

Baza lophotes (Temm.). The Crested Kite.

I saw a specimen of this bird in a collection made by an officer of my regiment while at Malacca.

Strix javanica, Gm. Malay Screech-Owl.

While quartered at Kwala Kangsar, Perak, a Malay whom I employed to snare birds brought me one of these Owls alive; it was rather like *S. flammea*, except in being more spotted, particularly about the facial disk.

Ketupa javanensis, Less. Malay Fish-Owl.

I shot several specimens of this large Owl in Perak, where it was by no means rare, though not often met with owing to its nocturnal habits. It retires during the heat of the day into the densest parts of the jungle.

One afternoon in May I was making for a nesting-place of the Weaverbird, *Ploceus baya*, in the neighbourhood of

Kwala Kangsar, and on my way had to pass through a gloomy swamp, clear of undergrowth, but with the trees interlacing so thickly over head as to throw the whole place into deep shade, while from above long tangled creepers hung down into the pools of stagnant water. Altogether it was a most weird spot; and I was hastening on to get out again into the sunlight, when, within a few yards, up rose a huge Owl, which I shot; but being only winged it turned on its back and, till I put an end to its struggles, fought most fiercely with my retriever. Its last meal had been of a most miscellaneous nature; for, on dissection, its stomach contained a piece of stick, the jaw-bone of a rat, portions of beetles and dragonflies, some vegetable matter, and, lastly, a great red centipede measuring 7 inches in length.

This bird was a female, length 19 inches; irides golden-yellow, legs grey, plumage pale rufous-brown, the feathers having bold central streaks of dark brown; wings and tail dark brown, barred with rusty white; throat and shoulders white; ear-plumes over 2 inches in length; feet and talons very powerful.

I kept one of these Owls alive in a cage for several weeks, feeding it on raw meat and dead birds. It throve well, but was exceedingly savage, so much so that when leaving Perak, not being able to take the bird with me, and yet wanting its skin as a specimen, I hardly knew how to kill it without damaging its plumage or it tearing my hands, until I thought of chloroform; and a handkerchief soaked in that soporific and thrown over the bird's head quickly solved the question. I once saw one of these Owls in Singapore; it was flushed by the beaters when beating the jungle for sambur and pig.

Scops lempiji (Horsf.).

For some time, owing to their small size, I put down my specimens of this little Scops Owl as *S. malayanus*, Hay; but they have now been identified by Mr. Gurney as Horsfield's *S. lempiji*; and on carefully reading what Dr. Jerdon says on the subject, I see he states that there are several phases of *S. lempiji*. Both as regards plumage and size and with the

description of his third or, as he terms it, Malabar or rufous variety my birds agree.

They now lie before me, in plumage exactly alike, but in length one measures 8 inches, the other $8\frac{3}{4}$ inches; both had yellow irides, though in the case of the smaller bird they were rather dull, with a brown tinge.

I obtained two of these Owls alive by their flying into our barracks at Singapore; the first was caught late in October, the other on the 2nd December.

Round Tanglin, Singapore, on a still evening, their mournful monotonous hoot was commonly to be heard; and soft and low as it seemed to be, it was wonderful at what a distance it could be heard, certainly at from a quarter to half a mile. I do not think I am mistaken as to the vocalist being of this species; for on one occasion I stood within a couple of yards, listened for some time, then frightened the bird out into the moonlight. It might possibly have been *S. malayanus*; but I think not: that species puzzles me considerably; it seems so like some varieties of *S. lempiji*. My friend Mr. W. E. Maxwell, Assist. Resident of Perak, I believe, refers to *S. lempiji* in a letter to me, in which he says:—"The 'punggok,' a small Owl, has a soft plaintive note, and is supposed to make love to the moon. 'Seperti punggok merindu bulon' (Just as the punggok sighs for the moon) is a common expression in Perak, applied to a desponding lover."

Ninox scutulata (Raffl.). The Brown Hawk-Owl.

After a day's Teal-shooting on Saiyong jheel, I was returning in the dusk to camp, walking along the side of the Perak river, when I noticed two birds sitting on a stump which stood a few feet out of the water at about thirty yards from the river-bank; every now and then they left their perch, and either fluttered up into the air or else swooped down and skimmed close over the surface of the water as if hawking for insects, always, however, returning to their original position on the stump.

Wondering what they could be, I shot one, and found I had got a fine male specimen of this curious Owl. My con-

jecture as to what they were feeding on proved correct; for, on dissecting the one I shot, its stomach contained five large beetles, nothing else. I looked most carefully for traces of fish, thinking that possibly the prickly cactus-like bristles which grew all over the bird's toes were intended by nature to assist it in securing slippery prey; but apparently such is not the case, unless it feeds exclusively on water-beetles and aquatic insects, which would certainly be difficult to hold.

This bird, a male, measured 11 inches in length; irides yellow; entire plumage dull brown, rather rufous beneath; some of the feathers of the breast and belly white-edged; tail crossed by five dark bars; under tail-coverts white; legs feathered to the toes, which were covered with stiff bristles.

Hirundo gutturalis, Scop.

The Swallow is common throughout the Straits, and identical with the Chinese race, as specimens I shot at Singapore were exactly similar to others which I got near Hong Kong; nor does it appear to differ much from the well-known European *H. rustica*, unless perhaps in being slightly smaller.

Chætura leucopygialis, Blyth. The Small Spine-tailed Swift.

I obtained this bird in Singapore in July 1879; also in Perak.

Chætura gigantea (Temm.).

The Large Malay Spine-tailed Swift is apparently distributed in considerable numbers throughout the country, as I met with it in all the Straits Settlements, also in Johore, Perak, Larut; and, far up the Moar river, at Sagamet, in the very heart of the Peninsula, I saw large flocks of them hawking over the river. I shot my first specimen one morning in February.

While walking along the flat sandy beach bordering the Perak river near Saiyong, a party of eight of these large Swifts darted past at a tremendous pace, so fast that one heard the shish! of their wings, and the next instant they were almost out of sight, but, circling round, again came within shot, which I took advantage of and secured one. It

was a female, 9½ inches in length, irides dark brown, legs and feet dark purple, under tail-coverts white, with the feathers dark-shafted; rest of plumage brownish black, lightest on the back, with a steel-blue metallic lustre on the head, nape, wings, and upper tail-coverts: the tail consisted of ten feathers, with their terminal portions bare and as sharp as needles; the wings projected 3 inches beyond the tail.

Cypselus subfurcatus, Blyth.

Plentiful throughout the Straits. When at Malacca, during the first week in December 1879, I found a colony of these Swifts breeding in the ruined convent which stands on the hill overlooking the town and anchorage. In the early part of the day hundreds of them were flying in and out of their nests of clay and straw, which hung in great clusters of thirty or more under the crumbling arches of the convent-windows, and apparently contained young. The old birds became very much excited at my approach, and made a tremendous noise as they flew backwards and forwards. I was told that they commence to build early in November.

Without a ladder it was impossible to get at the nests; so I was unable to examine their contents.

One of this species, which I shot at Singapore on 5th May, out of a flock of six, measured 5½ inches in length; irides dark brown, underparts brownish black, darkest on the back, and slightly glossed with green; head brownish, palest on the forehead; chin, throat, and rump white; underparts brownish black; tail square. To me this bird seems to answer *exactly* to Dr. Jerdon's description of the Indian Swift, *C. affinis*.

Cypselus infumatus, Sclat. The Palm-Swift.

Common in the Straits, where it breeds, affixing its tiny nest to the under surface of the leaves of the palm trees. During the month of July I saw a large gathering of these Swifts flying round some betel-nut palms bordering the Bukit Timah road, Singapore. They kept up an incessant twitter, every now and then darting under and remaining for some seconds among the leaves, where they evidently had nests, as I could hear the feeble twittering of the young birds.

The day being extremely hot, and the tall, slender stems of the trees any thing but inviting, I regret to say I had not sufficient energy to climb up and secure a nest; however, I shot one of the birds, so as to be quite certain as to their species. It measured $4\frac{2}{5}$ inches in length; irides dark brown; plumage mouse-brown, darkest on the head and wings, which have a faint bluish-green tinge, beneath pale brown.

Collocalia linchi (Horsf.). The Edible-nest Swiftlet.

This tiny Swift is one of the Malayan representatives of the genus *Collocalia*, or Edible-nest-building Swifts, of whose gelatine-like nests, formed of mucus from the bird's salivary glands, is made the glutinous soup which, with Sharks' fins and other delicacies strange to the European stomach, is found on the dinner-tables of the "upper ten" among the Chinese, though, as the nests cost something like a guinea an ounce, it is only by the wealthy, and probably by them only on great occasions, that this expensive luxury is indulged in. This delicacy tastes rather like ordinary vermicelli soup. I was told that the birds built in caves on the coast; the nests adhere to the rocks, often in very precipitous places, and are only obtained at considerable risk to the collectors; hence the fancy price they fetch.

My specimens I shot on the island of Singapore, late in August; but doubtless the species is distributed throughout the Straits.

Length 4 inches; irides dark brown; the wings project $1\frac{1}{2}$ inch beyond the tail; tarsus $\frac{2}{5}$ inch; plumage black, glossed on the upper parts with bluish-green; beneath dusky, the feathers of the belly and vent edged with white, presenting a mottled appearance.

Dendrochelidon klecho (Horsf.). The Malayan Crested Swift.

My first acquaintance with this species was while travelling in Perak, where it certainly cannot be put down as common. Early in April, with H.B.M.'s Resident, I visited some tin-mines at a place called Salak, situated at the foot of the range of mountains running about ten miles east of Kwala Kangsar.

After an intensely hot ride of several hours on elephants, we reached our destination, a settlement of about half-a-dozen huts occupied by Chinese miners, who received us civilly, but were extremely anxious lest we should enter the workings with our boots on, or touch any of the burning joss-sticks, little smouldering tapers lit to propitiate the good or keep off the evil spirits. These miners, being exceedingly superstitious, imagine the ground to be peopled with demons who have the power of rendering the metal scarce or otherwise. Anybody entering a mine with his boots on is supposed to give such offence to the spirits that the ground ceases to yield ore, and becomes worthless,—a strange superstition, the origin of which I was unable to find out.

These Salak mines had been worked in former years; but when the disturbances broke out in Perak the Malays burned the shanties, and the miners fled. The old workings had filled with water, forming several small ponds, over which were flying some birds of the Swift-tribe, there were twenty or thirty of them flying backwards and forwards over the pools, at one moment dipping suddenly down and just breaking the surface of the water, then rising high into the air, uttering a loud twittering note. Every now and then they deserted the ponds, and settled along the bare upper branches of an enormous dead forest-tree which stood near. They were too high up for me to ascertain as a fact that they were nesting; but probably such was the case, and the birds which I saw squatting along the bare limbs of the tree were in all probability sitting on their nests—small, clay, cup-shaped structures, usually, I believe, built on the upper horizontal branches of high trees.

While on the tree the Swifts were far out of gun-shot; but by waiting till they returned to the water I secured two or three specimens; and the following is a description of one of them:—It differs from *D. coronatus*, the Indian species, in being much smaller, also the tail does not project beyond the tips of the wings. Length from beak to end of tail 8 inches; irides dark brown; legs and feet dull purple; head, crest, upper parts, wings, and tail bright metallic bluish-green, ex-

cept the rump, which is grey; underparts grey, becoming white on the abdomen and vent.

In Singapore, late in August, I shot a Crested Swift out of a flock of about twenty as they dashed past in a southerly direction. Could they have been migrating? It was the only time I saw any of them on the island; and they did not loiter, but flew straight on in a direct line, as if with a fixed purpose.

Dendrochelidon comata (Temm.).

I saw specimens of this curiously plumaged Swift which had been shot near Changhie, Singapore; mine were killed on Gunong Pulai, Johore.

Caprimulgus macrurus, Horsf. The Malay Nightjar.

One of the most common of Malay birds, but more so in cultivated districts than in the thick jungle, though even there it abounds wherever there are roads or clearings.

About the Singapore roads it is very plentiful of an evening, either hawking for the insects which then swarm, or else squatting motionless on the road till almost trodden on, when it rises with a flutter into the air, and, skimming close over the ground, settles again a little further on. During the heat of the day the Nightjar retires to the depths of the jungle, frequenting those parts which are in deep shade; but towards dusk it sallies forth in search of food, and, particularly on moonlight nights, its monotonous chunk! chunk! chunk! chunk! is heard on all sides, about the most noticeable of the many strange nocturnal sounds. These peculiar notes have a metallic ring, very like the sound made by throwing a stone on the ice. I never heard the bird utter them while it was flying, occasionally when squatting on the ground, but more often from a post or dead tree—the same bird frequenting the same position night after night, much to one's annoyance if it happens to select a place near one's bedroom-window.

When I was in camp at Kwala Kangsar, one of these Nightjars came every evening to an old seat of tree-trunks within ten yards of my hut, and made such a "chunking" as to render sleep impossible. So, after putting up with it for several

nights, at last (one evening when it was particularly noisy) I took out my gun and shot it; and from that time the nuisance ceased, and I slept in peace. One of my Perak specimens, a male, shot on 10th March, 1877, measured slightly under 12 inches; irides dark brown; rictal bristles white at their bases; upper plumage ash-brown, minutely speckled with a darker shade of the same colour; bold longitudinal dashes on the crown, nape, and scapulars, also dark brown blotches on central tail-feathers; chin, face, and nape rufous-brown; bar across primaries, the ends of outer tail-feathers and of under tail-coverts, also triangular patch on the throat pure white; beneath dull rufous-brown, pale on abdomen, and barred with dusky brown.

MEROPS QUINTICOLOR, Vieill.; and M. BADIUS, Gm.

I obtained both these birds on the banks of the Perak river, also at Malacca and Singapore.

On reference to my note-book I find :—"Kwala Kangsar, Perak, 15 Feb. 1877. Saw several Bee-eaters near the river; two of them kept flying about a leafless tree, now and then resting on its topmost branches; wanting specimens, I shot them both, and found them to be *M. quinticolor*, not unlike the European *M. apiaster*. One of these birds, a male, measured 8 inches in length; head and nape pale ruddy chestnut, wings bluish-green; chin and throat pale yellow, bounded below by a dark bar; lower back and upper tail-coverts pale blue, tending to white.

"Its stomach contained beetles and small flies."

"Kwala Kangsar, Perak, 25 Feb. 1877. Close to camp I came on several Bee-eaters, which were flying about a sand-bank near the river; they were of two species, *M. quinticolor* and *M. badius*.

"I shot specimens of each. One of the latter, a male, measured 12 inches in length; irides crimson; head, nape, and upper back rich dark chestnut; the two central tail-feathers taper to a point nearly 3 inches beyond the rest of the tail; chin, throat, and tail blue; lower back and tail-coverts pale blue; beneath bright green, becoming whitish and slightly tinged with pale blue towards the vent."

Merops philippinus, Linn. The Blue-tailed Bee-eater.

Very common in Singapore during the north-east monsoon.

Arriving in great numbers towards the end of September, it keeps in flocks of from ten to twenty, and frequents low-lying ground and wet paddy-fields, over which it hawks for insects, at one moment swooping down at a great pace close to the ground, the next rising high into the air and sailing along without a move of its wings; when at rest it is generally to be seen on some conspicuous isolated spot, such as the top of a post or the highest branch of a dead tree.

In Singapore I think I may put it down as migratory; for, on reference to my notes, made daily, I can find no record of its occurrence except during the wet season.

On 17th October, 1879, they were very plentiful at Sirangoon, Singapore. One I shot measured 12 inches in length, bill at front $1\frac{7}{12}$ inch; irides crimson, bill black; upper parts dull green, tinged on the head and tertiaries with pale blue; rump and upper tail-coverts beautiful light blue; tail dull blue, two central feathers elongated; chin pale yellow, throat pale chestnut, abdomen pale green; streak below eye black, bordered below with light blue. The entire bird, with the exception of the light-blue portions of its plumage, was most beautifully glossed with a golden coppery tinge, giving it, when in the sun, a brilliant burnished appearance.

Nyctiornis amictus (Temm.).

Certainly not a common bird, as I only once myself obtained it, though I saw it in Malaccan collections; then, being new to me, I assigned it to the Meropidæ. The following extract is from my notes made at the time:—

"Kwala Kangsar, Perak, 27th Feb. 1877. This morning my native bird-catcher brought me two birds of most gaudy colours; he had snared them in the neighbourhood. From their long curved beaks, brilliant plumage, and general appearance I think they must belong to the Meropidæ or Bee-eaters; anyhow, they are certainly related to them.

"These birds have a most peculiar and rather pleasant aromatic scent about them."

I put them into my aviary; and at first they did well, feeding on plantains, and hopping about most cheerfully, every now and then flirting up their long tails after the manner of *Copsychus musicus*; but after a few days they sickened and, much to my regret, died; so all I could do was to add their skins to my collection. The male was slightly less than 13 inches in length; irides bright orange; toes four in number, one inclined backwards; forehead lilac; throat and pectoral plumes scarlet, the centres of the latter dusky; rest of plumage bright green, except tips of tail-feathers, which were black beneath, their basal portions being yellow. Some specimens of this species which I bought at Malacca measured under 12 inches in length; but probably the skins had shrunk.

Eurystomus orientalis (Linn.). The Broad-billed Roller.

This Roller appears to be distributed throughout the country, but is particularly plentiful among the virgin forests of Perak. I hardly like to say it is nocturnal in its habits; still it is rarely met with during the heat of the day; but in the country round Kwala Kangsar, Perak, I frequently saw it of an evening when on my way home after a day in the jungle; it was usually perched on the upper branches of some tree, from which it made short flights into the air in pursuit of insects. The first one I shot was only winged, and, turning on its back and uttering harsh screams, it fought most savagely with my dog. It was a male; length 11 inches; irides dark brown; legs, feet, and beak scarlet; plumage greenish blue; head almost black; wings very prettily marked with blue and black, each having on it a spot of very pale blue; patch on throat rich violet; beak short, strong, and hooked at tip; gape and eyes very large.

I also shot specimens at Changie, Singapore.

Pelargopsis malaccensis, Sharpe. Large Stork-billed Kingfisher.

This magnificent bird is fairly plentiful, particularly about the jheels of the interior. I shot several on Saiyong and Kota Lama jheel, Perak; one of them, a female, shot on 24th March 1877, was 13¾ inches in length, bill scarlet.

Halcyon smyrnensis (Linn.). The White-breasted Kingfisher.

By far the most common of all Malayan Kingfishers; it is a very widely distributed species; I have shot specimens as far east as Hong Kong (that is to say, if the Chinese and Malayan birds are identical, which they seem to be); westward it is plentiful throughout India and Ceylon, according to Jerdon extending even to the eastern shores of the Mediterranean.

In Canton the skins of this Kingfisher are articles of commerce, the beautiful azure-blue plumage of the upper parts being much used in the manufacture of jewelry, and I saw ear-rings and other trinkets in which particles of its feathers had been so deftly worked as to look exactly like blue enamel.

In the Malay peninsula it is exceedingly abundant about the wooded jheels and rivers of the interior, though also plentiful among the paddy-fields of the cultivated districts; it is occasionally met with in the mangrove-swamps bordering the coasts, though near the sea its place is to a great extent usurped by the white-collared species (*H. chloris*).

It appears to be more of a wanderer and of stronger flight than most of the Kingfishers; I often saw it at some distance from water, frequently perched on the topmost bough of a tree uttering its harsh grating cry.

I found it exceedingly plentiful on the banks of the Perak river. In the neighbourhood of Kwala Kangsar it simply swarmed, and any morning I might have shot a dozen specimens; as it was, its beautiful plumage induced me to shoot many a one which, but for its fatal beauty, would have escaped.

I am unable to distinguish any difference in the plumage of the sexes.

Halcyon pileata (Bodd.). The Black-capped Purple Kingfisher.

Not so common as *H. smyrnensis*, still fairly plentiful throughout the country. I obtained it in Perak, Penang, Moar, Malacca, and Singapore.

As regards its habits, it has much in common with the White-breasted species, frequenting the same localities, and, like it, feeding on frogs, small fishes, and crabs; but it can at once, even at a distance, be distinguished from that bird by the rich purple colour of its plumage; also it is rather larger. One evening in November, while Snipe-shooting in the swampy paddy-fields of Singapore, I saw one of these Purple Kingfishers perched on a post which stood eight or nine feet out of a large pool formed by the damming-up of a stream which flowed through the swamp; suddenly it darted down with a splash into the water, then returned to its former position with its prey, a small frog, which, holding it in its beak by one leg, it despatched by shaking it violently from side to side. At this stage of the proceeding I shot the bird, as I wanted to be sure as to its species and food.

Halcyon chloris (Bodd.). The White-collared Kingfisher.

Particularly plentiful on Pulo Battam, Pulo Nongsa, and all the small islands near Singapore, also common along the mangrove-girt coasts of the mainland; in fact, it appears to confine itself to the salt or brackish water, and is never met with far from the sea.

Besides restricting itself so entirely to the sea-coasts, it has other characteristics which seem to separate it from the paddy-field and fresh-water Halcyons: unlike most of them, its beak is black, rather short, and the gonys distinctly curves upwards throughout its entire length.

Carcineutes pulchellus (Horsf.).

By no means rare; but of its habits I know nothing.

Alcedo mininting, Horsf.

Not very scarce; I shot it in Perak, and often saw it about the lake in the Botanical Gardens, Singapore.

Ceyx rufidorsa, Strickl. The Three-toed Ruddy Kingfisher.

By no means common, though I obtained it at both Malacca and Singapore; at the latter place, during the wet and stormy

weather prevalent at the breaking of the S.W. monsoon many birds used to appear, which were rarely met with at other seasons of the year. Among these, after a very rough night in October, I obtained alive one of these little Kingfishers, which, having flown into the barracks, had been caught by the soldiers.

In exactly the same way one was caught by some of the detachment of my regiment at Malacca.

Alcedo bengalensis, Gm. The Indian Kingfisher.

This Kingfisher, very like but smaller than the English species, is common everywhere, frequenting the small streams which meander through the paddy-fields.

An adult, shot in Perak on 6th Feb., measured 6¾ inches in length, beak at front 1⅜ inch; irides dark brown, legs red.

Cymbirhynchus macrorhynchus (Gm.). The Blue-billed Gaper.

A common bird in the country round Malacca, also in Perak; but I only once met with it on the island of Singapore; it is most often found on the outskirts of thick jungle, or on the edges of clearings—though, if it were not for its bright colours, it would seldom be noticed, being a retiring and particularly silent bird, and, except during the breeding-season, rather inclined to be solitary.

The Blue-billed Gaper breeds during April and May; and the following account of its nesting I take from my note-book:—

"Kwala Kangsar, Perak, 5th May, 1877. This afternoon, while stalking jungle-fowl, which towards dusk come out to feed along the outskirts of the jungle, I saw a Blue-billed Gaper fly out of a large, roughly-made, domed nest, which was hanging from the topmost twigs of a slender sapling, at about 10 feet from the ground; over the entrance, which was on one side, a kind of roof projected, like the slanting shade of a cottage-door. Internally the nest was rather neatly lined with flags and green leaves, and contained four white eggs, $1\frac{1}{12}$ inch long by $\frac{8}{12}$ broad, blotched (principally at the larger end) with rusty-brown marks."

I found several other nests, all very much alike both as regards construction and situation; in fact, the above is a typical description; but I may add that in every case the tree to which the nest was suspended grew either in or on the edge of a swamp.

The sexes do not differ in plumage; and apparently there is very little, if any, seasonal change. A female, which I dissected, had been feeding on berries.

Buceros rhinoceros, Linn. The Great Malay Hornbill.

Fairly plentiful in the jungles of the interior, more especially in those parts where the trees are of great size.

I obtained it near Kwala Kangsar, Perak, and on several occasions saw it high up among the enormous forest trees of the Gápis Pass, a most magnificent piece of tropical scenery, through which one had to travel on one's way from Perak to Larut and the sea-coast.

I first came across these Hornbills within a mile or two of Kwala Kangsar: in my notes is:—

"28th January, 1877. Towards nightfall I hid myself in the jungle, near where I saw the boar last night, hoping he would revisit the pool; but he did not come, though I waited till after dark, and was much bothered by ants and mosquitoes.

While waiting, a flock of Hornbills, of the large Rhinoceros-horned species, flew overhead. Their flight was strong and exceedingly noisy, every flap of their wings making a most peculiar sound, audible at a great distance; it was very like the shish! shish! shish! with which a railway-train starts; the birds flew in a V formation, not unlike, but more irregularly than, geese."

An officer of my regiment shot one of these Hornbills in the camp at Banda Bahru, near the mouth of the Perak river; it was sitting on the fork of a tree, eating fruit of some kind, but rose on being approached. It is not rare in Malaccan collections, and, I am told, is often seen among the high trees on Penang hill; it can at once be distinguished from the other Bucerotidæ by the enormous red and yellow horn attached to the upper surface of its beak. From

W. E. Maxwell, Esq., H.M. Assistant Resident of Larut, I hear that the Malays have a strange legend connected with one of the large Hornbills; but which species, I was not able to find out. It is as follows:—

"A Malay, in order to be revenged on his mother-in-law (why, the legend does not relate), shouldered his axe and made his way to the poor woman's house and began to cut through the posts which supported it. After a few steady chops, the whole edifice came tumbling down; and he greeted its fall with a peal of laughter. To punish him for his unnatural conduct, he was turned into a bird; and the 'tebang mentuah' (literally, he who chopped down his mother-in-law) may often be heard in the jungle uttering a series of sharp sounds like the chops of an axe on timber, followed by Ha! Ha! Ha! Ha!"

I asked Mr. Low, H.B.M. Resident of Perak, if he could give me any information as to which species of Hornbill this legend relates to; and he writes:—"It is the largest Hornbill which is found in Perak, bigger, I should say, than the Rhinoceros Hornbill; but I have never seen it except flying or on very high trees. The legend about it is very common; but I do not know the scientific name of that particular Hornbill: but it is not that you refer to, viz. *Berenicornis comatus*, Raffles; nor is it the Rhinoceros."

Hydrocissa convexa (Temm.).

During August 1879 I saw one which had been shot a few days before on Pulo Battam, near Singapore.

Hydrocissa malayana (Raffl.). The Malay Pied Hornbill.

I occasionally saw this black-and-white Hornbill in the neighbourhood of Kwala Kangsar, generally in the vicinity of villages. During March 1877 a pair were continually about the village of Kota Lama; but they were so wary that I never got a chance of shooting either of them. The species undoubtedly breeds in Perak, as the Malays brought me young birds but a few weeks old. In August 1877, when up the Moar river, I got one of these Hornbills near Bukit Kopong.

Like all the Hornbills, it is easily tamed, and makes a most amusing pet; the tamest I ever saw was at Trafalgar, a tapioca-plantation on the north side of Singapore, where I stayed for a few days in May 1879. The following is from my note-book:—

"Singapore, 30th May, 1879. On reaching Trafalgar we put on sarongs, and made ourselves comfortable in long chairs, out in the open air, the evening being quite cool. In the course of conversation, Mr. K——, our most hospitable host, mentioned that he had a tame Hornbill; and a few minutes later we saw it sitting on the top of the house; but on being called, it flew down and perched on the backs of our chairs. I never saw such a tame bird. It was quite at liberty; and though it had the full use of its wings and flew about among the trees, it seldom went far away, coming when Mr. K—— called out its name, "Punch," and taking bread, plantains, and other things out of our hands. It was much pleased with the round buttons on my coat, and tried to tear them off—I suppose, thinking them to be berries of some sort. It was of the black-and-white-species, with white bands near the ends of the long tail-feathers; irides red brown; casque and beak dusky white. At dark it flew up and roosted among some cocoa-nut trees close to the house."

Berenicornis comatus (Raffl.). The White-crested Hornbill.

A rare bird in the south, though more common, I believe, in the little-explored jungles of the north of the peninsula. I obtained two specimens from Malacca; and the following are my notes on a third, which I tamed and kept alive for some time, and hoped to bring safely to England:—

"Singapore, 15th September, 1879. To-day Mr. H——, secretary to H.H. the Maharajah of Johore, sent me about the queerest-looking bird I ever saw; it was caught somewhere in the neighbourhood of Mount Ophir, and is, I expect, rare, or the natives would scarcely have thought it worth bringing so far as a present to Mr. H——. I certainly never saw a Hornbill like it: the enormous yellowish-white

beak is without a casque; bare skin of face dull fleshy purple; irides pale bluish-grey; legs and feet black; head, neck, and underparts covered with hairy plumes, in colour white, with black bases, which form a large crest on the head, which the bird can erect or depress at pleasure; some of the plumes are of great length, and project forwards over the beak. In length the bird is about 36 inches; but of that the tail is nearly 14 inches; tips of wing- and tail-feathers white, as are also the ends of some of the wing-coverts; upper plumage black, very faintly glossed with green. This most extraordinary-looking creature has a voice as strange as its appearance. From the first glimmer of daylight until dark, with scarcely a minute's cessation, it utters a loud monotonous hoo! hoo! hoo! hoo! like a dog barking in the distance, only varied by the most demoniacal shrieks and cries at the sight of food. At this time it stretches out its long thinly-feathered neck, and shakes its ungainly head from side to side in the most ridiculous manner, as if it were saying no! no! no! no! which it certainly does not mean; for a greater cormorant I never came across: plantains, potatoes, oranges, rice, fish, all are eagerly swallowed; in fact it is hard to say what it will refuse. This afternoon it bolted a dead Lark, feathers and all, and even then was not satisfied. First holding its food near the tip of its great beak, it turns the plantain, or whatever else it may have, over and over several times; finally, getting it lengthwise, it tosses it into the air, catches it in its enormous mouth, and, with a tremendous gulp, bolts the dainty morsel entire, though occasionally, when something unusually tough and indigestible has been swallowed, and the bird apparently feels slightly uncomfortable inside, the offending morsel is reproduced with a croak of satisfaction, and the tossing and catching performance is again gone through."

This Hornbill became exceedingly tame, and allowed me to carry it about perched on my hand; but its incessant hoots and occasional unearthly shrieks so irritated my neighbours, that, after putting up for some days with what I must allow was rather a nuisance, they insisted on the bird's re-

moval to the outhouse, in which our Chinese servants lived. This removal, I believe, sealed its fate; for two days afterwards I found it dying on the ground, apparently from a blow, doubtless administered by one of the servants, whose siesta had been disturbed by its cries; unfortunately (or, rather, fortunately for the culprit) I was not able to prove this to be the case.

This example being a young bird, showed scarcely any signs of the casque on the beak. It was a female; in both sexes when full grown the tail is white; the adult female has the breast black.

A pair from Malacca, which are now before me, measure from 36 to 38 inches in length.

Palæornis longicauda (Bodd.). The Malay Long-tailed Parrakeet.

Common among the islands scattered along the south coast of the peninsula. I often saw it in Singapore, congregating in large flocks during July and August, particularly among the high trees (relics of the old jungle) on the Changie side of the island; but they were hard to shoot, nearly always flying at a great height and very fast, skimming close over the tree-tops, and uttering their shrill cries. When they settled, it was generally on the topmost boughs of an enormous tree, where they were well out of gunshot.

It is easy to identify them, even at a distance, by their characteristic flight and long pointed tails. On 21st July, 1877, I shot one out of a flock of about fifteen, on Pulo Tikong, an island near the mouth of the Johore river.

Loriculus galgulus (Linn.). The Malay Lorikeet.

A common cage-bird in all the settlements, prized on account of its gaudy colours and the ridiculous way it climbs about the wires of its cage, often hanging head downwards. During December I came across a small party of them on Pulo Battam, a large thickly-wooded island near Singapore.

Iyngipicus variegatus (Wagl.). The Grey-headed Pygmy Woodpecker.

One August afternoon I was collecting Honey-suckers in

a cocoa-nut plantation on the Bukit Timah road, Singapore, when a small bird flew past, and, settling on a dead cocoa-nut tree, commenced running up it and searching for insects. On shooting it I found I had got a tiny Woodpecker, and put it down as *I. canicapillus* of Blyth, until Mr. Davison pointed out that, instead of the whole head being grey, the forehead only was of that colour.

Length 5 inches, tarsus ½ inch; irides brown; legs dull green; upper parts dull brown, whitish on the rump, and banded with white; beneath dirty white, streaked longitudinally with dull brown; head and cheeks dull brown, forehead light brown; streak over eye extending to ear-coverts, and another from gape, pure white: on each side of the back of the head is a narrow but very bright orange streak.

Hemicircus sordidus (Eyt.).

My specimen of this heart-spotted Woodpecker was shot on Gunong Pulei, Johore, 5th September, 1879.

Meiglyptes tristis (Horsf.).

I saw, but never shot, this Woodpecker in Perak.

Tiga javanensis (Ljung.).

This Wood-pecker is not very scarce; I shot several in Perak, and some few in Singapore. It frequents cocoa-nut groves.

A female, which I shot near Kota Lama, Perak, on 14th February 1877, measured in length 10¼ inches; irides brown, legs black, beak plumbeous.

The male has a crimson crest, and is altogether more decidedly marked than the female, the white drops on the breast being very distinct and regular.

Muelleripicus pulverulentus (Temm.).

Mr. Davison's collector showed me a specimen of this large Woodpecker which, during June, he had shot on Gunong Pulei, Johore.

Length 20 inches; head grey.

Thriponax javensis (Horsf.). The Great Black Woodpecker.

I found this handsome Woodpecker plentiful round Saga-

met, some sixty or eighty miles up the Moar river. I never came across it in the north of the peninsula.

A male I got at Bukit Kopong, on the Moar river, was 15 inches in length; irides yellow, top of head and streak from base of lower mandible scarlet, abdomen rusty white, rest of plumage black.

Callolophus puniceus (Horsf.).

I shot a male of this fine bird while it was running up a tree-trunk, in the jungle, near Kwala Kangsar, Perak; date 6th May, 1877. Length 10½ inches, beak at front 1 $\frac{2}{16}$ inch; irides dark brown. During July 1879 I saw, but could not get a shot at, one of these Woodpeckers among the high trees at the foot of Bukit Timah, Singapore.

Megalæma chrysopogon (Temm.). The Golden-bearded Barbet.

Common in Malaccan and Singapore collections. It breeds in the Malay States.

During May 1877, while shooting on the banks of the Perak river, close to Campong Saiyong, a Malay brought me two of these Barbets, saying he had caught them high up in the thickly-wooded range of hills behind the village. They were young birds, and unable to fly more than a few yards; so, putting them in my game-bag, among dead Teal, Snipe, Quail, and other spoil, the result of the day's sport, I took them home, hoping to be able to rear them. At first they did very well, hopping about with a most sprightly gait, every now and then uttering a harsh croak and flirting up their tails; they lived in perfect harmony with the Pheasants, Ground-Thrushes, Doves, and other members of the "happy family" inhabiting my aviary, and fed freely on plantains, pine-apples, and other fruit; but in about a week, just as I began to have hopes of successfully bringing them up, they sickened and died. The sexes are alike.

Megalæma duvauceli (Less.). The Scarlet-eared Barbet.

During the last week in August, while bird-hunting in the jungle, at the foot of Bukit Timah, on the island of Singapore, my attention was attracted by the peculiar cries of a pair of

small, green-coloured birds. Creeping quietly through the bushes, I got unobserved beneath the tree on the topmost twig of which sat one of the birds, and watched it for several minutes. While sending forth its strange notes, which sounded like the words ter-rook! ter-rook! uttered several times in succession, it sat perfectly still, with head raised, neck stretched out to its full extent, and throat distended, apparently quite absorbed in its vocal performance, and heedless of my presence till my shot brought it down.

On dissection it proved to be a male; and its stomach was full of berries. Its companion, which I also shot, was of smaller size, and had very little black on its head; probably it was a female; but, unfortunately, I did not examine it so as to make sure of the sex.

The most noticeable characteristic of the species is the great length of the rictal bristles, which project even beyond the point of the beak.

Xantholæma hæmacephala (Müll.). The Crimson-breasted Barbet.

I found this little Barbet fairly plentiful in Perak; I obtained it during March at Kwala Kangsar.

Hearing a bird uttering a most peculiar, full, clear note in a tree within a few yards of my hut, I took out my gun, bent on securing what I felt sure was something new to me. Though but twelve or fifteen feet away, the bird's voice was so deceptive, and its small size and green plumage made it so difficult to see, that it was several minutes before I caught sight of it and brought it down.

I most carefully examined this bird, and found it agree exactly with Jerdon's description of *Xantholæma indica*, with which it appears to be identical. It breeds in Perak, in holes which it excavates in trees; but personally I did not find a nest. The eggs are white. The sexes are alike. I met with it near Bukit Timah, in Singapore.

Cuculus micropterus, Gould. The Indian Cuckoo.

I heard what I supposed (and, I think, rightly) to be the cry of this Cuckoo in the jungle near Kwala Kangsar, Perak;

it was very like the cuck-oo! cuck-oo! of our well-known English species.

I once, during September, shot a specimen of *C. micropterus* near Cluny, Singapore.

Hierococcyx fugax (Horsf.). The Hawk Cuckoo.

Though common, I believe, in India, it certainly is not so in Malayana; I only met with it once, viz. in November 1877, at Tanglin, Singapore. During the early part of the month a great many birds of different sorts flew into our barracks, and were caught by the soldiers. During one week I had brought alive to me three Sparrow-hawks (*Accipiter virgatus*), a Scops Owl (*Scops lempiji*), and a most beautiful specimen of this Hawk-Cuckoo, all caught in the barrack-rooms. It was so like a Hawk in its general appearance that, on first seeing it, and not having before met with the species, for a minute I thought it to be one; but, on close inspection, the feeble beak and feet disclosed its true character. It was an immature female, and had been feeding on seeds and vegetable matter.

I saw a specimen of this bird, shot by Mr. Davison's collector on Gunong Pulei, Johore, during August.

Cacomantis threnodes, Cab. The Rufous-bellied Cuckoo.

Plentiful both throughout the Straits Settlements and the interior of the peninsula. I got it in Perak, Penang, Malacca, and Singapore; in the last-mentioned place it was quite common, though not often noticed, owing to its small size, plain colours, and habit of keeping, as a rule, to trees of dense foliage. It has a most peculiar, monotonous and rather plaintive cry, which I seldom noticed during the heat of the day, though often towards dusk several birds could be heard at the same time, frequently continuing their cries right through the night.

Such was also the case in Hong Kong, where one frequented a tree close to my quarters, and nightly uttered its strange notes, sometimes for hours without cessation. These consist of a series of loud and very clear whistles, uttered in a descending scale, and terminating with a shake or trill,

and are heard at regular intervals of two or three minutes. I obtained my first specimen at Penang during May; but its plumage was exactly similar to that of others which I got later in the year at Singapore. On 19th July, 1879, while driving along the Bukit Timah road, I heard one of these Cuckoos in a mangosteen orchard, and soon spied it out, perched among the highest branches of a clump of bamboos; so, dodging behind the trees, I got within shot and brought it down, a beautiful specimen, ♂.

Length 8¼ inches; irides and the inside of the mouth red; beak dusky, reddish at its base; legs yellow; head, neck, and upper tail-coverts pale ashy, the last approaching the dull brown of the back and wings, which are very faintly glossed with metallic green; underparts bright rufous-brown; tail black, but tipped and narrowly barred with white.

Eudynamis malayana, Cab. The Malayan Koel.

During June 1877 I shot one of these Koels near Kwala Kangsar, Perak; it was a female, with its ovaries much developed; its stomach contained several large beans. Length 18 inches; irides crimson-lake; legs plumbeous; beak pale green.

The male is considerably smaller than the female, and quite unspotted, being entirely of a deep shining blue, with rich purple and green reflections. Late in November 1879 I visited Pulo Nongsa, a small island near Singapore, barely half a mile long by sixty or eighty yards in breadth, in fact a mere strip of thick jungle surrounded by a broad coral strand. Hearing most strange mellow notes issuing from the jungle, I sent my Malay boatmen in to beat, and, standing outside on the beach, shot a pair of these Koels as they were driven out into the open. Both were in beautiful plumage, the white markings of the female being exceedingly distinct, and without the slightest sign of the rufous tinge which overspread the above-mentioned Perak specimen; it was also three inches shorter, and more glossed with green and blue than was that bird.

Rhopodytes sumatranus (Raffl.) The Green-billed Malkoha.

From my note-book I extract the following account of this non-parasitic Cuckoo :—

"Kwala Kangsar, Perak, 16th March, 1877. This afternoon I visited one of the nests I found yesterday, but the owner of which I was then unable to identify; to-day I shot it as it rose from the nest. It is a most curious velvety-faced bird, with the long tail, deeply-cleft beak, and short wings characteristic of the Cuculidæ.

"In plumage its wings and upper parts are of a greenish blue metallic colour, the tail-feathers tipped with white; head, neck, and underparts dull ash-grey; the head, throat, and chin are covered with peculiar spiny hairs; bare velvety skin of the face scarlet, the very curved beak pale pea-green; the eyes are furnished with lashes. Length of bird, including the tail, 16 inches.

"The nest was a loosely-put-together structure of dry twigs, slightly cup-shaped, and built at about 5 feet from the ground, in a bush standing on the edge of a jungle-path. The eggs, two in number, were nearly hatched; they were $1\frac{1}{6}$ inch in length, in colour white, but much stained with brown matter.

"The bird appears to build its own nest, and certainly hatches its own egg; for on two occasions during the last few days I have stood close by and watched it sitting. It did not utter any note or cry, not even when disturbed from its nest."

Unfortunately I neglected to determine the sex of this bird, so cannot say whether it was the male or female which was incubating.

I got another near Kwala Kangsar during April; but the species is decidedly rare, and I saw very few specimens among the many hundred skins I went through at Malacca.

Rhamphococcyx erythrognathus (Hartl.). The Large Malay Malkoha.

Concerning this species, my note-book says :—

"Kwala Kangsar, Perak, 9th June, 1877. This afternoon,

crossing the river, I shot Saiyong Jheel for an hour, then struck inland after jungle-fowl.

"The trees were of great size, but the undergrowth not as thick as in most parts, and easily got through. While moving quietly along, on the look-out for a shot, I saw a bird new to me perched on the upper branches of one of the highest trees, so high up that I almost feared it was out of shot; however, such was not the case, and down came a magnificent Malkoha. Length 19 inches; irides pale milky blue; legs dark bluish black; bare skin of the face crimson; beak pea-green, with a red blotch at its base; head dark grey, both it and the chin covered with spiny hairs; back, wings, and tail rich metallic green; the tail is 10 inches in length, with its terminal third deep red-brown, as are also the throat and breast. On dissection it proved to be a male; and its stomach contained the remains of large grasshoppers."

I saw specimens of this bird in the Malaccan collections; but it certainly is not common.

Rhinortha chlorophæa (Raffl.). The Small Malkoha.

I shot a male near Kwala Kangsar, Perak, on 26th May, 1877; it had been feeding on grasshoppers.

Length 12 inches; irides dark brown, legs and feet plumbeous, beak and bare skin of the face pale green.

Centrococcyx eurycercus (Hay). The Malay Coucal.

Very plentiful throughout the country, both on the mainland and also among the islands. Owing to its flight much resembling that of the common English Pheasant, while its head has a certain likeness to that of a Crow, it is well known to Europeans by the name of "Crow-pheasant." In India its near relation, *C. rufipennis*, also goes by that name.

Their notes, or more correctly hoots, are most peculiar, quite among the most noticeable of jungle noises; and for some time I put them down to the monkeys which abounded round our camp at Kwala Kangsar, till one day I detected the real culprit, as, hearing the cries coming from a thick bush, I threw in a stone, and out came a Crow-pheasant.

The hoots may be described by the syllables hoo! hoo!

hoot! whoop! repeated very loudly over and over again, but occasionally varied by a loud gulp, as Jerdon says, exactly like somebody choking.

Centrococcyx bengalensis (Gm.). The Lesser Indian Coucal.

A common bird, particularly among low secondary jungle, and in districts covered with "lalang," a long coarse grass which springs up to a height of over three feet on ground where the jungle has been burned. In such localities it is plentiful at all seasons throughout Perak, Larut, Port Wellesley, Johore, and all the Settlements. In Singapore I shot innumerable specimens, in all stages of plumage, some very dark with only the wings rufous, others pale rufous all over; in fact their plumage varies greatly, according to their age and sex, some being so different from others as to almost seem of another species.

A male which I shot at Singapore, on July 5th, nearly in full adult plumage, measured 12 inches in length, tarsus 1½ inch; irides deep red; legs plumbeous; beak black; head, neck, upper tail-coverts, tail, and underparts black, glossed with metallic green and blue; but the underparts were a good deal blotched with white, which is not, I believe, the case in the quite mature male; wings rufous, with the feathers dusky at their tips; feathers of the back pale-shafted.

Another male, shot in Perak during June, is similar to the above, except that its upper tail-coverts are narrowly barred with rufous-brown.

In striking contrast with both of these is a female, shot at Singapore on 30th August, which was entirely of a pale rufous colour with its upper parts and wings narrowly barred with black; irides brown; beak fleshy, but dusky on the culmen; legs black. Length of bird 13½ inches.

This species is insectivorous; I have seen it chasing grasshoppers.

[To be continued.]

XXIX.—*Note on* Onychotes grueberi, *Ridgway*.

By John Henry Gurney.

(Plate XII.)

In 'The Ibis' for 1876, at p. 476, I referred, in some detail, to the very curious Buteonine bird for which Mr. Ridgway, a few years since, proposed the generic and specific names of *Onychotes grueberi*, the type specimen having been "sent to the Smithsonian Institution by Mr. Grüber, who labelled it as having been obtained in California" (*vide* Baird, Brewer, and Ridgway's 'North American Birds,' vol. iii. p. 254).

I am now enabled, by the courtesy of the authorities of the Smithsonian Institution, and the good offices, in particular, of Mr. Ridgway, to illustrate my observations above referred to by figures of the two only known specimens of this remarkable and evidently very rare species, viz. the original type specimen, and a second, subsequently added to the collection of the Smithsonian Institution, the locality of which, though not certainly known, is supposed to be, like that of Mr. Grüber's example, California (*vide* Ridgway's 'Studies of American Falconidæ,' p. 135).

This second specimen, so far as I am aware, has never before been figured; and no coloured figure of the type specimen has previously been published, though a very good woodcut of it accompanies the article on this species in the work on the birds of North America to which I have already referred.

In the plate (Plate XII.) which accompanies the present note the figure in the background represents the type specimen, and that in the front the second example acquired by the Smithsonian Institution.

It is needless for me here to repeat what I have said as to both these specimens in 'The Ibis' for 1876; neither is it necessary for me to quote the very full and appropriate remarks from the pen of Mr. Ridgway contained in the two works above referred to; but I may briefly mention a few points which have suggested themselves to my consideration after examining the two specimens now figured.

ONYCHOTES GRUEBERI.

XXIX.—*Note on* Onychotes grueberi, *Ridgway*.

By John Henry Gurney.

(Plate XII.)

In 'The Ibis' for 1876 at p. 476 I [illegible]

J.G.Keulemans lith.

Hanhart imp.

ONYCHOTES GRUEBERI.

The genus *Onychotes* appears to me to be in many respects allied to the most typical section of the genus *Buteo*, from which, however, it is distinctly separated by the conspicuous shortness of the wing, a character which evinces its relationship to the genus *Asturina*.

The barring on the tail, which is almost exactly alike in the two specimens, is remarkable for the narrowness and multiplicity of the dark transverse bars. In the type specimen the number of these bars on the central rectrices is ten, besides a broader, but indistinct, dark terminal band. In the other example the transverse bars are eleven, besides the terminal band, which, in this case, is more distinct than in the type; the breadth of these bars is about one tenth of an inch, and that of the terminal band about four times as much.

Barring of this description on the tail is usually indicative of immaturity in the Falconidæ, the transverse caudal bars in most cases becoming fewer and broader as age advances; but, notwithstanding this, I am disposed to consider the type specimen of *O. grueberi* nearly, if not quite, adult, whilst the other specimen seems to me to be a younger bird gradually progressing towards the assumption of the fuliginous plumage, which in this species is, I think, probably characteristic of mature age.

A reference to the accompanying plate will show the principal differences of coloration between the two specimens; but I may observe that in the paler bird the scapulars, the major and median wing-coverts, and the upper tail-coverts are rather conspicuously crossed by dark-brown bars, between which are paler greyish-brown interspaces; these latter are palest on the inner webs of the feathers, except in the case of the tail-coverts, where they are paler on the outer web than on the inner. The number of these dark bars is from five to seven on each feather; in the type specimen these bars are less numerous, and only exist on the hidden portion of the feather; so that the external appearance of these parts of the plumage is, in that specimen, whole-coloured.

In both examples there are dark transverse bars on the secondaries and tertials; but these appear more clearly on

the inner than on the outer web, by reason of the lighter ground-colour of the former. The primaries are not cross-barred in the paler specimen; and in the type they are so barred on the inner webs only.

The under wing-coverts in the paler specimen appear to be slightly commencing the assumption of the remarkable ferruginous tint which characterizes them in the type, and which extends also, in that specimen, to the axillaries and the tibiæ. In the paler specimen the axillaries are crossed with alternate but somewhat irregular bands of white and brown, the latter being tinged with ferruginous at the tip of the feather; the thighs are, like the breast, white, slightly tinged with fulvous, and a little variegated with brown.

For further particulars of both specimens, and for the detailed measurements of each, I must refer to Mr. Ridgway's 'Studies of American Falconidæ,' p. 135, and to 'The Ibis' for 1876, p. 376.

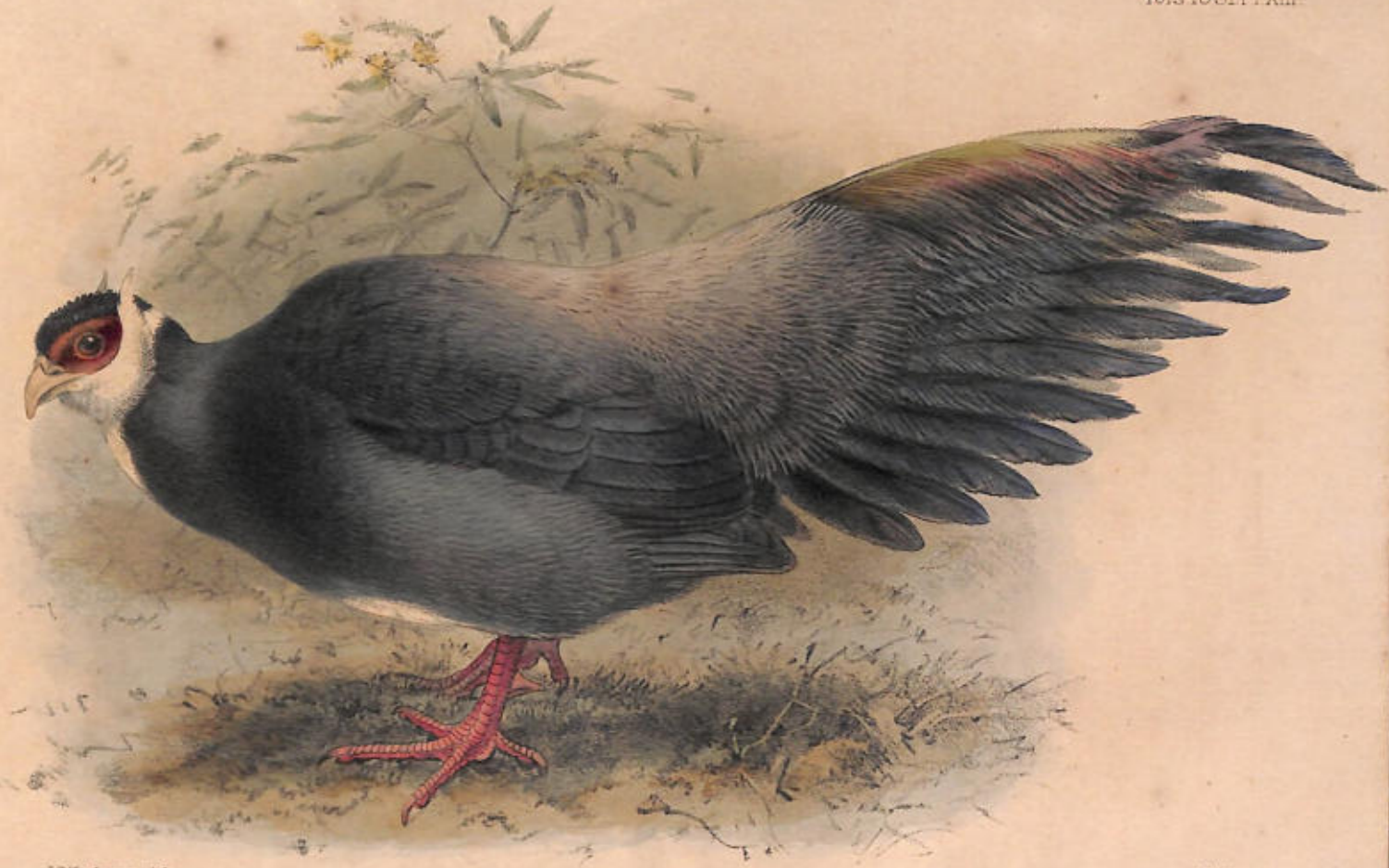
XXX.—*On a supposed new Species of Woodpecker from Eastern Siberia.* By Edward Hargitt.

My friend Mr. Seebohm, knowing the interest I take in the family of Woodpeckers, has kindly lent me a male specimen of an *Iyngipicus* obtained by Mr. Dörries in the island of Askold, Eastern Siberia. Mr. Seebohm himself recognized the difference between this bird and *I. scintilliceps*, to which it has been united, and was good enough to express a wish that I should describe it. Herr Dörries, of the Hamburg Zoological Gardens, has since sent me four specimens, which fully confirm the distinctness of the species, which, in justice to his son, the collector, I propose to name after the latter.

Iyngipicus doerriesi, sp. nov.

Picus scintilliceps, Bolau, Journ. f. Orn. 1880, p. 131.

I. affinis *I. scintillicipiti*, Swinh., sed conspicuè major, et faciei et colli lateribus clariùs et puriùs albis, et plagâ humerali (e tectricibus alarum medianis et majoribus for-



J.G.Keulemans lith.

CROSSOPTILON HARMANI.

Hanhart imp.

matâ) magnâ albâ distinguendus. Long. tot. 7·5, culm. 0·8, alæ 4·15, caudæ 2·5, tarsi ·65.

There can be no doubt of *I. doerriesi* being distinct from *I. scintilliceps*, on account of its greatly superior size and the large amount of white upon the face, neck, and wing-coverts (which is very conspicuous). I herewith give the measurements of the five specimens of *I. doerriesi* which I have examined, and of the types of *I. scintilliceps* in the collection of Mr. Seebohm :—

	Length.	Culmen.	Wing.
	I. doerriesi.		
	in.	in.	in.
a. ♂	7·5	0·8	4·15
b. ♂	7·5	0·8	4·05
c. ♂	7·5	0·8	4·1
d. ♀	7·5	0·8	4·1
e. ♀	7·5	0·8	4·1
	I. scintilliceps.		
a. ♂ (type)	6·0	0·67	3·9
b. ♀ (type)	6·0	0·73	3·85

XXXI.—*On a new* Crossoptilon. By Henry J. Elwes.

(Plate XIII.)

Crossoptilon harmani, sp. nov. (Plate XIII.)

Bill horn-colour tinged with red, 1½ inch long from gape, and ¾ inch deep at nostril. Lores and a space surrounding the eye, 2 inches long by 1 inch deep, naked, red. Top of head covered with short velvety blue-black feathers. A band on occiput, chin, and middle of throat, for a space of about 5 inches from the beak, white. Ear-coverts produced, nearly 2 inches long, white. Rest of neck, back, wing-coverts, breast, flanks, and under tail-coverts dark slaty bluish. Upper tail-coverts long, rather greyer than back. Centre of belly white. Primaries and secondaries dark slaty bluish, with purplish reflections. Wing 12 inches long. Tail composed of twenty graduated feathers, the central pair about 18 inches long, the lateral pair about 9 inches, bluish purple, with violet and green

reflections on the central four or five pairs. Tarsi strong, 4 inches long, with stout spurs. Middle toe, with claw, 3 inches long. Legs and feet vermilion-red.

Hab. Eastern Tibet, about 150 miles east of Lhasa (*Harman*).

This species resembles the figure of *C. auritum*, Pall., given in Elliot's 'Phasianidæ,' in its general coloration and markings. It may, however, be easily distinguished by the tail—which has no white in the centre of the lateral feathers, and is quite differently coloured. The type of *C. auritum*, according to Elliot, is lost; it is, however, described by Pallas as having eighteen tail-feathers. Mr. Elliot's plate is taken from specimens collected by the Abbé Armand David in the provinces of Shensi and Kokonor, and originally described as *C. cærulescens*, David ('Comptes Rendus, lxx. p. 538, 1870). The figure shows twenty tail-feathers, as is the case with my bird; but whether the species collected by David is really *C. auritum*, Pall., or not, my bird is clearly distinct from both of them, so far as can be ascertained without seeing the specimens themselves.

For this fine species I am indebted to Lieut. Harman, R.E., who has distinguished himself as a surveyor and explorer of the Eastern Himalayas, especially in Sikkim, where he has been employed for some years. When at Darjeeling in December last, I saw the skin of what I at once recognized as a new *Crossoptilon* hanging on the wall of his room. Unfortunately it had never been properly preserved, and was in such a terribly moth-eaten state that the remains, which he kindly presented to me, and which are now in the British Museum, are hardly worth preserving. They have, however, proved sufficient for Mr. Keulemans to make a very accurate drawing, the only fault of which is that the ear-coverts do not seem in the specimen to be so strongly developed as in the figure.

The skin was brought to Mr. Harman by one of his native surveyors, who said that he had procured it 150 miles east of Lhasa, at an elevation of about 6000 feet, where it was found in flocks during winter. This part of Tibet has never been

visited by any European or by any of the late Mr. Mandelli's native hunters, and having, as reported, a much milder climate and more luxuriant vegetation than the western parts of Tibet, may be expected to produce a number of remarkable and, as yet, unknown species.

This makes the fifth, or, if *C. tibetanum*, Hodgs., and *C. drouyni*, Verr., should prove to be identical, the fourth species of the genus known; and though it is probable that, as in the genus *Phasianus*, the local races or species of *Crossoptilon* will be eventually found to merge insensibly into each other, yet there is no difficulty in distinguishing them so far as we know at present.

XXXII.—*Note on the Egg of* Casuarius beccarii, *Sclater*.

By A. v. Pelzeln, H.M.B.O.U.

In 'The Ibis,' 1879, p. 376, I published a notice on two specimens of *Casuarius beccarii*, Sclater, living in the Imperial Menagerie at Schönbrunn. Since that time the birds have continued to be in excellent health. They are extremely quarrelsome; and in consequence of their fighting, it became necessary to separate them. In the last days of March, 1881, one of these Cassowaries laid an egg, of course not fecundated, which is now preserved in the Imperial Museum.

As I am not aware that the egg of this species of Cassowary has been described, I here give the following description of it.

The egg is of a regular oval shape, with both ends nearly equal; its length is 5″ 4‴ (142 mm.), the breadth 3″ 4‴ (88 mm.), the circumference of the longer axis 14½″ (365 mm.), and of the shorter axis 10″ 3‴ (270 mm.); the shell is of a pale olive-green, with tubercles of a vivid green colour equally distributed over the whole surface.

This egg differs from the egg of *Casuarius galeatus*, figured by Thienemann (Fortpflanzengesch. Tab. i. f. 1) from a specimen sent by Müller from Ceram, in its much more elongated shape, smaller, more isolated tubercles, and in the vivid green

colour, and in the same characters from other Cassowaries' eggs in our museum, some deposited by birds in the Menagerie at Schönbrunn, others collected by Baron Ch. Hügel during his voyages, and others obtained by Herr v. Scala in India.

From an egg of *Casuarius bennettii* which we received in the year 1865 in exchange from the Zoological Society of London, and from the figure published in the 'Proceedings' of the Zoological Society, 1858, p. 144, the egg of *C. beccarii* is distinguished by its superior length, while it is of almost equal breadth; the tubercles are set closer; and the colour of the shell is pale olive, and not buff.

XXXIII.—*On the Genus* Furnarius.

By A. von Pelzeln, H.M.B.O.U.

Furnarius, Vieill. 1816.

(*Opetiorhynchus*, Temm. 1820. *Figulus*, Spix, 1824. *Ipnodomus*, Gloger, 1842.)

Rostrum capitis circa longitudine, gracile, compressum; culmine curvato, apice haud dentato, gonyde fere recta, naribus patulis, ovatis. *Remiges* 1^{us}–3^{tius} sensim longiores, 4^{us} et 5^{us} longissimi. *Cauda* breviuscula, quadrata vel parum graduata. *Tarsus* multo longior quam digitus medius, scutellis latis tectus. *Digiti* laterales æquales, exterior basi conjunctus, posterior medii fere longitudinis, ungue curvato.

A. Pileo a dorso colore diverso.
  a. Pileo brunneo.
    Dorso brunnescenti-badio; ala 4″; rostro fortiore ..... 1. *F. badius.*
    Dorso rufescenti-badio; ala 3½″; rostro debiliore 2. *F. albogularis.*
    Dorso ferrugineo, castaneo vel cinnamomeo.
      Major: dorso in cinnamomeum vergente, pectore ferrugineo, remige primo absque macula; ala 3″ 6‴, rostro 1″; pedibus pallidis ..... 3. *F. leucopus.*
      Major; pileo et dorso clarioribus, remige primo macula rufa in pogonio interiore; ala 3″ 3–4‴, rostro 11–12‴; pedibus pallidis.. 4. *F. assimilis.*

Major: dorso obscure ferrugineo, pectore saturate fulvo; ala 3½″, rostro 14‴; pedibus pallidis ..... 5. *F. torridus.*

Major: notæo castaneo, gastræo albo; ala 3″ 5‴; pedibus nigris ..... 6. *F. pileatus.*

Minor: dorso cinnamomeo, pectore isabellino; ala 3″, rostro 9½‴; pedibus violaceo-griseis..... 7. *F. minor.*

b. Pileo griseo.

Dorso pallide ferrugineo, pectore parum clariore; ala 3″ 7‴, rostro 13‴; pedibus pallidis.... 8. *F. agnatus.*

Dorso pallido, fere ochracescente, gastræo albido vix ochraceo tincto; ala 3″ 8‴, rostro 15‴. 9. *F. longirostris.*

B. Pileo dorso concolori.

Notæo cinnamomeo, pileo haud cristato; ala 3″ 7‴ ..... 10. *F. figulus.*

Notæo cinereo-fusco hinc inde ferrugineo induto, pileo cristato; ala 3″ ½‴..... 11. *F. tricolor.*

1. Furnarius badius (Licht.).

Pileo brunneo, regione auriculari parum clariore, dorso alisque supra brunnescenti-badiis, cauda ferruginea, loris et superciliis parum distinctis isabellinis; gutture albo, gastræo reliquo badio vel albescente, in pectore magis saturato; subalaribus ferrugineis; subcaudalibus totis vel saltem ad apices albis; rostro robusto, obscure corneo, mandibulæ basi albida; pedibus brunneo-corneis. Longit. 7½–8″, alæ 4″, caudæ parum graduatæ 2″ 7–10‴, rostri a rictu 12–13‴, a naribus 6½–7‴, tars. 15‴.

? *Turdus fulvus*, Commerson.

? *Le Fournier*, Buffon, Hist. Ois. vi. 523.

? *Le Fournier de Buenos Ayres*, Pl. Enl. 739 *.

? *Merops rufus*, Gmel. Syst. i. 468. n. 20.

? *Hornero*, Azara, no. 221†.

* The coloration of Buffon's "Fournier de Buenos Ayres" resembles more that of *F. figulus* than that of *F. badius*; the crown of the head seems to be not darker than the back; a superciliary stripe occurring in both species is not visible in Buffon's figure; the dimensions, however, and the habitat would agree with *F. badius*. Under these circumstances I must accede to Professor Reichenbach's use of the name "*badius*, published in 1823," which belongs undoubtedly to the present species.

† It is difficult to say with certainty whether Azara's bird is *F. badius* or *F. figulus*: that he mentions white colour on the breast and abdomen

Turdus badius, Licht. Verz. Doubl. 1823, p. 40. n. 451.

Opetiorhynchus isabellinus, Temm. MS. in Mus. Vindob.

Furnarius rufus, d'Orb. et Lafr. Synops. p. 20, et d'Orb. Voyage, p. 250 (partim) ; Darwin, Voy. Beagle, p. 64 (nest, biology) ; Burmeister, Journ. f. Ornith. 1853, p. 167 (nidification); idem, Thiere Bras. iii. 3 (part.); Cab. u. F. Heine, Mus. Hein. ii. 23 ; Burmeister, Journ. f. Orn. 1860, p. 248 ; Sclater & Salvin, Proc. Z. S. 1868, p. 40 (coll. Hudson) ; Sclater & Salvin, Exotic Orn. p. 7; Chrysanthus Sternberg, Journ. f. Orn. 1869, p. 262 (biology, nest) ; Gray, Hand-list, i. 165. sp. 2176 (part.) ; L. Holtz, Journ. f. Orn. 1870, p. 8 (egg) ; Hudson, Proc. Z. S. 1872, p. 605 (defence of the nest against *Progne tapera* in the Argentine Republic) ; Sclater & Salvin, Nomencl. Av. Neotropic. 61 ; H. Durnford, Ibis, 1876, p. 160 (nest), et 1877, p. 179 ; E. Gibson, ib. 1880, p. 16 (biology, nest, egg); H. Durnford, ib. 1880, p. 416 (Tucuman).

Furnarius badius (Licht.), Reichenbach, Scansoriæ, p. 202. n. 492, t. 543. f. 3709 ; Pelzeln, Sitzungsber. k. Akad. Wiss. 1859, xxxii. 114 (Natterer's notices) ; idem, Ornith. Brasil. p. 34.

Hab. Republica Argentina (Paraguay?) et Bras. mer.: Buenos Ayres, February (*Commerson*), November to January (*Ch. Sternberg, H. Durnford, E. Gibson*) ; on the La Plata, Tucuman, Paraguay (*Azara*) ; Tucuman (*H. Durnford*) ; Banda oriental (*Darwin*) ; Conchitas, Republica Argentina (*Hudson*) ; Fazenda Meinarte, on the foot of the Itacolomi and La Plata States (*Burmeister*) ; San Paulo (*Sello* teste *Licht.*) ; Rio Janeiro (*Natterer*).

A typical specimen (female) received in 1824 from the Museum at Berlin is almost whitish on the abdomen ; and its underside is in general paler, as in the two individuals (male and female) collected by Natterer.

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would plead for the latter; but the different hue of head and neck, the coloration of the body and tail seem to be in favour of *F. badius*. So far as I am aware, moreover, *F. figulus* is only known from the province of Bahia. The data are not sufficient to prove which species Azara's description refers to ; but the localities mentioned seem to show that he speaks of the true *F. badius*.

As stated by Messrs. Sclater and Salvin, this species seems confined to the south, and to occur only in the Argentine Republic, Paraguay (?), and Southern Brazil, whereas the following is an inhabitant of Minas Geraes, Central Brazil (tableland), and probably Bolivia.

2. Furnarius albogularis (Spix).

Pileo brunneo, regione auriculari, dorso alisque supra rufescenti-badiis, secundariis magis rufis, cauda ferruginea, loris et superciliis parum distinctis isabellinis; gutture albo, gastræo reliquo ochracescenti badio, abdomine nonnunquam albido*; subalaribus ferrugineis; subcaudalibus totis vel saltem ad apices albis; rostro breviore, debiliore, magis recto quam in specie præcedente, obscure corneo, mandibulæ basi albida, pedibus brunneo-corneis. Longit. 7″–7″ 5‴, alæ 3″ 3–6‴, caudæ magis graduatæ 2″ 6–7‴, rectricibus extimis 4–6‴ brevioribus, rostri a rictu 12–13‴, a naribus 5½-7‴, tars. 13–15‴.

A *F. badio* statura minore, imprimis alis brevioribus, rostro debiliore et colore magis rufescente diversus.

Figulus albogularis, Spix, Av. Bras. i. (1824) 76, t. 78.

Furnarius rufus, Vieill. Gal. des Ois. i. 301, t. 182; d'Orb. et Lafr. Synops. 20, et d'Orb. Voyage, p. 250 (part.), t. 55. f. 2 (nest); Burmeister, Thiere Bras. iii. 3 (part.); Sclater, Cat. A. B. 147; Gray, Hand-list. i. 165. sp. 2176 (part.).

Opetiorhynchus ruficaudus, Pr. Neuw. Beitr. iii. 671.

Furnarius badius (part.), Reichenbach, Scansoriæ, pp. 202 et 544, f. 5713–14 (ic. *Spixii*).

Furnarius badius, var., Pelzeln, Sitzungsber. k. Akad. Wiss. xxxiv. 671 (Natterer's notices).

Furnarius commersoni, Pelzeln, Orn. Bras. 34; Sclater et Salvin, Nomencl. Av. Neotrop. 61, et Proc. Z. S. 1879, p. 619.

Hab. Brasilia occidentalis et centralis, Bolivia: Rio Verde in Minas Geraes (*Spix*); Minas Geraes (*Freireiss* teste *Pr.*

* Spix describes the underside of the male ferruginous, that of the female whitish ochraceous. Our specimens show no difference between the sexes; but there are males with the belly in some cases darker, in others more whitish. A female collected by Natterer (Cuyaba, May 1824) is distinguished by the whitish tips of the feathers on the back and breast, and by the belly being almost white—evidently a tendency to albinism.

Neuw.; Tenente Borges, Uruguay, and Cuyaba (*Natterer*), Bolivia (*d'Orbigny** et *Bridges*); Tilotilo, prov. Yungas (*Buckley*).

3. Furnarius leucopus, Swains.

Pileo et regione auriculari obscure brunneis; dorso, alis supra caudaque ferrugineis in cinnamomeum vergentibus; remige primo nigro absque macula; subalaribus minoribus ferrugineis, majoribus albis; loris, superciliis latis et gutture pure albis, gastræo reliquo ochraceo, pectore in ferrugineum vergente, abdomine medio et subcaudalibus albis; rostri maxilla et mandibulæ apice obscuris, mandibula reliqua pallida; pedibus flavido-albis. Longit. $6\frac{1}{2}''$, alæ 3″ 6‴, caudæ 2″ 4–6‴, rostri a rictu 12–13‴, tars. 11–12‴.

Furnarius leucopus, Swains. Two Cent. p. 325. 133, t. 67*a*; Caban. in Schomb. Reise n. Guiana, iii. 688; Reichenbach, Scansoriæ, p. 204. sp. 498, p. 543. f. 3711; Caban. et F. Heine, Mus. Hein. ii. 23; Sclater et Salvin, Exot. Orn. p. 8; Pelzeln, Orn. Bras. 35 (part.); Gray, Hand-list, sp. 2178; Sclater et Salvin, Nomencl. Av. Neotrop. 61.

Hab. Guiana et Brasilia septentrionalis: Guiana (*Swainson* et *Schomburgk*); Forte do Rio Branco, January, December, Rio Amajau, September (*Natterer*).

4. Furnarius assimilis, Cabanis et F. Heine.

F. leucopodi similis, sed paulo minor, pileo minus obscure brunneo, corpore supra lætius ferrugineo; pectore rufescentiore, et remigis primi in pogonio interno macula rufa minore differt. Longit. $6\frac{1}{2}''$, alæ 3″ 3–4‴, caudæ 2″ 5‴, rostri a rictu 11–12‴, tars. 12–13‴.

Opetiorhynchus ferrugineus, Natterer, Cat. MS.

Opetiorhynchus rufus, Thienemann, Fortpflanzungsgesch. 136 (description of the two nests collected by Natterer).

Furnarius leucopus, Pelzeln, in Sitzgungsb. k. Akad. Wiss.

* D'Orbigny enumerates the following localities:—South of the La Plata, Buenos Ayres, Corrientes, frontier of Paraguay, Chiquitos, Santa Cruz de la Sierra, plains of Central Bolivia, Cochabamba, Valle Grande, Bolivian Andes, at an altitude of more than 3000 metres. Which of these localities belong to the present and which to the preceding species it is not possible to decide without examination of the specimens.

Wien, xxxii. (1858) 322 (nests), and xxxiv. (1859) 115 (Natterer's notices); idem, Orn. Bras. 35 (partim).

Furnarius assimilis, Cab. et F. Heine, Mus. Hein. ii. (1859–60) 22; Gray, Hand-list, sp. 2184; Sclater et Salvin, Nomencl. Av. Neotrop. 61.

Hab. Brasilia centralis: Brasilia (*mus. Hein.*), Cuyaba, March, June (*Natterer*).

In the same manner as *F. badius* in the south takes the place of *F. albogularis*, *F. assimilis* on the central tableland of Brazil represents *F. leucopus*, which is peculiar to Northern Brazil and Guiana. The *Furnarius* from Mato Grosso mentioned in Castelnau's Expedition (*vide* Journ. f. Orn. 1857, p. 46) perhaps belongs to *F. assimilis*.

5. Furnarius torridus, Sclater & Salvin.

Pileo et capitis lateribus brunneis; dorso, tectricibus alarum et cauda obscure ferrugineis; primariis fusco-nigricantibus, omnium (extimo excepto) basibus in pogonio interno pallide ferrugineis; loris et superciliis indistinctis albidis; subtus fulvus, pectore magis saturato; gutture, ventre medio et subalaribus pure albis; rostro rufo, basi albicante; pedibus corneis. Longit. 7″, alæ 3″ 6‴, caudæ 2″ 2‴, rostri a rictu (linea recta) 14‴, tars. 14‴.

Furnarius torridus, Sclater et Salvin, Proc. Z. S. 1866, p. 183; Exotic Ornith. 1869, pp. 7 et 8, t. 4; Nomencl. Av. Neotrop. 61; Bartlett, Proc. Z. S. 1873, p. 268 (eggs and nest).

Hab. ad Ucayali sup. et inf. et S. Cruz (*Bartlett*); Pebas (*Hauxwell*).

Through the kindness of my friend Mr. Sclater I have been enabled to examine a typical specimen of this species obtained by Mr. Bartlett on the Lower Ucayali.

6. Furnarius pileatus, Sclater et Salvin.

Pileo obscure brunneo, superciliis albis, corpore supra castaneo; remigibus nigris rufo bifasciatis; rectricibus castaneis, macula in pogonio interiore nigra præditis; subtus albus, lateraliter ochraceo perfusus; rostro corneo, mandibula ad basin albicante; pedibus nigris. Longit. 6″ 8‴, alæ 3″ 5‴, caudæ 2″ 4‴, tars. 1″ 1‴.

F. figulo affinis, sed pileo brunneo et pedibus majoribus diversus (*Sclater et Salvin*).

Furnarius pileatus, Sclater et Salvin, Proc. Z. S. 1878, p. 139.

Hab. Santarem, Amazons (*Steere*).

7. Furnarius minor, Natterer.

Pileo et regione auriculari brunneis (vix cinerascentibus); dorso, alis supra caudaque cinnamomeis; subalaribus minoribus pallide cinnamomeis, majoribus albis; loris et superciliis albidis; gutture, ventre et subcaudalibus albis; pectore et lateribus corporis isabellinis; rostro brevi, brunneo-corneo, mandibulæ basi albida; pedibus violaceo-griseis. Longit. 5″ 8‴, alæ 3″, caudæ 1″ 9‴, rostri a rictu 9½‴, tars. 11‴.

Furnarius (*Opetiorhynchus*) *minor*, Natterer; Pelzeln, Sitzungsber. k. Akad. Wiss. Wien, xxxi. (1858) 321, et xxxiv. (1859) 115 (Natterer's notices); Sclater et Salvin, Proc. Z. S. 1866, p. 183, et Exot. Orn. p. 8; Pelzeln, Orn. Bras. 35; Gray, Hand-list, sp. 2182; Sclater et Salvin, Nomencl. Av. Neotr. p. 61; Bartlett, Proc. Z. S. 1873, p. 270 (eggs and nest, with a woodcut of the nest).

Furnarius pelzelni, Giebel, Thesaurus Ornith. ii. 217.

Hab. Amazonia superior: Rio Madeira infra Rio Mabissy, November (*Natterer*); Nauta, Peruvia or. et S. Cruz *Bartlett*).

8. Furnarius agnatus, Sclater et Salvin.

Pileo griseo; capitis lateribus, dorso, alarum tectricibus minoribus, secundariis et cauda tota pallide ferrugineis; alarum tectricibus majoribus, primariorum sex externarum parte apicali et reliquarum fascia transversali lata mediana nigris; loris, superciliis et gutture albis; abdomine pallide ferrugineo, pectore et subalaribus magis rufescentibus; rostro et pedibus pallide flavis. Longit. 6″, alæ 3″ 7‴, caudæ 2″ 1‴, rostri a rictu 13‴.

Sp. *F. leucopodi* maxime affinis, sed supra pallidior et pileo grisescente, alis longioribus et abdomine rufescente diversa (*Sclater et Salvin*).

Furnarius agnatus, Sclater et Salvin, Nomencl. Av. Neo-

trop. 1873, pp. 61 et 159; Salvin et Godman, Ibis, 1879, p. 197 (nota), et 1880, p. 170.

Hab. Columbia: S. Marta et Valle Dupar (*Joad, mus. Sclater*); Sierra Nevada de S. Marta (*Simons*).

I owe to Mr. Sclater's kindness the opportunity of examining the two typical specimens of this species.

9. Furnarius longirostris, Pelzeln *.

Pileo griseo; capitis lateribus et dorso pallide ferrugineis, hoc fere ochracescente; alis supra caudaque cinnamomeis, primariorum sex externorum parte apicali et reliquorum fascia transversali lata mediana nigris; subalaribus minoribus ferrugineis, majoribus albis; loris, stria superciliari et gutture albis; gastræo reliquo albido, vix ochraceo lavato; rostri maxilla pallide cornea, mandibula albida; pedibus albidis. Longit. 6″ 4‴, alæ 3″ 8‴, caudæ 2″, rostri a rictu 15‴, tars. 1″.

Furnarius longirostris, Pelzeln, Sitzungsber. k. Akad. Wiss. Wien, xxi. (1856) p. 158, t. ii. f. 2.

Furnarius cinnamomeus (Less.), Sclater, Proc. Z. S. 1860, p. 277; idem, Cat. Am. B. p. 147; Sclater et Salvin, Exot. Orn. p. 8; Gray, Hand-list, sp. 2179; Sclater et Salvin, Nomencl. Av. Neotrop. 61; Giebel, Thes. Orn. ii. 215; Taczanowski, Proc. Z. S. 1877, pp. 323, 333, et 751 (egg).

Furnarius griseiceps, Caban. et F. Heine, Mus. Hein. ii. 23.

Hab. Venezuela (?) (*Mus. Vindob.*); Guayaquil, Ecuador (*Delattre* †); Babahoyo, Ecuador (*Fraser*); Peru (*Mus. Hein.*); Tumbez, N.W. Peru (*Jelski et Stolzmann*).

* The identity of this bird with *Picolaptes cinnamomeus*, Less. (Rev. Zool. 1844, p. 433; *Campylorhynchus cinnamomeus*, Gray, Gen. Birds, p. 159), from Guayaquil, appears doubtful. Lesson says that the bird is of the same form and size as his *Grimpic zoné* (Cent. Zool. t. 70), which is distinguished by its long tail; he describes the head as rufous-brown (not grey), and makes no mention of the very different superciliary stripe. Lesson describes also the upperside as cinnamomeous, the underside as ochraceous: but these differences would be of less importance; for our specimen is in much-worn plumage, and the back especially is evidently growing paler.

† Mr. Sclater told me, in a letter dated 7th November, 1858, that a specimen collected by M. Delattre in Guayaquil is preserved in the Derby Museum at Liverpool.

10. Furnarius figulus (Licht.).

Pileo haud cristato; dorso, alis supra caudaque cinnamomeis, regione auriculari obscure brunnea; loris, stria superciliari, gutture et abdomine medio albis, gastræo reliquo ochraceo-albido; rostro nigrescente, mandibulæ basi pallida; pedibus brunneo-corneis. Longit. 6½″, alæ 3″ 4–6‴, caudæ 2″ 7–9‴, rostri a rictu 11–12‴, tars. 12‴.

Obs. Rectrices nonnunquam apicem versus macula nigra obsoleta præditæ.

Turdus figulus, Ill., Licht. Verz. Doubl. 1823, p. 40. sp. 450.

Furnarius superciliaris, Lesson, Trait. d'Orn. (1831), 307; Reichenbach, Scansoriæ, p. 204. sp. 497, t. 543. f. 3710.

Opetiorhynchus rufus, Pr. Neuwied, Beitr. iii. 2, 667; Thienemann, Fortpflanzungsgesch. 136 (egg, nest).

Furnarius figulus (Illig.), Gray, Gen. Birds, i. 132; Reichenbach, Scansoriæ, p. 202. sp. 493, t. 544. f. 3712 (ic. Buffonii); Burmeister, Th. Bras. iii. 4; Cab. et F. Heine, Mus. Hein. ii. 23; Pelzeln, Orn. Bras. 34; Sclater et Salvin, Exot. Orn. p. 7; Gray, Hand-list, sp. 2177; Sclater et Salvin, Nomencl. Av. Neotrop. 61.

Hab. Brasilia meridionalis orientalis: Bahia (*Lichtenstein, Sellow* in Mus. Vindob., Mus. Hein.); Jiquiriga apud Bahia et Jaguaripact apud Nazareth das Farinhas (*Pr. Neuwied*).

11. Furnarius tricolor, Döring.

Pileo cristato et corpore supra cinereo-brunneis, ferrugineo imprimis in fronte et in uropygio lavatis, cauda ferruginea; gula, abdomine medio et subcaudalibus albis, pectore et lateribus corporis isabellinis. Longit. alæ 3″ 1‴, caudæ 2″ 6‴, rostri a fronte 7‴, tars. 13‴.

Furnarius tricolor, Döring, MS.; Cabanis, Journ. f. Orn. 1878, p. 196; Sclater, Proc. Z. S. 1879, p. 461.

Hab. Sierra de Cordova in Republica Argentina (*Döring*).

APPENDIX.

Species dubiæ vel ad alia genera pertinentes:—

Furnarius melanotis, Swains. Two Cent. 324. 132; Reichenbach, Scansoriæ, p. 203. sp. 494: e Brasilia interiore et Bahia.

The identity of *F. melanotis* with *F. figulus*, assumed by most authors, seems to me not beyond doubt; for Swainson describes (according to Reichenbach's translation) the top of the head as blackish brown.

Furnarius longipennis, Swains. Two Cent. 356. 207; Reichenbach, loc. cit. 204; Gray, Hand-list, sp. 2186.—Peru.

"Furnarius tenuirostris, Pelzeln," Gray, Hand-list, sp. 2183; Giebel, Thes. Orn. i. 217.

Evidently a *lapsus calami*, perhaps for *F. longirostris*.

Furnarius griseus, Swains. loc. cit. 325, = *Campylorhynchus griseus*.

Furnarius fasciatus, Swains. loc. cit. 351, = *Campylorhynchus fasciatus*, Reichenbach.

Furnarius leucopterus (Jard. et Selby), Reichenbach, loc. cit. 205, = *Anabates leucopterus* (Jard. et Selby).

Opetiorhynchus rectirostris, Pr. Neuw. Beitr. iii. 2. 679.

Furnarius rectirostris, Reichenbach, loc. cit. 204. sp. 495; Burmeister, Th. Bras. iii. 5; Gray, Hand-list, sp. 2180.

This bird, distinguished by its graduated tail and the shape of the bill, should, as Burmeister has already remarked, form the type of a distinct genus.

XXXIV. *Remarks on the recently described Parrots of the genus* Chrysotis. By P. L. Sclater, M.A., F.R.S.

The American Parrots of the genus *Chrysotis* have always been an attractive group to me; and I have examined a large number of specimens of them, both alive in zoological gardens, and stuffed in various museums which I have visited. Having lately had the opportunity of studying several typical examples of some of the more recently described species of the group, I have a few notes to submit on them.

In his great work on Parrots, Dr. Finsch recognizes 32 species of the genus *Chrysotis*. In our 'Nomenclator' Mr.

Salvin and I followed Dr. Finsch's arrangement very closely, but allowed only 31 species, as, although we included *Chrysotis bodini* (Finsch, P. Z. S. 1873, p. 569, t. xlix.)*, described subsequently to the completion of 'Die Papageien,' we omitted *Chrysotis erythrura* and *C. bouqueti*, of which neither Dr. Finsch nor we had ever seen examples. Curiously enough, both these two species have now become well known to me. *Chrysotis erythrura* I first saw living at Amsterdam (see P. Z. S. 1879, p. 438); and I have subsequently obtained a living specimen of it for the Zoological Society (*cf.* P. Z. S. 1880, p. 23, t. ii.), besides a skin for my own collection. Of *Chrysotis bouqueti* I shall speak further on. The valid species of *Chrysotis* at the time of the compilation of the 'Nomenclator' (1873) should therefore have been given as 33 instead of 31. Since that period six other species have been described, concerning each of which I have a few remarks to offer.

1. Chrysotis lactifrons, Lawr. Ann. N. Y. Acad. Sc. i. p. 125 (1878),

of which Mr. Lawrence has most kindly forwarded to me the typical specimen for examination.

This bird, which was formerly living in the Central Park, New York, seems to me to be undoubtedly an example of *C. ochroptera* (Gm.). It agrees well with an example of that species in my own collection, and also with the plate in Levaillant's 'Parrots,' 98 bis, which Dr. Finsch pronounces to be "excellent."

Mr. Lawrence appears to have been misled by the words in Finsch's diagnosis, "speculo alari nullo," whereas *C. ochroptera* has a conspicuous red patch on the bases of the inner secondaries. But Dr. Finsch clearly describes this patch.

The only certainly ascertained habitat of this Parrot seems to be Venezuela.

2. Chrysotis canipalliata, Cab.

When at Berlin, in May last, Dr. Cabanis was kind enough

* *Cf.* also Sclater, P. Z. S. 1879, p. 438, and 1880, p. 28.

to show me his type of *Chrysotis canipalliata* (Jour. f. Orn. 1874, p. 105). I found it to be one of the late Mr. Salmon's skins of the species which Mr. Salvin and I (P. Z. S. 1879, p. 538) had determined as *C. mercenaria* (Tsch.). So far as I can tell, after looking into the question again, the determination arrived at by Mr. Salvin and myself appears to be correct.

I observe that Dr. Cabanis, in his description of the supposed new species, speaks of *C. mercenaria*, but does not point out the differences between it and *C. canipalliata*.

I may remark that the red patch at the base of the secondaries in this species is absent in young birds. Tschudi appears to have taken his description from a young bird, and his figure from an adult; *cf.* Finsch, Papag. ii. p. 595, and Sclater, P. Z. S. 1858, p. 75. I have in my collection a young bird of this species from the Rio Napo, and an adult from Antioquia (*Salmon*).

3. Chrysotis apophænica, Reichen. Orn. Centralbl. 1880, p. 16, is, in my judgment, as I have already stated (Ibis, 1880, p. 378), = *C. albifrons* ♀.

4. Chrysotis panamensis, Cab. J. f. Orn. 1874, p. 349, is founded upon the northern form of *C. ochrocephala*, which is diagnosed as being smaller in size, and having a yellow bill. I have seen many examples of this bird; and two such are now living in the Zoological Society's Gardens. They are certainly distinguishable from the ordinary larger form with the dark bill, and should rank as a subspecies if not as a species. The "Bogotá" bird appears to be the true *C. ochrocephala*. There is one skin of *Chrysotis panamensis* in Messrs. Salvin and Godman's collection from Veragua (*Arcé*).

5. Chrysotis nicholsi.

Chrysotis nicholsi, Lawrence, Pr. U. S. Nat. Mus. 1880, p. 254.

The authorities of the Smithsonian Institution have, at Mr. Lawrence's request, most kindly sent to me for exami-

nation the typical specimen of this Parrot, belonging to the National Museum at Washington.

It has so happened that one of the specimens of the *Chrysotis* from the island of St. Lucia, in the Zoological Society's collection, which I have hitherto called *Chrysotis bouqueti* *, has died; and I have thus been able to examine it carefully, and to compare it with Mr. Lawrence's *C. nichollsi*. The result which I have arrived at is, that the species of St. Lucia, which I have hitherto called *C. bouqueti*, is really not that species, but the allied species *C. versicolor* (Müller, ex Pl. Enl. 360 †), and that Mr. Lawrence's *C. nichollsi*, from Dominica, is the true *C. bouqueti*. The difficulty of determining living specimens exactly must be my excuse for having made this error, and, I fear, of having led Mr. Lawrence into committing another.

The two species are, in fact, very closely allied, being generally green, with a blue face and a red speculum. But the coverts of the primaries are blue in *C. versicolor* and green in *C. bouqueti*. This has led Dr. Finsch to place them in different sections of the genus *Chrysotis*, whereas they are clearly representative species in the neighbouring islands, and ought to stand next to one another.

6. Chrysotis cœligena, Lawrence, Ibis, 1880, p. 237; Sclater, P. Z. S. 1880, p. 68, t. ix.

This is an excellent species, allied to *C. dufresniana* of Brazil. Mr. Whitely has recently obtained many examples of it at Bartica Grove, British Guiana.

It follows therefore that, according to my opinion, of the six supposed species of *Chrysotis* described since 1873, two only (*C. panamensis* and *C. cœligena*) are valid. This would make the whole number of species of *Chrysotis* now known to science 35.

* P. Z. S. 1874, p. 323; 1875, p. 61, t. xx. et p. 316; and List of An. (1879), p. 295.

† *Chrysotis cyanopis*, Finsch, Papag. ii. p. 323.

XXXV.—*A Contribution to the Ornithology of Gilgit.*

By John Scully.

(Plate XIV.)

The following notes on the birds of Gilgit are founded on a collection of 1543 specimens obtained in that country during a residence of nineteen months. Of this period nine months were passed in Major Biddulph's company; and for the rest of the time I was alone.

I have endeavoured to make my remarks quite supplementary to Major Biddulph's interesting paper on the birds of this region, published in this Journal (*antea*, p. 35). I have restricted my observations here to the precise limits of country laid down by Major Biddulph, and, as a matter of convenience, have adopted his classification and numbers; the species not preceded by numbers in my paper were omitted in his account. This explanation renders unnecessary a reference to my friend's paper under each species.

My specimens have been carefully compared by me in this country; and with reference to this matter I have to acknowledge my obligations to Messrs. Seebohm and Dresser, who have kindly allowed me the freest access to their fine collections.

1. Vultur monachus, Linn.

I never saw this Vulture in the Gilgit district. Young *Gyps himalayensis*, soaring at a distance, might very easily be mistaken for it. From what we know of the distribution of *V. monachus*, however, it should certainly be found about Gilgit.

2. Gyps fulvescens, Hume.

As already noted (*antea*, p. 38), Major Biddulph's supposed example of this species is probably the young of *Gyps himalayensis*; but the specimen should be carefully compared, as the true *G. fulvescens* is likely to occur in Gilgit on passage to Turkistan, whence Severtzoff seems to indicate it under the name of *Gyps rutilans*.

3. Gyps himalayensis, Hume.

This fine species, as seen on the wing, has the whole body white, sharply contrasted with its black wings and tail; its great size and majestic flight make it a very characteristic adjunct of Gilgit scenery. I have seen it in winter at elevations not exceeding 5000 feet; but it never seeks its food close to the villages, like the Bearded Vulture. The following are measurements in the flesh of a fine adult female:—Length 3 feet 11 inches, expanse 9 feet 3 inches, wing 31 inches, tail 16·4, tarsus 4·6, mid toe *s. u.* 4·3, bill from gape 3·15.

5. Gypaetus barbatus, Linn.

The Lämmergeyer is held in respect by the natives of Gilgit, who have some story to the effect that the bird was a companion of their Prophet. Once I fired at one of these birds as it sailed over a field; and, in its alarm, it dropped a large bare bone, which nearly struck me. An adult male, with the lower surface rusty red, measured, length 3 feet 10 inches, expanse 8 feet 9 inches, wing 32 inches, tail 21·7, tarsus 3·6, mid toe *s. u.* 3·6, bill from gape 3·8. Iris bright orange.

6. Falco peregrinus, Tunstall.

Peregrines are found in Gilgit in October when migrating southward, and in April on their passage to the north. I doubt whether they "breed in the neighbourhood of Gilgit at about 6000 feet." A male Peregrine, shot on the 25th April, agrees with Sharpe's description of the adult male (Cat. i. p. 377), except that the feathers of the mid abdomen are not cross-barred, but have merely small dart-shaped marks; the flanks are pale grey, cross-barred with black; and the forehead is not whitish, but slate-grey, with black shafts, like the rest of the head. Length 16 inches, wing 12·25, tail 6·5, tarsus 1·8, mid toe *s. u.* 2·15, bill from gape 1·15, weight 1 lb. 4 oz.

Falco sacer, Gmelin.

This species must be added to the list of birds of Gilgit. A specimen was captured in Gilgit in October 1879, when it was doubtless migrating southwards. The bird was immature; but, after careful examination, its large size and large

oval spots on the centre tail-feathers left no doubt that it was a true Saker.

7. Falco subbuteo, Linn.

The Hobby is very common in Gilgit at 5000 feet, on arrival, from the end of April to the second week in May, and again on its way southwards from the last week in September to the middle of October.

Out of eleven specimens preserved, only three are fully adult. Two males, shot in autumn, are changing from a dark brown upper plumage to the slaty colour of the adult; they have rich ferruginous thighs and under tail-coverts; and the uropygials are regularly barred across both webs. Six immature birds all want the rich rufous thighs and under tail-coverts of the adult, are more broadly streaked on the lower surface, have the under wing-coverts and axillaries more rufous, and all have pale margins to the feathers of the upper surface; only one of these specimens has faint bars on the uropygials. Of the eleven specimens, therefore, only three have the uropygials barred; and these exceptions are males.

8. Falco æsalon, Tunst.

The Merlin, according to my observation, is only found in Gilgit in winter, and is not common. Considerable difference of opinion has prevailed about the plumage of the fully adult female in this species, Mr. Sharpe having stated, in the first volume of the British-Museum Catalogue, that the adult female is blue-grey above, like the male, while Mr. Dresser has taken some pains to prove, in his 'Birds of Europe,' that this is not the case. The evidence of the Gilgit specimens is entirely in favour of Mr. Sharpe's view, as I shall now show.

It will be noticed that in Major Biddulph's note on this species he mentions a female with the wing 8·85 inches, and says that it is much paler than the male [adult] specimen; he adds, "the blackish tinge on the *grey* of the head and shoulders has almost entirely disappeared." On the 10th December I shot a female, as proved on dissection by myself,

of which the following is a description :—Length 12·25 inches, expanse 27·2, wing 9·25, tail 6·2, tarsus 1·4 (feathered in front), bill from gape 0·7, closed wings short of end of tail 0·8; weight 6·2 ounces. Above, including the secondaries and wing-coverts, pale blue-grey, lighter on rump and upper tail-coverts; all the feathers with distinct black shaft-stripes, most marked on the head, where the crown is lightly tinged with buff. A broad band, including the sides of the neck and the nape, rich rufous, this colour being prolonged narrowly above the ear-coverts to hinder margin of the eye, where it meets the supercilium; all the feathers streaked or shafted black. Forehead, lores, supercilium, and sides of face sullied white; a small dark streak downwards from anterior commissure of eye; ear-coverts pale rufescent, margined with grey posteriorly; chin and throat white, bounded on each side by a pale rufous band, with the feathers black-shafted; entire underparts rufous-buff, paler on abdomen, with median blackish shaft-stripes. Under wing-coverts white, barred with black, and black-shafted. Quills greyish black, barred with white on the inner web, and suffused with bluish grey near the bases of the outer webs; outer web of first primary margined with pure white, and all the quills narrowly margined with greyish white at their tips. Tail pale bluish grey, with black shafts, a broad subterminal band of black and a narrow white tip; beneath the inner webs of all but the uropygials crossed by about seven black bands, exclusive of the broad subterminal one.

Mr. Gurney, who has examined the interesting specimen above described, suggests to me that the reason why the stage of plumage it represents is not better known in Europe is probably due to the fact that this Falcon is here seldom allowed to attain to old age. The female Merlin doubtless takes a considerably longer time to attain the fully adult plumage than the male; but that the plumage I have described is not exceptional is, I think, proved by the fact that of three Merlins shot in Gilgit two are females, both in grey plumage.

9. Cerchneis tinnunculus (Linn.).

The Kestrels in my collection from Gilgit are of the common

pale form; but two specimens have the black bars on the upper surface rather strongly marked, though not so greatly as in the race called *C. saturatus* (Blyth). A male in transition from immature to adult dress has the change most marked on the rump, next on the head, and least on the tail; the tail is usually considered the first part to undergo change. An old female has the rump and upper tail-coverts blue-grey, with faintly rufous tips; the tail grey, washed with rufous, especially at the margins, and with incomplete black bars, interrupted along the shafts of the feathers.

10. Astur palumbarius (Linn.).

Goshawks are not uncommon about Gilgit in autumn, on migration. In the autumn of 1879 many immature specimens were captured in Gilgit itself. The instance mentioned by Major Biddulph of a Goshawk being carried from the Valley of the Oxus to Bombay, and many similar cases known to me, should be borne in mind in assigning localities for trained birds of prey. Thus the fact that a Rajah in the Punjab has a trained Falcon of a certain species, should certainly not be considered proof that the bird in question was not captured in Central Asia.

11. Scelospizias badius (Gmel.).

A migratory species in Gilgit, passing northwards in April, and southwards in September. It is rare with us, or, at all events, makes a very short stay in the district.

12. Accipiter nisus (Linn.).

Common from the first week in April to the second week in December. In seven males the wing measures 8 inches to 8·5, tail 6·6 to 7·1, tarsus 2 to 2·2; weight 5 to 5·3 ounces. Seven females measure, wing 9·3 to 10 inches, tail 7·9 to 8·5, tarsus 2·15 to 2·4; weight 7 to 9·5 ounces. Of these fourteen examples two males and two females have five bars on the uropygials, all the rest have only four bars on these feathers.

14. Aquila chrysaetus (Linn.).

An old male, without any white on the tail, shot on the 3rd April, measured:—Length 33·5 inches, expanse 82·5,

wing 25, tail 15·2, tarsus 4, mid toe 3·2, bill from gape 2·55; weight 7 lb. 3 oz.; irides *dull yellow*.

15. Nisaetus pennatus (Gmelin).

The Booted Eagle is a summer visitor to Gilgit, and is common from the middle of March to the first week in October; it breeds at an elevation of 5000 feet. The dark and light forms are about equally common, the difference in colour not being dependent upon sex. The iris seems to be variable in colour, some having it buff marked with darker spots, others orange, and one brownish yellow. In four males the wings varied in length from 14·3 to 15·3 inches; in two females they measured 15·7 and 16·5; a male weighed 1 lb. 10 oz., and a female 2 lb. 9 oz. A nestling, captured on the 12th July, had the underparts pale.

16. Pandion haliaetus (Linn.).

The Osprey is not common in Gilgit, and probably occurs there only on migration. It has been observed throughout March and during the first week in April, and again in September on its way southwards. I never saw it in winter. A male shot on the 16th September measured—length 22 inches, wing 17·7, tail 9, tarsus 2·1, bill from gape 1·5; the closed wings extended half an inch beyond the tip of the tail. In this specimen the feathers of the upper surface are margined with white, the bars on the tail are distinct, and the mottling on the breast is mostly fulvous.

17. Buteo ferox (Gmelin).

I preserved 17 specimens of this Buzzard in Gilgit; but my series leaves me still greatly in the dark as to the explanation of the perplexing variations in size and plumage of this species. In the adults the males have the wing 16·15 to 17·4 inches, length of tarsus 2·8 to 3·4, bare portion of tarsus in front 1·1 to 1·7; in the females, wing 17·2 to 18·4, tarsus 3 to 3·3, bare portion of tarsus 1·2 to 1·6. The smallest female has the dimensions considerably below what is given for *B. ferox*; but there is no doubt about the determination of the sex, and it cannot be referred to any other species. The colour of the iris is very variable, ranging from brown to yellowish cream-colour. In plumage

hardly two specimens are alike; but certainly the oldest bird is the palest in the series, and has the tail salmon-coloured, with only traces of imperfect bars near the tip. Captain Wardlaw-Ramsay's interesting discovery of a nestling of this species in the melanistic phase of plumage (Ibis, 1880, p. 47), effectually disposes of the view that the darkest examples are only old birds.

18. Buteo plumipes, Hodgs.

This Buzzard is found in small numbers about Gilgit from December to the end of March. A female, shot on the 23rd February, measured—length 19 inches, wing 15·8, tail 9·8, tarsus 2·6, bare portion of tarsus in front 1, bill from gape 1·6; weight 1 lb. 15 oz.; iris drab; tail with mottling and traces of imperfect barring near the shafts of the feathers only. Another female, shot on the 21st March, measured—length 21 inches, wing 16, tail 9·6, tarsus 2·7, bare portion of tarsus in front 1; iris hair-brown; tail barred. Both these specimens are in the phase of plumage to which the title of *Buteo japonicus* is usually applied.

19. Circus cyaneus (Linn.).

The Hen-Harrier is a winter visitor, arriving in the last week of September and leaving early in May. Immature males, in the plumage of the female, and adults of both sexes have the irides yellow; the immature female has the iris hazel-brown.

20. Circus macrurus (Gmel.).

This species must, I think, be considered a winter visitor, appearing at the end of August, and leaving about the middle of May. I have shot it in Gilgit early in January, and observed it throughout the winter of 1879–80. Like *Circus cyaneus*, in this species the adults of both sexes and the immature male have the irides bright yellow, while the immature female has the iris dark brown.

21. Circus cineraceus (Mont.).

This Harrier passes through Gilgit on migration, being fairly common from the third week in March to the first week

in May, and reappearing on its way southwards about the third week in September. In two adult males the iris was bright yellow; in two immature males the iris was hazel, slightly tinged with yellow in one, and pale straw-colour in the other example.

22. Circus æruginosus (Linn.).

In twelve specimens, the males have the wings 14 to 16·1 inches, the females 15·4 to 17. The adult female has no grey colour on the wings or tail. If in this sex the plumage of the adult male is ever assumed, the case must be as exceptional as in the Kestrel. The adults of both sexes have the iris yellow; and the immature birds of both sexes have the iris brown. In the male changing to adult plumage, the tail is the first part to become grey; and at this stage the iris is of some shade intermediate between brown and yellow.

23. Milvus melanotis, Temm. & Schl.

The Kite referred to by Major Biddulph under the name of *Milvus govinda*, and which I call *M. melanotis*, is a migratory species in Gilgit, appearing as early as the 2nd February, and passing over the valley in large flocks until the beginning of May. In five males the wings measure 19·25 to 20 inches, tail 12·7 to 13, tarsus 2 to 2·2; in a female, wing 20, tail 13, tarsus 2·2.

I cannot agree with Captain Marshall that Mr. Brooks has conclusively shown that *Milvus melanotis* (=*M. major*, Hume) should be called *M. govinda*. Following Mr. Gurney (Ibis, 1879, p. 76), it seems necessary to recognize three races of Kites in India, under the names of *M. melanotis*, *M. govinda*, and *M. affinis*. Of course, if these three forms are to be considered as constituting only one species, they must all be joined under the title of *M. govinda*.

Milvus govinda, Sykes.

This medium-sized Kite, which is not included in Major Biddulph's list, appears to be a straggler to Gilgit, probably from some of the valleys to the south, where it may be resident. I obtained two adult females in April, which have the wings 18·8 and 18·9 inches, and the tails 11·3 and 12. These

1/3

J.G.Keulemans lith. Hanhart imp.

SYRNIUM BIDDULPHI

it will be noticed, are conspicuously smaller than even the males of the race I call *M. melanotis*. I at first thought that these two specimens might be *Milvus migrans*, which has been recorded from Afghanistan; but on comparison with specimens of the latter species from Sarepta, it became evident that the Gilgit birds are distinct.

24. Syrnium biddulphi, sp. nov. (Plate XIV.)

Adult female. Crown and space between the facial disks uniform blackish brown; occiput, nape, and hind neck dark brown, the feathers indented on the margins with greyish white, giving a spotted appearance to this region. Back, minor and median wing-coverts, rump and upper tail-coverts greyish brown, profusely vermiculated with greyish white; the scapulars and median wing-coverts with large white spots on their outer webs. Primaries and their coverts dark brown, with pale ochraceous-brown bars and tips, which are stippled with dark brown, the bars on the outer webs of the third to sixth primaries creamy white, slightly mottled with brown; secondaries pale brown, freckled with irregular greyish white bars, which become pure white on the margins of the inner webs. Uropygials pale greyish brown, irregularly vermiculated with dark brown, and having only indications of one or two very narrow imperfect bars near the tips; the next pair of rectrices with the outer webs unbarred, and coloured like the uropygials, the inner webs broadly barred with dull brown; the rest of the tail-feathers dark brown, irregularly barred on both webs with pale ochreous, which becomes nearly white towards the margins of the inner webs; all the rectrices tipped with white. Facial disk greyish white, the feathers with blackish shafts and two or three narrow bars of dark brown across both webs; the ruff surrounding the disk blackish brown, beautifully barred with white, above the anterior part of the eye and on the chin the white bars suffused with rufous. Underparts white, all the feathers with a central broad streak of blackish brown, and complete transverse bars on both webs of the same colour, the feathers of the fore neck having one bar, those on the breast two, on the abdomen

three, and on the under tail-coverts four; under wing-coverts and axillaries white, irregularly barred and spotted with brown. Tibial feathers cream-colour, transversely barred with brown; feathers covering the tarsi and toes white, irregularly mottled here and there with brown. Cere green; bill green, yellow at tip; iris black. Length 19 inches, expanse 44·5, wing 13·6, tail 8·6, tarsus 1·85, bill from gape 1·45, cere 0·7, closed wing short of end of tail 2.

Adult male. Similar to the female in colour, but the ear-coverts darker and more strongly barred. Cere olive; bill green, yellow at tip; iris dark brown; toe-scales pale green; claws black, slaty at bases. Length 18·7 inches, expanse 42·6, wing 12·7, tail 8·5, tarsus 1·8, bill from gape 1·46, cere 0·65, closed wings short of end of tail 1·7; weight 1 lb. 3¼ oz.

The measurements given above were taken from fresh birds, the wings being measured on the under surface. As this is not the usual practice in measuring wings of large birds, I must mention that, taken on the upper surface with a tape, the wing of the female has a length of 14 inches, and that of the male 13.

This species differs from *S. davidi* by its smaller size, vermiculated (not plain) rump, and different character of markings. From *S. nivicolum* it differs in being larger, in not having the uropygials barred, and by its colour. With the ordinary form of *Syrnium aluco* it could not be confounded for a moment; from the large grey form of *S. aluco*, of which I have examined fine female specimens from Stockholm and Tangier, with the wing 11·5, it differs in its much greater size (the male Gilgit bird being considerably larger than even the largest female of this race), in its paler and greyer colour, different character of markings, &c.

This fine Owl is probably a permanent resident in the Gilgit district, and seems to keep closely to the forests. I obtained my specimens on the 30th September and 13th November.

25. Asio otus (Linn.).

The Long-eared Owl arrives early in March, and is com-

mon up to the middle of May. Females are rather darker and more boldly marked than males; but the difference is not so conspicuous as in *Asio brachyotus*.

26. Asio brachyotus (Gmel.).

The Short-eared Owl is found in Gilgit on passage, being fairly common from the middle of April to the middle of May, and again on its way southwards from the beginning of November to the 20th December. The females are much darker than the males, and have the black marks more prominent and the general colour more buff. Major Biddulph's remarks have reference to this sexual difference, I think, as he only had a male from Gilgit before him when his note was written.

27. Bubo turcomanus, Eversmann.

I agree with Messrs. Biddulph and Marshall that this Owl is specifically distinct from *Bubo ignavus*. I did not obtain a specimen of *B. turcomanus* in Gilgit; but, as far as my memory serves me, Major Biddulph's specimen is identical with the Eagle Owl I obtained in Yarkand ('Stray Feathers,' iv. p. 129, 1876), which is certainly distinct from *B. ignavus*. Eversmann's Eagle Owl is probably only a rare straggler to Gilgit in winter.

Bubo ignavus, Forst.

A pale form of the Eagle Owl is not uncommon in Gilgit in winter at an elevation of about 5000 feet. Two males measured—length 24·8 and 25·5 inches, wing 17·1 and 17·2, tail 10, tarsus 2·7, bill from gape 1·9; one of these examples weighed 3 lb. 5 oz.; the third primary is the longest, the second a little longer than the fourth, and the first primary is intermediate in length between the fifth and sixth.

Compared with a large series of *B. ignavus* these specimens differ greatly in colour, being much paler and less rufous; indeed two high authorities on the birds of prey, on seeing these skins, would not admit that they were to be assigned to *B. ignavus*, and suggested that they should be compared with *B. bengalensis*. But *B. bengalensis* is much smaller, the largest female not measuring more than 16 inches in length

of wing (in four specimens I have measured the wings vary from 14·75 to 15·5); the wing is differently shaped, the fourth quill being the longest, and the second half an inch shorter than the fourth; there is more black on the back and minor wing-coverts; and the toes are less feathered.

My Gilgit birds are specifically distinct from the Yarkand specimens which I refer to *B. turcomanus*, and are doubtless the same as the specimen recorded as follows in P. Z. S. 1860, p. 99:—"Mr. Sclater exhibited a specimen of a large Horned Owl shot by Major W. E. Hay, F.Z.S., upon the borders of the Pângkông Lake, in Thibet. He was disposed to consider the bird as a pale variety of *Bubo maximus*." This form of Eagle Owl, which appears to be confined to the interior of the Himalayas, should perhaps be distinguished from *B. ignavus*, at least as a subspecies, and would then probably bear the title *Bubo hemachalanus*, Hume.

28. Scops pennatus, Hodgs.

In addition to the specimen in my collection mentioned by Major Biddulph, I obtained a female of this Owl in Gilgit on the 4th October, which measured—length 7·9 inches, wing 6·4, tail 2·8, tarsus 1, bill from gape 0·8, closed wings beyond the tip of tail 0·1. This example is in the dark grey phase of plumage, with only some mottlings of rufous on the breast and shoulders; the male, the measurements of which are given in Major Biddulph's paper, is about half rufous and half grey. In both specimens the second and third primaries are subequal and longest, and the first is intermediate in length between the fifth and sixth. Some specimens of the variable *Scops giu* are hardly separable from these Gilgit birds.

29. Scops bruci, Hume.

I obtained five specimens of this species in Gilgit, in March, April, and September. Two males measured—length 8 inches, wing 6·4 and 6·5, tail 3 and 3·3, tarsus 1·2, bill from gape 0·75 and 0·8. Three females measured—length 8 to 8·8 inches, wing 6·45 to 6·7, tail 3·3 to 3·6, tarsus 1·1 to 1·15, bill from gape 0·75 to 0·8; one of these examples weighed 3·3 oz. In these five specimens the third quill is the longest, the second

and fourth are subequal, and the first is intermediate in length between the sixth and seventh. There is no appreciable variation in colour, all being of the same characteristic brownish-buff tint. After careful comparison with the fine series of *Scops giu* and allies in the British Museum, I do not doubt that *Scops brucii* is a perfectly good and distinct species.

30. Hirundo rustica, Linn.

Three females in my collection, shot in April and May, have the wings 4·5 to 4·7 inches, and the tails 3·1 to 3·65. All have a broad black pectoral band.

31. Hirundo rufula, Temm.

This Swallow is a summer visitor to Gilgit, but never appears to be common. A female measured—length 6·6 inches, wing 4·35, tail 3·45 (to fork 1·7), tarsus 0·45, bill from gape 0·55. From *Hirundo nipalensis*, to which Major Biddulph referred it, the Gilgit red-rumped Swallow is distinguished by its smaller size, faintly striated lower surface, and unstriated ear-coverts. In a note to Biddulph's paper I identified the species as *H. erythropygia*, Sykes; but on fuller examination I now feel satisfied that it is really *Hirundo rufula*. The difference between these two forms is slight: *H. erythropygia* is smaller, and has the rump uniform chestnut, while *H. rufula* is larger, and has the chestnut rump paling to nearly white towards the upper tail-coverts; two females of *H. erythropygia* have the wing 4·1 and 4·3, and a male 4·35; and five males of *H. rufula* have the wing 4·55 to 4·85, and five females 4·45 to 4·75. Now my Gilgit specimen has the rump paling to white towards the tail, and, though rather small, must be referred to *H. rufula*.

32. Cotile rupestris (Scop.).

A summer visitor, arriving about the third week in March, and very common in the lower valleys throughout April and May. In the males collected the wings measure 5·1 to 5·4 inches, and in the females 4·95 to 5. Eight specimens shot in spring have dusky streaks and mottlings about the chin; in some this marking is confined to the point of the chin, while in others it extends to the throat and cheeks.

Chelidon urbica (Linn.).

The House-Martin is a summer visitor, and is very common in Gilgit in May and June. A female, shot in Gilgit on the 10th May, agres with many European examples with which I have compared it in the colour of the axillaries and under wing-coverts, and in all other particulars. Length 5·5 inches, wing 4·4, tail 2·6, tarsus 0·53, bill from gape 0·5; the uropygials 0·8 shorter than the outermost tail-feathers. Major Biddulph does not include this species in his list, but gives the closely allied *Chelidon cashmiriensis*, which I did not obtain; the length of the tarsus in his specimen is misprinted 5 for 0·5.

34. Cypselus pekinensis, Swinhoe.

This Swift is a summer visitor to Gilgit. It was common in the lower valleys throughout May and the first half of June, but in July and August was only found at elevations of over 9000 feet. Gilgit specimens agree perfectly with the type of *Cypselus pekinensis*, Swinhoe. This form, as has been often pointed out, differs from the European *C. apus* in being paler throughout, with a markedly paler forehead, more white on the chin and throat, and with a white margin above the anterior part of the eye. The difference is doubtless slight; but on actual comparison of specimens it is manifest. Many accepted species do not differ in a greater degree; and it seems that a coloration which is constant in such a range as from Pekin to Gilgit is worthy of some notice in our nomenclature.

35. Caprimulgus unwini, Hume.

This Goatsucker is only a summer visitor; it arrives early in May, and is common in the lower valleys at an elevation of about 5000 feet. A specimen obtained by Mr. Blanford at Saigán, on the Persian plateau, and referred by him to *C. europæus*, is identical in colour, markings, and size with Gilgit examples. *Caprimulgus unwini* is closely allied to *C. europæus*; but on comparison of my specimens with a large series of European birds, I find that they differ in being of a paler silvery-grey colour. It seems desirable to distinguish this

eastern form, which is the *C. europæus*, var. *aralensis*, of Severtzoff, under the name of *C. unwini*.

36. Merops persicus, Pallas.

This Bee-eater was only observed in Gilgit from the 20th to the 28th November, 1879, when several flocks passed over the valley on migration southwards. I secured three immature specimens, two males and one female, with the uropygials only from 0·2 to 0·4 longer than the next pair of rectrices. These birds measured—length 10·3 to 10·5 inches, wing 5·6 to 5·65, tail 4 to 4·1, tarsus 0·47 to 0·5, bill from gape 2·05 to 2·15. The female has the bill more slender than the males; the chestnut-colour of the throat is paler; and the rump and upper tail-coverts are not so blue.

38. Coracias garrulus, Linn.

The Common Roller is plentiful in the hottest valleys of the Gilgit district throughout the summer, and there makes day hideous with its harsh grating cry: it does not appear to ascend above 6000 feet. In 1880 it made its first appearance in Gilgit on the 30th April. Most of these birds leave us in October; but I have observed stragglers as late as the 11th November. Five specimens, measured in the flesh, gave the following results—length 13·1 to 13·4 inches, wing 7·7 to 8·25, tail 5·4 to 5·6, tarsus 0·9, bill from gape 1·85; a male weighed 4¾ oz. Gilgit specimens agree completely with examples from Asia Minor.

39. Picus himalayensis, Jard. & Selby.

This Woodpecker is strictly confined to the pine-forests, and does not straggle down to the lower valleys. Half a dozen adult specimens have the wings 5·3 to 5·4 inches, tails 3·35 to 3·8, bill from gape 1·3 to 1·45. The specimens described by Captain Marshall as having the underparts sullied, the lower tail-coverts very pale, and the bill short, are merely the immature of this species; and I cannot agree with him that they constitute "a very remarkable race."

Adult male *P. himalayensis* differs from the adult male *P. major* in having the whole crown crimson, while the latter has only the occiput thus coloured, and in several other

points; but the young males of these two species are very much alike, both having the whole crown crimson and the lower surface yellowish and slightly dark-streaked. The young birds, however, can be readily separated by the colour of the ear-coverts; in *P. major* this part is whitish throughout; in *P. himalayensis* the anterior upper half of the same region, behind the eye, is dusky or blackish.

40. Gecinus squamatus (Vig.).

A permanent resident in the district, found in the lower valleys from November to May, and during the rest of the year at an elevation of about 9000 feet. In six specimens the wings measured 6·4 to 6·6 inches, tails 5 to 5·4, bill from gape 1·77 to 2·1. The specimens mentioned by Captain Marshall as having the neck and back grey were probably birds about a year old, with the feathers worn and faded, and at the next moult would have assumed the usual green colour. A moulting female in my collection, shot on the 4th August, has the hind neck and upper back brownish grey; but a few new feathers which have appeared on those parts are quite green. Mr. Blanford, in his 'Zoology of Persia,' p. 135, describes a parallel stage of *Gecinus viridis* in a specimen which was scarcely mature (probably a bird of the preceding year) and with the plumage worn.

41. Iynx torquilla, Linn.

The Wryneck is common from the middle of April to the first week in October. A male shot on the 22nd April had the irides hazel. In none of my specimens is there any trace of rufous on the underparts, as mentioned by Major Biddulph; the colour which pervades these parts to a variable extent is buff-yellow.

42. Cuculus canorus, Linn.

The Common Cuckoo is a summer visitor, and is fairly common from the beginning of May to September. Some of my Gilgit specimens are rather small; but they are all doubtless referable to *C. canorus*. Two adult males have the wing 8·6 to 8·8 inches; four full-grown females have the

wing 8·1 to 8·7; and two females in hepatic plumage have the wing 7·5 and 7·7.

43. Cuculus himalayanus, Vigors.

I did not obtain any specimens which can be referred to this species; nor did I ever hear its cry in the Gilgit district. Major Biddulph's specimens, which I think were immature, may have been merely rather small examples of *C. canorus*.

45. Certhia himalayana, Vigors.

A permanent resident; common at an elevation of 5000 feet from the third week in October to the end of March, and during the rest of the year in the pine-forests above 8000 feet. In seventeen specimens the wing measures 2·6 to 2·95 inches, tail 2·2 to 2·95.

46. Certhia hodgsoni, Brooks.

This species is rare in Gilgit. Specimens were only obtained in June and July, in the pine-forests, at an elevation of over 9000 feet. In *Certhia hodgsoni* there is no pale spot on the outer web of the first *four* primaries. In a large series of *C. familiaris* I find that only the first *three* primaries are unspotted, a pale spot being constantly found on the outer web of the fourth quill. There are some other distinctions; but the one mentioned suffices for the discrimination of the Kashmir Creeper from its European ally.

47. Tichodroma muraria (Linn.).

A winter visitor; common at an elevation of about 5000 feet from the middle of October to about the end of March. Specimens obtained from October to the middle of February have the head brown; towards the end of February and in March the brown cap is replaced by grey.

48. Sitta leucopsis, Gould.

I only obtained this Nuthatch from the beginning of April to September; it was never seen in the lower parts of the valleys away from pine-forests. Ten specimens measure—wing 2·95 to 3·15, tail 1·7 to 1·9, tarsus 0·7 to 0·73, bill from gape 0·8 to 0·86. The colour of the feet in fresh specimens varies from slaty to black.

49. Upupa epops, Linn.

I obtained the Common Hoopoe in Gilgit as early as the 25th February. Five specimens have the wing 5·6 to 5·9 inches, bill at front 1·75 to 2·3, and agree well in colour with examples from Asia Minor.

50. Lanius homeyeri, Cabanis.

This Grey Shrike is rare in Gilgit, and is only found on migration in spring and autumn. I obtained a male on the 27th November, which measured—length 10·4 inches, expanse 14·6, wing 4·65, tail 4·5, tarsus 1·15, bill from gape 1·14, culmen 0·75, closed wings short of end of tail 3, outer tail-feathers 0·85 shorter than uropygials. I proceed to give a description of this specimen, by which the species may be discriminated from its numerous allies.

Forehead sullied white; lores white, with fine black shafts to the feathers; rump grey, the same colour as the back; basal part of upper tail-coverts white, the terminal halves of these feathers a paler grey than the rump and back; minor wing-coverts grey. Chin, upper throat, lower wing-coverts and axillaries, and lower tail-coverts white; rest of lower surface pinkish white, with faint crossbars on the breast and upper part of abdomen, formed by narrow pale-brown margins to the feathers. All the primaries white on both webs at the bases; the secondaries white on both webs at the bases, except the innermost two, the white on the inner webs running narrowly down to the tips of the feathers; from the eighth primary to all but two of the innermost secondaries with conspicuous white margins to the tips of the feathers. Outermost pair of rectrices wholly white, the central part of the shaft alone black; next pair white on outer web, the inner web white, with a large black patch about the middle of the feather; third pair white at base and tip, the intermediate part black on both webs; fourth pair with more black than the preceding on both webs, especially towards the tip, where only half an inch of white remains; fifth pair with only a small spot of white at tip, and little more white at base than on the uropygials; uropygials black, white at base for 1·2 inch.

This specimen is, I believe, correctly referred to *L. homeyeri*. It differs from *L. lahtora* in many particulars, too numerous to mention. From *L. excubitor* it differs in having more white on the lores, wings, and tail, the size of the feet and the breadth of the tail-feathers being the same as in that species.

51. Lanius erythronotus (Vigors).

In my collection are specimens of this Shrike shot in Gilgit from the 18th April to the 28th December; but the last bird must be considered very late in migrating, as this species leaves us, I think, in October.

52. Lanius cristatus, Linn.

This species must be expunged from the Gilgit list. In the rufous-tailed Shrikes there are two distinct sections, characterized by the shape of the tail:—one (A) embracing *cristatus, phœnicurus*, and allies, in which all the rectrices are narrow, the outer pair decidedly more narrow than the next, and over three quarters of an inch shorter than the uropygials; and another (B), which includes *isabellinus, phœnicuroides, speculigerus*, and *collurio* (female and young), in which the tail-feathers are broad, with the outermost pair as broad as the next, and not more than half an inch shorter than the centrals. Now I examined the specimen secured by Major Biddulph, and identified in his list as *L. cristatus*. It certainly belonged to section B, and was one of the three following species; but which of these, I am not prepared to say without further examination.

Lanius isabellinus, Hempr. & Ehr.

Lanius arenarius, Blyth.

This Shrike only passes through Gilgit on migration. I obtained an adult specimen on the 27th April, which measured—length 7·4 inches, wing 3·5, tail 3·1, tarsus 0·94; third and fourth quills equal and longest, second intermediate in length between the sixth and seventh; fifth, sixth, and seventh primaries with a small spot of white on both webs at base; head and back pale sandy; lower surface cream-coloured, slightly tinged with rufous; lores white, with a small dark spot in front of the eye.

Mr. Dresser, in his 'Birds of Europe,' has figured *L. phœnicuroides* under the name of the present species, on the assumption that *L. phœnicuroides* merely represents the full breeding-plumage of *L. isabellinus*. That this is an error I can assert, as I obtained many specimens of *L. isabellinus* in breeding-plumage, in Yarkand, not differing in colour at all from winter examples common in collections from the north-west of India. I may here mention that the young of *L. isabellinus* differs altogether from the young of *L. phœnicuroides*, the former being even paler isabelline above than the adults, and very slightly crossbarred on the lower surface, while in young *L. phœnicuroides* the colour above is dark rufous-brown, and the underparts are prominently crossbarred.

Lanius speculigerus differs from *L. isabellinus* in having the whole lores black, and it has a large white patch on the wing. A difference in shape of bill has also been insisted on; but in the few examples of *L. speculigerus* I have examined there seemed to be hardly any variation in this respect.

LANIUS PHŒNICUROIDES, Severtzoff.

Lanius phœnicuroides, Severtzoff, Stray Feathers, iii. p. 430 (1875).

This species was only observed during the autumn migration. An immature specimen shot on the 8th September measured—length 7·5 inches, wing 3·5, tail 3·15, tarsus 0·85, bill from gape 0·8, culmen 0·75; third and fourth primaries longest, second intermediate in length between the fifth and sixth; head, rump, and under tail-coverts rufous, barred with black; rest of upper surface dark rufous-brown, unbarred; lower surface white, crossbarred with dark brown.

The adults of this species differ from *Lanius isabellinus* in having a differently shaped wing and tail, in the wing-speculum being larger, the lower surface white, the whole lores black, the head more rufous than the back, and the quills more black. To *phœnicuroides* must be referred:—Mr. Dresser's figure of *L. isabellinus* before mentioned; Lord Walden's figure and description of *L. isabellinus* in 'The Ibis,' 1867, pp. 224, 226, pl. v. fig. 1; Schalow's supposed young *L.*

arenarius, J. f. O. 1875, p. 143; Nos. 1 and 15 of the specimens mentioned by Mr. Blanford in his 'Zoology of Persia,' p. 140; and the specimen referred to as a fully adult male by the same author in his 'Zoology of Abyssinia,' p. 339.

Severtzoff's name of *L. phœnicuroides* is happily chosen; for his species does bear a great resemblance to *L. phœnicurus*; but, as I mentioned under *L. cristatus*, it belongs to a different section according to the characters of its tail.

Lanius collurio, Linn.

The Red-backed Shrike is found in Gilgit only on passage. I obtained three immature examples, on the 4th and 16th September and 2nd November, during the autumn migration, but never observed it at any other time. This Shrike is recorded by Severtzoff as breeding in Turkestan, and is a rare autumn straggler to the plains of India in the north-west. My specimens measure—length 7·2 to 7·4 inches, wing 3·7, tail 3·2 to 3·5, tarsus 0·8 to 0·95, bill from gape 0·8 to 8·85, culmen 0·68 to 0·7; they agree perfectly with a series of young English examples of *L. collurio* with which I have compared them. Young *L. collurio* is very like young *L. phœnicuroides*, but can easily be distinguished from it thus: in *L. collurio* the second primary is intermediate in length between the fourth and fifth, and the distance between the longest secondaries and longest primary is about equal to the length of the tarsus; in *L. phœnicuroides* the second primary is intermediate in length between the fifth and sixth, and the distance between the tips of the secondaries and the point of the wing is less than the length of the tarsus. There are also some minor differences in colour, amount of crossbarring beneath, and in the relative lengths of the uropygials and second primary.

53. Pericrocotus brevirostris (Vigors).

This species seems to be only a winter visitor to the lower valleys of the Gilgit district; it is not uncommon from the last week in October to the beginning of February. All the flocks I saw consisted exclusively of females and young males in grey and bright yellow plumage, the gorgeous black and

crimson adult males being conspicuous by their absence. Six specimens measured—length 7·3 to 8·3, wing 3·5 to 3·7, tail 4 to 4·7, bill from gape 0·72 to 0·76. These examples agree well with a series of *Pericrocotus brevirostris* from the Himalayas further east, but have the ear-coverts paler grey.

54. Buchanga longicaudata (Hay).

This species is only a straggler to Gilgit, probably from some of the lower and hotter valleys further south. A female shot in Gilgit on the 2nd of September measured—length 10·8 inches, wing 5·3, tail to fork 4, to end of outermost rectrices 5·9, tarsus 0·65, bill from gape 1·05; this was an immature bird with whole lower surface dull black without gloss, the under wing-coverts barred and tipped with white, and the irides dark brown.

55. Muscipeta paradisi (Linn.).

This Flycatcher is rare in Gilgit, and appears to visit us only on migration. I obtained a male on the 11th May, in chestnut plumage and with the short tail; the crest was well developed, and the chin and throat glossy black. An immature specimen procured on the 25th August is also in chestnut plumage, but with the crest short, and the neck and breast dull ashy. Severtzoff records this species as migratory to Turkestan, where it breeds; so the examples obtained at Gilgit may have been on migration to and from that country.

56. Hemichelidon sibirica (Gmel.).

This Flycatcher appears in Gilgit as early as the 11th May, and leaves for the south in September. From the middle of May to the first week in June it is common in the lower valleys, principally in orchards, at elevations of 5000 to 7000 feet; in the latter part of June and throughout July and August it is only found in the forest above 8000 feet, where it breeds. A young but full-grown bird, shot on the 6th August, differs a little from Mr. Sharpe's description of the young of this species (Cat. iv. p. 121). Head sooty, narrowly streaked with white; back brown, streaked and mottled with buff; rump and upper tail-coverts margined and spotted with rufous buff; lower tail-coverts rufescent, edges of quills as in

adult; gape bright yellow, base of mandible yellow; iris black.

57. Muscicapa grisola, Linn.

This species is common from the middle of May to the end of September. In May and during the last three weeks of September it is found in the lower parts of the valleys; but from the beginning of June to the first week in September it is only met with in the pine-forests, at elevations of over 8000 feet, where it breeds. Examples shot in September have the wing-coverts and secondaries broadly margined and tipped with pale fulvous; in midsummer these feathers are narrowly margined with white.

58. Siphia ruficauda (Swainson).

A summer visitor only, arriving about the 10th May, and doubtless breeding in the pine-forests. The sexes do not differ in any way in colour. The maxilla is dark brown and the mandible pale horny.

59. Troglodytes neglectus, Brooks.

This Wren is a permanent resident in the district, and in winter is one of the commonest and most familiar birds in the lower parts of the valleys. Four specimens measured—length 3·5 to 3·8 inches, wing 1·8 to 2·05, tail 1·15 to 1·35, tarsus 0·65 to 0·7, bill from gape 0·57 to 0·6. Compared with specimens of *T. nipalensis* from Sikkim, I find that the distinctions on which Mr. Brooks separated the Kashmir Wren from the Eastern-Himalayan form are fairly borne out. The Gilgit birds are paler in colour, and have the feet smaller and more slender, with the claws shorter and less powerful than in *T. nipalensis*.

60. Myiophoneus temmincki, Vig.

Gilgit specimens are identical with examples from Cashmere. In males the wings measure 7·1 to 7·6 inches, in females 6·7 to 6·8.

61. Cinclus asiaticus, Swains.

This Dipper is a permanent resident, being common in summer along the small streams at elevations of 6000 to 9000

feet, and frequenting the larger rivers in winter at an elevation of less than 5000 feet. In ten specimens the wing measures 3·55 to 4·1 inches, tail 2·4 to 2·65, tarsus 1·05 to 1·2, and culmen 0·9 to 1.

62. Cinclus cashmiriensis, Gould.

The Kashmir Dipper was only found by me on the stream of a valley near Gilgit at an elevation of about 9000 feet. The species was rare there, and only one male (a moulting and immature bird) was secured, which measured—length 7·8 inches, wing 3·9, tail 2·4, tarsus 1·1, bill from gape 1, culmen 0·9, bastard primary 0·9. The following is a description of my specimen, shot on the 14th October:—Head, sides of face and neck, hind neck, and upper back mixed slaty grey and dark brown, the latter being the colour of the new feathers and marking the adult dress; minor and secondary wing-coverts dusky grey, with black margins to the feathers; greater coverts and quills dusky grey, with narrow white margins to their tips; lower back and rump dark grey, the feathers with narrow black margins; upper tail-coverts and tail slaty grey. Chin, throat, breast, and centre of abdomen white, with faint narrow brown undulations on the throat and breast and a few new brown feathers on the abdomen; flanks dark brown, with narrow pale tips to the feathers; lower tail-coverts slaty grey, pale-tipped.

63. Monticola cyanus (Linn.).

Common at an elevation of 5000 feet from the third week in April to the third week in May, and again from the middle to the end of October on migration. In the series collected none of the males have any trace of chestnut on the abdomen; and in fifteen specimens, the sex of which was carefully determined, no female was met with in the blue plumage of the adult male. In the males the wings measure 4·5 to 4·8 inches, and in the females 4·4 to 4·65.

64. Monticola cinclorhyncha (Vigors).

The only specimen of this species observed in Gilgit was shot by me on the 28th September; it may have been on migration, or possibly was only a straggler from some of the

neighbouring valleys to the south. The bird, a young male, is profusely spotted, but has the minor coverts blue and the tail edged with the same colour. Length 7·25 inches, wing 3·95, tail 2·7, tarsus 0·95, bill from gape 1; bill dusky, gape pale yellow.

65. Monticola saxatilis (Linn.).

Common in Gilgit, on migration, from the 20th August to the 30th September. The adults seem to make no stay in the district; all the birds observed and shot are immature. In thirteen specimens, in immature barred and spotted plumage, the wings vary from 4·7 to 4·9 inches.

67. Merula atrogularis (Temm.).

This species is common at an elevation of about 5000 feet from the first week in October to the middle of May. In thirteen examples from Gilgit the wings vary in length from 4·9 to 5·3 inches. My specimens do not bear out Major Biddulph's observation that when the black on the throat is fully assumed the axillaries and under wing-coverts become earth-brown uniform with the flanks.

68. Turdus viscivorus, Linn.

I only met with this Thrush in the Gilgit district in summer, at elevations of over 9000 feet, where it breeds. My specimens agree perfectly in colour with examples from Asia Minor. An adult bird has the wing 6·45, and a young bird, shot on the 28th July, has the wing 6·15.

69. Trochalopterum simile, Hume.

This fine species is, with us, singularly local. I never saw it in Gilgit, but it is common and a permanent resident in Sharot and Bargo, 15 miles higher up the valley, at an elevation of about 5500 feet. It is only found in places densely covered with trees and bushes. In eleven specimens the wing varies in length from 4 to 4·25 inches; all these have the outer webs of the quills and the subterminal band on the tail pure grey, without any shade of yellow, red, or olive. The ear-coverts are ashy, not dark brown; the grey band on the uropygials varies in depth from 1 inch to 1·2, and this

grey band increases on the lateral tail-feathers, encroaching more on the outer web: the outermost pair of rectrices are not marked at all with black.

70. Trochalopterum lineatum (Vigors).

A permanent resident, common and widely distributed in the district, wherever bushes and trees are found, at elevations of from 4600 to 9000 feet; it breeds in June. Gilgit examples are identical with specimens from the Kashmir valley, and are rather larger and paler than the birds from the more eastern parts of the Himalayas.

71. Oriolus kundoo, Sykes.

This Oriole is found throughout the summer about orchards in the lower valleys, and apparently does not ascend above 7000 feet; it migrates southwards from Gilgit in September. It is remarkable that this species, which is widely spread and sedentary in many parts of the plains of India, should be a summer migrant to the valley of Nepal, Gilgit, and even to Yarkand in Central Asia. Specimens from these three localities, however, are quite identical with examples from the plains of India.

Pratincola caprata, Linn.

Of this species, which is not included in Major Biddulph's list, I shot a single specimen in Gilgit on the 10th December, 1879, when it was doubtless on migration; this was the only occasion on which it was observed. The bird, a female, measured—length 5·05 inches, wing 2·64, tail 1·95, tarsus 0·8, bill from gape 0·63. Bill, feet, and claws black, irides dark brown; upper tail-coverts deep ferruginous, lower tail-coverts buff. *P. caprata* has been found as far west as the valley of the Atreck (Seebohm, P. Z. S. 1879, p. 764).

72. Pratincola maura (Pallas).

This species is common in Gilgit from the last week in March to the middle of May, and again from the first week in September to the beginning of November. It probably breeds in the district at high elevations. In seventeen specimens the wings vary from 2·55 to 2·97 inches, and the tails

from 1·93 to 2·3. The specimens mentioned by Capt. Marshall with striated upper tail-coverts and rump are, I think, certainly not *P. rubicola*; the streaks referred to are much less pronounced than in female *P. rubicola* and apparently indicate a phase of plumage of the *immature P. maura*.

73. Pratincola robusta, Tristram, apud Marshall, Ibis, 1881, p. 55, nec Tristram.

Pratincola robusta cannot be included in the list of Gilgit birds. Canon Tristram's type of that species, from Mysore in the south of India, has recently been shown (Stray Feathers, ix. p. 133, 1880) to be quite distinct from the birds referred to by Captain Marshall under that name. The form mentioned by Captain Marshall would, if distinct from *P. maura*, require a new name; but with a large series of these birds from Gilgit, and after examining the specimens in Mr. Seebohm's collection and in the British Museum, I cannot agree that the proportional length of the tail or any of the other points brought forward will justify the splitting of *Pratincola maura* into two species.

74. Saxicola opistholeuca, Strickl.

This species is rare in Gilgit and perhaps only occurs there on passage to Turkestan, whence Severtzoff records it, under the name of *S. syenitica*, as breeding. According to my observations it appears in Gilgit, in small numbers, in April and May on its way north, and passes southwards again late in autumn. I have the following notes of a bird of this species shot in Gilgit on the 23rd December:—Length 6·5 inches, wing 3·7, tail 2·9, tarsus 0·95, bill from gape 0·85; bill, feet, and claws black, gape yellow, iris brown; the head and nape ashy, forming an ill-defined cap. The young bird described by Major Biddulph is possibly the young of *Saxicola morio*.

75. Saxicola picata, Blyth.

Saxicola capistrata, Gould.

A summer visitor to Gilgit, and exceedingly common from the middle of March to the middle of September. Of fifty specimens in my collection, thirty are males, and these show

every possible gradation between the form with the greyish-white cap (*capistrata*) and the one having the whole head pure black (*picata*); it is quite impossible to separate my series into two species. I have observed and shot examples with the white cap throughout the breeding-season in company with brown females quite undistinguishable from those of *picata*, so that the females of both forms are certainly alike. With reference to Major Biddulph's remarks on this subject, I do not now believe that the white head "is assumed in the spring of the first year only;" in a large series examined (including the type) there is no satisfactory evidence that the white cap is dependent upon age. *Saxicola picata* is said to have a wider range than *S. capistrata*, and this question merits further investigation; but I find that about half of the specimens usually called *S. picata* show, on close examination, some slight traces of white about the sides of the head.

Messrs. Blanford and Dresser, in their Monograph of the genus, confused *Saxicola capistrata* with *Saxicola morio*, and described a male of the former from Lahore as *S. morio*. *S. capistrata*, male, differs from *S. morio*, male, in breeding-plumage, in having the bill and feet much larger and coarser, the white on the head not extending to the interscapulary region, a different pattern of black on the tail-feathers, and the wing-formula never the same; in *Saxicola capistrata* (=*picata*) the second primary is intermediate in length between the sixth and seventh; in *S. morio* the second primary is intermediate between the fifth and sixth. In the flesh the two birds could not be mistaken, *S. capistrata* being much more bulky than *S. morio*.

76. Saxicola albonigra, Hume.

This fine species is, according to my experience, only a winter visitor to the Gilgit district, and is common there, at an elevation of about 5000 feet, from the beginning of November to the end of February. I never saw it in summer, and the specimen procured by Major Biddulph in June may have been only a straggler. The sexes are precisely similar

in plumage, but the female is smaller than the male. Twelve males measured:—length 7 to 7·4 inches, wing 4·1 to 4·35, tail 2·9 to 3·1, tarsus 1 to 1·1, bill from gape 0·95 to 0·96; five females measured:—length 6·7 to 6·85, wing 3·9 to 4·02, tail 2·5 to 2·8, tarsus 0·9 to 1, bill from gape 0·85 to 0·95. The black band on the lateral tail-feathers varies in depth from 0·5 to 0·85; the second primary equals the sixth in length.

Saxicola albonigra is distinguishable from *Saxicola picata* by having the sexes coloured alike, by being much larger, and by having a differently shaped wing.

From the male of *S. picata*, with which alone it could be confounded, its large size, different wing-formula, brighter colours, and less extended black on breast and back at once separate it.

77. Saxicola morio, Hempr. & Ehr.

81. *Saxicola hendersoni*, Hume.

This species is common in Gilgit from the third week in April to the end of June, and again from the beginning of September to the first week in October. Most of the birds that visit us in spring go further north, but a few probably breed in the district. I preserved fifty-five specimens of this species, and after comparison with the types in the British Museum I entertain no doubt that *Saxicola hendersoni* is merely a synonym of *S. morio*. *S. hendersoni* was described from specimens in autumn plumage; but I for some time thought that even in breeding-plumage it could be distinguished from typical *S. morio* by having more white on the lateral tail-feathers. Every intermediate stage, however, is represented in my collection, from a broad black band on the ends of the feathers next to the uropygials to the form in which the white runs right down to the tips of these rectrices. Major Biddulph has correctly pointed out that the female of this species is quite unlike the male in colour. In my series the length of the wings varies from 3·35 to 3·8, and the second primary is intermediate in length between the fifth and sixth.

78. Saxicola vittata, Hempr. & Ehr.

This rare species appears in Gilgit in very small numbers, and probably on migration only. I obtained two males, of which one, shot on the 11th of May, is in full breeding-plumage and measures—length 6 inches, wing 3·7, tail 2·5, tarsus 0·87. This specimen only differs from the adult male *S. morio*, in breeding-plumage, in having the chin, throat, and breast pure white instead of black. The other male, mentioned in 'The Ibis,' 1881, p. 59, is probably immature, as the black feathers of the upper surface are narrowly edged with brown. The female referred to this species by Major Biddulph, on page 60, I find, on reexamination, to be really a female of *Saxicola picata* and not of *S. vittata*.

79. Saxicola isabellina, Rüpp.

This species is fairly common in Gilgit on migration, from March to the third week in April, and again from the last week in September to the first week in November.

Mr. Blanford, in his 'Zoology of Persia,' p. 148, remarks that the length of the black tip on the lateral tail-feathers of *S. isabellina* is $\frac{1}{2}$ to $\frac{3}{4}$ inch. This does not at all accord with my experience. In sixteen specimens of this species now before me the length of the black tip on the lateral tail-feathers varies from 0·9 to 1·05 inch. Mr. Blanford, in the passage above cited, seems to have confounded female *Saxicola œnanthe* with *S. isabellina*. I should say that in the former species the black tip to the outer rectrices does not exceed $\frac{3}{4}$ of an inch, while *S. isabellina* always has more than $\frac{3}{4}$ of an inch of black at the end of the lateral tail-feathers.

80. Saxicola œnanthe (Linn.).

This Wheatear passes Gilgit on migration, and is found there in small numbers from the 20th of March to the 22nd April. I did not secure any specimens of this species during the autumn migration. Gilgit examples have the wings 3·7 to 3·9 inches, and the amount of black on the lateral tail-feathers varies from 0·6 to 0·7; they do not seem to be separable from European examples of *S. œnanthe* with which I have compared them.

82. Ruticilla rufiventris (Vieill.).

This Redstart passes Gilgit on migration, being common in April and May, on its way northwards, and passing down again late in September. Out of fourteen males procured in spring no less than six were in the plumage of the female.

84. Ruticilla erythronota (Eversm.).

This Redstart is a winter visitor to Gilgit, and is common at an elevation of 5000 feet from the middle of October to the first week in March. In eleven males the wings vary in length from 3·4 to 3·6, and in five females from 3·3 to 3·35. The females have two whitish wing-bars formed by the pale tips of the coverts.

R. alaschanica, Prejevalsky, which is allied to this species by its chestnut back and wing-markings, appears, nevertheless, to be quite distinct. *R. erythronota*, male, has a broad band, comprising the lores, ear-coverts, and sides of neck, black; while in *R. alaschanica* these parts are grey, like the head and nape. In *R. erythronota* the second primary is intermediate in length between the seventh and eighth, but nearer to the seventh; in *R. alaschanica* the second primary is equal to the eighth. The females of the two species are probably very similar in colour, but the difference in shape of wing will doubtless help to distinguish them.

85. Ruticilla erythrogastra (Güldenst.).

A winter visitor, and common at an elevation of about 5000 feet, from the middle of October to the middle of April. The males in autumn have the head bluish white; in January and February the cap becomes whiter, and is pure white in the latest-killed April birds. In fifteen males the wings measure from 3·95 to 4·25 inches, and eleven females have the wings 3·7 to 4·1.

Major Biddulph mentions a specimen of which the sex is doubtful; but there should never be any doubt about the sexes in this species, as the young male, even in first plumage, has a large snow-white patch on the wing, which is never seen in the female.

86. Ruticilla frontalis (Vigors).

Not uncommon at an elevation of 5000 feet on first arrival in April. The female of this handsome species may be readily distinguished from the other brown-coloured hens of the genus by the black band, nearly half an inch deep, on the tips of the lateral tail-feathers. Male—length 6·4 inches, wing 3·53, tail 3, tarsus 0·94, bill from gape 0·7; female—length 6, wing 3·15, tail 2·7, tarsus 0·8, bill from gape 0·65.

87. Ruticilla cæruleocephala (Vigors).

Common in the forests from the third week in March to the end of September. In the immature spotted plumage the males can be readily distinguished from the females by the former having snow-white outer margins to the inner secondaries.

88. Ruticilla leucocephala (Vigors).

There does not seem to be any variation in the plumage of this species due to season. Six males have the wings 3·75 to 4 inches, tail 3·2 to 3·26, and bill from gape 0·78 to 0·8; a female measures—wing 3·4, tail 2·9, bill from gape 0·7. One of the male birds has a single chestnut feather on the black nape.

89. Tarsiger rufilatus (Hodgs.).

Nemura rufilata, Hodgson, P. Z. S. 1845, p. 27.

A summer visitor, and breeds in the pine-forests at an elevation of about 10,000 feet. This species is quite distinct from *T. cyanurus* (Pallas), under which name it is entered in Major Biddulph's list. In the male of *T. cyanurus* the lores and eyebrow are white, surmounted by a narrow line of cobalt-blue, and the under surface is cream-coloured; while in *T. rufilatus* the lores and eyebrow are brilliant cobalt, and the under surface is greyish white. The female *T. cyanurus* is easily distinguished from the same sex of *T. rufilatus* by being more brown on the upper surface, cream-coloured on the abdomen, and by having the lores paler.

Gilgit examples of *T. rufilatus* are paler than specimens from Sikkim with which I have compared them. The spe-

cimen from which Major Biddulph took his description of "the plumage before the first moult" was probably not correctly referred to this species, in which the tail is never "hair-brown."

The immature male of *T. rufilatus* is precisely of the same colour as the adult female, and, as has been several times recorded, breeds in that plumage. The immature female differs from the adult in having the feathers of the head pale-centred, the blue on the rump and tail paler, the white throat-stripe only faintly indicated, and the rust-colour on the flanks less extended.

A nestling obtained on the 14th of August is profusely spotted on the body above and below, and the head is streaked. The upper surface is olive-brown, each feather with a yellowish central spot or streak and a dark brown margin; the under surface is pale yellowish, the feathers with complete dull-black margins; the wings are coloured as in the adult female; the tail, which is under an inch in length, dull greyish *blue* on the upper surface. Bill pale brown, brown on culmen; feet and gape pale fleshy; claws brown, pale at tips.

90. Calliope pectoralis.

A summer visitor only. An adult male has the wing 2·9, and a female 2·65. The very distinct *C. tschebaiewi* of Prejevalsky does not extend so far to the west as Gilgit.

91. Cyanecula suecica (Linn.).

This species is very common with us throughout March and up to the third week in April; and again during the autumn migration, from the third week in August to the third week in September. I doubt its breeding in the district; but Severtzoff records it as breeding in Turkestan, and it certainly breeds in Yarkand. In nineteen specimens the wings vary in length from 2·6 to 2·95.

92. Cyanecula leucocyanea, Brehm.

Lest any one should doubt the correctness of identification of the bird in my collection referred to by Major Biddulph under this head, I may mention that I have carefully com-

pared it, and that it is undoubtedly an example of the white-throated form of *Cyanecula wolfi* in full breeding-plumage. I did not obtain another example, unless a female, shot on the 1st of September, ought to be assigned to this species.

93. Acrocephalus dumetorum, Blyth.

A summer visitor only, leaving the district in September. In seven specimens the wings measure 2·4 to 2·5 inches, tail 2·15 to 2·33, tarsus 0·84 to 0·9, culmen 0·64 to 0·68; second primary intermediate between the fifth and sixth.

94. Dumeticola major, Brooks.

A summer visitor only. In ten specimens the total length varied from 5·9 to 6·45 inches, wing 2·2 to 2·35, tail 2·4 to 2·65, bill from gape 0·75 to 0·85. The third or fourth primaries are longest, the second equals the seventh or eighth, and the exposed portion of the bastard primary averages 0·55.

96. Phylloscopus tristis, Blyth.

Common in the lower valleys on arrival from the first week in March to the middle of April, and again from the third week in September to the end of November, on its way to the south; in summer only found above 8000 feet. I cannot detect any difference between several of my skins and examples of *P. sindianus*, Brooks, described in 'Stray Feathers,' viii. p. 476 (1879).

97. Phylloscopus lugubris, Blyth.

I have no specimen in my collection which can be referred to this species. The example obtained by Major Biddulph may perhaps have been *P. magnirostris*, which is closely allied to *P. lugubris*. The latter has hitherto been considered quite an Eastern form, not occurring in the north-west of India; while *P. magnirostris*, according to Mr. Brooks, breeds in Cashmere, and is therefore more likely to occur in Gilgit.

98. Phylloscopus viridanus, Blyth.

I secured specimens as late as the 23rd September at Gilgit, on migration south.

Phylloscopus nitidus, Blyth.

This species must, I believe, be added to the Gilgit list on

the evidence of a single example shot there on the 23rd September. This specimen, a female, has wing 2·4 inches, tail 1·85, bill from gape 0·53, exposed portion of bastard primary 0·55, one (lower) wing-bar. Compared with several specimens of *P. viridanus* shot on the same day, its brighter green colour above and considerably more yellow underparts seem to decide in favour of its being referred to *P. nitidus*; and this view is strengthened on comparison of the specimen with Mr. Seebohm's fine series of both species; but unfortunately the Gilgit skin is in bad condition.

100. Phylloscopus affinis (Tickell).

A summer visitor, arriving early in May, and migrating southwards about the end of September. In May, part of June, and September it is found in the lower valleys; but in the intermediate months it is confined to the forests at high elevations, where it breeds.

101. Phylloscopus indicus (Jerdon).

I found this species less common than its ally *P. affinis*. A specimen was obtained as late as the 14th October, which shows that *P. indicus* is rather late in leaving the district.

102. Reguloides occipitalis (Blyth).

I obtained specimens of this species as early as the 11th May, and young birds in July. Major Biddulph appears to be right in not admitting *P. trochiloides* or *flavo-olivaceus* to the Gilgit list.

103. Reguloides humii, Brooks.

Common from the 21st March to the end of September. Young birds are more green above than adults, have the secondaries conspicuously margined and tipped with buff, and have two prominent greenish-yellow wing-bars.

104. Reguloides subviridis, Brooks.

This species arrives in Gilgit as early as the 19th March, and leaves in the beginning of October. It has a very marked cry, and can always be distinguished from other allied species by its note.

105. Regulus cristatus (Koch).

A summer visitor, only found in the forests at high elevations, and apparently not common. A male with wing 2·15 inches, bill at front 0·37, has two distinct whitish wing-bars.

Sylvia jerdoni, Blyth.

This Eastern long-billed race of *Sylvia orphea* appears to have been accidentally omitted from Major Biddulph's list, as he had obtained a specimen in Gilgit before his paper was written. It only passes through Gilgit on migration, in May and June, and again early in September.

106. Sylvia affinis, Blyth.

I have only three specimens, obtained in April, May, and September, which can be referred to this form. The wings measure 2·6 to 2·63, and the second primary is intermediate between the sixth and seventh. The September specimen has the upper parts more brown than the other two, and this is probably due to its having freshly moulted.

107. Sylvia althæa, Hume.

A summer visitor, and common from the 25th April to the end of September; it breeds at an elevation of about 9000 feet. In males the wings vary from 2·73 to 2·83, in a female the wing measures 2·7. There can be no doubt about the identification, as my skins have been compared with a typical specimen in Mr. Seebohm's charge.

108. Sylvia rufa (Bodd.).

So far only obtained during the autumn migration. Two specimens measured—wing 2·8 inches, tail 2·6 and 2·7, tarsus 0·85 and 0·86.

109. Henicurus scouleri, Vigors.

A permanent resident, at elevations of 5000 to 7000 feet. It is nearly confined to the small streams, but is occasionally found in winter on the banks of the larger rivers, and has for associates *Ruticilla leucocephala* and *Cinclus asiaticus*. I cannot detect any difference between Gilgit examples of *H. scouleri* and a specimen from Moupin in Eastern Thibet.

110. Motacilla hodgsoni, Gray.

Two males of this Wagtail, shot on the 20th May, measure —length 8·1 and 8·2 inches, wing 3·8 and 3·84, tail 4 and 4·2, tarsus 0·9 and 0·93, bill from gape 0·73, culmen 0·67 and 0·7; a female, shot on the 16th May—length 7·8, wing 3·6, tail 3·8, tarsus 0·9, bill from gape 0·75, culmen 0·7. These specimens are in full breeding-plumage, and have the whole back black. A comparison of the above measurements with those which I give of the next species will show that *M. hodgsoni* is not constantly larger than *M. personata*, although on the average it may be a heavier bird. The black back of *M. hodgsoni* seems to be the only constant difference between the two forms; but that is certain, and proves that it is specifically distinct from *M. personata*.

111. Motacilla personata, Gould.

Major Biddulph mentions that he did not preserve any specimens of this Wagtail during the summer months; but I have a number of specimens, shot towards the end of May, with pure grey backs; certainly in both sexes of this species the back is always grey. Thirty-four adult specimens, shot in Gilgit, measure—length 7·4 to 8·2 inches, wing 3·3 to 3·9, tail 3·5 to 4·1, tarsus 0·8 to 1·03, bill from gape 0·65 to 0·76, culmen 0·63 to 0·7.

112. Motacilla alba, Linn.

This Wagtail only passes through Gilgit on migration; it is not uncommon in April, when I secured a specimen as early as the 13th, and again from the third week in September to the first week in November. A comparison of six specimens from Gilgit with twenty European specimens of *Motacilla alba* shows that the Gilgit birds are of a paler grey colour on the back, and have more white on the wing; moreover winter specimens of the European bird are tinged with yellow about the face, while the Gilgit examples do not show any trace of this colour. Those who maintain that *M. dukhunensis* of Sykes must be distinguished from *M. alba* would class the Gilgit specimens under the former title.

113. Calobates melanope (Pallas).

Common from March to November, and breeds from May to July, at elevations of 6000 to 9000 feet. Females shot on the 26th April, when the males had fully assumed the black on the throat, had the whole chin and throat pure white.

114. Budytes viridis (Gmel.).

This species seems only to pass through Gilgit on the spring and autumn migrations, and is never common. Two adult males, shot on the 9th May, have the head and nape dark bluish grey, the lores, cheeks, and ear-coverts black, and do not show any trace of a pale supercilium.

116. Budytes calcaratus, Hodgson.

A summer visitor, and breeds in Gilgit. In nine specimens the wings measure 3·15 to 3·5; the adult female has the back coal-black, as in the male, but is smaller and has less white on the wing.

117. Budytes citreolus (Pallas).

This Wagtail is a summer visitor, and breeds in the Gilgit district. I obtained specimens from the 6th March to the 6th June, and again from the 18th August to October. I can confirm Major Biddulph's observation that the fully adult female of this species is coloured precisely like the adult male in breeding-plumage; but many of the females appear to breed in a younger stage of plumage, when the head is olive, with a bright yellow supercilium and dark ear-coverts, In twenty-two males the wings vary from 3·3 to 3·7 inches, and in twelve females the wings measure 3·1 to 3·2.

118. Anthus trivialis (Linn.).

A summer visitor, arriving about the middle of April, and migrating southwards in September; it breeds at an elevation of about 9000 feet. In the series collected, every stage of plumage can be exactly matched by European specimens procured at like seasons. The Eastern form, *A. maculatus* of Hodgson, is quite distinct from this species.

120. Anthus rosaceus, Hodgs.

Common on passage from the 22nd April to the end of

May; not observed during the autumn migration. Ten specimens, in full breeding-plumage, have the wing 3·3 to 3·7 inches, and tail 2·6 to 3·1; minor wing-coverts green, edge of wing and axillaries sulphur-yellow.

122. Anthus blakistoni, Swinhoe.

Common from the middle of October to the beginning of April. In the males the wings vary in length from 3·4 to 3·7 inches, and the tails from 2·75 to 2·9; in females the wings measure 3·25 to 3·45, and the tails from 2·5 to 2·9. Birds shot in Gilgit in November agree perfectly with Mr. Swinhoe's type of *Anthus blakistoni* from Amoy, with which I have compared them.

[To be continued.]

XXXVI.—*Note on* Harpa novæ-zealandiæ. By Walter L. Buller, C.M.G., Sc.D., F.R.S.

Through some miscarriage, I have only lately received my copy of 'The Ibis' for October 1879, which contains a paper by Professor Hutton on *Harpa novæ-zealandiæ*. Not having seen it before, I wish now to offer a few observations in reply.

Prof. Hutton's argument against the recognition of two species, although supported by a table of measurements, rests on too many bare assumptions to be of much value in determining this vexed question. For example, he assumes that since the publication of 'The Birds of New Zealand' I have examined *only* the two specimens mentioned in the seventh volume of the 'Transactions of the New-Zealand Institute.' He assumes that Mr. Sharpe "doubts the accuracy of the labels attached to the British-Museum specimens" simply because Mr. Sharpe, in his 'Catalogue of Birds,' has quoted the dimensions of the sexes from my work. He assumes (with Mr. Potts) that Dr. von Haast was "mistaken in supposing that he got his bird from the nest and determined its sex" and that he only "guessed at its sex." He assumes that Mr. Fuller, the taxidermist, was wrong in his

determination, by dissection, of the sex of the bird mentioned by me in the Trans. N.Z. Instit. vol. vii. p. 213.

I think it may be fairly urged that when every thing is thus assumed in favour of a particular line of argument, even in the face of direct evidence to the contrary, the result is not entitled to very much weight. But let us look for a moment at Prof. Hutton's table of measurements, and see what his facts amount to. He gives the dimensions of twelve specimens, of which on dissection two proved to be females, nine males, and one of doubtful sex.

I have only to "assume" that Prof. Hutton has made a mistake with the sex of his specimen B, and his whole case falls to the ground. But even admitting that he is right, I cannot see that his argument is at all conclusive; for his female specimen B gives a wing-measurement only ·25 of an inch longer than that assigned by me to the female of the smaller species!

My principal object, however, in writing is to point out that Prof. Hutton somewhat misrepresents me in stating that "Dr. Buller is mistaken in saying that the name of *H. ferox* has priority over *H. australis*; for *H. australis* was given in 1841, and *H. ferox* not until 1848."

In my "Notes on the Ornithology of New Zealand," published in the sixth volume of the 'Transactions of the New-Zealand Institute,' I made the following statements:—

"Mr. Sharpe has pointed out that the name of *Falco brunneus* of Gould has been preoccupied by Bechstein, who thus called the Common Kestrel of Europe, and that consequently our bird, if allowed to be distinct from *H. novæ-zealandiæ*, must bear another title. Mr. Sharpe considers that this should be *Hieracidea australis* (Homb. et Jacq.); but it seems to me that this is *only a synonym of the older species*, and that the right name to fall back upon is *Falco ferox* of Peale (U. S. Expl. Exped. 1848, p. 67)."

Wellington, N. Z.
March 26, 1881.

XXXVII.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

(Continued from p. 279.)

For the Kestrels, properly so called, including those of the New World, I think the generic name of "*Tinnunculus*" is preferable to that of "*Cerchneis*" adopted by Mr. Sharpe for them and for the allied subgenera *Dissodectes* and *Erythropus*; and I am fortified in this opinion by the following remarks from the pen of Dr. Sclater, which I have his permission here to introduce :—

"As regards the proper generic name for the Kestrels, Mr. Salvin has already pointed out ('Ibis,' 1874, p. 360) that in his opinion Mr. Sharpe has made an unnecessary alteration in generally-employed nomenclature by employing the term *Cerchneis* instead of *Tinnunculus* for this group. The reason of the change is apparently that Mr. Sharpe considers that *Falco columbarius* is the type of Vieillot's genus *Tinnunculus*, which thus becomes a mere synonym of *Falco* (according to Mr. Sharpe). But on turning to the 'Oiseaux de l'Amérique Septentrionale' (i. p. 39) it will be found that Vieillot uses the name *Tinnunculus* simply as a Latin form of his division 'Cresserelles.' In this work he includes two species of 'Cresserelles,' namely, *Tinnunculus columbarius* and *T. sparverius*. Therefore, even according to the most strict interpretation of the rules of nomenclature, the term *Tinnunculus* is as much applicable to one as to the other. It is surely much more convenient to consider it as primarily applicable to the second, a true Kestrel, as it has always been used in this sense by previous writers, especially as the term *tinnunculus* (*i. e.* '*bell*') is simply the specific name which Linnæus gave to the Common Kestrel turned into a genus. I think, therefore, that the proper generic name of the Kestrels is *Tinnunculus*, and not *Cerchneis*—the golden rule of nomenclature being, in my opinion, to make no alterations in established usage that can be *possibly* avoided."

In referring to the genus *Tinnunculus* I would, in the first

place, advert to the most extensively diffused of the Old-World species, *T. alaudarius* (Gmel.), in its typical phase of plumage, and to its darker races, which have received subspecific rank from some authors, but not from Mr. Sharpe, under the several titles of *neglectus* (Schleg.), *interstinctus* (M'Clell.)*, and *japonicus* (Temm. & Schleg.), names which I find convenient for use, though only to be taken as indicating local races of one widely-spread true species.

As regards these races, I would refer to the remarks contained in the article on *T. alaudarius* by Messrs. Sharpe and Dresser in the 'Birds of Europe,' to Mr. Sharpe's observations at pp. 426 and 428 of his Catalogue, and to his subsequent article in the P. Z. S. for 1874, pp. 580 to 584; also to Mr. Hume's remarks in Henderson and Hume's 'Lahore to Yarkand,' p. 175, and to those of Captain Legge in his 'Birds of Ceylon,' p. 175.

To the information recorded by the authors just referred to I may add a few supplementary notes, in the first place, as regards the geographical distribution of the typical pale race, and, secondly, as to that of the darker southern and eastern forms.

With respect to the geographical range of the pale Kestrel (the typical *Tinnunculus alaudarius*) I can add but little to that which has been already recorded by Messrs. Sharpe and Dresser in their article on this species in the 'Birds of Europe;' but I have to correct an error of my own, the occurrence of which I have lately discovered, to my no small annoyance. In Andersson's 'Birds of Damara Land,' p. 18, I referred to *T. alaudarius* a Kestrel obtained at Objimbinque on 1st February, 1865; but on a reexamination of this specimen, which is preserved in the Norwich Museum, I find that it is, in reality, a rather large and coarsely-marked female of *T. cenchris*, in which the claws, probably by reason of immaturity, have only partially attained the yellowish-white hue characteristic of that species. How so flagrant an error could

* M'Clelland's designation of "*interstinctus*" bears date from 1839, and has therefore priority over "*saturatus*," proposed by Blyth in 1859. (*Cf.* 'Stray Feathers,' vol. vi. p. 3.)

have occurred I am unable to say, and I can only now correct and regret it. As the result of this correction, the most southern point in Western Africa where *T. alaudarius* has been observed is, so far as I know, Fantee, a female of the pale race received thence being contained in the museum at Norwich. In Eastern Africa the most southern locality I know of for this species is Mombasa, whence I recently recorded an example (*suprà*, p. 124). This specimen is also of the pale race; and I find, on measuring it, that it probably is not a female, as I originally supposed, but a young male*.

With respect to the southern range of the pale *T. alaudarius* in more eastern countries, I may note that the Norwich Museum possesses an adult male which was obtained in the Seychelles, and that Captain Legge, at p. 115 of his work on the 'Birds of Ceylon,' mentions it as a regular winter visitor to that island, as it is also in India. This pale race extends as far eastward as the coast of China, where the two darker phases of coloration, constituting the races known as "*interstinctus*" and "*japonicus*," also occur.

In connexion with the geographical distribution of the darker races, it may be convenient to allude to the slight peculiarities which distinguish them from the paler race, the typical *T. alaudarius*. In all the dark races or subspecies of *Tinnunculus alaudarius* both the rufous portions of the plumage and those which are spotted or barred with blackish brown are more darkly and richly tinted than in the pale race, a peculiarity which is common to both sexes, but varies in degree in different individuals†. It is only in this respect that the females of the dark races constantly differ from those of the pale race; and the females of the three dark races, though exhibiting slight individual variations, do not appear to me to

* This Mombasa specimen is remarkable for having narrow brown transverse bars on the sides of the breast, which I have not observed in any other example of this species.

† The plumage of Kestrels becomes much worn and faded by exposure to atmospheric influences, and this should be borne in mind in comparing specimens of the different races. Newly moulted birds should, as far as possible, be compared with those in a similar stage, and *vice versâ*.

show any constant difference in coloration between one such race and another, such slight differences as habitually exist being limited to the adult males.

Mr. Sharpe, at p. 427 of his Catalogue, observes:—"Throughout all these dark races of Kestrel one character is predominant . . . , viz. that the female has more or less of a shade of blue on the rump and tail." But this character is not a constant one—many dark females want it, and some pale females possess it, though more rarely than the darker females. Mr. Seebohm, who has been so good as to allow me to examine the fine series of Chinese Kestrels collected by the late Mr. Swinhoe, now in his possession, has a decidedly pale female obtained at Amoy in the month of February, in which the bluish grey on the rump and tail are conspicuously prevalent.

The grey on these parts seems to be indicative of a more mature age than the ordinary female plumage; some females that have assumed it show on the upper tail-coverts transverse bars of two shades of grey replacing the two shades of brown which form similar bars on that part in females of a normal coloration; in other cases these bars are altogether absent, the rump being of a uniform grey, with the exception, in some individuals, of small, wedge-shaped, slaty-black marks, which appear, with the point downwards, on the lower part of the shafts of some feathers of the upper tail-coverts, and especially on the side feathers of that portion of the plumage.

The remarkable Hertfordshire female figured by Mr. Sharpe in the P. Z. S. for 1874, pl. 18. fig. 3, with the rump and upper tail-coverts bluish grey, and the tail also of that colour on the paler interspaces, is now preserved in the British Museum. It has the plumage of the first-named parts transversely barred with two shades of grey, each feather also showing the small dark wedge-shaped spots just alluded to. Its general plumage is very unusually dark for a British specimen; but this may perhaps be partly due to its having apparently newly moulted, the feathers showing scarcely any signs of abrasion. It was killed on 29th April.

Dr. Scully, who has very kindly allowed me to examine the

Kestrels in his collection, has a specimen obtained by him in Gilgit, and proved by dissection to be an undoubted female, in which the coloration and markings of the upper tail-coverts are of the character last mentioned, and in which the markings on the mantle approach remarkably to those of the male bird, as they form spots rather than transverse bars. The tone of coloration in this specimen leads me to refer it to *T. interstinctus*.

The males of the darker races of the Common Kestrel, besides having, like the females, a more richly and darkly coloured plumage, exhibit a tendency (varying somewhat in different individuals) to a more profuse distribution and larger size of the dark spots on the mantle, and especially of those on the lower scapulars and tertials; but in estimating such differences as exist in this respect it should be borne in mind that in the typical *T. alaudarius*, as well as in the darker races, the males, on first assuming the adult dress, are usually more spotted on the parts just mentioned than is the case when they become somewhat older. This spotting is especially profuse in the male Kestrels of the Cape-Verd Islands, of Teneriffe, and of Madeira. These all belong to a small dark-coloured race; and I should include them all under the subspecific name of "*neglectus*," proposed by Professor Schlegel* for those of the Cape-Verd group, with which the Teneriffe and Madeira birds appear to me to be almost identical in plumage and also closely allied as regards size.

This small dark race does not appear to extend to the Azores, the only specimen of a Kestrel which Mr. Godman met with on that group of islands being a female from the island of St. Michael's in very worn and faded plumage, which corresponds in size to ordinary European specimens, and is probably referable to the typical *T. alaudarius*. This specimen, which is mentioned in Mr. Godman's 'Natural History of the Azores,' p. 21, is preserved in the British Museum, where there is also a typical pale *T. alaudarius*, apparently a female, procured in the Cape-Verd group, which it had, no doubt, visited as a migratory wanderer.

* *Vide* Museum des Pays-Bas, Revue (1873), Accipitres, p. 43.

Kestrels as dark as *T. neglectus*, but larger than the average of specimens of the insular race, and equalling (according to my observation) the ordinary size of the typical *T. alaudarius*, occur in Africa north of the equator, and are also to be found as far eastward as the coast of China. All these Kestrels may, I think, be included under the subspecific name of "*interstinctus*;" but it is a subspecies less distinct from the typical *T. alaudarius* than is either *T. neglectus* or *T. japonicus*, individuals frequently occurring with a complexion of coloration intermediate between *T. interstinctus* and *T. alaudarius*, and which it is difficult to assign with a trenchant accuracy to either race.

The most westerly example* apparently referable to *T. interstinctus* which has come under my notice is a young Spanish male from the province of Madrid, which is preserved in the Norwich Museum, and which is quite as dark as an average Madeiran example of similar age and sex, but is decidedly too large to be referred to the insular *T. neglectus*, or to be regarded as a wanderer from Madeira.

Mr. Sharpe has stated, in the P. Z. S. for 1874, p. 581, that a dark race of Kestrels occurs in Senegambia; but this has not come under my personal observation.

In Abyssinia, besides migratory individuals of the pale typical *T. alaudarius*, there occurs a darker race, apparently non-migratory, which is identical with Asiatic specimens of *T. interstinctus*. Mr. Blanford obtained, at Adigrat, in Tigré, at a level of 8000 feet above the sea, a pair of *T. interstinctus*, shot 23rd and 25th April, and a male, in change, of the pale *T. alaudarius*, shot 22nd April. These three specimens are all preserved in the British Museum.

A female from Tangiers in the Norwich Museum is not quite so dark in its coloration as the dark Abyssinian females, but is, I think, sufficiently so to be referred to *T. interstinctus*.

The Norwich Museum possesses an adult male from Ceylon,

* The Hertfordshire female previously alluded to, though certainly a dark bird, can, I think, hardly be referred to so southern a race as that which has received the title of *interstinctus*.

so richly and darkly coloured that it must, I think, be considered an example of *T. interstinctus*. This specimen is the more interesting, as Captain Legge, in his article on *T. alaudarius*, to which I have already referred, states that he only met with the pale race in that island. It ought, however, to be mentioned that Mr. Samuel Bligh, by whom this specimen was presented to the Norwich Museum, kept it in confinement for four years; and it is possible that its plumage, being thus preserved from the action of sun and weather, presents, from that cause, a darker and richer aspect than it would have done had the bird been exposed to both in a state of nature*.

I have examined adult, or nearly adult, males which I consider to belong to *T. interstinctus*, from Baltistan, in Kashmir (10,500 feet above the level of the sea), from Bootan, from the Himalayas, and from Travancore, also from the following localities in China, viz. Pekin, Shanghae, and Amoy; and I may add that the Norwich Museum possesses a very dark newly-fledged nestling, which was obtained by Mr. Swinhoe at Amoy on 13th June; but as it is very young and in female plumage, I am unable to say whether it ought to be referred to *T. interstinctus* or to *T. japonicus*.

In the adult males of *T. japonicus* the dark spots on the mantle, and especially those on the scapulars, are not only larger than in *T. alaudarius* and in *T. interstinctus*, but are usually, though not invariably, of a more guttate shape, this appearance, which in some individuals is very conspicuous, being caused by the feathers having broad, dark shaft-marks

* Since the above was written, I have received from Mr. Bligh the following reply to an inquiry I addressed to him respecting this specimen:—"The bird was pinioned by a shot, between October and April, in the cool season. It was adult when procured, and decidedly dark then; but it grew darker at the first moult, being the darkest I ever saw, which induced me to preserve its skin. In confinement it moulted regularly and completely, and died suddenly from a fright accidentally caused by myself, the heart being then a mass of fat. It was fed almost exclusively on its natural food, lizards, beetles, and grasshoppers. It was restless at migratory seasons. I never knew any Kestrel, of any species or race, breed or remain all the year in Ceylon."

situated above the blackish dorsal spots and running into their upper edge. This race inhabits Japan, and, according to Mr. Swinhoe ('Ibis,' 1863, p. 211), is also found in Formosa. I have examined male birds exhibiting the peculiar markings of this race from Ningpo and Amoy, in China; and I observe that Col. Prejevalsky speaks of having found "*Tinnunculus japonicus*, Schleg.," resident in some parts of Mongolia *, though I think it possible that the Mongolian birds here alluded to may belong to the race which I should refer to *T. interstinctus* rather than to *T. japonicus*.

It may be well here to add a few words as to the Kestrels found in Hainan by the late Mr. Swinhoe, who, writing of his visit to that island in 'The Ibis' for 1870, p. 84, remarks:—"I procured specimens [of Kestrels] both there and in the small island of Naochow, which do not appear to differ from European examples." Two of these Hainan specimens, apparently males not fully adult, are now in the possession of Mr. Seebohm. They are both of them rather small birds and rather dark in colour, being, as it seems to me, referable to *T. interstinctus* rather than to *T. alaudarius*.

The following is a summary of measurements of Kestrels taken by myself. The letters B.M. and N.M. denote that the specimens to which they are attached are preserved in the British and Norwich Museums:—

	Males.		
T. alaudarius, typical pale race.	Wing.	Tarsus.	Middle toe s. u.
	inches.	inch.	inch.
Norfolk, collection of J. H. Gurney, Jun.	9·65	1·60	1·10
Sicily, N.M.	9·80	1·70	1·20
Crimea, N.M.	9·70	1·50	1·20
Senegal, N.M.	9·65	1·60	1·10
Nubia, N.M.†	10·40	1·50	1·20
Abyssinia, N.M.	9·80	1·60	1·20
Ditto, B.M.	9·95	1·50	1·20
Mombasa, N.M.	9·30	1·70	1·20
Erzeroum, N.M.	10·10	1·70	1·20

* *Vide* Translation of "Notes on Birds of Mongolia" in Rowley's Orn. Miscellany, vol. ii. p. 151.

† This unusually long-winged specimen is in full adult male plumage.

T. alaudarius, typical pale race.	Wing. inches.	Tarsus. inch.	Middle toe s. u. inch.
Kashgar, N.M.	9·95	1·50	1·10
Three from Yarkand, N.M., and collection of Dr. Scully	9·45 to 10·10	1·60 to 1·70	1·10 to 1·20
Three from Gilgit, collection of Dr. Scully	9·70 to 10·10	1·55 to 1·60	1·10 to 1·15
Nepal, collection of Dr. Scully	9·95	1·60	1·20
Poonah, N.M.	9·80	1·60	1·20
Ceylon, N.M.	10.15	1·60	1·10
China, N.M.	10·10	1·50	1·10
Ningpo, collection of Mr. Seebohm	10	1·70	1·20
T. neglectus.			
Island of Maio, Cape-Verd group, B.M.	8·45	1·30	1
Island of St. Iago, Cape-Verd group, N.M.	8·90	1·60	1·20
Ditto, B.M.	8·90	1·50	1·10
Teneriffe, B.M.	8·95	1·50	1·10
Ditto, ditto	9·20	1·50	1·20
Nine from Madeira, B.M. and N.M.	8·55 to 9·40	1·40 to 1·60	1·10 to 1·20
T. interstinctus.			
Spain, Province of Madrid, N.M.	9·80	1·60	1·20
Adigrat, Tigré, B.M.	9·45	1·40	1·15
Ladak, B.M.	9·40	1·70	1·30
Baltistan, Kashmir, N.M.	10·10	1·60	1·10
Bootan, N.M.	9·90	1·60	1·10
Nepal, B.M.	9·35	1·50	1·20
Himalayas, N.M.	10	1·50	1·20
Travancore, B.M.	9	1·60	1·30
Ceylon, N.M.	9·30	1·50	1·10
Pekin, N.M.	9·70	1·70	1·10
Ditto, Mr. Seebohm's collection	9·65	1·60	1·10
Shanghae, N.M.	9·95	1·60	1·10
Five from Amoy, N.M., and Mr. Seebohm's collection	9·65 to 10·15	1·60 to 1·80	1·20
Hainan, Mr. Seebohm's collection	9·50	1·50	1·20
Ditto*, ditto	9·85	1·60	1·20

* This specimen is marked by Mr. Swinhoe as a female; but it has spots on the upper scapulars, which appear to me to show that it is a young male.

T. japonicus.	Wing. inches.	Tarsus. inch.	Middle toe *s. u.* inch.
Ningpo, N.M.	9·70	1·80	1·20
Six from Amoy, N.M., and collection of Mr. Seebohm	9·80 to 10·20	1·50 to 1·70	1·10 to 1·20
Four from Japan, N.M., and collection of Mr. Seebohm	9·70 to 10	1·60 to 1·80	1·10 to 1·20
Females.			
T. alaudarius, typical pale race.			
Cape-Verd group, B.M.	10·30	1·60	1·30
St. Michael's, Azores, B.M.	10·10	1·50	1·20
Durham, collection of J. H. Gurney, Jun.	10·50	1·70	1·20
Fantee, N.M.	10·20	1·70	1·15
Yen-e-Say, Eastern Siberia, N.M.	10·20	1·60	1·10
Yarkand, in collection of Dr. Scully, and dissected by him	9·80	1·60	1·20
Five from Kashmir, in collection of Dr. Scully, and dissected by him	9·50 to 10·30	1·50 to 1·60	1·10 to 1·20
Nepal, collection of Dr. Scully	10·30	1·60	1·10
Amoy, collection of Mr. Seebohm	10·30	1·60	1·25
Ditto, ditto	10·30	1·50	1·20
T. neglectus.			
Island of St. Maio, Cape-Verd group, N.M.	8·80	1·60	1·10
Island of St. Vincent, Cape-Verd group, B.M.	8·40	1·45	1
Three from Madeira, N.M.	9·20 to 9·50	1·50 to 1·70	1·15 to 1·20
T. interstinctus.			
Tangiers, N.M.	10	1·50	1·20
Abyssinia, N.M.	9·80	1·50	1·20
Adigrat, Tigré, B.M.	9·60	1·50	1·30
Chinese females respecting which I am doubtful whether they should be referred to *T. interstinctus* or to *T. japonicus.*			
Chefoo, N.M.	10·60	1·70	1·20
Foochow, N.M.	10·40	1·60	1·10

	Wing. inches.	Tarsus. inch.	Middle toe *s. u.*. inch.
T. interstinctus.			
Four from Amoy, N.M., and Mr. Seebohm's collection	10·05 to 10·55	1·50 to 1·70	1·10 to 1·20
T. japonicus.			
Three from Japan, N.M.	10 to 10·25	1·50 to 1·70	1·10 to 1·30

Three species of the genus *Tinnunculus*, all apparently sedentary, are peculiar to Africa, viz. :—*T. rupicola*, which inhabits the most southern portion of that continent, its northern limit on the eastern boundary of South Africa nearly coinciding with the tropic of Capricorn, and on the west with the 15th degree of south latitude; *T. rupicoloides*, the northern limit of which seems to be about the 15th degree on both sides of the continent, extending southwards to the tropic, or thereabouts, on the west, and to about the 25th degree on the east; and *T. alopex*, which has only been met with in Sennaar and the countries immediately adjacent. In v. Heuglin's article on this species in Orn. N.O. Afr. vol. i. p. 41, mention is made of a specimen preserved in the Vienna Museum, which is said to be from Nubia, and which, if this locality be correct, is the most northerly example of it on record; and I am indebted to Captain Shelley for calling my attention to a recent notice of its occurrence by Dr. Hartlaub (Abhandl. naturw. Ver. Bremen, Band vii., Heft 2, p. 115) at Lado, in N. lat. 5° and long. about 32° E., which is probably the most southern point at which it has been met with.

With respect to these three species, I have only to remark, as regards *T. rupicola*, that Mr. Sharpe's description of the female, as given in his Catalogue, p. 429, and also the figure and description of a female specimen in the P. Z. S. 1874, pl. 18. fig. 2, and p. 583, appear to be taken from examples not fully adult, as the old female exactly resembles the adult male, with the exception of the dark slaty-grey cross bars on the pale-grey ground-colour of the tail. I have recently examined such a female in the collection of Captain Shelley, sexed by Mr. Buckley, who obtained it in Natal.

I may also note that Mr. Sharpe's article in the P. Z. S. above referred to contains a modification of the measurements of this species as given in his Catalogue.

Mr. Sharpe states, in his description of *T. rupicoloides*, that the adult female has "the flanks more barred" than is the case in the male; but I do not find this to be a constant distinction between the sexes in this species.

Mr. Sharpe's description of *T. alopex* is stated to be taken from an adult male, which I believe is preserved at Leyden; but an adult female from Bogos Land in the British Museum agrees with his description in colour and markings; and, according to Von Heuglin ('Ibis,' 1861, p. 71), the male only differs from the female "by a rather more intense coloration" and by its somewhat smaller size. Specimens of *T. alopex* are extremely scarce in collections, and that at the British Museum is the only one which I have had an opportunity of examining. The two last-named species, *T. rupicoloides* and *T. alopex*, are the largest of the genus, offering, in this respect, a remarkable contrast to the three small species which inhabit insular localities lying immediately to the east of the African continent, viz. *T. newtoni* of Madagascar, *T. punctatus* of Mauritius, and *T. gracilis* of the Seychelles.

Since the publication of Mr. Sharpe's volume, two plates of *T. newtoni*, in its different stages of plumage, and two of its osteological details, have appeared in MM. Milne-Edwards and Grandidier's work on the 'Birds of Madagascar,' pls. 13 to 14*a*, and also an article on this species at p. 45 of vol. i. of that work. Comparing the account given by these authors of the variations of plumage in this species with Mr. Sharpe's remarks on that subject at p. 434 of his Catalogue, and with the specimens preserved in the British and Norwich Museums, and also with an interesting series kindly lent to me by Professor Newton, it appears to me that the sexes do not differ in coloration, but that both pass through three distinct phases of plumage, to which I will now briefly allude.

A nestling lent to me by Professor Newton, though still partly in the down, is sufficiently advanced to show that the feathers of the head are greyish black, slightly mingled with

dark rufous; the mantle and tail dark rufous, very broadly banded with black, and the tail tipped with fulvous; the feathers of the breast and abdomen rufous, the former having elongated black centres, and the latter being broadly barred with black; the under tail-coverts rufous, with dark-brown central spots and creamy fulvous tips, thus very much agreeing with the descriptions of the plumage of the "nestling" and of the "young birds" respectively given by Mr. Sharpe and by MM. Milne-Edwards and Grandidier.

As the bird advances from the first to the second stage of plumage, the dark cross bars on the mantle become broken up into guttate spots, except on the lower scapulars, tertials, and upper wing-coverts, which continue to be more or less transversely barred; the inner webs of the primaries (which in Professor Newton's nestling are a whole-coloured blackish brown) become edged with rufous notch-marks that merge into similar white marks towards the base of the feather, and a grey tint, in alternate pale and dark transverse bars, overspreads the upper tail-coverts; the under surface changes in very much the same manner as the mantle (the ground-colour being dark rufous, interspersed with small blackish-brown spots), excepting the throat and vent, which are whitish, and the under tail-coverts, which exhibit two shades of grey.

When the bird assumes what I conceive to be the fully adult dress, the transverse bars often disappear from the upper tail-coverts, which are then of one uniform shade of grey, with the exception of small black shaft-marks, the grey also extending to the pale interspaces on the tail, and replacing the rufescent brown tint which previously distinguished them; the under tail-coverts become pure white, as does the entire under surface, with the exception of the small dark spots on the breast and abdomen, which remain as they were previously, except that they are now exhibited on a white instead of on a dark rufous ground, the latter colour lingering longest on the upper breast and flanks; the ear-coverts participate in this change, becoming white instead of brownish grey, and all the notch-marks on the inner webs are now white also.

In the article on this species by MM. Milne-Edwards and Grandidier, to which I have already referred, the plumage which I have last described is spoken of, not as the fully adult dress, but as a "plumage de noces;" and the large opportunities which were possessed by M. Grandidier of observing this Kestrel in a state of nature gives great weight to his opinion. But if this Kestrel is really subject, as he implies, to an absolute seasonal change of coloration, such a phenomenon (so far as I know) is quite unique amongst the Falcons, and, moreover, appears to be hardly compatible with the dates at which some of the under-mentioned specimens were procured.

Professor Newton possesses a male in full adult white-breasted plumage, obtained in July, and a female in the like dress, but not quite so complete, taken with her eggs on 17th September. A similar female, shot on the 13th September, is in the Norwich Museum, which likewise contains a rufous-breasted male and female, also obtained on 13th September, and another rufous-breasted male killed 28th September. The last-named four specimens were all collected, sexed, and presented to the Norwich Museum by Mr. Edward Newton, to whom that Museum is also indebted for two males, both killed on the 10th January—one a newly-moulted specimen in white-breasted plumage, but still showing immature dark cross bars on the wing-coverts, the other a rufous-breasted bird in very faded plumage, evidently nearly approaching the period of moulting.

Mr. Sharpe remarks that "the rufous individuals have more grey on the head than the white-breasted ones;" but I find that this difference, though frequent, is not entirely constant.

As regard *T. punctatus* of the Mauritius, I have nothing to add to Mr. Sharpe's remarks, except to mention that it is said occasionally to occur also in the island of Réunion. (*Cf.* 'Ibis,' 1869, p. 447.)

Neither have I any thing to observe under the head of *T. gracilis*, except that I do not find the greater breadth of the tail-bands in the female, mentioned by Mr. Sharpe, to be

a constant character. I may, however, add that this species is the smallest of the genus.

Mr. Sharpe, in the P. Z. S. for 1874, p. 583, has referred to *Tinnunculus moluccensis*, quoting Professor Schlegel's observations, and adding some remarks of his own, as to the slight differences in coloration which occur in this species in different localities. I am not able to throw any additional light upon this subject, but think that the following measurements, taken by myself from specimens in the British and Norwich Museums, may be worth recording :—

Males.

	Wing. inches.	Tarsus. inch.	Middle toe *s. u.* inch.
Java, N.M.	9·20	1·50	1·10
Borneo, N.M.	8·70	1·50	1·20
Macassar, B.M.	7·85	1·45	1·10
Flores, B.M.	8·70	1·50	1·20
East Timor, N.M.	8·60	1·40	1·00
Ditto, N.M.	8·20	1·40	1·00
Gilolo, N.M.	9.20	1·50	1·15
Ditto, B.M.	8·80	1·40	1·30
Ceram, N.M.	9·20	1·60	1·20

Females.

	Wing. inches.	Tarsus. inch.	Middle toe *s. u.* inch.
Flores, B.M.	9·00	1·40	1·10
Ditto, B.M.	9·20	1·50	1·20
Batchian, N.M.	8·90	1·50	1·20
Ternate, N.M. (marked ♀ by Dr. Bernstein)	9·30	1·60	1·30
Ditto, N.M.	10·30	1·90	1·30
East Timor, B.M. (marked ♀ by Mr. Wallace)	8·75	1·45	1·20
Gilolo, N.M.	9·60	1·50	1·25
Goram, B.M.	9·50	1·65	1·40

We may now pass to a more southern species, *T. cenchroides*, of Australia. Mr. Sharpe gives as the habitat of this Kestrel simply Australia. Mr. E. T. Ramsay, in his 'Catalogue of

Australian Accipitres,' p. 61, gives as its habitat "the eastern and southern parts of Australia;" but it would appear occasionally to wander to Tasmania also, as two Tasmanian examples are recorded in the 'Proceedings of the Royal Society of Tasmania' for 1875, p. 8; and a specimen, said to have been obtained in that island, is preserved in the Norwich Museum.

The most northern example that I have seen of this species is a specimen, which is also in the Norwich Museum, from Lizard Island, off the N.E. coast of Australia.

There remain but two more Old-World Kestrels to claim our attention—*T. cenchris* and its very closely allied oriental representative, *T. pekinensis*.

For the first of these Mr. Sharpe has adopted the specific name of "*naumanni*;" but cause has been shown (and, I think, satisfactorily), in 'The Ibis' for 1874, p. 361 (footnote), and for 1875, p. 515, for retaining, in preference, the name of "*cenchris*," proposed for this species by Naumann himself.

Mr. Sharpe does not refer to the Asiatic habitats of this species; but it has been recorded as breeding in Asia Minor, Syria, Persia, and Turkestan, and it has also been observed as a spring migrant in Arabia.

Its congener, *T. pekinensis*, has, so far as I know, only been recognized in India and in China, and must, I think, be considered merely a subspecies of *T. cenchris*, the differences between them being limited to the adult males*, and even in them not being very constant.

Mr. Sharpe thus describes the adult male of *T. pekinensis*:—"Very similar to *C. naumanni*, but darker and more vinous 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."

The males of *T. pekinensis* which I have examined are but

* Mr. Swinhoe's observation as to the colouring of the tips of the primaries (to which I refer in a subsequent paragraph) may possibly refer to both sexes.

very slightly, and sometimes scarcely at all, darker and more vinous than newly-moulted males of *T. cenchris*; and the only one which I remember to have seen corresponding in all respects with Mr. Sharpe's description of the fully adult male was in the collection of the late Lord Tweeddale, and was one of two specimens labelled "West Coast of India." The following are the memoranda which I made after examining these Kestrels :—

No. 1. Entirely immaculate below; entire wing-coverts grey, except a row of rufous feathers on the ridge of the wing, and rufous edgings to the adjoining median coverts.

No. 2. Immaculate below, excepting four very small spots on the abdomen, the rufous edging extending rather further on the median wing-coverts, and the small coverts forming a broader band of rufous than in No. 1.

Most Indian males appear to be more or less spotted on the abdomen, even when the grey on the wing-coverts has attained the full dimensions described by Mr. Sharpe. (*Cf.* 'Stray Feathers,' vol. iii. p. 385, and vol. ix. p. 243.)

The Norwich Museum, however, is in possession of a male shot at Dinapore on 26th March, and presented by Mr. W. E. Brooks, in which the whole under surface is absolutely free from spots, leading to the belief that it is a very old individual; and yet the grey on the wing-coverts stops short of the carpal joint by nearly an inch, and, altogether, is not more extended than in ordinary males of *T. cenchris*—less so, indeed, than in a male from Transvaal which is now before me.

Mr. Blanford writes as follows with reference to the male specimens of *T. cenchris* (five in number) which he obtained in Persia :—"*T. cenchris*: all the specimens obtained agree with the European and African species, and differ from Indian and Chinese specimens (*T. pekinensis*, Swinh.) in their pale colour, and in having most of the wing-coverts rufous; but in two specimens there is a complete absence of spotting on the ventral surface, showing that this character disappears with age"*.

A specimen, entirely immaculate on the under surface, and

* 'Zoology and Geology of Eastern Persia,' p. 106.

in other respects resembling the Dinapore male in the Norwich Museum, was obtained at Huilla, in Angola, and is fully described by Prof. Barboza du Bocage in his 'Ornithologie d'Angola,' vol. i. p. 51. A similar male, as I am informed by Mr. Sharpe, was obtained in Damara Land by the late Mr. Andersson, and is preserved in the Museum of Leyden.

The late Mr. Swinhoe, in his original description of *T. pekinensis* (P. Z. S. 1870, p. 442), remarked:—The adult has the inner or short primaries broadly bordered at their tips with whitish, rufous in the immature, and wanting in the European; both adult and immature have the white on the under quills 3¼ inches short of their tips; in the European bird it advances 1 inch nearer the tips." Whether *T. pekinensis* usually exhibits these peculiarities I am unable to say; but I cannot detect them in the only specimen to which, at the present moment, I have access—the male from Dinapore, above referred to.

[To be continued.]

XXXVIII.—*Notices of recent Ornithological Publications.*

[Continued from p. 286.]

51. *Blanford on a new Trochalopteron.*

[On a Species of *Trochalopteron* from Travancore. By W. T. Blanford, F.R.S. J. A. S. B. xlix. p. 142.]

Mr. Blanford separates a *Trochalopteron*, obtained on the Travancore hills by Mr. F. W. Bourdillon, from the *T. fairbanki*, of the Palni hills, and names it *T. meridionale*.

52. *Bocage on West-African Birds.*

[Aves das possessões portuguezas d'Africa occidental. Decima nona e vigesima listas. Por J. V. Barboza du Bocage. Jorn. Sci. Lisboa, no. xxviii. e xxix. 1880].

Prof. Barboza's nineteenth list gives 93 species, from Sr. Anchieta's last collection at Caconda, made in the last four months of 1879 and in January 1880. Seven are new to the

avifauna of Angola, and one (*Hyphantornis temporalis*) new to science.

The twentieth list continues the account of the collections made in 1880 by the same indefatigable naturalist. Two hundred and twenty-one examples are referred to 92 species. Among them are four specimens of the fine new Roller *Coracias spatulata*, Trimen, six of *Toccus pallidirostris* (which the author does not agree with Messrs. Sharpe and Elliot in uniting to *T. melanoleucus*), and an individual of *Sarcidiornis africana*: Prof. Barboza takes occasion to point out the differences between this species and *S. melanonota* of India.

53. *Bocage's 'Mélanges ornithologiques.'*

[Mélanges ornithologiques par J. V. Barboza du Bocage. V. Espèces nouvelles, rares ou peu connues d'Angola et de la côte de Loango. Jorn. Sci. Lisboa, no. xxix.].

The author gives an account of two collections—one made by MM. Lucan and Petit at Laudana and other localities on the coast of Loango, and the other by M. d'Anchieta at Caconda. *Criniger* (*Xenocichla*) *multicolor*, *Andropadus minor*, *Drymoica* (*Cisticola*) *grandis*, and *D. modesta* are described as new.

54. *Bocage on Birds from Bolama and Prince's Islands.*

[Aves de Bolama e da Ilha do Principe. Por J. V. Barboza du Bocage. Jorn. Sci. Lisboa, no. xxix. p. 23.]

Prof. Bocage gives a supplementary list of birds found in the West-African Islands of Bolama and Ilha do Principe (*cf. op. cit.* v. p. 155). Nine species are mentioned.

55. *Bogdanow on new Sandgrouse.*

[Bemerkungen uber die Gruppe der Pterocliden. Von Modest Bogdanow. Mélanges Biol. du Bull. de l'Acad. Imp. Sci. St. Pétersbourg, xi. p. 49.]

After stating his opinion that the Sandgrouse should form an Order between the Gallinæ and Columbæ in the Class of birds which he proposes to call "Heteroclitæ" (=Pteroclomorphæ, Huxley) and that the Thinocoridæ should be asso-

ciated with them, M. Bogdanow describes two new species—*Pterocles severzowi* (=*P. alchata* auctt. ex Asia, which he distinguishes from *P. alchata* from Western Europe), and *P. ellioti*, ex Abyssinia, allied to *P. exustus*.

56. *Bolau on the Birds of Askold.*

[Verzeichniss der von Fr. Dörries auf Askold an der ostsibirischen Küste gesammelten Vögel. Von Dr. Heinrich Bolau. J. f. O. 1880, p. 113.]

This is a list of the birds contained in two collections made by Herr Fr. Dörries on the island of Askold, which lies off the Pacific coast of Siberia, about 25 miles from the port of Wladiwostock (43° N. lat.). Eighty-six species are represented. Exact dates are given of the occurrence of the specimens, and many useful notes. *Larvivora superciliaris* is new to the North-Asiatic avifauna. Ten species of *Emberiza* are included, besides *Euspiza aureola*; so that the land is rich in Buntings!

57. *Braun on the Development of Parrots.*

[Die Entwickelung des Wellenpapagei's (*Melopsittacus undulatus*). Arbeiten aus d. zool.-zootom. Institut, Würzburg, v. pp. 161–204.]

Aus der Entwickelungsgeschichte der Papageien. Verh. d. phys.-med. Ges. zu Würzburg, n. F., Band xiv. pp. 121, 251, xv. pp. 120, 173.]

Up to the present time, embryologists studying the development of birds have nearly always taken the common Fowl as the subject of their studies, supplemented in some cases by the Goose, Duck, Pigeon, Starling, and Sparrow. Dr. M. Braun, however, has now been enabled to study the developmental history of a Parrot by breeding in numbers the now well-known Budgerygah or Australian Grass-Parrakeet (*Melopsittacus undulatus*). As might have been expected from the general uniformity in the structure of living birds, the development of the Parrakeet does not display any very great differences from that of the Fowl. Perhaps the most interesting feature of Dr. Braun's researches, from an ornithological point of view, is his discovery, in the nearly hatched bird, of distinct tooth-like papillæ on the margin of both upper and

lower jaws. The existence of "teeth" in young Parrots had already been affirmed by Geoffroy St.-Hilaire in *Palæornis*; so that his statements are now confirmed by these later researches. Unfortunately, no detailed account of the structure of these papillæ has yet appeared; so that it is difficult at present to say to what extent they merit being called teeth. The figure given reminds one most perhaps of the similar tooth-like processes of *Phytotoma*. Another interesting observation of Dr. Braun's is the fact that *most* (though not all) of the embryos and newly-hatched birds, have *three* toes directed forwards, as in most birds. The same fact is stated by Neubert, as quoted by Braun, to be the case in the Cuckoo. These facts would show that the "zygodactylism" of these birds is a very recently acquired feature—a view strengthened by the fact, as discovered by Prof. Garrod (*vide suprà*, p. 15), that in these groups, as in the Musophagidæ, the distribution of the deep plantar tendons conforms to that found in the ordinary types of birds, and is quite different from that existing in the Picidæ, Bucconidæ, and other "scansorial" birds.

58. *Bulletin of the Nuttall Ornithological Club*, vol. vi. nos. 1 & 2.

[Bulletin of the Nuttall Ornithological Club: a quarterly Journal of Ornithology, vol. vi. January, 1881, no. 1, and April 1881, no. 2. Cambridge, Mass.]

Besides articles of more special interest to American ornithologists, we notice in these two numbers:—a new form of Whip-poor-Will from Arizona, described by Mr. Brewster as *Antrostomus vociferus arizonæ*; a supposed new Shearwater (*Puffinus borealis*), described by Mr. Cory from specimens killed near Cape Cod; and a new *Polioptila* (*P. californica*), founded by Mr. Brewster on the western form of *P. plumbea*, of which he shows *P. melanura*, Lawrence, to be the adult. Mr. Brewster also fully describes a Petrel new to North America, which seems to be the *Procellaria gularis* of Peale (U.S. Expl. Exp. p. 299). Dr. Coues has referred this obscure species to *Œstrelata mollis*; but the specimen described by

Mr. Brewster (obtained in April 1880 in Livingston Co., New York) proves to be specifically identical with Peale's type, and belongs to a distinct species, for which accordingly the name *Œstrelata gularis* should be retained.

59. *Dalgleish on American Birds in Europe.*

[List of Occurrences of North-American Birds in Europe. By J. J. Dalgleish. Extract from Bull. Nuttall Ornith. Club, vol. v.]

This very useful compilation gives in systematic order "references to all the notices of the occurrences of North-American Birds in Europe which have been recorded up to the present year." Mr. Dalgleish does not include in the present list species usually considered common to both continents, but only accidental visitants from the other side of the Atlantic. Of these he enumerates 68, besides 9 of which the alleged occurrence is "unworthy of credence." There are, however, some even of the 68 which we should be rather inclined to place in the same category, *e. g. Colaptes auratus, Gallinago wilsoni*, and *Colymbus adamsi*!

60. *Dalgleish on* Saxicola deserti *in Scotland.*

[On the Desert Chat (*Saxicola deserti*, Rüpp.), and its occurrence in Great Britain. By John J. Dalgleish. Proc. R. Physical Soc. Edinb. vi.]

Mr. Dalgleish records the occurrence of a male *Saxicola deserti* in autumn plumage in Scotland, near Alloa, on Nov. 26, 1880, and gives general remarks on the species, which has been obtained twice in Heligoland (Ibis, 1877, p. 162). The specimen in question was exhibited at the Zoological Society's meeting on April 5th, 1881, by Mr. Dresser (*cf.* P. Z. S. 1881, p. 453).

61. *Dresser's List of European Birds.*

[A List of European Birds, including all species found in the Western Palæarctic Region. The Nomenclature carefully revised by Henry E Dresser, F.L.S., F.Z.S., &c. 8vo. London: published by the Author 6 Tenterden Street, Hanover Square, W. 1881.]

This list of the birds of the "Western Palæarctic Region,"

as recognized and described in Mr. Dresser's great work 'The Birds of Europe,' now being brought to a conclusion, has been prepared for use as a "check-list for labelling and for reference in making exchanges," and will be of great service to ornithologists. The species enumerated are 623.

Mr. Dresser says that he has "followed Prof. Huxley's classification." As regards the use of the three terms "Ægithognathæ, Desmognathæ, and Schizognathæ" as primary divisions of the Carinatæ, this is, no doubt, the case. But there the resemblance between Prof. Huxley's system and that employed by Mr. Dresser seems to come to an end. Mr. Dresser's systematic terms appear to be taken in nearly every case from those employed in the "Remarks on the Systema Avium," published in this Journal last year. The application of the term "Grallæ" to the Rallidæ and Gruidæ (=Geranomorphæ of Huxley) is certainly quite novel, as is the collocation of *Otis* with the Limicolæ. Taken on the whole, however, Mr. Dresser's systematic arrangement is not one that we are disposed to find much fault with.

62. *Eudes-Deslongchamp's 'Paradise-birds of the Caen Museum.'*

[Catalogue descriptif des Oiseaux du Musée de Caen appartenant à la famille des *Paradiseidæ*. Annuaire du Musée d'Hist. Nat. Caen, vol. i. pp. 3–48.]

This seems to be an abstract of the account of the Paradise-birds in Mr. Sharpe's Catalogue (Cat. Birds Brit. Mus. vol. iii.), translated into French, and accompanied by a list of the specimens of each species in the Museum of Caen.

63. *Eudes-Deslongchamps on the Trochilidæ.*

[Catalogue descriptif des Oiseaux du Musée de Caen appartenant à la Famille des Trochilidés ou Oiseaux-Mouches. Annuaire du Musée d'Hist. Nat. Caen, vol. i. pp. 59–534.]

This is the first part of a descriptive catalogue of the Trochilidæ, and gives a list of the specimens of each species in the Museum of Caen. The classification is that of Bonaparte's

Conspectus Syst. Orn. published in 1854, with some modifications; but Elliot's Synopsis appears to have been freely used in the compilation. The present portion gives an account of the first 16 groups of the arrangement followed, containing 256 species.

64. *Gadow on the Myology of the Ratitæ.*

[Zur vergleichenden Anatomie der Muskulatur des Beckens und der hinteren Gliedmasse der Ratiten. Von Hans Gadow, Dr. Phil. Jena: 1880.]

In this large quarto paper of fifty-six pages, Dr. Gadow describes at length, from his own dissections, the muscles of the pelvis and hind limb of the genera *Struthio*, *Rhea*, and *Casuarius*, particular attention being given to the nervous system. The myology of *Apteryx* is compared with the other three genera, from Prof. Owen's description of that bird in the Zoological Society's 'Transactions.' Five tinted plates illustrate the more important points touched upon. We regret that Dr. Gadow has not added a precise summary of the results arrived at as to the leading myological differences between the forms which he has examined.

65. *Gundlach on the Fauna of Porto Rico.*

[Apuntes para la Fauna Puerto-riqueña, por Don Juan Gundlach. Anal. de Hist. Nat. vii. pp. 135, 343 (1878).]

The well-known naturalist of Cuba, Don Juan Gundlach, has made two expeditions to Porto Rico. Of the first of these, which took place in 1873, so far as regards the birds, the results have been already published in the 'Journal für Ornithologie' for 1874. In 1875 this ardent collector made a second expedition to the same island, and visited various points to which he had not penetrated in his former journey. The present memoir contains the results of his last experiences added to his previous knowledge of the same subject. After a preliminary account of former authorities upon the birds of Porto Rico, the author presents us with a very complete essay on its avifauna. According to Gundlach, the birds now known to exist in Porto Rico are 153 in number, of

which he has examined specimens of all but sixteen personally. Amongst them are thirty-three which are not met with in Cuba.

We may note that the Parrot referred by Dr. Gundlach to *Conurus euops* has recently been separated by Dr. Cabanis as *Conurus gundlachi*, which makes another species to be added to those peculiar to the island. Of these autochthonous species it may be useful to give a list.

List of Species of Birds peculiar to Porto Rico.

Gymnoglaux nudipes.
Vireo latimeri.
Mimocichla ardesiaca.
Dendrœca adelaidæ.
Spindalis portoricensis.
Chlorospingus speculiferus.
Euphonia sclateri.
Tyrannus taylori.
Myiarchus antillarum.
Blacicus blancoi.
Pyrrhulagra portoricensis.
Icterus portoricensis.
Agelæus chrysopterus.
Chalcophanes brachypterus.
Corvus leucognaphalus.
Certhiola portoricensis.
Todus hypochondriacus.
Lampornis viridis.
Chlorolampis maugæus.
Chrysotis vittata.
Conurus gundlachi.
Saurothera vieilloti.

The establishment of two of the African Weaverbirds (*Habropyga melpoda* and *Spermestes cucullatus*) in Porto Rico is also a noteworthy fact.

66. *Hartlaub on a new Weaverbird.*

[Vorläufiges über einen neuen Webervogel. Von Dr. O. Hartlaub. J. f. O. 1880, p. 325.]

Hyphantica cardinalis is a new species from Lado (Dr. Emin Bey) allied to *H. hæmatocephala*, Heuglin. Dr. Hartlaub remarks that the latter = *Foudia erythrops*, Hartl.

67. *Hartlaub on the Birds of Eastern Æquatorial Africa.*

[Beitrag zur Ornithologie der östlich-äquatorialen Gebiete Africa's von Dr. G. Hartlaub. Abh. naturwissen. Vereins zu Bremen, Bd. vii. p. 83.]

Dr. Hartlaub's memoir is based upon two collections of birds forwarded to Bremen by Dr. Emin Bey, Governor of the Æquatorial Provinces of Egypt, and resident at Lado, on

the Upper Nile (5° N. lat.). Dr. Emin Bey extended his researches to the banks of the Albert Nyanza, collecting at various stations, which are indicated on a map, and obtained about 500 examples, belonging to 154 species. The more remarkable of them Dr. Hartlaub has already described in the Journal für Ornithologie and the Proceedings of the Zoological Society. He now adds *Hyphantornis crocata* (allied to *H. aurantia*). Many short notes by the collector add to the value of this excellent memoir on a district hitherto absolutely unknown to ornithologists.

68. *Hume and Marshall's 'Game-Birds of India.'*

[The Game-Birds of India, Burmah, and Ceylon. By Hume and Marshall. Vols. II. & III. Royal 8vo. 1880.]

We are always glad to see a piece of work rendered complete, especially one of the useful character of the present book, of which we welcome the second and third volumes with pleasure. The second contains the Partridges and Quails, the Hemipodes, and the Crakes and Rails of British India, and is carried out upon the same plan as the former volume (see Ibis, 1880, p. 242). We still think the plates might have been done much better: some of them are passable; but others hardly come up to that mark. We cannot agree with Mr. Hume that that of *Perdix hodgsoniæ* is "fairly good," or that of the female of *Porzana parva* "tolerable." *Hypotænidia obscuriora* is an apparently new (?) name given to the Andamanese form of *H. striata*—we trust only a misprint for "*obscurior*;" but it is repeated p. 255.

The third volume (dated 1880 on the back of the cover, but not at all on the title-page) was received in this country in the last week of April 1881. It contains the Cranes (Gruidæ), the Waterfowl (Anatidæ), and the Snipes and Godwits, the rest of the Limicolæ being, we suppose, too insignificant to come within the scope of the work. As we have already stated, Mr. Hume himself criticises the plates of the Indian game-birds so fairly, and sometimes so severely, that we may be excused from interfering on this somewhat tender subject. It may, however, be truly said, we think, that, on the whole,

the execution of those in vol. iii. is superior to that of the two preceding volumes, and that they are *generally* sufficiently accurate for all practical purposes. Most of the species enumerated are well known to us, except *Pseudototanus haughtoni* (p. 403), of which four specimens are in the Museum of Trinity College, Dublin.

69. *Landbeck on* Geositta antarctica.

[Geositta antarctica. Von Landbeck, in Santiago de Chile. Wiegm. Arch. Jahrg. 46, i. p. 275.]

Herr Landbeck describes and figures a supposed new species of *Geositta* from Tierra del Fuego as *G. antarctica*. The bird appears to us to be rather like *G. peruviana*, Lafr., of Western Peru; but this species is hardly likely to occur in Patagonia.

70. *Lemetteil on* Anser ruficollis *in France*.

[Capture dans le département de la Seine-Inférieure d'une Oie à cou roux, *Anser ruficollis*, Pallas. Bull. Soc. Zool. France, 1880, p. 75.

M. Lemetteil records the occurrence of an example of *Bernicla ruficollis* in the marshes of Saint Jean d'Abbetot, canton of Saint-Romain de Colbosc, on the 11th of December 1879, where it was shot by M. Léon Desgenétais, of Bolbec. The bird was young; the sex was not determined.

71. *Malm on a new Hybrid Grouse.*

[Om hybrididteterna inom den Skandinaviska Tetraonidernas grupp och särskildt om en ny form utaf sådana, förslagvis kallad Morip-Orre, *Lagopotetrix dicksonii*. Af A. W. Malm. Öfv. Kongl. Veten.-Akad. Förhand. Stockholm, 1880, p. 17.]

Dr. Malm describes a new hybrid among the Scandinavian Grouse bred between the Blackcock (*Tetrao tetrix*) and some Scotch Grouse imported into Sweden by Messrs. Dickson, and proposes to call the form *Lagopotetrix dicksoni*!

72. *Malm on the Tracheal Sac of the Emu.*

[Om luftrör-säcken hos Emu eller Nyhollándska Strutsen, *Dromæus novæ-hollandiæ*. Af A. W. Malm. Öfver. kongl. Veten.-Akad. Förhandl. Stockholm, 1880, p. 33.]

In this paper Dr. A. W. Malm gives further details on the tracheal sac of the Emu, already well known to exist from the researches of Fremery, Knox, and Murie (*cf.* P. Z. S. 1867, pp. 405–415). The principal novel fact adduced relates to the presence of two valve-like folds in the interior of the sac. As regards the use of this peculiar organ, Malm agrees with Murie's view that it is in part instrumental in the production of the curious "booming" of these birds in the breeding-season.

73. *Malm on Duplicates of the Gothenburg Museum.*

[Gothenburgs naturhistorisches Museum. Zool.-zoot. Abtheilungen.—II. Catalog über Dubletten ausgearbeitet von Dr. A. H. Malm. 8vo. Gothenburg: 1880.]

The birds in this list of duplicates are mostly Scandinavian; but some are of foreign origin. They are not very numerous—about 200.

74. *Meyer's Guide to the Dresden Museum.*

[Führer durch das königliche-zoologische Museum zu Dresden. 12mo. Dresden: 1881.]

We must thank Dr. A. B. Meyer for sending us a copy of this little guide-book, which must be much appreciated by visitors to the Royal Zoological Museum of Dresden. A considerable zoological space seems to have been allotted to the birds; and many interesting notes are given in the part of the catalogue relating to them, though (as might be supposed) nothing original.

75. *Meyer on Salvadori's 'Papuan Ornithology.'*

[Salvadori's Ornithologie der Papúa-Inseln und der Molukken. Bericht von A. B. Meyer. J. f. O. 1880, p. 310.]

A short explanatory notice of Salvadori's work.

76. *Milne-Edwards on the Penguins.*

[Recherches sur la Faune des Régions Australes. Par M. Alph. Milne-Edwards. Ann. d. Sc. Nat., Zool. vol. xxi. art. 4. Paris, 1880.]

After general remarks on the antarctic fauna, M. Milne-

Edwards selects the family Spheniscidæ as one of its leading organic types, and reviews their distribution and generic divisions. He then takes the latter one by one and treats of the individual species and their distribution. The new generic term *Megadyptes* is assigned to *Catarrhactes antipodes*, Hombr. et Jacq., and *Microdyptes* to *Eudyptes serresiana*, Oustalet. Many interesting notes and details are given in this important article, as also figures of the heads of different forms of *Eudyptes*, and a figure of *Microdyptes serresiana*.

77. *Milne-Edwards on Birds from Madagascar.*

[Observations sur quelques animaux de Madagascar. Par M. Alph. Milne-Edwards. Compt. Rend. t. xci. (27 Dec. 1880).]

M. Milne-Edwards gives an account of the collections made by M. Humblot, principally in the district between Fontepointe and the Lake of Alaoutre. There are 101 species of birds represented in the series, amongst which is a new species of *Anastomus*, allied to *A. lamelliger*, proposed to be called *A. madagascariensis*, and three others new to the fauna, namely *Upupa epops*, *Saxicola isabellina*, and *Elanus cæruleus*.

78. *Oustalet on two new Birds.*

[Description de deux oiseaux nouveaux de la Collection du Muséum d'Histoire naturelle de Paris. Par E. Oustalet. Le Naturaliste, 1880, p. 323.]

Cyanalcyon quadricolor, from New Guinea (*Bruijn*), and *Ptilopus* (*Rhamphiculus*) *marchei*, from Luzon, Philippines (*Marche*), are here described as new. The latter is a very fine species, with a blood-red breast-patch.

79. *Oustalet on new Birds from the Sooloo Islands.*

[Description de deux oiseaux nouveaux des îles Sooloo. Par M. E. Oustalet. Bull. Ass. Sc. France, 1880, p. 205.]

In a collection from the Sooloo Islands, lately received from MM. les Drs. Montano and Rey, besides examples of the species lately recorded as belonging to the group by Mr. Sharpe (P. Z. S. 1879, p. 311), are specimens of two new species, *Buceros montani* and *Ninox reyi*.

80. *Pelzeln on the Progress of Ornithology in* 1879.

[Bericht über Leistungen in der Naturgeschichte der Vögel während des Jahres 1879. Von August von Pelzeln. Wiegm. Arch. xlvi. p. 1.]

Herr v. Pelzeln's Record of Ornithological Literature is, as regards references, perhaps more fully stocked than either of its competitors. But some of the titles given are those of papers, to say the best of them, of little, if any, scientific worth. It is, perhaps, not quite satisfactory to mix them up with the titles of important books and memoirs.

81. *Pelzeln on Birds of Prey from Syria.*

[Ueber eine Serie von Raubvögeln aus Syrien. Von A. von Pelzeln. Mittheil. d. ornith. Vereines, Wien, 1880, p. 9.]

Herr von Pelzeln gives an account of a collection of Birds of Prey made in Syria by Dr. Steindachner in the spring of 1879, and given to the Imperial Museum of Vienna. There were 11 species represented, and amongst them *Ketupa ceylonensis*, from Nahr el Kebir. Canon Tristram had already recorded the intrusion of this eastern bird into Palestine (Ibis, 1868, pp. 242, 261).

82. *Peters on two new East-African Birds.*

[Ueber zwei neue mit *Turdus libonyanus* und *Cinnyris olivaceus*, Smith, verwandte Arten aus Inhambane. Von W. Peters. J. f. Orn. Jan. 1881.]

Dr. Peters separates from *Turdus libonyanus* of Smith (of which authentic examples have lately been received in Dr. Holub's collection) the bird from Inhambane which has hitherto been referred to that species, and calls it *T. tropicalis*. Dr. Peters also distinguishes a smaller form of *Nectarinia olivacea*, from the same district, as *N. olivacina*.

83. *Philippi on new Chilian Animals.*

[Ueber einige neue chilenische Thiere. Von Dr. R. A. Philippi. Wiegm. Arch. f. Nat. Jahrg. xlv. i. p. 158 (1879).

In this memoir the veteran naturalist Dr. R. A. Philippi, of Santiago, describes and figures as a *new* species, under the

name *Tænioptera australis*, what is, apparently, a well-known Patagonian and Argentine species, *Myiotheretes rufiventris* (Vieill.), = *Pepoaza variegata*, d'Orb. et Lafr. He also gives a notice of the eggs of *Phœnicopterus andinus*, *Spheniscus trifasciatus*, and *S. humboldti*.

84. *Reichenow and Schalow's 'Compendium.'*

[Compendium der neu beschriebenen Gattungen und Arten. Von Anton Reichenow und Herman Schalow. J. f. O. 1880, p. 314.]

Messrs. Reichenow and Schalow continue their most useful 'Compendium' of newly described species. We suggest that it would have been an advantage to number the species of which the characters are given throughout. One might then bind up the separate copies each year, and make an index to the whole.

85. *Reichenow and Schalow on the Ornithological Literature of* 1879.

[Zoologischer Jahresbericht für 1879. Herausgegeben von der zoologischen Station zu Neapel. Leipzig, 1880. *Aves*, pp. 1108–1161. Referenten: Dr. A. Reichenow und H. Schalow in Berlin.]

We are always sorry to speak of the labours of our fellow-workers otherwise than favourably; but as a separate copy of Messrs. Reichenow and Schalow's contributions to the new Zoologischer Jahresbericht for 1879 has been sent to us, we must presume that it is desired that our candid opinion on the merits of their work should be given. In the first place we may say that the institution of a third 'Record of Zoological Literature' when two were already in the field, can only be justified by the allegation that the two previously in existence are not satisfactory. It is clearly therefore the duty of the third and intruding party to produce a more excellent work. But it seems to us that this has not been done, and that the Record now before us is not so full or so accurate as either of its fellows.

As regards the date of appearance, on which point it must be admitted that there was some ground of dissatisfaction

with the two existing Records, it must certainly be allowed that the new comer has distanced both its rivals in effecting its complete publication, within the year after that to which it relates, although, as regards the section *Aves* we have reason to know that the English Record was actually printed off by the beginning of November 1880. There is, however, a homely proverb relating to "more haste," which is by no means without its bearing upon the work of Messrs. Reichenow and Schalow; for almost every page of it contains an error, whilst some pages fairly overflow with them. We need go no further than the second name on the list under "Litteratur" to find Mr. Robert Ridgway credited with the "Second Instalment of Ornithological Bibliography," upon which Dr. Elliott Coues has expended so much time and pains. Again, under the head of "Museologie, Taxidermie," we find Mr. Sharpe's 'Catalogue of the Birds in the British Museum,' part iv., *Campophagidæ* and *Muscicapidæ* (a volume which treats of 69 genera and nearly 500 species, seven of the former and about twenty of the latter being new) briefly dismissed with "bildet den vierten Band des ganzen Werkes;" whilst to E. F. Homeyer's description of his little private collection of birds five lines of abstract are devoted. Some important works and papers, published in 1879, are altogether omitted; but, on the other hand, the bulk of the volume is swollen by the insertion of many which were published in 1878, some in 1877, a few in 1880, and by titles of others which are mostly trivial and ephemeral contributions and popular articles from magazines of no scientific value whatever. Now we submit that the object of a Record of Ornithological Literature is not merely to place in alphabetical order, without discrimination, the names of the authors of important works and those of the writers of insignificant papers. Passing on to the Systematic section, we find far worse things are in store for us. Whatever difference of opinion there may be as to whether certain papers are or are not worth notice, there can be no doubt that all newly named genera and species should be recorded. Yet in papers which the German Recorders either profess to have noticed, or with which they ought

to have been acquainted, we find the following omissions, all references chronicled in the English Record :—*Pennula millii*, g. and sp. n.; *Zapornia watersi*, sp. n.; *Parra novæ-guineæ*, sp. n.; *Hæmatortyx*, g. n.; *Macropygia rufocastanea*, sp. n.; *Accipiter hawaii*, sp. n.; *Astur sharpii*, sp. n.; *Buteo menetriesi*, sp. n.; *Aprosmictus chloropterus*, sp. n.; *Picus harmandi*, sp. n.; *Tanysiptera salvadoriana*, sp. n.; *Callipharus*, g. renom.; *Floricola*, g. n.; *Iache*, g. renom.; *Petasophora rubrigularis*, sp. n.; *Lichenops perspicillatus* β *andinus*, subsp. n.; *Tyrannus luggeri*, sp. n.; *Arachnechthra edeni*, sp. n., *Drepanis rosea* and *D. aurea*, spp. nn.; *Zosterops longirostris*, sp. n.; *Thryophilus zeledoni*, sp. n.; *Graucalus solomonensis*, sp. renom.; *Alseonax fantisiensis*, sp. n.; *Eopsaltria placens*, sp. n.; *Micræca albofrontata*, sp. n.; *Siphia rufigularis*, sp. n.; *Nigrilauda*, g. n.; *Lanius bairdi*, sp. n.; *Carduelis major*, sp. n.; *Loxigilla violacea* β *bahamensis*, subsp. n.; *Pletrofringilla*, g. n.; *Salicipasser*, g. n. But to make amends for these omissions, several species are noticed twice over, and *Geocichla avensis* is entered as a *new species*, described by J. E. Gray (who died in 1875) in 'Stray Feathers'! Space fails us for noticing other omissions and mistakes, some of which are doubtless due to the printer; but the majority, we fear, are the result of haste.

The systematic *arrangement* (!) is fearful and wonderful. *Notornis mantelli*, which certainly belongs to the *Rallidæ*, is placed with *Casuarius*; *Hylochelidon nigricans*, a well-known Australian member of the *Hirundinidæ*, is to be sought for under *Laridæ*, whilst the family *Liotrichidæ* is made up of contingents from the *Troglodytidæ*, *Corvidæ*(!), *Timeliidæ*, *Dicruridæ*, and *Pycnonotidæ*. Members of the *Mniotiltidæ* and *Tanagridæ* are united under the family *Sylvicolidæ*, and whilst the family *Icteridæ* is admitted, *Molothrus* and *Sturnella* are placed amongst the *Sturnidæ* by the recorders. This is but a sample of what might be said; but it will serve our purpose; and we are forced to conclude that, as regards ornithology, at least, whatever causes of complaint there might have been with the previously existing Records, the present venture does not bid fair, unless great alterations are made in its style of work, to give us more satisfactory information.

86. *Reichenau on the Darwinian Theory of Birds' Nests.*

[Darwinistische Schriften No. 9. Die Nester und Eier der Vögel in ihren natürlichen Beziehungen betrachtet. Ein Beitrag zur Ornithopsychologie, Ornithophysiologie und zur Kritik der Darwin'schen Theorieen, bearbeitet von Wilhelm von Reichenau. 8vo. Leipzig: 1880.]

This is an essay on the nest-making of birds and the coloration of birds' eggs in relation to the Darwinian theory of descent, and will be read with advantage by those who are interested in this absorbing subject. We are, however, not quite sure that the author is quite sufficiently acquainted with his "particulars" to go into "generals" (see p. 43, where *Tinamus* is classed with *Maleo* as "selbstbrütende Nester"). Herr v. Reichenau, if we understand him rightly, agrees with Mr. Wallace (in opposition to Mr. Darwin) in considering that "Natural Selection" is the real potent factor in the relations between the colour of the breeding female and the fashion of the nest.

87. *Ridgway's List of North-American Birds.*

[Nomenclature of North-American Birds, chiefly contained in the United States National Museum. By Robert Ridgway. Washington: 1881. (Bulletin of the U.S. National Museum, No. 21.)]

Mr. Ridgway gives us here a new edition of his Catalogue of North-American Birds, published in 1880*. It is, however, "very materially modified by numerous alterations and corrections, involving not only the change of a considerable number of names, but also the writing of a new introduction." These changes are carefully specified in a footnote, and, as regards the scientific nomenclature, are, in nearly every case, it must be conceded, changes for the better.

The total number of species enumerated in the present catalogue is 764, the subspecies, to which a trinomial designation is assigned, being distinguished by a letter of the alphabet (*a*, *b*, &c., according to the number of subordinate forms) affixed to the species-number. Of these subspecies 160 are recognized.

* A Catalogue of the Birds of North America. By Robert Ridgway. Proc. U.S. Nat. Mus. iii. p. 163.

The geographical limits assumed in the present catalogue require a little explanation. They are described thus by Mr. Ridgway:—

"The geographical limits assigned to this catalogue include the entire continent of North America down to the southern border of the United States, besides Greenland, the peninsula of Lower California and the outlying islands of Guadaloupe and Socorro. Guadaloupe and Socorro, like Lower California, are included for the reason that their zoological relationships are much closer to North America, as usually (but arbitrarily) restricted, than to the tropical coast region of Western Mexico, their Avian fauna in particular being decidedly of Nearctic affinity, with the exception, so far as known, of only two species; a *Polyborus* peculiar to Guadaloupe, and a *Conurus*, found both in Socorro and in Western Mexico. Indeed, the greater part of Mexico itself (all, in fact, except the narrow coast region, or Tierra caliente, and the lowlands of the southern portion) belongs, ornithologically as well as geographically, to North America, as might easily be demonstrated did space permit; but the enlargement of our field to its proper limits would be quite impracticable at the present time. For the surrender of this our rightful territory, however, we have compensation in the fact that the arbitrary line which we have drawn (*i. e.* the United States and Mexican boundary from the Gulf of Mexico to the mouth of the Colorado) gives a comparative stability to the list which a greater southward extension of the area, with indefinite limits, would render impossible."

As regards the vexed question of trinomials, which, as already stated, are adopted in 160 cases in the present catalogue, the author candidly acknowledges that the use of them has caused "perhaps the greatest difficulty encountered in its compilation," it being "in many cases very difficult to decide whether a given form should be treated as having passed the varietal stage and therefore to be designated by a binomial, or whether it is as yet incompletely differentiated and to be subordinated in rank by a trinomial appellation." This difficulty, however, as we are informed in a footnote, has arisen

wholly from the want of sufficient materials, the rule adopted being that "every form whose characteristics bear unmistakably the impress of climatic or local influences, generally less marked towards the habitat of another form with which it thus intergrades, and *all* forms which certainly intergrade, no matter how widely distinct the opposite forms may appear, together with intergrading forms whose peculiarities are not explained by any known law of variation," should be "reduced to subspecific rank."

On this we may remark, that we cannot deny the advantages of the use of trinomials when strictly limited to such cases as these, and have little doubt that they will ultimately come into general use. But they can only be advantageously employed in countries such as North America and Europe, where large series can be obtained from many different localities. In other parts of the world their use would at present be attended by much inconvenience, it being impossible to ascertain in very many cases, from lack of specimens, whether these intergradations exist or not. We may also remark that other authors use trinomials on quite different principles, *e.g.* Mr. Sharpe, who, in his last catalogue, has applied them in some instances even to insular forms (which certainly cannot intergrade) where the slight differences are, in his opinion, not strictly sufficient for specific distinction.

The catalogue of names is followed by a very useful Appendix, in which tables of various sorts contain a condensed analysis of the changes that have taken place in American ornithology since 1859, when Prof. Baird published the last Smithsonian Catalogue of North-American Birds. Lists are also given of unconfirmed, untenable, and introduced species, which add greatly to the value of this laborious piece of work.

In conclusion, we think we may venture to make some very small criticisms upon points of nomenclature, as we are sure Mr. Ridgway is anxious to have his names as correct as possible.

Nos. 451 and 452. "Haliaetus" should be thus written, or "Haliaëtus," if the diæresis be considered necessary. The

derivation is ἅλιος, *marinus*, and ἀετὸς, *aquila*, which two words form *Haliaetus* in composition.

No. 628. "*Somateria v-nigra*" should be *Somateria v-nigrum*, we think. It is the "v" which is black, not the bird. Now "v" is neuter, we believe; so that its adjective should have a neuter termination.

No. 731. *Podiceps holbölli* is better written *P. holboelli*. There are no modified vowels in Latin, therefore the proper course to pursue in Latinizing such vowels is to insert the "e," of which the modification is merely the remnant. The same correction should be made in "*Ægiothus linaria holbölli*," no. 179*a*.

88. *Salvadori's 'Prodromus,'* Part x.

[Prodromus Ornithologiæ Papuasiæ et Moluccarum. Auctore Thoma Salvadorio. X. Ann. Mus. Civ. Genova, xvi. Dec. 1880.]

In the tenth part of this Prodromus Count Salvadori enumerates 3 species of Brachypodidæ, 11 of Pittidæ, 14 of Timeliidæ, 1 of Saxicolidæ, 10 of Sylviidæ, 5 of Motacillidæ, 12 of Ploceidæ, 14 of Sturnidæ, 7 of Oriolidæ, and 9 of Corvidæ, altogether 84 species of these families. Two Sturnidæ are described as new—*Calornis inornata*, from Mysore, and *C. fusco-virescens*, from Sorong and Salawatty.

89. *Schlegel on a new Timeliine Bird.*

[On an undescribed Bird of the Timalia Group, *Malia grata*. Notes from the Leyden Mus. ii. p. 165.]

Malia grata is a new genus and species of Timeliine bird of large size (11½ inches in total length) and very short wings. One skin was in a collection made in 1877 by the botanical traveller Teysman during an expedition to Macassar and the neighbouring island of Salayer.

90. *Schlegel on a new Megapode.*

[On an undescribed Species of Black-legged Megapode, *Megapodius sanghirensis*. Notes from the Leyden Museum, ii. p. 91.]

The *Megapodius sanghirensis* is allied to *M. cumingi* of the

Philippines, *M. gilberti*, &c. Six specimens are in the Leyden Museum.

91. *Sclater's 'Birds of the Challenger Expedition.'*

[Report on the Birds collected during the Voyage of H.M.S. 'Challenger,' in the years 1873–76. By Philip Lutley Sclater, M.A., Ph.D., F.R.S., Secretary to the Zoological Society of London.]

This volume contains a reprint of the reports on the birds collected during the 'Challenger' Expedition which have been published in the Zoological Society's 'Proceedings,' with such "alterations as have been rendered necessary by the progress of science since their publication." The memoirs were prepared by the late Lord Tweeddale, Dr. Finsch, Prof. Salvadori, Mr. Howard Saunders, and the two editors of this Journal, each taking departments to which he had paid special attention.

Thirty coloured plates illustrate the following species:—*Loriculus panayensis, Batrachostomus septimus, Buceros mindanensis, Dicrurus striatus, Dicæum mindanense, Nectarophila juliæ, Phabotreron brevirostris, Monarcha infelix, Rhipidura semirubra, Myzomela pammelæna, Philemon albitorques, Carpophaga rhodinolæma, Ptilopus johannis, Meyapodius eremita, Ptilotis carunculata, Ptilotis procerior, Ptilotis provocator, Zosterops flaviceps, Zosterops explorator, Chrysœnas victor, Chrysœnas viridis, Carpophaga latrans, Pachycephala phæonota, Rhipidura squamata, Graucalus pollens, Trichoglossus nigricularis, Buteo solitarius, Anas wyvilliana, Nesocichla eremita, Nesospiza acunhæ, Phalacrocorax imperialis, Phalacrocorax albiventris, Phalacrocorax verrucosus, Spheniscus demersus, Spheniscus magellanicus, Eudyptes chrysolophus, Eudyptes chrysocome.*

92. *Seebohm on Thrushes and Warblers.*

[Catalogue of the Passeriformes or Perching Birds in the Collection of the British Museum.—Cichlomorphæ. Part II., containing the Family Turdidæ (Warblers and Thrushes). By Henry Seebohm. London. Published by order of the Trustees, 1881.]

While all ornithologists will agree that Mr. Seebohm has

presented us with a most useful and instructive essay in the present work, few, we think, will applaud him for the somewhat heterodox practices he has introduced in it, both in systematic arrangement and nomenclature. It is certainly surprising to be told that in some of the Turdidæ structural characters "have no generic value at all," and that it is "colour or pattern which indicate near relationship." If such be the case, the author is hardly justified, on his own principles, it seems to us, in uniting the Nightingales, Robins, and Bluethroats into one genus (for it cannot certainly be said that their pattern or colours are alike), or in separating *Hypolais* from *Acrocephalus*. As regards nomenclature, as our readers are well aware, we have always opposed the "raking up of old and little-used names," which has been such a favourite pursuit of some ornithologists of late years. But we cannot go quite so far as Mr. Seebohm, and say that the specific term to be employed is always to be that used by the majority of writers.

The Turdidæ are divided by Mr. Seebohm into two subfamilies, Sylviinæ and Turdinæ. Of the former he recognizes 104, of the latter 237 species. The following species are described as new or have new names assigned to them:—*Cettia ussurianus* (lege *ussuriana*) from Amoorland, *Turdus chiguancoides* (!) from Senegambia, *Merula bourdilloni* from Travancore, *Mimocichla bryanti* from the Bahamas (=*M. plumbea*, Baird et Cory), *Catharus birchali* from Columbia (intermediate between *C. melpomene* and *C. aurantiirostris*), *Saxicola lugentoides* (!) from Sennaar, *S. persica* from Persia, and *S. sennaariensis* from Sennaar. Besides these, a large form of Blackbird, from Kashmir and Turkestan, is named *Merula maxima* in the Appendix, and a "more olive-brown and larger" form of *Turdus phæopygus* from Tobago is proposed to be called *Turdus phæopygoides* (!) "if subspecifically distinct." We are sorry that Mr. Seebohm should give any countenance to the plan of naming species hypothetically, as also to the system of inventing barbarous terminations in "*ides*." Both these practices are, in our opinion, very objectionable.

As regards the prospects of the 'Catalogue of Birds of the British Museum' generally, the subjoined table will show what has now been accomplished of this great work. It seems that in seven years five volumes have been issued, containing an account of 1817 species, or, on an average, (say) 360 species to a volume. The total number of known birds being estimated at 10,800, or thereabouts, it is easy to calculate that, 360 to each volume, it will take thirty volumes to complete the work. It is therefore much to be hoped that it will be found practicable to issue the volumes a little faster; or we fear that many of us will hardly live to see the completion of the Catalogue.

	Species recognized.	Species represented in B. M.	Specimens in B. M.
Vol. I. Accipitres (1874)	377	326	2466
„ II. Striges (1875)	190	153	1030
„ III. Coliomorphæ (1877)	367	315	2014
„ IV. Cichlomorphæ (1879	539	443	2520
„ V. Cichlomorphæ, pt. 2 (1881)	344	303	2560
	1817	1540	10630

93. *Tegetmeier and Blyth on the Cranes.*

[The Natural History of the Cranes. A Monograph by the late Edward Blyth, C.M.Z.S. Greatly enlarged, and reprinted, with numerous illustrations, by W. B. Tegetmeier, F.Z.S. Published for the author by Horace Cox, 346 Strand, W.C., and R. H. Porter, 6 Tenterden Street, W. Royal 8vo. London, 1881.]

Mr. Tegetmeier has done a good work in reprinting Blyth's papers on the Cranes, which appeared in the 'Field' in 1873, and, by additions from other sources and illustrations, has made a useful and interesting volume of 90 pages, which contains a summary of nearly all that is known respecting this interesting group. Mr. Tegetmeier recognizes 16 species of Cranes—2 belonging to the genus *Balearica*, and 14 to *Grus*, besides 2 doubtful members of the last-named genus. He has taken great pains with the references, and has shown that (as already noted, P. Z. S. 1880, p. 93) the specific term "*regulorum*," commonly applied to the southern form of

Balearica, has its origin in a singular error, and that the proper name of this Crane is *Balearica chrysopelargus*. Cranes, as is well known, are apt subjects for semidomestication. All the sixteen species recognized by Mr. Tegetmeier may be seen represented in the Zoological Gardens of London and the continent, except the newly discovered *Grus nigricollis*. Of this fine bird, met with by the great traveller Prejevalsky on the banks of the Koko-nor, a welcome figure is given, copied from the Russian original.

XXXIX.—*Letters, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Northrepps, April 20th, 1881.

Sirs,—I shall be glad if you can find a corner in 'The Ibis' to record the occurrence on the coast of Holland of a magnificent Red-breasted Goose, *Bernicla ruficollis*, on the 18th of February. It was shot, when in company with a lot of Bernicle Geese, by Messrs. W. B. Monement and George Cresswell. The gunners shot at them in the evening from their "punts." They got the Geese between themselves and the daylight; "but when within shot," writes Mr. Monement in answer to my inquiries for particulars, "we found them in a long line and thin, so let them swim on in order to rake them; but they would not have it, and rose. We stopped twenty-five Bernicle; got twenty-three, and the Red-breasted Goose."

The Red-breasted Goose, together with one or two Bernicles and Gadwalls, was sent over to a bird-stuffer in Norfolk (Dack, of Holt), who has set this great rarity up very nicely, considering it was very "high" when he received it. The triangle on the cheek is slightly mixed with white; with that exception, it is in the most perfect plumage.

Yours, &c.,

J. H. Gurney, Jun.

Aldershot, June 10th, 1881.

Sirs,—The museum of the late Marquis of Tweeddale has contained for many years an example of a *Pitta* of the subgenus *Hydrornis*, which appears to be worthy of specific distinction. The locality given on the label in the late Marquis's handwriting is "Saigon, Cochin China;" but M. Oustalet, who kindly responded to a letter I wrote him on the subject of this bird, expresses himself as very doubtful of the accuracy of the locality thus assigned to it, and is of opinion that it is more likely to have come from the mountainous region of the Malay peninsula.

However, be this as it may, there seems to be no doubt that the bird in question was obtained in some part of South-east Asia; and the mere fact of a species of this subgenus occurring in those countries would of itself be interesting.

This specimen may possibly prove to be an immature *H. nipalensis*, from which it chiefly differs in being slightly smaller and more slender in the tarsi; the head above is strongly tinged with bluish green, which shades into dull blue on a fairly well-defined nuchal patch. Another characteristic of this bird, which is absent in the two known species, is that many of the dorsal feathers are of a blue colour, as though the bird had been in process of changing the colour of its plumage at the time of its death. The under surface is also very much paler than in any of my examples of *H. nipalensis*, Hodgs., or *H. oatesi*, Hume. I propose for this species the title of *Pitta* (*Hydrornis*) *soror*.

Yours &c.,

R. G. Wardlaw-Ramsay.

News of Consul Layard.—Our excellent correspondent, Consul Layard, writes from Noumea on April 2nd that he is collecting his notes for a general paper on the birds of New Caledonia, where he has now recognized 136 species. "It has been in hand some time; but I have delayed it in hopes of visiting the north of the island and great central mountain-chain. I want to know personally what they contain.

In August next I shall certainly do the latter; but I fear the former is beyond me, our means of communication are so bad. I have notices of two Ducks that, as yet, I have not seen."

Mr. Layard hopes, we are glad to add, to be able to pay us a visit in England in the course of the summer of 1882.

Proceedings of Travellers and Collectors.—Mr. E. W. White, of Buenos Ayres, who has recently returned from a trip through the upper provinces of the Argentine Republic, is now preparing an excursion into Corrientes and the territory of Misiones, and intends to pay special attention to the birds. His agent in this country is Mr. E. Gerrard, Jun.

The last letter received in Warsaw from Mr. Stolzmann is dated from Yurimaguas, in Eastern Peru, on the 9th of January last. Mr. Stolzmann was preparing to return direct to Europe, with all his collections, which are said to be very extensive and will doubtless contain many novelties.

Dr. Finsch, on the 18th of January last, was still at Matupi, in New Britain. He had obtained a fine lot of birds (nothing new up to that date), and was expecting to send off sixty boxes of these and other objects by the bark "Goethe," which would sail for Europe in about a month from that date.

Mr. Charles B. Cory, writing from Boston in April last, tells us that he had just returned from a very interesting trip to the mountains of Hayti and San Domingo. He had succeeded in procuring about 600 birdskins, amongst which were examples of at least four new species, one apparently belonging to a new genus.

Mr. Gould's Works and Collections.—The entire stock of the late Mr. Gould's illustrated ornithological works, as also of the 'Mammals of Australia,' with all the copyright and other interests involved in them, has been purchased from the executors by Messrs. Henry Sotheran & Co. of Piccadilly,

who, we believe, are taking steps to complete the unfinished portions. Mr. Gould's famous collection of Humming-birds, together with his extensive collection of unmounted birdskins, has, as already stated in our last issue, been purchased by the Trustees of the British Museum for £3000; and the Humming-birds are already exhibited in the bird-galleries of the Museum. At present the specimens are not labelled; but we are informed that the names will shortly be placed upon them, and a 'Guide' to the collection issued.

Value of Ornithological Books.—It will be interesting to some of our readers to learn the prices that some of the more important ornithological works realized at the recent sale of Mr. Gould's Library. Complete set of 'The Ibis,' £50; Hewitson's 'British Oology,' £6 6*s.*; Buller's 'Birds of New Zealand,' £20; Jerdon's 'Illustrations of Indian Ornithology' (large-paper copy), £7 17*s.* 6*d.*; Legge's 'Birds of Ceylon,' £5 17*s.* 6*d.*; Marshall's 'Capitonidæ,' £9 15*s.*; Rowley's 'Ornithological Miscellany,' £11; Dresser's 'Birds of Europe,' £43; Sharpe's 'Monograph of the Alcedinidæ,' £9 5*s.*; Gray and Michell's 'Genera of Birds,' £29 10; Knip's 'Pigeons,' £6 15*s.*; Levaillant's 'Oiseaux d'Afrique,' £16 5*s.*; Malherbe's 'Monograph of the Picidæ,' £24 10*s.*

The 'Birds of New Zealand.'—We are pleased to learn that Dr. Buller has in preparation a new and enlarged edition of his 'Birds of New Zealand,' in which it is proposed to give a separate coloured illustration of every species, with botanical accessories characteristic of the country. It is Dr. Buller's intention to come to England in order to superintend himself the publication of this work. That there is a demand for another edition may be safely inferred from the fact that, although nearly three hundred copies were subscribed for in New Zealand alone, a single copy of the book has fetched as much as £20, at public auction, in the colony! Where the popular love of science finds so tangible an expression, an author has little else to desire in the way of encouragement. In the meantime the local demand will be

appeased by the publication of a manual of New-Zealand ornithology (under the auspices of the Geological-Survey Department), the materials for which will be drawn from Dr. Buller's present work, the plates being reduced for that purpose by a process of photolithography. We have seen a specimen plate, and can speak of it as being highly creditable to colonial art.

The Birds of the British Museum.—We extract the subjoined Report on the additions to the collection of birds in the British Museum during the past financial year from the Report of the Trustees just presented to Parliament.

The total number of acquisitions amounts to 2500, including eggs. One hundred and ten species were entirely new to the collection. The following accessions may be specially mentioned:—

A series of British birds, with their nests, eggs, and young; presented by Lord Walsingham.

A specimen of Leach's Petrel, caught in the neighbourhood of Woolwich; presented by Mr. Henry Whitely.

A specimen of a rare Faroe-Island Wren (*Anorthura borealis*); presented by Edward Hargitt, Esq.

Two nests and four eggs of the Flamingo (*Phœnicopterus antiquorum*) from the marshes of the Guadalquivir river; presented by Lord Lilford.

Forty Warblers from Southern Spain and Morocco; presented by Lieut.-Col. Irby.

Sixty-nine birds from the Zambesi country, collected by Dr. Bradshaw, and containing several rare and interesting species; purchased.

Two of the typical specimens of *Cypselus balstoni* and *Zapornia watersi*; purchased.

Fifty-four skins of Bulbuls, containing eleven species new to the collection; purchased.

The types of *Otocorys elwesi* and *Montifringilla ruficollis* from Sikkim, and thirteen birds from Sind, among which are three species before unrepresented in the collection; presented by W. T. Blanford, Esq., F.R.S.

Two hundred and one birds from Travancore, collected by Mr. F. W. Bourdillon, and containing the type of *Merula bourdilloni* and many rare species; purchased.

Twelve specimens from Sumatra, collected by Dr. Carl Bock, and containing four species new to the collection.

Three hundred and eighteen eggs from North-western Borneo, collected by Mr. Hugh Low during his sojourn in Labuan. This collection has been described by Mr. Sharpe (P. Z. S. 1879, p. 317).

Twelve birds from Duke-of-York Island, New Britain, &c., collected by Mr. Layard, and representing nine species new to the collection; purchased.

Forty-two specimens from the Goldie river and the country inland of Port Moresby, South-eastern New Guinea, including many rare species new to the collection, among them the type of *Geocichla papuensis*; purchased.

Forty-two birds from South-eastern New Guinea, collected by Charles Hunstein, and containing, among other rarities, the types of *Clytoceyx rex* (a new genus and species of Kingfishers) and of *Tanysiptera danæ*; purchased.

Two Cassowaries from South-eastern New Guinea, apparently referable to *Casuarius kaupi* and *C. beccarii*; purchased.

Three specimens of the Australian Cassowary (*Casuarius australis*) from Northern Australia; presented by Messrs. F. DuCane Godman and O. Salvin.

A series of twenty-three Cormorants from New Zealand; presented by Baron A. von Hügel.

Six birds from the Solomon Isles, collected by Lieut. Richards, and comprising the types of *Edoliosoma solomonis*, *Graucalus monotonus*, and *Rhipidura russata*; purchased.

Six species of North-American Wrens; presented by the Smithsonian Institution.

Twenty-four birds from California; purchased.

Seventy-nine birds and eggs from Chili and the Straits of Magellan; collected during the cruise of H.M.S 'Alert.'

THE IBIS.

FOURTH SERIES.

No. XX. OCTOBER 1881.

XL.—*Ornithological Notes made in the Straits Settlements and in the Western States of the Malay Peninsula.* By Lieut. H. R. Kelham, 74th Highlanders.

(Continued from p. 395.)

Arachnothera longirostra (Lath.). The Small Spider-hunter.

My only specimen was shot in the neighbourhood of Malacca.

This bird is very like, if not identical with, Blyth's *A. pusilla*.

Arachnothera chrysogenys, Temm.

My specimens are from Malacca and Jahore.

Arachnothera modesta (Eyt.). The Large Spider-hunter.

Probably fairly plentiful, as I bought several skins from the Malacca collectors.

Once, during May, I myself shot one near Enggar, a small village on the left bank of the Perak river, and distant about 140 miles from its mouth. I was returning to Kuala Kangsar, after a few days' trip up stream, and had passed a most

uncomfortable night, lying in the bottom of a very narrow and extremely leaky canoe, drawn up on a sand bank in mid-stream; and, to quote from my note-book, "when I awoke, a thick white mist hung over the river, saturating every thing, like rain; but as day broke this gradually cleared off; so, wading ashore, I struck into the jungle along one of the many pig-tracks leading inland. Before I got far from the river I noticed a small plainly-coloured bird clinging to a pendent creeper, fluttering its wings and uttering a shrill piercing cry, and, on shooting it, found I had killed a specimen of *A. modesta*. On dissection it proved to be a female. Length 7½ inches, bill along ridge 1½; irides brown; legs and bill flesh-colour, upper mandible of latter dusky; upper parts, wings, and tail yellowish green; feathers of the last dark-tipped, and having a white spot on one web; feathers of the crown scaly and dark-centred; underparts pale green. It had been feeding on beetles."

Æthopyga siparaja (Raffl.). The Scarlet Honey-sucker.

Though I *saw* this brilliantly coloured bird on two occasions, once on Pulo Battam, once on Pulo Oobin, islands near Singapore, I am only able to record as actually obtained a single specimen, a male, shot by a brother-officer among some cocoa-nut trees near Bukit Timah, on 2nd of August, 1879. There were a pair of them picking out insects from among the cocoa-nuts; those I saw on the islands were similarly employed.

Chalcostetha insignis (Jard.).

Swarms wherever there are cocoanut-plantations, particularly if they be on the sea-shore. During September 1879 I saw literally hundreds of these Honey-suckers among the cocoa-nut trees at Tanjong Katong, Singapore. I also at different times got many specimens in Pulo Battam, Pulo Oolin, Province Wellesley, and Malacca.

In Singapore a favourite resort of mine was a plantation near Tanglin, where I passed many an afternoon among these little birds, which were so plentiful that I had every opportunity of observing them and their ways, as flitting from tree

to tree they dodged about among the clusters of cocoa-nuts, at one moment hanging head downwards, searching among the leaves and stalks for flies, spiders, and other small game, the next, hovering with quickly fluttering wings to pick out of its hiding-place some insect not otherwise to be got at. The male has a shrill piping note, and is far the most beautiful of the sexes, the female being dull-coloured and without the rich metallic markings. During August I noticed that the young were in great numbers, and saw some being fed by the parent birds; but even without that proof of their youth, they can be distinguished by their dingy plumage, and by the males having but faint signs of the metallic colouring of the mature bird. Their irides are smoky brown.

Of course, at a little distance, it is impossible to tell the immature birds from mature females.

In my note-book I find:—

"Singapore, 23rd Sept. 1879. With K—— and R—— I went by steam-launch to Tanjong Katong, where we spent the morning among the cocoa-nut trees collecting Honey-suckers. The more common kinds, *C. insignis*, *A. malaccensis*, and *C. pectoralis*, were plentiful enough; but nowhere could I see one of the bright scarlet species, *Æ. siparaja*, which K—— shot near Bukit Timah last month; apparently it is rare.

"I shot several females of *C. insignis*, very unlike their handsome mates; they were $4\frac{3}{4}$ inches in length, bill at front $7\frac{1}{10}$; head and upper parts dull grey, tinged on the back and wings with yellowish green; tail deep steel-blue, tipped with white; abdomen pale yellow."

Again:—

"Changie, Singapore, 8th Jan. 1877. Today I shot a most beautiful Honey-sucker, *C. insignis*; three of them, apparently a male and two females, were sitting on a dead bough, spreading out their wings, preening their feathers, and most thoroughly enjoying the morning sun. I shot the male; but he fell into the thick jungle, and, being such a tiny bird, it was a long time before I could find him."

Cinnyris hasselti.

Certainly rare, as I never saw it in any of the Malaccan or Singapore collections, and only once got it myself, viz. in January 1877, near Kwala Kangsar, Perak. Mine was a male, a perfect marvel of rich metallic colouring.

Dr. Stoliczka mentions having obtained this Honey-sucker in Province Wellesley and Penang.

I know Penang Hill to be a particularly good locality for collecting Cinnyridæ, and expect that this species is more plentiful there than anywhere else in the Strait, though, having stayed but a few days on the island, I cannot speak from personal experience.

Anthreptes malaccensis (Scop.).

Common in the gardens of Singapore; also, like the other Honey-suckers, partial to cocoa-nut groves, where insects are abundant. At Singapore it was very plentiful in the neighbourhood of the barracks; but I also got specimens in all the western States of the peninsula.

They flit about the trees, searching among the clusters of nuts for insects.

Anthreptes simplex.

My specimens are all from Malacca.

Anthreptes hypogrammica, Müll.

All mine are Malaccan.

Chalcoparia singalensis (Gm.).

Very common in Malaccan collections; but personally I shot very few specimens.

Cinnyris pectoralis, Horsf.

Fairly plentiful throughout the Straits. I frequently shot specimens on the island of Singapore, also got several from Malacca. The following notes are from my book:—

"Tanglin, Singapore, 18th April 1879. Just in front and within ten yards of the verandah running round our quarters, a pair of Honey-suckers have built their nest, a long bottle-shaped structure of moss, cobweb, and other soft materials, suspended from the end of a branch quite thirty feet from the

ground. The birds are continually hunting under the eaves of our bungalow, picking insects out of the thatch, and returning with them to the nest; so I suppose it contains young. This morning I timed one of the parent birds make three visits to the nest, with its bill full of insects, in less than a minute. They are *Cinnyris pectoralis*, Horsf. I often have excellent chances of examining them, as they frequently flutter about the verandah within a couple of paces of where I stand. I do not like to molest them while rearing their young, but after the nestlings have flown will cut down the nest."

Again, I find:—

"Singapore, 26th April 1879. This morning I stood close to, and watched for a long time, a young Honey-sucker which was flitting about a shrub in front of our Orderly room. It was scarcely able to fly, certainly not more than a few feet at the time; its upper parts were dull brown, underparts yellow, no metallic markings. I approached within arm's reach of it, when the parent bird got very excited and fluttered round, piping shrilly; it was a *Cinnyris pectoralis*, the same as those which have built in front of our Mess."

Dicæum cruentatum (Linn.).

Fairly plentiful. I obtained it in Singapore, Malacca, and Perak; and I see Jerdon says it is abundant in Assam, to the north of the peninsula. On 13th June 1877 I shot a pair which were flitting about a durian tree close to my hut at Kwala Kangsar.

Dicæum chrysorrhœum, Temm.

I shot one of these tiny Flower-peckers among the cocoa-nut trees bordering the Bukit-Timah road, Singapore, 10th August 1879.

It is plentiful in the collections at Malacca, as are most of the small brightly coloured Honey-suckers and Flower-peckers, on account of their selling well; but now that the fashion of their being worn in ladies' hats has gone or is going out, it is to be hoped that so many will not be killed as hitherto.

Prionochilus percussus (Temm.).
All my specimens are from Malacca.

Prionochilus maculatus (Temm.).
As with the last, all from Malacca.

Lanius bintet, Horsf.
The *L. schach* of Linnæus.
I once saw this Shrike in Singapore; further east it is common.
I shot a great many among the Kowloon Hills, on the mainland near Hong Kong, where it was exceedingly plentiful, its favourite post being the topmost spray of one of the stunted firs which are sparsely scattered over the hillsides; it was a particularly noticeable bird on account of its harsh cry.

Lanius cristatus, Linn.
I occasionally came across this Shrike in Singapore. A specimen I got at Malacca is slightly under 8 inches in length.

Lalage terat (Bodd.).
This Black-and-white Bulbul, as we used to call it, is common in Perak and Singapore, breeding in both places.
In my notes I wrote as follows:—
"Singapore, 19th July 1879. Today I shot one of the black-and-white-plumaged birds, *L. terat*, which I so frequently saw on the open ground bordering the river near Kwala Kangsar.
"Singapore, 1st Sept. 1879. The young of the pied *Lalage terat* are now about our garden in front of the Mess, and make a most strange plaintive noise, like a child crying; in appearance they resemble the parent birds, but are not nearly so distinctly marked, and are considerably mottled."

Tephrodornis gularis (Raffl.).
I got a specimen of this Wood-Shrike from a Portuguese collector at Malacca.

Graucalus sumatrensis, Müll.

I saw some specimens of this bird obtained in Jahore; personally I only once met with it in the jungle.

During August 1877 I was one of the party which accompanied H. H. The Maharajah of Jahore up the Moar river to a meeting of the chiefs at Sagamet. On the 8th of August, after travelling up stream all through the day, we stopped about sunset at Bukit Kopong, a village on the left bank, for a bathe and some dinner, before which I wandered into the jungle for an hour with my gun, and got several birds then new to me, among others a grey Crow-like bird, *G. sumatrensis*, which was sitting on a tree close to some Malays' huts.

Pericrocotus flammifer, Hume.

I have a pair of these beautiful Minivets, shot on 19th August 1879, on Gunong Pulai, Johore, by Mr. Davison's collector.

Dissemurus platurus (Vieill.).

This Drongo Shrike, or King Crow, as it is commonly called, is plentiful in the peninsula; and I also got several on the islands of Singapore, Battam, and Oobin; it is found in considerable numbers on Penang hill.

In the undisturbed tracts of jungle towards the north of Perak I frequently came across this racket-tailed Drongo; but it was some time before I managed to get a perfect specimen, as, though I shot seven or eight, in every case in falling through the trees the two long tail-feathers caught in the branches and were pulled out; but at last, on the outskirts of Campong Saiyong, I came on one in the open, and brought it down as, with a peculiar jerky flight, it made for the jungle.

Later on I found out a piece of ground near Kwala Kangsar, covered by scrub, and surrounded with high jungle, where several of these birds were to be seen almost every evening, particularly after rain, hawking in mid air for insects.

The above-mentioned specimen, shot on 8th April 1879, measured 19 inches in length; but the outer tail-feather on

each side projected 7 inches beyond the others, was entirely without web, except on its terminal two inches, where the web is mostly on the inner side and has a peculiar twist; the bird, when flying, looked as if had behind it two long pliant wires with a black bob at the end of each.

The length of the outer tail-feathers varies in different specimens; in one of mine they project 9 inches beyond the rest of the tail, in another only 6 inches.

They breed throughout Western Malayana. A young bird which I shot on Bukit Timah, Singapore, on 19th July, had the feathers of the under surface of the wings, also the under tail-coverts, white-tipped; and the long outer tail-feathers were only just beginning to sprout; beak from gape 1½ inch, tarsus $\frac{4}{5}$; irides red-brown.

With referance to its breeding in Perak my notes are:—

"Kwala Kangsar, 18th June, 1877. This evening, while stalking pig in the jungle near Kota Lama, I disturbed two young Drongos, *D. platurus*. They could scarcely fly; and I very nearly caught them, much to the annoyance of the old birds, which flew close round me, screaming loudly, in a state of the greatest excitement. The young were fully fledged, but wanted the long tail-feathers."

Muscipeta affinis, Hay. The Burmese Paradise Fly-catcher.

Rare; at least I found it so, though there were generally a few in the Malaccan collections.

Early in June 1877, in the neighbourhood of Kwala Kangsar, I came on one of these Flycatchers, and followed it for a long distance without being able to get a shot. It was most provoking, not flying far at each flight, but, as soon as I got within eighty or ninety yards, taking to wing and keeping carefully out of range, and finally disappearing in thick jungle.

However, a few days later, on 18th June, I was more fortunate, getting an adult male in the beautiful white plumage. It was among the trees bordering the road from Kwala Kangsar to Bukit Gantang. Length to end of ordinary tail 8¼ inches; but beyond this the two central feathers projected 6

inches, the total length of the bird being 14½ inches; beak and eyelids pale lead-blue; irides dark brown; head, crest, neck, and throat glossy blue-black; general plumage white; inner webs of primaries, shafts of secondaries, shafts and edges of tail-feathers, black.

Another, which I got at Malacca, was 7½ inches long to the end of the ordinary tail, total length 13½ inches; head and crest glossy blue-black; nape and the underparts ashy grey; dark and glossy on the throat, but becoming whitish on the abdomen; tail and upper parts rich chestnut; inner webs of wing-quills dusky. According to Jerdon this plumage is characteristic of the immature male.

Leucocerca javanica (Sparrm.).

I found this Flycatcher very common in all the gardens round Tanglin, Singapore.

Pitta moluccensis, Müll.

This beautiful Ground-Thrush cannot be very rare, as, while stationed at Kwala Kangsar, I had a great many brought to me by the natives, who had caught them in snares. I kept some in my aviary for several months; and they did well, feeding on rice, but never became at all tame.

One morning in March, while Snipe-shooting on the bushy ground on the bank of the Perak river, just opposite Kwala Kangsar, I caught a glimpse of a brilliant blue-plumaged bird as it flew into some thick bushes, fired, and found I had killed a specimen of this *Pitta*.

I also got specimens in Malacca and Larut.

Pitta granatina.

It is hard to say which is the most beautiful of the Ground-Thrushes; all are so handsome; but this will compare favourably with any of them.

My specimens are all from Malacca and Moar districts.

Pitta cucullata, Hartl.

During January 1877 I obtained one of these Ground-Thrushes, an adult, near Kwala Kangsar, Perak.

Pitta boschi, Müll.

During January 1877 I got a pair of these beautiful birds near Kwala Kangsar, Perak.

Mixornis gularis (Raffl.).

"Singapore, 5th Aug., 1879. Shot a few small birds among the trees bordering the Bukit-Timah road, the first being a specimen of *M. gularis*, one of a party of eight or nine which were flitting along a hedge-row."

I shot another close to our Mess at Tanglin.

Turdus ruficollis, Pallas.

Mr. Davison showed me a specimen of this Thrush which had been shot at Singapore. Personally I did not meet with it in Malayana, but shot one in North China, where I believe it is by no means a rare bird.

The following note relates to this bird :—

"3rd Dec., 1879, near Soo-chow, two days' journey from Shanghae. Today, while Pheasant-shooting, I put up a Thrush of a kind I have not met with before, so shot it. I think it is undoubtedly a female of *Planesticus ruficollis*, the Red-tailed Thrush of Northern Asia. It was by itself. Length 9 inches ; irides dark brown ; bill yellow at base and gape, dusky at tip ; legs brown ; upper parts dull brown, darkest on the tail and wings ; outer edges of wing-coverts whitish ; inner webs of tail-feathers (except two central ones), beneath the wings, the chin, throat, breast, and flanks rufous ; throat and breast covered with dusky spots ; under tail-coverts rufous, with white margins ; streak over eye pale rufous ; ear-coverts and the head dull brown."

Cyanoderma erythropterum, Blyth.

During May 1877, near Kwala Kangsar, Perak, I shot two small birds which were creeping about on the ground in a patch of thick jungle. At the time I did not know what to make of them, but afterwards identified them as of this species.

Top of head chestnut ; irides red-brown ; white superciliary streak ; bare skin round the eyes pale yellowish green ; upper parts dull brown ; underparts white, with brown streaks on

the breast; legs flesh-colour; basal half of the lower mandible yellow.

MALACOPTERUM MAGNUM, Eyt.

A specimen from Gunong Pulai, Johore, shot 25th August 1879, a male, measured about 6 inches in length. Forehead chestnut, nape black, upper parts dull red-brown, beneath glossy white, dusky on the breast.

DRYMOCATAPHUS NIGRICAPITATUS, Eyt.

Gunong Pulai, Johore, 9th August, 1879. A male; length 5½ inches, tarsus 1 1/2; crown and nape black, most of plumage red-brown, underparts bright rufous, throat white, cheeks ashy.

OTOCOMPSA ANALIS (Horsf.).

About the most common bird in the Straits, also very plentifully distributed throughout the native States; in the Singapore gardens it simply swarms, and is easily known by the bright yellow feathers beneath its tail. It breeds during April and May.

At Tanglin, Singapore, I found a nest in a road-side hedge; it was carefully concealed, but within a few feet of passing carriages. The eggs were white, blotched (but principally at the larger end) with red-brown.

One I shot at Singapore, on 25th December 1877, was 7½ inches in length. Irides dark brown. A female which I shot at Kwala Kangsar, Perak, on 23rd March 1877, was rather smaller than the above.

They feed on insects, and have a rather pleasing song.

IXUS PLUMOSUS, Blyth.

Late in September 1879 I shot a pair of these soft-plumaged Bulbuls in the low jungle bordering the sea-shore on Pulo Battam, an island near Singapore.

MICROTARSUS MELANOLEUCUS, Eyt.

Malacca. Description from the skin:—Length 7 inches. Entirely black, except the wing-coverts, which are creamy white.

RACHYPODIUS MELANOCEPHALUS (Gm.). The Fan-tailed Bulbul.

I have specimens of this Bulbul from Malacca, and also shot several in Perak.

In my note-book is:—

"Kwala Kangsar, 5th May, 1877. . . . . While stopping to get a cocoa-nut at a Malay's hut, some three or four miles from camp, I shot a small Bulbul which was flitting about near the top of a high tree.

OTOCOMPSA EMERIA (Linn.).

I heard of one of these Bulbuls being shot in the Straits, but myself never even saw it there. In South China it is exceedingly plentiful:—

"Hong Kong, 16th May, 1878. This morning I caught three young Bulbuls on the grass plot behind my quarters. They could scarcely fly, evidently but lately having left their nest. Putting them in a cage outside my window, the old birds soon found them out and brought them food, but made a great fuss if I went near. All day long they kept close to their young, and often settled within a few feet of me; so I took down an exact description of them. Irides deep crimson; bill black; head, crest, moustache-streak, and band down side of neck jet-black; cheeks white; upper parts brown; throat and underparts dull white; under tail-coverts bright crimson. They are common about the gardens in Hong Kong.

"The young appear to be about a fortnight old, and are able to fly twenty or thirty yards. Their irides are dark brown, upper parts brown, underparts dull white, under tail-coverts chestnut; length 4 inches. They have the white cheeks and dark crest of the mature bird."

PHYLLORNIS ICTEROCEPHALA. The Malayan Green Bulbul.

By no means rare in the south of the peninsula—in fact, rather common in the country round Malacca; but I seldom saw it in Perak. It is very like, but smaller than, Blyth's *Phyllornis jerdoni*.

Length 6¾ inches. Irides brown; legs plumbeous; upper parts grass-green, tinged on the nape with yellow; under-

parts pale green; chin and throat black; maxillary streak (or rather spot) purple; forehead and cheeks glossy yellow, fading into green on the back of the head; inner webs of quills dusky; shoulder-spot glossy azure blue; tail bluish green.

PHYLLORNIS JAVENSIS, Blyth. The Green Bulbul.

Though rather plentiful in Malaccan collections, I only once myself shot this handsome bird, viz. during August 1877, in Johore territory, at Bukit Kopong, about forty miles up the Moar river. While in the jungle, on the look-out for specimens, I saw a party of six or seven little green birds fluttering about the ends of the branches of a wild fruit-tree, and pecking at the blossoms. On shooting one it proved to be a most beautiful male Green Bulbul, in plumage exceedingly like *P. icterocephala*, except that its maxillary streak of purple was considerably longer; and it was also a larger bird, being 8 inches in length. Throat and face black; inner webs of wing-quills dusky; rest of plumage bright green, with a golden gloss, pale beneath.

The female is of duller plumage, is without the maxillary streak, and has the throat pale green instead of black.

IORA TYPHIA (Linn.).

I shot a great number of these birds in Perak, and occasionally came across one in Singapore. At first I took them for immature specimens of *Iora zeylonica* (Gm.), as they were all marked with black on the back and head, some very much so on the nape: but they varied a great deal in plumage; one I shot during June, at Kwala Kangsar, a male, had scarcely any black on the head or back, irides *white*, legs and beak plumbeous, tail greenish yellow, with a dusky tinge; but I cannot help thinking that this bird was a female, and that I made some mistake in registering it as of the other sex.

Another, a male, shot at Saiyong, Perak, on 23rd February, had the nape almost entirely black, irides dark brown, and the tail jet-black slightly tinged at its tip with yellowish green. This bird was 5¼ inches in length; outer edges of wing-feathers, and also the underparts, yellow, becoming

orange on the throat and breast; wings black, barred with white, ends of the coverts white; flanks covered with silky-white feathers.

Perhaps both *I. typhia* and *I. zeylonica* are found in the peninsula.

Iora viridissima.

One I got at Malacca was about 5 inches in length; plumage dull green, yellowish on the abdomen; patch on eyes and the outer edges of some of the wing-quills pale yellow; wings black, tips of secondaries white, forming two parallel white bars across the wings; tail black.

Irena malayensis. The Fairy Bluebird.

This most richly coloured bird is fairly plentiful in the country round Mount Ophir, and is also found in Perak, Singapore, and on Penang Hill, but certainly cannot be put down as at all common.

I fail to see the difference between the Malayan Bluebird and the Indian species, *I. puella*; but Jerdon, in his 'Birds of India,' says, "A race from Malayana differs in having the under tail-coverts reaching to the end of the tail, whilst in the Indian bird they are never less than $1\frac{1}{4}$ inches short of the tail." However, I have before me five specimens, four from Malacca, the other from Perak; and not one of them has the under tail-coverts extending to the end of the tail. They are shorter than the tail by $\frac{2}{3}$ of an inch in each case. The following is the description of a male shot near Campong Buâya, in Perak, during January 1877:—

Length 10 inches; irides red; legs and beak black; upper parts and the under tail-coverts (the last $\frac{3}{4}$ inch short of end of tail) beautiful glossy blue; underparts, wings, and tail deep velvety black.

A female from Malacca is of a dull blue colour, mottled on the head and back with cobalt-blue; under tail-coverts cobalt-blue.

Oriolus indicus. The Black-naped Indian Oriole.

Though not uncommon in Malaccan collections, I but once myself shot one, an adult female, at Tanglin, Singapore,

during the last week in September. It agreed exactly with Jerdon's description (B. of India, vol. ii. p. 109), except that the secondaries were narrowly (not broadly) margined with pale yellow. Being a female, the golden back was slightly tinged with green. The beak was pinky flesh-colour. The stomach contained berries.

Copsychus musicus, Raffl. The Magpie-Robin.

A most appropriate name, it having the pied markings and quaint manners of the Magpie, and the pleasing song of the well-known Robin Red-breast. It swarms throughout the west of the peninsula, being found everywhere along the mangrove-girt coasts, in the jungles of the interior, and about the roads and gardens of the settlements, though certainly most plentiful in the neighbourhood of civilization. It is a most pugnacious bird; and I have seen them fighting together so determinedly as to allow themselves almost to be caught before they would separate. They breed during April and May.

In my note-book is :—

"Kwala Kangsar, Perak, 23rd March, 1877. Today I got two new birds—that is, new to my collection—one of them a Magpie-Robin. When on the ground it reminded me forcibly of our English Magpie in miniature, the perky way it hopped along, flitting up its tail, bending back its head, and every now and then giving a pert bow, together with its black-and-white plumage, made the resemblance very noticeable."

The young have their plumage much mottled with rufous brown. The colours of the male are much darker than those of the female.

Cercotrichas macrura (Gm). The Shama.

Justly celebrated for its vocal powers; is found, though not plentifully, throughout the Straits. I got several specimens at Malacca and one at Tanglin, Singapore.

Orthotomus ruficeps, Less. The Tailorbird.

Common throughout the Straits. I shot it in Perak, also frequently saw it about the gardens in Singapore. It is a

lively little bird, continually on the move, hopping from twig to twig, and uttering its loud shrill notes.

This Tailorbird makes the same ingeniously constructed nest as the others of its kind. One of these, which I have before me, consists of a large leaf about 10 inches in length, of which the outer edges are drawn together and sewn with regular stitches, with what appear to be threads of tow or cocoa-nut fibre, probably the latter. A bag is thus formed; and its lower end is filled with fine bents and lined with fragments of cotton, making a soft receptacle for the eggs. A male shot at Tanglin, Singapore, on 6th September 1879, was 5 inches in length, tarsus $\frac{3}{4}$; beak flesh-colour below, dusky above, from gape to tip $\frac{8}{10}$; irides clear pale brown; head and tail rich chestnut; beneath silky white, tinged with buff on the flanks and ear-coverts; upper parts grey-brown, slightly tinged with yellowish green; inner margins of wing-feathers buff.

Cisticola cursitans, Frankl. The Fantail Warbler.

This tiny bird, identical with the European Fantail Warbler, is found throughout the Straits wherever there is open grass-country, or ground covered with scrub, particularly if it be low-lying and marshy. It is very plentiful in Singapore on those parts of the island where the jungle has been cleared and long "lalang" grass sprung up, with bushes scattered here and there. In my notes is:—

"Tangling, Singapore, 8th July, 1879. All this afternoon I was collecting small birds in the neighbourhood of Mount Echo—capital collecting-ground. Among the scrub bordering the paddy-fields, Grass Warblers, *C. cursitans*, were very numerous. I watched one of them for a long time, at one moment clinging to the top of a grass-stalk and singing with low, feeble, but melodious notes, the next flitting with an ascending series of jerks high up into the air, and uttering its shrill cry, *pitt*! *pitt*! *pitt*! *pitt*!, repeated over and over again, then suddenly ceasing as the bird dropped like a stone straight down into the grass. They seem to me to be exactly like the Fantail Warbler I knew so well in the Mediterranean, and which bred plentifully on the marshy land

near Gibraltar. Eggs I saw there were white, covered with small red specks; but they vary very much, if I remember rightly, some being of a uniform blue colour.

"During July I found a nest among the bushes on the waste land bordering the rifle-range at Tanglin; it was a substantial domed structure, built almost on the ground, at the bottom of a tuft of reeds, with many of the stalks regularly woven into it. Though very well hidden, I found it by carefully watching the bird, which got very excited whenever I approached, and so considerably helped me in finding its nest, which, however, was then empty, and afterwards deserted, probably because I slightly moved it when feeling for the eggs."

Budytes flavus (Linn.).

I own to being much puzzled by the Wagtails, their plumage varying so much according to age, sex, and the time of year.

In September 1877 I shot a Wagtail at Singapore, which I put down as of this species (*B. flavus*). It was a female, head and upper parts brown, tinged with yellowish green, wings dusky, outer edges of the coverts and secondaries greenish white, superciliaries white, beneath yellow, dusky on the breast and sides of neck. Then, again, during October and November 1879, thousands of Wagtails assembled every morning at daybreak on our gravel parade-ground, an open, elevated space, and a very favourite resting-place for passing birds; and these were most certainly migrating; so tired were they that they would hardly get out of one's way, much less be induced to fly any distance; besides they appeared only during October and November, generally in company with Plover, Pratincoles, and other migrants.

All these I thought to be *B. flavus*, till Mr. Davison told me they were *B. taivanus*. During November they were exceedingly plentiful in the paddy-swamps near Mount Echo, Singapore, and fed in such close company with the Sandpipers (*Totanus glareola*), that I obtained both birds at one shot.

Corydalla malayensis, Eyt.

Commonly to be seen on meadow-land, also along the ridges in the paddy-fields. I shot specimens in Perak and Singapore, putting them down as the Indian species (*C. rufula*, Vieill.) which they are exceedingly like; in fact, my specimens answer *exactly* to Jerdon's description of that bird ('Birds of India,' vii. part 1, page 232).

Melanochlora sultanea, Hodgs. The Yellow-crested Tit.

I obtained this handsomely marked Tit in Malacca, also in Johore.

Corvus enca, Horsf. The Malay Crow.

Mr. Davison tells me that this is the Common Jungle-Crow of the Malay States. I found it very plentiful in Perak, where it used to collect in great numbers and feed on the refuse from our camp; often two or three of them would attack a Pariah Kite which had secured a piece of offal, and buffet him until he dropped his prize, which his pursuers then fought for among themselves.

The way they collect in the course of a few minutes, when ust before scarcely one is to be seen, is most strange.

One morning, I shot a crow just outside my hut at Kwala Kangsar, there not being half-a-dozen in sight at the time; but almost at once they arrived in dozens, flocking in from all directions, and making such a clamour that for the rest of the morning my hut was simply uninhabitable. I suppose they were abusing me for having shot their comrade, or perhaps lamenting his death; anyhow the noise they made was intolerable.

On the opposite side of the river, exactly in front of our camp, was a patch of cover some two or three acres in extent, where every evening at sunset hundreds of these birds used to assemble to roost; one of them I shot was 19¼ inches in length, beak at front along culmen 2½, tarsus 2 inches, irides very dark brown, plumage black, glossed, particularly on the wings and upper parts with purple and green.

PLATYSMURUS LEUCOPTERUS, Temm.

On the 8th August 1877 I shot a pair of these birds near Bukit Kopong, on the Moar river. Their very loud, clear notes attracted my attention. At the time I was rather puzzled as to their species: their red eyes and the tuft at the base of the beak reminded me of the Drongo Shrikes, while the white markings of the wings gave them somewhat the appearance of exaggerated Magpie-robins. I also saw two which Mr. Davison's collector had shot in Johore.

CALORNIS CHALYBEIUS, Horsf.

This small Myna is very plentiful throughout the west of the peninsula; I obtained it in Perak and Malacca, and found it in Singapore during April and May.

Late in September 1879, with three friends, I landed on Pulo Nongsa to shoot pigeons, which were said to be plentiful there. None of the large black and white *Carpophaga bicolor* were even seen; but we got several of the common green kind (*Osmotreron vernans*); and the reports of our guns put up enormous flocks, regular clouds, of these Mynas: they had collected to roost among the bushes, with which the middle of the island was covered.

Frightened by our shots, they swept backwards and forwards across the island, skimming over the trees at a great pace; and once passing near, I fired into the thick of them, killing several, all in the uniform metallic-green plumage.

The following is from my notes:—

"Tanglin, Singapore, 1st April, 1879. When we were quartered here more than a year ago, the Spotless Starlings, as we call them, used to congregate in great numbers on the upper limbs of an enormous tree, dead and quite bare of all foliage, which stood a few hundred yards from our mess; this afternoon I found them as numerous there as formerly, and watched them building their nests, carrying straw and other soft materials into the holes in the upper parts of the tree-trunks, far out of reach, the lowest nest being at least a hundred feet from the ground, and the tree as smooth and branchless as the mast of a ship.

"I managed to shoot a couple of the birds and, dissected them. Hitherto I thought the dark ones of uniform metallic-green plumage were all males; but on examining these I found this not to be the case, the ovaries being very conspicuous in the dark-coloured bird, while in the other, of grey mottled plumage, I detected the testes, though they were very small. Their stomachs contained seeds, vegetable substance, and the remains of caterpillars.

"*Descriptions* :—

"No. 1. A female, length 7¾ inches, irides pale crimson, legs and beak black, plumage black, very richly glossed with metallic green, feathers of the neck very lanceolate.

"No. 2. A male (immature), length 8 inches, irides, legs, and beak as in female, plumage very slightly glossed with green, upper parts dusky, the feathers edged with grey, underparts greyish white, the feathers dashed with dark central streaks."

Every year, about the end of July, these birds collect in great numbers among the trees in the gardens round the bungalows at Tanglin, to feed on the berries; on 31st July 1879 I shot several of them, some in the dark green, others in the dusky spotted plumage; but the last were far the more plentiful. I think I am correct in putting down the birds of spotted plumage as young, both the sexes when adult assuming the uniform metallic-green plumage—and in saying that the irides of the immature birds are yellow, orange, or pink, increasing in intensity as the bird advances in age, until they become deep red in the fully-grown bird.

They assemble towards evening and roost in company, several flocks often occupying the same clump of trees.

Eulabes javanensis (Osb.). The Hill-Myna.

This Myna is found in Perak, and in all the Straits' Settlements; the Malay name for it is an imitation of the peculiar notes it utters.

"Kwala Kangsar, Perak, 1st May, 1877. Near camp I noticed six large dark-coloured birds sitting on a conspicuous tree, uttering loud, clear cries; so, creeping quietly

through the jungle, I got within range and shot one. It proved to be a Hill-Myna in its colours and markings very like but larger than *Gracula religiosa*, Horsfield."

Ploceus baya, Blyth. The Weaverbird.

Plentiful on Pulo Penang and the mainland; but I rarely saw it on the island of Singapore. In Perak it is very common, breeding from February to June, hanging its long, bottle-shaped nest to the upper branches of trees, generally selecting one standing in some isolated position, such as the middle of a paddy-swamp. I noticed that, as a rule, they built in colonies; and there was one near Kwala Kangsar where over twenty nests hung, like huge pears, from a single tree standing alone in an open swamp, through which one had to wade knee-deep before the nesting-place could be reached.

On May 18, the birds were hard at work building; and standing motionless beneath the tree, I watched them for a long time. One nest, within fifteen or twenty feet of where I stood, appeared to be almost finished, even to the long, tubular entrance; and I fancy the hen must have been sitting inside, as I did not see her at all, though the male worked away most industriously, weaving long pliant stems of grass into the body of the nest.

Of this colony quite two thirds of the nests were of the bottle-shape, the remainder exactly like inverted baskets, suspended handle downwards. I cannot help thinking that these basket-shaped structures are simply unfinished nests, perhaps the "failures" of young birds new to the work, which have been rejected as being in some way unsuitable, as they only require the open space on one side of the handle to be filled in (as the repository for the eggs) to make them complete. That they are built specially for the accommodation of the male I do not believe, as, though I have watched attentively on several occasions, I never saw them used by either sex.

I found the lumps of clay, which are stuck inside many of the nests, most frequently in those of the basket-shape, but

can form no idea what they can be for. The theory mentiond, though not believed in, by Jerdon, that the birds stick fire-flies on these lumps of mud, so as to light up the inside of the nest by night, is palpably far-fetched; I never saw, or even heard of, the remains of fire-flies being found in the nests. In my book is the following note :—

"Kwala Kangsar, Perak, 6th March, 1877. While snipe-shooting, I found two curious nests hanging from a tree, at a height of about ten feet from the ground; they were within a few inches of one another, in shape like two gigantic pears, but with different entrances, the smaller being open below like an inverted basket, complete even to the handle, and made of fresh, green grass, while the other, of dry brown material, though also entered from below, had a long funnel leading to a chamber, in which were four young featherless birds and an addled egg, the latter about the size of a Linnet's, and white in colour. The tree on which the nests hung was alive with red ants, which most fiercely resented being disturbed."

During June I saw a large flock of Weaverbirds on some paddy-ground near Kwala Kangsar. They were flitting about, pecking at the grass-seeds, and continually twittering, as one sees Goldfinches doing among the thistles. The heads of the males were golden yellow.

A young male which I shot on 16th May, while in the act of weaving grass into its nest, was 5 inches in length, irides dark brown, legs flesh-colour, tarsus $\frac{8}{10}$ inch, upper parts dull brown, the feathers margined with pale yellowish brown, top of head golden yellow, underparts dull white, throat and face blackish, breast and flanks rufous. The males have the head bright yellow during the breeding-season only; at other times both sexes have brown heads.

Munia maja (Linn.).

This little white-headed Munia is very common throughout the west of the peninsula, including the islands of Penang and Singapore. When the grain is ripe it is to be seen in countless numbers in the paddy-fields. On being disturbed

it rises with a feeble, twittering cry, the flocks whirling and twirling over the top of the paddy like clouds of dust on a road when the wind is blowing. It is commonly known in the Straits as the "cigar bird"—a capital name; for, when flying, its white head, brown body, and small size give it very much the appearance of a cigar with the white ash on it.

MUNIA ATRICAPILLA, Vieill.

Common, though not so much so as *M. maja*. Like that species, it congregates in large flocks. My note-book says :—

"Saiyong, Perak, 23rd May, 1877. To-day, on the low ground bordering Saiyong Jheel, I shot several Munias out of a large flock which rose from the paddy. They are very like *M. maja*, except that they have the head black instead of white.

"One of these, a male, is $4\frac{5}{12}$ inches in length, irides red-brown, beak plumbeous, head, neck, and upper part of breast black, upper tail-coverts golden-chestnut, rest of plumage chestnut, becoming dusky on the tail; its stomach contained a great many minute particles of quartz."

At first I thought this bird was *Munia rubronigra*, Hodgs., which it much resembles; but that species has the middle of the belly, the vent, and the under tail-coverts *black* instead of chestnut.

MUNIA ACUTICAUDA, Hodgs.

By no means rare during the winter months, or more correctly during the N.E. monsoon: it keeps in small flocks and frequents scrubby ground, not breeding till late in May.

Near Tanglin, Singapore, on 29th July, I found a nest of this Munia, a large, oval mass of bents, built in the crown of a beetle-nut palm; and the young birds, eight or ten in number, though perfectly able to fly away, were flitting about it; so I shot four, in a variety of stages of plumage. The one most decidedly marked was a male: its wings and upper parts were dull brown, becoming whitish on the cheeks and chin, feathers of the back and scapulars pale-shafted, those of the breast, flanks, and upper tail-coverts very prettily marked with alternate crescents of white and brown, abdomen dull white, irides chocolate.

The other three were similar to the above, but not so distinctly marked; two of them were almost without the crescentic markings on the breast and upper tail-coverts.

All four were slightly under 4½ inches in length, and had the legs plumbeous.

In April 1877, I shot an adult male out of a party of eight which were flitting about some bushes on the banks of the Perak river.

Breast clove-brown, the feathers edged and shafted with dusky white, abdomen dirty white, marked with dull brown, under tail-coverts brown.

While flying, the bird's white rump and pointed tail were very noticeable.

This species extends eastward to China. While I was stationed at Hong Kong, in May 1878, a pair of these Munias built among the top branches of a bamboo-clump, over 20 feet from the ground, but within two yards of my veranda; the nest was a large domed mass of dry grass and reeds, and without any soft lining.

Though apparently loosely put together, the nest and its contents were quite unharmed by a gale which bent the bamboo almost to the ground; on 3rd June there were four eggs, pure white in colour, as are those of all the Munias.

Amadina oryzivora (Linn.). The Java Sparrow.

Found only in Singapore, where it is common, particularly in the neighbourhood of the Botanical Gardens at Tanglin.

Not being met with on the mainland, I think there can be little doubt that it has been introduced into Singapore. Probably in the first instance it was confined in some of the aviaries in the Gardens, whence individuals having escaped have bred and firmly established their species on the island.

They are very tame, frequenting the roads and feeding in company with the common Sparrows (*Passer montanus*). During July 1879 two pairs had their nests under the eaves of our mess at Tanglin, and continually flew to and fro within a few feet of passers by.

Passer montanus (Linn.).

The common and only Sparrow of the Straits and Malay

peninsula. Its habits are much the same as those of our English bird; like it, it frequents towns and villages, and is rarely seen in the jungle at any distance from habitations. It swarms in all the Settlements, searching among the horse-dung for grain, after the manner of its European brother, which, to a casual observer, it closely resembles.

It builds its large, loosely put together nest of straw and other materials under the eaves of houses or in holes in walls, often ousting the Javan Sparrow which may happen to have previously taken possession, as was the case with a pair which built under the roof of our mess-house.

P. montanus extends eastward to China. In my notes I find:—"Hong Kong, 1st Jan., 1879. All the Sparrows here appear to be of one species, the Mountain-Sparrow (*P. montanus*, Linn.). Today one flew into my window; so, putting it in a cage for an hour, I had a good look at its markings, then let it fly away. It was in beautiful plumage. The white line passing round the back of the neck, and the black ear-patches, are the chief characteristics of the species; and the chestnut markings seemed to me brighter than in the English *P. domesticus*. The sexes are alike."

Treron nipalensis, Hodgs.

I only once met with this Green Pigeon, at Kwala Kangsar, and never saw it in any of the Malaccan collections, so think it may safely be put down as rare.

Treron capellei, Temm.

One I got from Malacca measured about 15 inches in length; plumage dull green, pale and bluish on the abdomen and forehead, large patch on breast bright orange, wing-quills and outer tail-feathers dark slate-colour, the latter tipped with bluish white, wing-coverts narrowly edged with yellow, under tail-coverts cinnamon.

Osmotreron olax (Temm.).

Mr. Davison told me he found this Pigeon common in Singapore; but such was not my experience, as I scarcely ever saw it there, while the larger species (*O. vernans*) was very abundant.

Osmotreron vernans. The Green Pigeon.

This handsome bird, the Green Pigeon of Europeans, the "Punei" of the Malays, is very plentiful throughout the country, particularly about the well-wooded islands to the south of the peninsula.

Towards evening they have a regular "flight," dozens passing over the same spot night after night for about an hour before sunset, on their way to roost in some favourite clump of trees; but if much fired at, after a few evenings they change their line.

By waiting for them I have often had very good sport, shooting them as they passed overhead, generally in parties of from five to ten, but occasionally in large flocks. Their flight is very rapid; and being thickly feathered, pretty straight shooting is necessary to bring them down, a stray pellet or two having but little effect, unless a vital part happens to be touched.

There is a tree in the Straits bearing a large hard berry, of which the Green Pigeons are very fond; and when ripe, the birds collect in great numbers to feed on it. One of these fruit-bearing trees grew just outside our mess-house at Tanglin; and by watching near it, we often got several shots in a very short space of time. In my notes I see that near this tree, on 10th September 1879, "I shot nine in about twenty minutes; nearly all were this year's birds, and capital eating. The males had not fully assumed the beautiful orange breast, that part being only tinged and mottled with different most delicate shades of purple and orange. Their craws were full of berries."

Even these young birds, with comparatively tender skins, took a lot of shot.

In Perak I found them breeding during March, among the bushes in the swampy valleys, making a small, flat, and loosely-put-together nest of dry twigs, usually at from 6 to 10 feet from the ground. The eggs were two in number, of a delicate pink colour, but white when blown.

O. vernans is very like, but smaller than, the Indian species (*O. bicincta*); the female is smaller and of duller plumage

than the male, and wants the bright orange patch on the breast, which in the case of the males seems to deepen in colour as the bird advances in age.

Osmotreron fulvicollis, Wagl.

I did not meet with this species, but saw specimens which had been shot by Mr. Davison's collector in Johore.

Carpophaga ænea (Linn.). The Imperial Pigeon.

This magnificent Pigeon, the "Pergam" of the Malays, is plentiful throughout Western Malayana, keeping in parties of from five to fifteen or twenty.

It is not easily shot, being very wary and usually selecting the highest trees to perch on, often settling so high up as to be out of gun-shot. I got specimens in Perak, Larut, Malacca, Moar, Johore, Singapore, and the neighbouring isles.

On 9th August 1877, near Segamet, on the Moar river, I shot one while feeding on hard brown berries, in appearance rather like chestnuts, and of such a size as to make one wonder how the bird could possibly get them into its mouth. It was a female, length 18 inches; legs, irides, and nude orbits red, bill slaty, head, neck, and underparts delicate French grey, upper parts beautiful metallic shades of green and blue, wing-quills dusky, under tail-coverts chestnut.

Another, which I shot at Saiyong, a hundred miles up the Perak river, was rather smaller than the above.

Carpophaga bicolor (Scop.).

At certain seasons this large black-and-white Pigeon is not uncommon among the wooded islands to the south of the peninsula.

During September and October 1879, while stationed at Singapore, I heard that these birds were plentiful at Pulo Mongsa, Point Miriam, and Tanjong Surat. I made expeditions to those places, but without success, not even seeing a single bird—though the natives were well acquainted with them and told me that sometimes they came in great numbers to feed on jungle-fruit, even showing the particular trees.

Turtur tigrinus (Temm.). The Spotted Dove.

This Dove is exceedingly plentiful throughout the west of the peninsula, where its plaintive cooing is one of the most noticeable of bird-sounds, both away from civilization, and also in the gardens of the Settlements. It is easily tamed, and a common cage-bird among the Malays.

It appears to be almost identical with the Chinese Spotted Dove (*T. chinensis*), which swarms throughout South China. I shot several on the mainland near Hong Kong; and the only difference I could see between them and the Malay race was that they were slightly larger, and had the under tail-coverts *ash-grey* instead of white.

A male of the Chinese species which I shot on the Kowloon Hills, near Hong Kong, on 1st June, was 12¾ inches in length, irides dark brown, surrounded by an orange ring, legs dull scarlet.

Geopelia striata (Linn.). The Barred Ground-Dove.

This miniature Turtle Dove seems to be rather uncommon in the wild, unfrequented parts of the peninsula, apparently preferring inhabited and cultivated districts.

In Singapore it is common on the low, swampy ground, being particularly plentiful among the Chinamen's gardens in the Mount-Echo, Cluny, and other well-watered valleys in the neighbourhood of Tanglin, where it probably breeds—not that I ever found a nest, but have shot the birds at all seasons. As a rule they keep in pairs, never associating in flocks; at least such is my experience.

Throughout the Straits' Settlements the Sand-Dove, as it is called locally, is much in request among the natives as a cage-bird, being easily tamed. I cannot say how it got its name of Sand-Dove, unless on account of its grey plumage, my Malay syce had one which, on his approaching its cage, expressed its delight most demonstratively, fluttering its wings and cooing loudly, while a stranger made it wild with fear.

Chalcophaps indica (Linn.). The Bronze-winged Dove.

Apparently identical with the Indian bird. It is distributed

throughout the west of the peninsula. I found it fairly plentiful in Perak, and while stationed there kept several in my aviary, where they throve on rice and Indian corn, in a short time becoming very tame.

On account of their beautiful plumage and the ease with which they are tamed, they are in considerable request as cage-birds, and find a ready sale in all the Settlements.

Among the Malays they go by the name of the "bodos" (fool) Pigeon; and if the native account of the way they are caught be true, the name is well deserved.

According to one of the Malaccan bird-catchers, after having discovered a place frequented by these Doves, generally an open space near high jungle, he concealed himself in a small hut of boughs, and scattered rice on the ground all round him; in a short time the birds flew down to feed on the grain, and settled so close to his hiding-place that, quietly putting out his hand, he was able to catch them one after another, the sudden and strange disappearance of one of their number not in the least alarming the others.

Their note is a low cooing.

Pavo muticus, Linn. The Burmese Peafowl.

Not uncommon in the north, but rarely met with in the southern half of the peninsula; and though I saw a fine cock which had been shot at Cape Romania, opposite the island of Singapore, it was probably only a straggler, possibly a bird which had escaped from captivity. Anyhow, with this exception, I never heard of a Peacock being obtained so far south.

I believe they are plentiful in Kedah; and near Kwala Kangsar, in Perak, I once saw, but was unable to shoot, two Peafowl.

"7th May, 1877. This evening, at dusk, I was lying in wait, in a swampy ravine with steep jungly banks, for a large boar which frequented the place.

"Daylight had almost faded away; and the stillness was broken only by the weird jungle-noises which commence as darkness comes on. In a few minutes more it would have been too dark to shoot; and I was just thinking of making a

move, when close behind me a Peafowl uttered its wild and, under the circumstances, startling cries; and the next moment two large birds flew overhead, and settled among the trees on the opposite side of the ravine. At the same time I heard a rustling in the bushes, which was probably caused by the boar, warned by the Peafowls' cries that all was not safe.

"Clambering up the sides of the ravine, I got within thirty yards of the birds before they rose, but, having only a rifle with me, was unable, in that light, to secure one. Still there was very little doubt as to what they were."

ARGUSA GIGANTEUS (Temm.). The Argus Pheasant.

This magnificent bird cannot be rare in the interior of the country, as numbers are snared and brought into the Settlements by the Malays; but it is so shy, and frequents such dense jungle, that it is very seldom seen. Personally I never saw it wild—though while in Perak I had several brought alive to me by the natives, also when at Malacca I saw the skins of some which had been obtained near Mount Ophir.

During January 1877 I spent a few days in a boat on the upper reaches of the Perak river, shooting and collecting. One afternoon, not very far from Campong, Sengan, I landed, and striking inland a few hundred yards, came to a small marsh, round its edges shooting a great many Golden Plover (*Charadrius fulvus*), Lapwing (*Lobivanellus atronuchalis*), and Snipe (*Gallinago stenura*).

While busy shooting, the banging of my gun attracted some Malays, who came to me, bringing with them a Crested Partridge (*Rollulus roulroul*) and a splendid male Argus Pheasant, both having been but lately snared, as the nooses were still hanging to their legs; but its captors had spoiled the beauty of the latter by pulling out its long delicately-marked tail-feathers and sticking them in their head-handkerchiefs. For 75 cents (about three shillings) I got both the birds, with a small monkey and wicker cage thrown in, the latter ingeniously made by splitting a bamboo and spreading the split pieces out into an extinguisher-shape.

On getting back to Kwala Kangsar I turned the Pheasant

into my aviary, where it did exceedingly well, becoming as tame as a barn-door fowl, and running to the door of the aviary when I approached, to take food almost from my hand. On leaving the country I gave this bird to Mr. Hugh Low, H.B.M. Resident, and about two months later heard from him that twice it had escaped into the jungle and had been given up as lost, but on each occasion, after remaining away for about twenty-four hours, it had returned and walked into its cage.

I think this incident worthy of notice, having often heard that the Argus Pheasant is very difficult to tame.

Once or twice I received information that some of these Pheasants had been shot; but on investigation the birds always turned out to be Peacock-Pheasants (*Polyplectron bicalcaratum*); and I never heard of an Argus being obtained with the gun.

Besides in Perak, I got specimens from near Taeping, in Larut, and from Malacca—at the latter place a sovereign (5 dollars) being the regular charge for a skin.

While in camp at Kwala Kangsar, we had Argus Pheasants cooked on several occasions, and found them capital eating.

Polyplectron bicalcaratum (Linn.). The Malayan Peacock-Pheasant.

Not rare in the uninhabited parts of the peninsula; the natives snared and brought several to our camp at Kwala Kangsar, and told me that they were very plentiful about two days' journey further up the river. Those in my aviary never became tame, hiding directly any one approached; but they throve remarkably well, feeding on rice and Indian corn.

Alectrophasis erythrophthalmus (Raffl.). The Rufous-tailed Pheasant.

I had one of these Pheasants in my aviary at Kwala Kangsar; it flourished and became fairly tamed. It fed on rice and Indian corn. I got it from the native who had snared it. There were specimens in the Museum, also in the Botanic Gardens at Singapore.

Euplocamus vieilloti. The Fire-backed Pheasant.

A magnificent bird, common in Perak, particularly towards the north. While at Kwala Kangsar, I had them frequently brought in by the Malays, and kept several, both males and females, in my aviary for several months.

They did well in captivity, becoming tame, and feeding on boiled rice, plantains, jack-fruit, and Indian corn.

[To be continued.]

XLI.—*Ornithological Letters from the Pacific.*—VIII. *New Britain.* By Otto Finsch, Ph.D., C.M.Z.S., &c.

The discovery of novelties by explorers must depend chiefly on what is already known of the country proposed to be explored. The traveller who has the good fortune to be the first in a new country will easily find new species. I visited a good many islands in the South Seas, of which the avifaunæ were little, if at all, known; but they were very poor, and yielded little more than sea-birds and widely distributed species. When I came to such a promising country as New Britain, I arrived too late. I do not complain; for the personality of the discoverer is immaterial to science, and the name of the Rev. George Brown will be known for ever as that of the first explorer of New Britain, New Ireland, and especially the Duke-of-York group, where, under his superintendence, the mission has existed since 1875. From the influence resulting from his post, and from the means he had to depend on, it was moreover easier for him than for any body else to make extensive collections. He had a lot of teachers at his command to collect for him on different spots in the country, and was himself able to visit the different stations, for which purpose a small steamer was provided. Thus mission work and collecting specimens were easily combined. Before Mr. Brown came, I believe, not more than a dozen birds were known from these islands. These were discovered by the French naturalists, and were chiefly from New Ireland. In accordance with this condition of things it was not surprising

that even the first collection of Mr. Brown contained 70 species, among which 10 proved to be new. This was in 1877; and science has to thank Dr. Sclater for their scientific determination. Since that time four more collections of birds have reached the hands of this learned naturalist, of which he has published accounts in his usual excellent style. All these collections raise the number of species sent home by Mr. Brown to 105, of which 80 belong to New Britain, 20 to New Ireland, and 5 to the Duke-of-York group. In this total number of 105 species, 23 were new, of which there were 13 from New Britain, 6 from New Ireland, and 4 from the Duke-of-York Islands. It is obvious therefore that subsequent collectors had only the gleanings left to them, and had only to add some well-known species to the list. So far as I could ascertain, from the birds obtained by Kleinschmidt, who collected for a space of about two years in Mioko (Duke-of-York group) for the Museum Godeffroy, I believe there are only about four species which escaped Mr. Brown, and which will turn out to be new when they come to be studied by an ornithologist in Europe. Among them is an Owl reminding one of *Strix tenebricosa*, a *Zosterops*, and a peculiar Reed-Warbler (apparently belonging to a new genus). That is very little; but New Britain is not rich in birds. So far as I can calculate, the whole number of species known from this island is 112, from the Duke-of-York group 39, and from New Ireland 42, making for the whole region, including New Hanover, 139. Among these species not a single peculiar form is found in New Britain; for the only peculiar genus, the interesting and most remarkable Columbine form *Œdirrhinus*, extends over the whole region. We must not, however, forget that only a few spots of New Britain have been touched, and that the greater part of its coasts and of the interior have never been visited by a naturalist or any white man. From these unexplored districts some novelties may be expected; but in my opinion they will not be many. The island is very narrow; the mountains are but of a moderate altitude; and, I think, the southern portion, where no one has ever collected, offers the best field, besides being closer

to the mainland of New Guinea and likely to receive some interesting forms from that quarter.

As regards myself, I was, unfortunately, not able to go there, nor to stay in New Ireland (the most promising country of the region), and was obliged to be satisfied with exploring a comparatively very small part of New Britain—that is, the shores of Blanche Bay and its environs. In this district I have been at work a little more than seven months, and successful enough out of 112 known species to obtain specimens of 102.

If I failed as regards birds, yet I was able to do a little more than Mr. Brown in ethnological researches, although I leave still much in this line to be done by my successors. To make observations on the habits and manners of animals is more difficult, perhaps, in the tropics than elsewhere, and requires, above all, plenty of time; and this is scarce for a naturalist who has to look out for many other things, and cannot devote all, or even the greater part of his time to ornithology. Thus it comes to pass that I cannot claim to know very much of the birds of New Britain, although I saw a good deal of them myself and was assisted by an experience of many years in studying birds in nature. As a general rule, observation in these dense primeval woods is rather difficult. The trees are so tall; their foliage, encumbered by climbers and parasitic plants, is so thick; and one has to look out for a path, if there is any, that one may not become entangled in troublesome tendrils or stumble over fallen trees and branches. Thus in many cases one does not get more than a glance at the feathered tribes. It is also difficult to see a bird sitting in the midst of a thick tree, and requires, in many cases, the sharp eye of a native as a helpmate for one's own powers of vision unaccustomed to such forests as these.

I cannot now go into details on the birds of New Britain, and confine myself to a brief sketch, hoping eventually to write a more complete article on the avifauna of this island. The woods are not silent, as is so often said in regard to the the tropics, although only a few notes make them resound. I shall not try to give a description of these sounds,

as this is not possible; for they are so singular and do not show any resemblance to the voices of birds at home with which we are familiar. The most remarkable notes, however, are those of *Philemon cockerelli*, *Gracula kreffti*, *Calornis nitida* and another species of the same genus, *Monarcha alecto*, *Sauloprocta melaleuca*, *Halcyon sanctus*, *Corvus enca*, the *Centropi* (which resemble the bellowings of a bull), and of certain species of *Eclectus* and *Trichoglossus*, as well as of such Pigeons as *Œdirrhinus insolitus* and *Carpophaga rubicera*. The natives have distinctive names, not only for all the birds, but even for nearly all other vertebrates, and also for the larger beetles, butterflies, and spiders. Many of these names are euphonious and even good, such, for example, as "Kick," for *Halcyon sanctus*, "Kärärăk" for *Dicrurus læmostictus*, "Kot-kot" for *Corvus enca*, "Ka-uk" for *Eudynamis picatus*, "Gilian" for *Gracula kreffti*, and so on. Although there are many strange and sometimes not unmelodious voices, there is not a single singing bird which can be compared with any of ours at home. The *Nectariniæ* (*N. frenata* and *N. aspasia*) have a sort of short and slow song, of which that of the latter contains a note not unlike that of our *Sylvia garrula*; but it has no strength or persistence. The best songster seems to be, perhaps, the little *Cisticola ruficeps*.

To proceed to a brief review of the species, and beginning with the birds of prey, there are nine diurnal and three nocturnal species of this group. Amongst the latter only one species (*Ninox odiosa*, Scl., which I consider to be nothing but an *Athene*) is peculiar to New Britain. I may also mention that I strongly suspect that what Dr. Sclater has determined as "*Accipiter etorques*, Salvad.," will turn out to be a different and peculiar species, distinguished by the uniform plumbeous tail-feathers. This species and *Haliastur girrenera* are common birds of prey, all the others being very rare, and seen only occasionally. Of the very interesting *Henicopernis longicauda*, notwithstanding high rewards offered to the natives, I only got one example. I have also to add to the list *Falco melanogenys*, which, I think, Mr. Brown has not obtained.

Of Swifts there is one *Collocalia*, which I consider to be identical with *C. vanicorensis*, and the splendid widely distributed *Dendrochelidon mystacea*. This I consider to be one of the most elegant beings on wings that one can see anywhere. Of Swallows, of which Mr. Brown got none, I obtained two species, *Hirundo tahitica* and another species with a light-coloured rump, undoubtedly identical with an Australian species—I suppose, *H. nigricans*.

Of Kingfishers six species are known in this region, of which the magnificent *Halcyon albicilla* is apparently confined to the Duke-of-York group. What has been named "*Halcyon chloris*, Bodd.," will require a closer examination, as the New-Britain bird seems to be different. The same is needed as regards "*Eurystomus crassirostris*, Scl.;" for I find that neither the strong bill nor longer tail will stand as characters of specific value. There are only two *Nectariniæ* here, *N. frenata* and *N. aspasia*, both well-known and widely distributed species and common birds of the country. The interesting *Myzomela cineracea*, lately described by Dr. Sclater, I got also; the male has a narrow red line along the chin. *Myzomela sclateri*, Forbes, seems to be peculiar to Credner Island, while *Philemon cockerelli* is the most common bird of the woods, living in small flocks, which are always noisy and uttering their melodious short call-notes. Of the new *Pœcilodryas æthiops*, Sclater, I got the female and young bird, both quite differently coloured from the male. Is the *Pitta* indeed the true *P. mackloti*? All specimens in New Britain have invariably a blue line on the crown. Of Muscicapine birds *Sauloprocta melanoleuca* and *Monarcha alecto* have both peculiar and nice notes; the fine *M. verticalis*, Sclater, is confined to the Duke-of-York group. To these must be added a *Myiagra* apparently near to *M. concinna* of Australia. *Artamus insignis*, Scl. (not from New Ireland, as at first stated by Mr. Brown), has been only obtained in Spacious Bay, New Britain, and is unknown the natives in Blanche Bay. Besides *Lalage karu*, which is a very common bird, there are two fine *Graucali*, *G. sclateri*, Salvad., and *G. sublineatus*, Scl.; for I think the *Graucalus papuensis* in Dr.

Sclater's first list of Mr. Brown's birds (P. Z. S. 1877, p. 101) must be identical with what he subsequently determined as *G. sclateri*. The only known *Dicrurus* (*D. lœmostictus*, Scl.), a fine species, is peculiar to New Britain, as is also the wonderful *Dicranostreptus megarhynchus* to New Ireland. To the single species of *Calornis* (determined as *C. nitida*, Gray, by Dr. Sclater) I have to add a second, without prolonged middle tail-feathers, and with violet on the nape, back, and throat, and of the uniform metallic-green kind, which comes close to the common Javan species (I believe, *C. cantori*). Both species are very common, especially *C. nitida*, which nests in large colonies. *Gracula kreffti*, Scl., is one of the finest birds in the woods. The *Corvus* which Mr. Sharpe declares to be *C. enca*, seems to be not yet satisfactorily determined. It is a common bird, resembling in voice and and manner our Crows, but remarkable for its fine blue eye. *Donacicola spectabilis*, Scl., is a very grass-loving Finch, and very common in suitable localities. *Buceros ruficollis* does not occur in Blanche Bay, or rather, I should say, not along the coast, but a little further inland, where it is said to be not at all rare.

Among the eight Cuckoos, not one is peculiar to New Britain. I have to add one species, a true *Cuculus*, very likely the eastern form of our *C. canorus*. *Eudynamis taitensis* is one of the few migratory birds. Of *Centropus ateralbus* (which is a very common species) albinos occur.

There are eight species of Parrots, of which two are peculiar, namely *Cacatua ophthalmica*, Scl., and *Loriculus tener*, Scl., the latter being confined to the Duke-of-York group, and in that group to a certain locality, of which only Mr. Brown is aware. Nevertheless the species may also occur on the coast of New Britain; but such little birds are very easily overlooked. This is not so much the case as regards *Nasiterna pusio*, as this small bird is often seen on the outside of the foliage, creeping along the branches and stems of trees. I obtained its egg; but all my endeavours to keep specimens alive were in vain. The question as regards *Eclectus polychlorus* and *E. linnæi* being male and female, has been settled long

ago, and does not need my evidence. I may state, however, that nestlings are coloured just the same as the old birds, only less brightly, and that in young males the iris is dark brown, instead of blood-red, and the bill black, spotted with yellow; while in the young females the eye is also dark brown, instead of pale yellowish, and the bill black, spotted with orange. The nestling of *Cacatua ophthalmica* wears the same colours as the old bird; long before the tail-feathers are fully grown the yellow pendent crest is developed in the same style as in its parents. As regards *Pionus heteroclitus*, I have little doubt that the blue-headed form is only the female and young male; for I have seen a yellow-headed specimen of which the head-feathers were mixed with blue. Of the two *Trichoglossi*, *T. massenæ* and *T. subplacens*, the latter is very common, but more easy to see than to obtain. I obtained examples of both species from Abgarris or Feads Island, to the east of New Ireland.

Next to the Parrots the Pigeons are the most numerous tribe as regards species: fourteen are known from New Britain; but only two are peculiar, namely *Carpophaga melanochroa*, Scl., and *Phlogœnas johannæ*, Scl., the latter only found on Duke-of-York island, and not known to the natives here. The single specimen of *C. melanochroa* remains unique, no other specimen having been yet obtained. The same is the case as regards *Ptilopus rivolii*. Although Dr. Sclater remarks "we have thus a better indication of the true patria of this fine Fruit-Pigeon than has yet been obtained," yet he was not able to say whether the specimen came from New Ireland or New Britain; and, what is worse, the question is still unsettled. Mr. Brown has in vain searched for another specimen, and does not now remember the first specimen and where it came from. *Carpophaga van-wycki* breeds in great numbers on Credner Island, but is rare on the mainland, where *C. rubricera* is very common during the ripe state of certain fruits. *Calœnas nicobarica* is everywhere rare. The fine *Macropygia browni*, Scl., also occurs on the main coast, but is also rare. Besides this I got another species of *Macropygia*, which, from the black

bill, ought to be *M. nigrirostris*, Salvad.; but it may be *M. cartaretia*, Bp.; which, I am unable to make out here.

The little *Coturnix sinensis* and a species of *Turnix*, or *Hemipodius*, which seems not to be noticed in Dr. Sclater's lists of Mr. Brown's collections, both breed here.

One of our most common birds is *Megapodius eremita*, the "Angiok" of the natives. Wherever one puts one's foot into the bush one will find their nesting-holes, sometimes leading steeply down at the base of a lava block or at the root of a tree, like the hole of a fox. At other times the egg is deposited half a foot deep in the lava sand, where the spot is easily discovered by the sharp eye of the native. Some localities seemed to be almost undermined by these birds. They seem to lay all the year round, except in the rainy months, when eggs are very rare and for a short time not to be had at all. A year and a half ago forty eggs could be bought from the natives for one stick of tobacco; now one gets only two. I got eggs of this bird also from the Solomons (island of Savo), from which two species (*M. brenchleyi*, Gray, and *M. brazieri*, Scl.) have been described. I cannot see any difference between the eggs from the Solomons and those obtained here, and doubt whether any oologist would be found able to distinguish the species of *Megapodii* from their eggs. Although *Megapodius eremita* is very common, one very seldom gets a sight of it. It runs very quickly through the jungle, or is seen only on wing for a moment among the foliage of the trees. The young ones, when hatched, are already able to fly. It is singular that among the numerous specimens (about forty) I got, there was not a single male bird; they were all females.

The Morrup (not Morruk), *Casuarius bennetti*, I did not see at large. It does not live on the coast, but in the interior, on the more level and grassy plateau. Old birds are difficult to obtain, and are often mutilated by the natives, who break the first joints of the toes of one foot, to prevent them from striking. The rudimentary primaries are used by the natives as ornaments, and are worn in the pierced septum of the nose.

To the fourteen Waders known through Mr. Brown's

researches (of which only *Rallus insignis*, Scl., seems to be peculiar) I have to add *Esacus magnirostris*, *Limosa melanuroides* and *L. uropygialis*, *Phalaropus angustirostris*, *Tringa minuta* and another species of *Tringa*, all temporary visitors to this country, besides *Ardea sinensis*. Of the *Porphyrio* I obtained only a young one, not sufficient to determine the species, which will, however, be a known one. Strange to say, I never observed *Strepsilas interpres*, although this bird, no doubt, also visits these shores. *Ardea sacra* is very rare.

Of the Natatores Mr. Brown sent home only *Sterna fuliginosa* and *Anous stolidus*; but I can add six species more, namely *Sterna bergii*, *S. longipennis*, *S. melanauchen*, *S. sinensis*, *Sula fusca*, and *Tachypetes aquilus*. I have never seen a *Gygis* nor a *Phaeton*, nor any member of the Procellariidæ here. Very strange is the absence of Ducks, especially of *Dendrocygna*; but it is likely they may occur in the interior or on the rivers in the southern portion of the island.

Matupi, New Britain.
March 1881.

XLII.—*More about* Cypselus horus, *H. et F.*

By T. Salvadori, C.M.Z.S.

In 1872 the Marquis Antinori and I jointly published a paper on *Cypselus horus*, H. et F.*, showing that the bird so named was not a variety of *C. affinis*, as von Heuglin† had thought, but a perfectly distinct species. We gave a full description of it, and pointed out the characteristics by which it may be distinguished from the allied species, *C. affinis*, J. E. Gr., and *C. cafer*, Licht. Quite recently Count Turati, of Milan, has sent me for inspection a *Cypselus* from Landana (Congo), collected by Dr. Lucan and M. Petit, and received through M. Bouvier. Although this specimen is not fully adult, it is quite evident, in my opinion, that it belongs to the same species as the specimen in the Turin Museum which

* Nota intorno al *Cypselus horus* (Atti R. Ac. Sc. Tor. viii. pp. 94–96).
† Orn. N.O.-Afr. i. p. 146.

Antinori and I have identified with *C. horus*. The young specimen in Count Turati's collection is smaller than the adult specimen in the Museum of Turin (long. tot. 140 millim., al. 124, caud. rectr. ext. 58); it has the feathers of the crown and the quills edged with whitish, and the white on the throat and rump a little greyish.

M. Bouvier has described and figured under the name of *Cypselus sharpii** a bird from Banane (Congo), near Landana; and I have not the least doubt that the specimen which he has sent now to Count Turati belongs to that species, which I identify with *C. horus*. His description of *C. sharpii* agrees with that of *C. horus*; only the dimensions are smaller, most likely from the specimen described being not fully grown. A little later Messrs. Sharpe and Bouvier† have stated that "C. sharpii *a de grandes affinités avec* Cypselus horus, *mais en est parfaitement distinct*;" but they do not say what the differences are, and I have failed to discover them myself.

Again, Prof. Barboza du Bocage, in his valuable work the 'Ornithologie d'Angola,' gives the description of a *Cypselus finschi* from Angola, which I am sure is the same as *C. horus* and *C. sharpii*. It seems that even Prof. Barboza had recognized that his bird was the same as *C. horus*, so that I do not quite understand why he should have given it a new name.

After the above identifications the synonymy of *C. horus* will stand as follows:—

Cypselus horus, H. et F.

Cypselus caffer, Brehm (nec Licht.), Journ. f. Orn. 1853, Extraheft, p. 96.

Cypselus galilejensis, Antin. Cat. p. 24 (1864) (nec Naumannia) (Sennaar); Salvad. Atti R. Ac. Sc. Tor. v. p. 727 (1870).

Cypselus affinis, var., Heugl. Orn. N.O.-Afr. i. p. 146 (1869).

Cypselus horus, Hartl. et Finsch, MS.; Heugl. *l. c.*; Salvad. et Antin. Atti R. Ac. Sc. Tor. viii. p. 94 (1872); Heugl. Orn.

* Bull. Soc. Zool. France, i. p. 228, pl. vi. f. 1.

† Ibid. p. 303.

N.O.-Afr. ii. p. liv (1873); Antin. et Salvad. Ann. Mus. Civ. Gen. iv. p. 434 (1873).

Cypselus affinis, Boc. (nec J. E. Gray) Jorn. Sc. Acad. Lisboa, n. xii. p. 269 (1871) (Angola).

Cypselus sharpii, Bouv. Bull. Soc. Zool. Franc. i. p. 228, pl. vi. f. 1 (1876) (Banane, Congo); Sharpe et Bouv. ibid. p. 303.

Cypselus finschi, Boc. Orn. Ang. p. 159 (1877) (Angola).

Turin, Zoological Museum.
May 10th, 1881.

XLIII.—*Description of a supposed new* Aplonis *from Vaté (Sandwich) Island, New Hebrides.* By E. L. Layard, C.M.G., F.Z.S., &c., H. B. M. Consul in New Caledonia. *With Remarks by* Canon Tristram, F.R.S.

We have had for some time in our possession an example of an *Aplonis* which did not occur to L. L. during his visits to Vaté, but which was subsequently forwarded to us in alcohol. Unfortunately we cannot make out the sex; but it is either a young male or else a female. On this account we have hesitated to describe it, but will not longer delay, as we see no chance of obtaining more specimens from the same locality. We propose, from the rufous colouring of the wings, to designate the species

Aplonis rufipennis, n. sp.

General colour above brown, with a rufous gloss throughout; front paler than the top and back of the head; between the eye and the nares a blackish patch; wing-primaries brown, anterior edges bright rufous chestnut, this colour prevailing on the lower flanks and upper tail-coverts; spurious wing and two or three outer secondaries almost black, forming a well-marked patch on the upper edge of the wing. Chin, throat, and underparts grey-drab, the drab prevailing on the two first-named places; under tail-coverts much tinged with rufous. Length 7″ 3‴, wing 4″, tail 2″ 6‴, tarse 13‴, bill 1″.

Neither in Gray's 'Hand-list' nor in his 'Birds of Tropical Islands' is there any mention of an *Aplonis* from the New

Hebrides. L. L. did not see any during his several visits; and we therefore conclude that the species is as yet unknown.

The throat contained round red berries, probably seeds of some species of banian. The entrails &c. had been removed, and the sex was undiscoverable.

[*Note.*—It is, perhaps, rather bold to question a species without having seen the specimen; but I am disposed to demur (first) to the fact of this being a new species, and (secondly) to the differentiating characters given by my friend.

In measurements it agrees exactly with *Calornis cantoroides*, G. R. Gray, a very widely extended species, though it is quite possible that, as the Loyalty Islands possess their peculiar species (*C. atronitens*), the New Hebrides may also have their own. But the rufous colouring of the body and the chestnut wings appear to me to be merely a variation to which the whole Starling tribe are liable. I have before me, as I write, a specimen of *Sturnus vulgaris*, shot at Darlington, of which the whole upper surface and wings are uniformly bright rufous; this specimen I exhibited at a meeting of the Zoological Society. I have also before me a specimen of *Calornis* from the Solomon Islands, collected by Capt. Richards, R.N., which has the wings and tail chestnut, but which, in the absence of a larger series, I should certainly hesitate to describe from these characters. It is certainly neither *Calornis metallica*, nor *C. cantoroides*, both of which occur in the Solomon Islands, but is most nearly allied to *C. atronitens*, yet with different reflections. In either case I should prefer to wait for other specimens before deciding a species from what I suspect to be accidental characters.—H. B. T.]

XLIV.—*On two apparently new Finches of the Genus* Erythrura, *with Remarks on other known Species of the Group.* By P. L. Sclater, M.A., Ph.D., F.R.S.

(Plate XV.)

Mr. J. K. Howard, F.Z.S., has kindly placed in my hands the skin of a Finch of the genus *Erythrura* which was shot

by his son, Capt. Kenneth Howard, R.N., during the course of a few hours' visit to the interior of the island of Api, New Hebrides, in August 1880. After examination and comparison of it with examples of the known species of the genus I have come to the conclusion that it belongs to an undescribed form of the shorter-tailed section of the group (*Amblynura* of some authors), which I propose to call

ERYTHROSPIZA REGIA, sp. nov. (Plate XV. fig. 2.)

Nitide cærulea; pileo, capitis lateribus et uropygio coccineis; cauda testaceo-rubra; remigibus alarum fusco-nigris, extus claro viridi limbatis; tectricibus dorso concoloribus; rostro nigro, pedibus fuscis: long. tota 4·0, alæ 2·5, caudæ 1·5.

Hab. Api, New Hebrides.

Obs. Species structurâ *E. cyano-virentis* omnino prædita, sed rostro paulo crassiore, et corpore læte cæruleo primo visu notabilis.

While examining the specimens of these Finches in the collection of the British Museum, with the view of determining the bird above described, I found four examples of a closely allied species, which seems also to be new to science. They have been labelled by the late Mr. G. R. Gray, "*E. pealei*," but certainly do not belong to that form. With Dr. Günther's kind permission, I propose to characterize this bird as

ERYTHROSPIZA SERENA, sp. nov. (Plate XV. fig. 1.)

Nitide viridis; pileo, capitis lateribus, uropygio et caudæ tectricibus superioribus coccineis; cauda testaceo-rubra; cervice postica cum gula et pectore superiore cæruleis; rostro nigro: long. tota 3·7, alæ 2·6, caudæ 1·3. *Fem.* mari similis, sed coloribus dilutioribus.

Hab. Aneiteum, New Hebrides (*MacGillivray*).

Mus. Brit.

Obs. Species *E. regiæ* admodum affinis, sed collo undique viridi distinguenda.

An adult pair and two young birds of this fine Finch were obtained by MacGillivray in Aneiteum on the 8th of February 1860. The native name is marked on the specimens as

J. Smit lith. Banhart imp.

1 ERY THRURA SERENA.
2 „ „ REGIA.

Obs. Spe[illegible], sed collo undique viridi distinguenda.

An adult pair and two young birds of this fine Finch were obtained by MacGillivray in Aneiteum on the 8th of February 1860. The native name is marked on the specimens as

J.Smit lith.

Hanhart imp

1. ERYTHRURA SERENA.
2. " REGIA.

"Inhangane," the iris "dark umber-brown," and the legs and feet as "dusky flesh-colour."

I will now add a few notes upon other species of the genus *Erythrura* which I have made while investigating the claims of the preceding birds to be regarded as undescribed.

Dr. Hartlaub, in his Synopsis*, published in 1858, recognized seven species of the genus, exclusive of *Neochmia phaeton* of Australia, which cannot, I think, be considered a true *Erythrura*. These seven species were:—

1. Erythrura prasina (Sparrm.).

A well-known species of Java, Sumatra, and Borneo.

2. Erythrura trichroa (Kittl.).

This species was based by Kittlitz upon specimens from Ualan, Carolines, but seems to have a wide distribution. Mr. Wallace obtained it in Batchian and Ternate, and described it (Ibis, 1862, p. 351) as *E. modesta*, believing the Papuan form to be distinct. But so far as I can tell from comparing his specimens with skins in the Godeffroy Museum collected in the Carolines (Ponapé and Ruk) by Kubary, these two forms are not to be distinguished. Nor can I find any grounds for maintaining *E. cyanifrons* of Layard (Ibis, 1878, p. 260, 1879, p. 280, 1880, p. 338), from Tanna, Lifu, and Maré, as distinct, judging at least from one of Mr. Layard's examples of this supposed species (from Tanna) in Mr. Forbes's collection, which is marked "*E. cyanifrons*" by Mr. Tristram.

3. Erythrura tricolor (Vieill.).

I have examined a skin of this species in the British Museum obtained by Mr. Wallace in Timor. Cf. Wallace, P. Z. S. 1863, p. 486.

4. Erythrura psittacea (Gm.).

This fine species from New Caledonia is likewise represented in the British Museum, and in Mr. Forbes's collection.

* Synopsis generis Fringillini *Erythruræ*, auctore Gustavo Hartlaub, Med. Doct. (P. Z. S. 1858, p. 461).

5. Erythrura pucherani, Bp. Consp. i. p. 457; Hartl. *l. c.* p. 462.

M. Oustalet, to whom I sent a skin of *E. cyanovirens* (Upolu, Samoa, *Kubary*) for comparison, assures me that the typical specimen of *E. pucherani*, Bp., in the Paris Museum is absolutely identical with it. *E. pucherani* must therefore be regarded as a synonym of *E. cyanovirens*.

6. Erythrura cyanovirens (Peale), from the Samoan Islands.

7. Erythrura pealii, Hartl., from the Fiji group.

These two species are well diagnosed by Hartlaub, and seem to be quite distinct. I have been able, through the kindness of Mr. Schmeltz, to examine specimens of the former, collected by Kubary, and of the latter, collected by Kleinschmidt, in the Godeffroy Collection.

The species of the genus *Erythrura* which I am disposed to recognize as valid are therefore eight, as follows:—

1. *E. prasina* (Sparrm.), ex Java, Sumatra, et Borneo.
2. *E. trichroa* (Kittl.); ex inss. Carolinens., Halmahera*, Batchian, Ternate, Papua†, inss. Lifu, Maré, et Tanna!
3. *E. tricolor* (Vieill.), ex Timor.
4. *E. psittacea* (Gm.), ex Nov. Caledonia.
5. *E. cyanovirens* (Peale), ex inss. Samoensibus.
6. *E. pealii*, Hartl. ex inss. Fiji.
7. *E. serena*, mihi, ex ins. Anciteum.
8. *E. regia*, mihi, ex ins. Api.

I may add that during a recent visit to the Dresden Museum, in company with Mr. Forbes, I carefully examined the type of *Chlorura hyperythra*, Reichenbach (Singvögel, p. 33), said to be from New Guinea. The conclusion we arrived at was that this is really a good species, nearly related to *Erythrura*, but perhaps hardly to be placed within the confines of the genus.

* (*Meyer*). † Mount Arfak (*Meyer*).

XLV.—*Notes on a 'Catalogue of the* Accipitres *in the British Museum' by* R. Bowdler Sharpe (1874). By J. H. Gurney.

[Continued from p. 472.]

I have, before continuing my remarks upon the genus *Tinnunculus*, to correct an error of the printer at p. 465; the four female Kestrels there placed under the head of "*T. interstinctus*," should have been included amongst the "Chinese females respecting which I am doubtful whether they should be referred to *T. interstinctus* or to *T. japonicus*."

The various races of Kestrels inhabiting the continent of America and the West-Indian Islands, to which I now propose to refer, have given rise to considerable divergence of views amongst ornithologists; and it is therefore with much diffidence that I offer an opinion on the subject; but it seems to me that the following species may properly be recognized:—

Tinnunculus sparverius (Linn.), with *T. cinnamominus* (Swains.), and *T. antillarum* (Gmel.) as subspecies.

T. isabellinus (Swains.).

T. dominicensis (Gmel.)=*leucophrys*, Ridgw.

T. sparveroides (Vig.).

Of these the last three possess one character in common, viz. that the oldest males become immaculate on the under surface of the body*, whilst in *T. sparverius*, although the spots on the breast of the male diminish with age, both in number and size, they never altogether disappear, which, so far as I can judge from the limited number of specimens that I have examined, is also the case in the males of *T. cinnamominus* and *T. antillarum*.

Between Mr. Sharpe's method of arranging these Kestrels and my own there are but few differences; and to these I propose to refer in the order in which they arise, availing

* I have seen *T. isabellinus* and *T. dominicensis* (=*leucophrys*) absolutely immaculate on the breast, abdomen, and flanks, and *T. sparveroides* with only two indistinct spots on one side of the abdomen.

myself, as regards the entire subject, of Mr. Ridgway's important article on *T. sparverius* and its allies in Baird, Brewer, and Ridgway's 'Land Birds of North America," vol. iii. pp. 159–175.

Mr. Ridgway describes the geographical range of the typical *T. sparverius* as extending "over the whole of continental North America, from Panama northward into the British provinces, and from the Atlantic to the Pacific," and adds that it has been found nesting at Fort Resolution, on Great Slave Lake, in lat. 62° N., and that it has also been obtained at Fort Rae, these being the most northerly points to which he has traced it.

Mr. Ridgway also informs us that in Florida the typical *T. sparverius* and *T. isabellinus* both occur, and also specimens of a character intermediate between those two forms; and he likewise mentions a remarkably small race of *T. sparverius* inhabiting the peninsula of Lower California, but adds that its "dwarfed size" is its "only distinguishing character."

T. sparverius appears to be partially migratory. Mr. Ridgway writes, "In winter these birds, for the most part, desert the northern and middle States, but are resident south of Virginia."

Mr. Dresser found them in Southern Texas "quite common near San Antonio and to the eastward throughout the whole year"*; but at Dueñas, in Guatemala, it is stated by Mr. Salvin that this species "is migratory, being a visitant there only during the winter months"†. I may mention an undoubted example of the true *T. sparverius* which I have seen from South America. It is a typical adult male, but of unusually small dimensions; it was recorded in 'The Ibis' for 1879, p. 206, and is now in the possession of Messrs. Salvin and Godman, to whose kindness I am indebted for the opportunity of examining this example, together with the rest of their very fine series of American Kestrels. The specimen in question was obtained by Mr. F. Simons at Ma-

* Ibis, 1865, p. 323.
† Ibis, 1859, p. 219.

naure, near Santa Marta, in Colombia, on 27th May 1878*, and but for its having been obtained so late in the spring, might be supposed to have been an individual of the small race of Lower California which had migrated to a more southern region during the winter months; its having been obtained in Colombia so late as the 27th May, however, is a circumstance very adverse to this supposition. The measurements of this specimen I have given, with those of some others, at the end of my remarks on this species.

Mr. Sharpe has followed Brisson† in his statement that the iris of *T. sparverius* is yellow; but this is at variance with the subjoined records:—

Adult male, from the banks of the Saskatchewan, "iris dark brown" (*Richardson*)‡.

Adult male, United States, "iris brown" (*Audubon*) §.

Male, United States, "iris dark, almost black;" female, United States, "iris deep dusky" (*Wilson*) ||.

Specimen from Tehuantepec, "iris dark brown" (*Sumichrast*) ¶.

Adult male, Manaure, Colombia, "iris dark brown" (*Simons*) **.

I have not seen a young male of *T. sparverius* killed at a sufficiently early stage to retain any portion of its nestling-down; but I believe that the first dress of the young males, as stated by Mr. Sharpe, "resembles the old female;" this agrees with the following statement in the 'Fauna Boreali-

* A younger male of small dimensions, and still in female dress, also obtained at Manaure, and killed on June 1, 1878, is likewise in the collection of Messrs. Salvin and Godman, and, I think, is probably referable to *T. sparverius*, as it has a considerable amount of rufous on the crown of the head. The British Museum also contains an adult male from Caracas, in Venezuela, which I think should also be referred to *T. sparverius*; but the Kestrel usually found in Venezuela is *T. isabellinus*.

† Ornithologia, vol. i. p. 387.

‡ Fauna Boreali-Americana, pt. 2, p. 34.

§ Ornithological Biography, vol. ii. p. 251.

|| American Ornithology, vol. ii. p. 112.

¶ Bull. U.S. Nat. Mus. No. 4, p. 39.

** Ibis, 1879, p. 206.

Americana' (pt. 2, p. 34) :—"A young male had nearly the plumage of the female, differing only in the black bars on the wings being more distinct, those on the tail narrower, and in the upper tail-coverts being brownish red, without spots."

The subspecies *T. cinnamominus* is so very closely allied to the typical *T. sparverius*, that there can, I think, be no doubt that the stages of plumage in the former may be accepted as illustrative of those of the latter; and I may therefore here mention a Kestrel which I believe to be a young male of *T. cinnamominus* in its first plumage, and which is preserved in the Norwich Museum. This specimen, shot at Potrero, in Peru, on 5th December, entirely agrees with a Peruvian female in the same collection, with the following exceptions, viz. :—the rufous behind the ear-coverts and on each side of nape is paler, inclining to yellowish white; that of the scapular and interscapular feathers is brighter, and also a little paler, whilst the dark bars across this portion of the plumage are rather narrower, and, on the upper interscapulars not quite so numerous; there are no dark transverse bars on the rump, upper tail-coverts, and tail, except the subterminal bar on the latter; lastly, the brown shaft-marks on the breast and flanks are rather narrower and a little lighter*.

The males of *T. sparverius*, after losing their nestling-plumage, assume a garb which appears to me to consist, not of "the remains of their immature dress," as suggested by Mr. Sharpe, but of a new and distinct livery, probably acquired by an actual moult of the nestling-feathers. This second plumage only differs in the following particulars from that of the oldest males :—The feathers on the upper breast, which in the latter are immaculate, have each a distinct dark shaft-mark, these being replaced on the lower breast and flanks by dark spots, which are both larger and more numerous and also often more guttate in form than the corre-

* Another young male in the Norwich Museum, obtained in Chile, also retains the transverse bars of the female dress on the scapulars and interscapulars in almost undiminished regularity, but otherwise has attained the male plumage.

sponding spots in the old males; also the dark transverse bands on the scapulars and interscapulars, though much less regular and numerous than in the first plumage, are more extended than in the older males, being both broader, deeper, and more continuous, and, instead of being confined to the lower, extend to the upper scapulars, and sometimes to the upper interscapulars and the nape; the dark spots on the wing-coverts are also frequently larger in this stage than in the old males*.

I may add that the final adult male plumage appears to be more rapidly assumed on the under than on the upper surface of the body, the diminution in size and number of the dark cross bars, or bar-like spots, on the scapulars being apparently very gradual, and probably more complete ultimately in some individuals than in others†, though in the typical *T. sparverius*, as well as in its two subspecies, *T. cinnamominus* and *T. antillarum*, they seem never entirely to disappear. The pattern of the tail-feathers, and especially of the outer pair of rectrices, in the adult males of *T. sparverius*‡ varies remarkably, it being frequently the case that the external rectrices do not even correspond with each other. The normal character of this pair of the tail-feathers in fully adult male birds appears to be, white with from four to five transverse black bars on the inner web, extending from the shaft of the feather towards its inner edge, though seldom actually reaching it; but the number of these bars is very variable, and the ground-colour of the feather is very often (perhaps more often than not) more or less rufous, especially on the inner web; both webs are also liable to be tinged with grey; and abnormal markings of black, grey, or white

* Mr. Ridgway describes a young male from Nebraska as having the "blue of the wings with scarcely any spots;" but I think that this must be exceptional, as I have not met with any young male answering to this description.

† Male specimens from the most southern countries of Central America appear to retain a larger proportion of dorsal crossbarring when fully adult than those from more northern localities.

‡ A somewhat similar variation in the pattern of these feathers occurs in *T. cinnamominus*, *T. antillarum*, and *T. isabellinus*.

occasionally invade the normally rufous portion of the other rectrices, and especially of the pair next to the outer ones. All these variations seem to me to partake of the character of individual peculiarities, and to be but little, if at all, due either to age or to locality.

In the females of *T. sparverius* the longitudinal markings on the under surface are more distinct and better defined in some specimens than in others, the latter being probably the younger birds; there are also differences in the extent of the rufous on the crown of the head, and, though not to any great extent, in the narrowness of the dark transverse bars on the mantle, and still more of those on the tail; but all these differences, except the first, seem to me to be due to individual peculiarities rather than to differences of age.

I subjoin a few measurements of *T. sparverius* from various localities, all taken by myself from specimens in the Norwich Museum and in the collection of Messrs. Salvin and Godman, with the exception of one copied from Mr. Ridgway's work for the sake of comparison. In this and in subsequent tables of measurements I have indicated by initials the collections in which the several specimens measured are preserved.

T. sparverius.

Males (adult, except where otherwise noted).

	Wing.	Tarsus.	Middle toe *s. u.*	Culmen.	Depth of subterminal bar on tail.
	in.	in.	in.	in.	in.
Hudson's Bay (N. M.)	7·70	1·50	1·00	0·50	1·00
Vancouver Island (N. M.) ..	7·40	1·35	0·95	0·50	0·90
Monterey, California (N. M.)	7·90	1·60	0·95	0·50	1·00
Gallina, Illinois (N. M.)	7·50	1·50	0·90	0·50	1·10
Washington (coll. S. & G.)..	7·70	1·50	0·90	0·55	1·20
Valley of Mexico (coll. S. & G.)	8·00	1·40	1·00	0·50	0·65
Orizaba, Mexico (N. M.)....	7·50	1·40	0·90	0·45	0·70
Oaxaca, Mexico (N. M.)	7·80	1·50	0·90	0·45	0·90
Northern Yucatan (coll. S. & G.)	7·50	1·40	1·00	0·45	0·70
Yucatan (N. M.)	7·50	1·50	1·00	0·50	0·70
Belize, Brit. Honduras (coll. S. & G)	7·60	1·45	1·00	0·55	1·00

Males (*continued*).

	Wing. in.	Tarsus. in.	Middle toe s. u. in.	Culmen. in.	Depth of subterminal bar on tail. in.
Coban, Guatemala (coll. S. & G.)	7·55	1·45	0·90	0·50	0·80
San José, Costa Rica (coll. S. & G.)	7·60	1·40	0·90	0·55	1·00
Volcan de Chiriqui (coll. S. & G.)	7·65	1·50	0·95	0·50	0·90
Panama (N. M.)	7·65	1·40	1·00	0·45	1·10
Manaure, U. S. Colombia (coll. S. & G.)	6·90	1·35	0·95	0·50	1·10
Manaure, younger male (coll. S. & G.)	7·10	1.40	0·95	0·50	
San José, peninsula of California, the smallest ♂ from thence measured by Mr. Ridgway	6·50	1·30			
	Females.				
Vancouver Island (N. M.)	7·80	1·50	0·90	0·55	
Fort Crook, California (coll. S. & G.)	7·80	1·50	1·05	0·45	
Orizaba, Mexico (N. M.)	8·20	1·50	0·90	0·55	
Merida, Northern Yucatan (coll. S. & G.)	8·05	1·50	1·00	0·55	
San Pedro, Spanish Honduras (N. M.)	7·70	1·50	0·90	0·50	
Dueñas, Guatemala (coll. S. & G.)	7·90	1·50	1·00	0·45	
Irazu District, Costa Rica (coll. S. & G.)	7·70	1·50	1·00	0·55	
Volcan de Chiriqui (coll. & G.)	7·70	1·50	1·05	0·50	

The South-American Kestrel, for which Swainson proposed the specific name of "*cinnamominus*"*, differs from *T. sparverius* in wanting, in both sexes, the rufous patch on the crown of the head, which is conspicuous in the typical *T. sparverius* of North America. This South-American race has the crown of the head slaty grey, with the shaft-marks on each

* Animals in Menageries, p. 281.

feather of a darker hue of the same, but with a few of the feathers at the back of the head sometimes exhibiting a very slight admixture of rufous, this occipital tinge of rufous being present in some individuals and entirely absent in others from the same locality and of the same sex; the average depth of the black subterminal bar on the tail of the adult males is also less than in the northern *T. sparverius*, as may be seen by a comparison of the accompanying table of measurements. These are the only differences between the two races which appear to me to be of a constant character*; but they are, perhaps, sufficient to warrant the separation of *T. cinnamominus* as a subspecies of *T. sparverius*.

Mr. Ridgway has proposed further to divide *T. cinnamominus* into two races, which he designates as "variety *cinnamominus*" and "variety *australis*;" but I agree with Mr. Sharpe in thinking that there is hardly sufficient ground for this subdivision†.

I have examined specimens of *T. cinnamominus* from the following South-American localities—viz. Peru, Chile, Brazil, Argentine Confederation, Falkland Islands, and Straits of Magellan; these are contained in the British, Cambridge, and Norwich Museums and in the collection of Messrs. Salvin and Godman. The last-mentioned collection also contains, amongst a large series of specimens of *T. sparverius* from Central America, four which agree in the colour of the crown of the head (slaty, with a very slight occipital tinge of rufous), but not, as regards the males, in the depth of the subterminal bar on the tail, with South-American examples of *T. cinnamominus*: these four specimens consist of three males, obtained near San Diego (Guatemala), at Chontales (Nicaragua), and on the southern slope of the volcano of Chi-

* The colour of the iris in *T. cinnamominus* resembles that of *T. sparverius* (conf. P. Z. S. 1878, p. 435, also Ibis, 1880, p. 362).

† A. d'Orbigny, in his 'Voyage dans l'Amérique méridionale,' "Oiseaux," p. 122, records a Kestrel obtained by him in the province of Chiquitos, in Bolivia, which much resembled the male of the Cuban *T. sparverioides*, but which was probably an abnormal individual of *T. cinnamominus*, as he states that it was shot "au milieu de beaucoup d'autres individus revêtus des couleurs normales."

riqui, also of a female from Calobre (Veragua). A few other specimens in the same collection, from the southern parts of Central America, show a tendency towards the same coloration of the head, but not to the same extent.

I subjoin some notes of measurements taken by myself from specimens of *T. cinnamominus*, amongst which I have included the four from Central America to which I have just alluded.

T. cinnamominus.

Males (adult or nearly adult).

	Wing. in.	Tarsus. in.	Middle toe *c. u.* in.	Culmen. in.	Depth of subterminal bar on tail. in.
Near San Diego, Guatemala (coll. S. & G.)	7·20	1·40	1·00	0·55	0·90
Chontales, Nicaragua (coll. S. & G.)	7·60	1·40	0·90	0·50	1·10
Volcan de Chiriqui (coll. S. & G.)	7·70	1·50	1·10	0·55	0·85
Three from Peru (N. M. and coll. S. & G.)	7·60 to 7·90	1·45 to 1·50	0·95 to 1·05	0·50 to 0·55	0·50 to 0·65
Chile (N. M.)	7·50	1·50	1·00	0·50	0·65
Ditto (N. M.)	7·65	1·50	1·00	0·50	0·60
Brazil (C. M.)	7·30	1·50	1·00	0·50	0·90
Three from the Argentine Confederation (C. M., N. M. and coll. S. & G.)	7·70 to 7·80	1·45 to 1·50	0·90 to 1·10	0·50 to 0·55	0·60 to 0·90
Falkland Islands (N. M.)	7·40	1·45	1·00	0·55	0·65
Sandy Point, Straits of Magellan (C. M.)	7·80	1·50	1·15	0·55	0·65
Ditto, ditto* (C. M.)	8·10	1·45	1·15	0·50	0·60
Ditto, ditto (C. M.)	8·15	1·50	1·10	0·60	0·45
	Females.				
Calobre, Veragua (coll. S. & G.)	7·90	1·45	0·90	0·50	
Peru (N. M.)	8·30	1·50	1·00	0·60	

* This specimen is marked by the collector as a female; but its plumage is that of a male nearly adult; the other two specimens from Sandy Point are fully adult males.

FEMALES (*continued*).

	Wing. in.	Tarsus. in.	Middle toe *s. u.* in.	Culmen. in.	Depth of subterminal bar on tail. in.
Five from Chile (N. M. and coll. S. & G.)	7·65 to 8·10	1·40 to 1·50	1·00 to 1·10	0·50 to 0·55	
Bahia (coll. S. & G.)	7·45	1·45	1·00	0·55	
Rio Grande do Sul, Brazil (coll. S. & G.)	8·10	1·50	0·90	0·50	
Falkland Islands (N. M.)....	8·15	1·40	1·10	0·50	

Mr. Sharpe, in his article on *T. sparverius*, states that its range extends to the Antilles; but the Kestrel inhabiting the lesser West-Indian Islands appears to me to be subspecifically distinct from the typical *T. sparverius*. The Kestrels of the several islands of the Antilles are probably all referable to the same subspecies, notwithstanding slight divergencies which exist between those which inhabit some of the different islands of that group.

Mr. Ridgway, in his elaborate article on the American Kestrels, to which I have already referred, styles the Kestrel of the Antilles "*Falco sparverius*, var. *dominicensis*;" but he subsequently writes "I find on further investigation that it should bear the name of *antillarum*, Gmel., *dominicensis*, being, as I now conclude, the bird which I have called *leucophrys*"*. I entirely agree with Mr. Ridgway that "*antillarum*" is the correct subspecific name for the race of Kestrels inhabiting the Antilles, being founded on Brisson's "Emerillon des Antilles," and that *Falco dominicensis*, Gmel., is the species common to St. Domingo and Cuba, which has been subsequently called *leucophrys*.

Excluding, for the present, from our view those parts of the West Indies in which the occurrence of *T. antillarum* has not been recorded or ascertained, we have to consider the Kestrels which inhabit the several islands of Porto Rico, St. Thomas, Santa Cruz, St. Bartholomew, Barbuda, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, St. Lucia,

* Lawrence, Proc. U. S. Nat. Mus. 1878, p. 65.

and Grenada (all of which are probably referable to *T. antillarum*), and the points in which that subspecies differs from the typical *T. sparverius*.

In the adult males of *T. sparverius* all the rectrices, except the outer pair and frequently also the next pair, are usually of an unbroken rufous above the dark subterminal band; but it occasionally happens, even in males that are fully adult, that the outer edge of these rectrices is marked at intervals with black spots, the position of which answers with more or less regularity to the transverse bars which cross the tails of the females and youngest males of this species. In *T. antillarum* the spots appear to be constantly present, and sometimes to be developed into transverse bars reaching across the tail, though whether these bars ever remain in their unbroken state when the bird becomes old I am unable to say; but I incline to the opinion that they indicate partial immaturity, and that they probably break up into spots as the age of the bird advances. The males of *T. antillarum* are further distinguished from those of *T. sparverius* by the larger size and greater profusion of the dark spots on the flanks and on the grey wing-coverts, the latter being also sometimes slightly spotted with rufous. In addition to these peculiarities of the males of *T. antillarum*, the females are distinguished by the markings on the under surface being of a much darker brown than is the case in the females of *T. sparverius*.

I have seen no specimens of *T. antillarum* from Porto Rico and St. Bartholomew, and no males from St. Thomas; but descriptions of all these from the pen of Mr. Ridgway will be found in the 'Land-birds of North America,' vol. iii. p. 167 (footnote). I have, however, examined two examples from St. Thomas in female plumage—one in the British Museum, and the other in the collection of Messrs. Salvin and Godman; both these only differ from the females of *T. sparverius* in the brighter hue of the rufous portions of the upper surface and of the tail, and in the darker tints of the markings on the under surface to which I have already alluded. A female from Montserrat, in the possession of Messrs. Salvin and Godman, only differs from their St.-Thomas female in

these markings being much broader and of a more guttate form.

In 'The Ibis' for 1859, at p. 63, an account was given by Messrs. A. and E. Newton, of the Kestrel inhabiting the island of St. Croix, with a figure of its egg at plate xii. fig. 7 of the same volume; I have had the advantage of examining two males from St. Croix, and two females, one pair being the gift of Messrs. Newton to the Cambridge and the other to the Norwich Museum.

Both these males are remarkable for the large size of the black spots with which the grey lesser and median wing-coverts are interspersed, and still more so for many of the feathers, at the point of which these black spots are situated, showing a smaller rufous spot immediately behind the black one. The Cambridge male shows from three to five conspicuous black spots on the edge of the outer web of each rectrice, and corresponding spots, but in most of the feathers less numerous, on the edge of the inner web; these spots increase in size as they approach the black subterminal band. In the Norwich male, which is probably an older bird, these spots are smaller and less numerous, especially on the central pair of rectrices and on the pair next adjoining them. In both these males, but especially in the Cambridge specimen, the black spots on the flanks are somewhat broader than in *T. sparverius*; both specimens show broad and bar-shaped spots on the back, these being somewhat more profuse than in most old males of *T. sparverius*, which, with the exception of the peculiarities just mentioned, they otherwise resemble. Both the St.-Croix females agree in markings and coloration with the Montserrat female to which I have already referred.

Mr. Lawrence has recorded the occurrence of *T. antillarum*, but without any description of the specimens obtained, in the islands of Antigua, Barbuda, Martinique, and Grenada, in his valuable catalogues of the birds collected in those islands by Mr. Ober. I have seen no specimens from any of these localities; but by the kindness of Messrs. Salvin and Godman, I have been able to examine the following examples in their collection in addition to those which I have already men-

tioned—viz. a male from Guadeloupe, another from Dominica, and a male and female from St. Lucia.

The Guadeloupe male, which seems to be fully adult, greatly resembles the two males from St. Croix already described, but has more of the curious mingling of rufous with the grey and black of the wing-coverts, as it extends, in this specimen, to the greater as well as to the lesser and median coverts; one of the most variegated feathers of the greater coverts shows four transverse black bars, with the interspaces rufous slightly mingled with grey, and a grey tip*; the rectrices show black spots on the edges of the outer webs, like those in the males from St. Croix; and it is observable that, the central pair having been moulted, the partly grown new pair are similarly spotted on both webs.

The male from Dominica is a similar but apparently a younger bird, the rectrices, which are much worn, being regularly crossbarred, as in the female of *T. sparverius*, except that the subterminal bar is decidedly broader; these bars, which are seven in number, besides the subterminal one, are perhaps a remnant of the first immature plumage; and some slight vestiges of crossbarring on the rump are probably also due to the remains of immaturity. This specimen shows some mingling of rufous on the greater wing-coverts, but not on the lesser or median.

In the male from St. Lucia the tail is crossbarred, and the rump partially so, as in the male from Dominica, the transverse bars on the tail numbering six besides the subterminal one. In this specimen the scapulars and interscapulars are broadly barred with black almost to the nape, the wing-coverts are dark grey, much interspersed with large slaty-black spots, but with no intermingling of rufous; the crown of the head is a dark slate-colour, with but a very faint tinge of rufous on the occiput, this being the only specimen of

* I have observed somewhat similar feathers in the greater wing-coverts of two males, in the second plumage, of *T. sparverius*—one from Northern Yucatan, the other from Nicaragua; with these exceptions, I have not met with any admixture of rufous in the wing-coverts of the adult or nearly adult males of *T. sparverius*.

T. antillarum which I have seen in which the rufous patch on the crown of the head is wanting; the underparts resemble those of the old male of *T. sparverius*, except in the much greater width of the black marks on the flanks.

The female from St. Lucia resembles in markings and coloration those from St. Croix and Montserrat, except that the rufous on the head, though very apparent, is not quite so much developed, and that the dark markings on the flanks are more extended, being almost as wide as in the male.

The following are the measurements which I have taken from specimens of *T. antillarum* :—

	Wing. in.	Tarsus. in.	Middle toe *s. u.* in.	Culmen. in.	Depth of subterminal bar on tail. in.
Males.					
St. Croix (N. M.)	6·55	1·45	0·90	0·55	0·70
St. Croix (C. M.)	6·50	1·40	1·05	0·55	1·00
Guadeloupe (coll. S. & G.)	6·65	1·45	1·10	0·55	0·80
Dominica (coll. S. & G.)	6·65	1·40	1·00	0·50	0·90
St. Lucia (coll. S. & G.)	6·25	1·40	0·90	0·50	1·05
Females.					
St. Thomas (coll. S. & G.)	7·50	1·50	1·20	0·50	
St. Croix (N. M.)	7·00	1·45	1·05	0·65	
St. Croix (C. M.)	6·80	1·40	1·00	0·65	
Montserrat (coll. S. & G.)	7·20	1·50	1·00	0·60	
St. Lucia (coll. S. & G.)	6·40	1·35	1·00	0·60	

It will be observed in the above Table that the wing-measurements of the pair of Kestrels from St. Lucia are decidedly smaller than those of specimens of the like sexes from the other islands; the comparatively large size of the females from St. Thomas and Montserrat is also remarkable.

I may add, for comparison, the following wing-measurements quoted by Mr. Lawrence from Mr. Obers's notes, viz. "Guadeloupe, male 6·50, female 7·25; Dominica, male 6·75."

I now propose to consider the Kestrel to which Swainson assigned the specific name of *isabellinus*, founded on a spe-

cimen from Demerara, and the male of which was long ago figured by Buffon in the Pl. Enl. pl. 144, under the title of "*Emerillon* de Cayenne." This species inhabits all the most northern counties of South America, and, according to Mr. Ridgway, is found on the Atlantic coast of North America as far northward as Florida and in one instance has occurred in Georgia. I have seen both sexes from Ecuador, the United States of Colombia, and Venezuela, also three males from British Guiana, and a female, probably referable to this species, from Trinidad*.

In *T. isabellinus* the crown of the head is a dark slate-colour, in many cases unmixed with rufous; but in some individuals, especially those from north-eastern South America, an admixture of rufous on the crown is apparent. When the male first attains its adult plumage, the amount of spotting above and below is nearly as much as in the very old males of *T. sparverius*; but in the oldest and most typical males of *T. isabellinus* all spots have disappeared from the under surface, and also from the interscapulars and scapulars, except a very few, which remain near the lower extremity of the latter. The males have the breast richly tinged with rufous, varying in intensity in different individuals, and in some instances extending, but with a fainter hue, to the abdomen, crissum, and thighs; in those specimens in which the rufous tint is confined to the breast, the abdomen, under tail-coverts, and tibial feathers are white. The females bear a general resemblance to those of *T. sparverius*; but the rufous and black bars on the upper surfaces are in most cases more distinct and more strongly coloured than in the majority of the females of *T. sparverius*. Referring more particularly to the specimens which I have examined, three males from British Guiana in the British Museum have all of them some rufous on the crown of the head; in two it is very slight, but in the third it is considerable†: the last-named specimen

* This species is probably rare in Trinidad, as no Kestrel is mentioned in Léotard's work on the birds of that island.

† The Cayenne male figured by Buffon, to which I have already referred, is represented with a rufous crown.

and one of the others are immaculate on the under surface; but the remaining one has a few spots on the abdomen.

The female from Trinidad, which is preserved in the Norwich Museum, has a considerable admixture of rufous on the crown, and the transverse black bars on the upper surface, excepting those of the tail, are less dark than in some other specimens.

I have examined five males from Venezuela, in the British Museum and in the collection of Messrs. Salvin and Godman, of which three show a slight amount of rufous on the crown, and only one is spotted on the abdomen, and that but slightly, —also three in female plumage, all of which have some rufous on the head: one of these, from its small size, is probably a young male.

The above-mentioned collections and the Norwich Museum contain six males and six females from the United States of Colombia, of which only two males and four females show any trace of rufous on the crown; four of these males are immaculate below, the other two being slightly spotted. In four of the females the barring of the upper surface is darkly and richly coloured; but in the other two it is much duller, except upon the tail.

The Norwich Museum and the collection of Messrs. Salvin and Godman contain eight specimens from Ecuador—five adult males and three in female plumage; one of the latter, probably a young male, is the only one of the eight which shows any rufous on the head. The five adult males are rather more spotted on the back than the oldest of those from other localities; and none of them are entirely immaculate below, though the one most nearly so only exhibits four spots on one side of the abdomen and five on the other; the females resemble the more richly coloured of that sex from Colombia.

Mr. Ridgway's article already referred to contains descriptions of male and female specimens of *T. isabellinus* from Florida and of a young male from Georgia; and he also notices the curious circumstance that some adult males of *T. isabellinus* from Florida, which have come under his notice,

partially approach in the coloration of portions of their plumage *T. sparveroides* of Cuba (which, as subsequently to be noticed, has also been obtained in Florida), in having "a greater or less mixture of plumbeous feathers in various parts of the dorsal region, particularly in the rump and upper tail-coverts."

I may add that the iris in *T. isabellinus* is brown (vide 'Ibis,' 1880, p. 177), where this species is enumerated under the specific name of *sparverius*.

The following are notes of measurements which I have taken from specimens of *T. isabellinus* :—

	Wing. in.	Tarsus. in.	Middle toe s. u. in.	Culmen. in.	Depth of subterminal bar on tail. in.
Males.					
Three from British Guiana (B. M.)	6·95 to 7·10				
Plain of Valencia, Venezuela, (coll. S. & G.)	6·85	1·30	0·90	0·40	0·95
Merida, Venezuela (coll. S. & G.)	7·00	1·50	1·10	0·55	0·70
Five from Colombia (N. M. & coll. S. & G.)	7·00 to 7·95	1·40	0·85 to 1·00	0·45 to 0·55	0·75 to 1·05
Five from Ecuador (N. M. and coll. S. & G.)	7·40 to 7·90	1·40	0·90 to 1·10	0·50 to 0·55	0·55 to 0·90
Females.					
Trinidad (N. M.)	8·35	1·40	0·90	0·50	
Seven from Colombia and Ecuador (N. M. and coll. S. & G.)	7·50 to 8·40	1·40 to 1·50	0·90 to 1·00	0·50 to 0·60	

Referring now to *T. leucophrys* of Ridgway, I may observe that Mr. Sharpe gives the habitat of that species as Cuba only; but it is also a native of St. Domingo, and is, I believe, the true "*Falco dominicensis*" of Gmelin, which was founded on the "Emerillon de St. Domingue" of Brisson. The latter author describes very well the old male of this species, and he also describes and figures a younger male under the idea

that it was the female; it would therefore seem that the specific appellation of "*leucophrys*" must sink into a synonym of "*dominicensis*," the habitat of *T. dominicensis* being St. Domingo and Cuba, instead of "St. Domingo and St. Thomas," as given by Mr. Sharpe, and the Kestrel of St. Thomas being, as I have already mentioned, referable to *T. antillarum*.

Mr. Sharpe, under the head of "*Cerchneis leucophrys*," describes the young male of the true *T. dominicensis*; but a full description of the adult male and female is given by Mr. Ridgway in the 'Land-Birds of North America,' vol. iii. p. 161 (foot-note).

This species is especially marked by the white hue, in some specimens quite pure, in others with a slight tinge of orange-pink, of the under surface of the body, and also of the under wing-coverts. All these parts in the oldest males are entirely immaculate; and in adult males not quite so old they are very nearly so. In the females these portions of the plumage are variegated by lanceolate markings of pale brown, narrow on the breast, broader on the flanks, and on the under wing-coverts both narrow and sparse, and not extending to the coverts nearest to the ridge of the wing: these markings are everywhere much narrower than the corresponding marks in the female of *T. sparverius*, which is also the case as regards the dark transverse bars on the mantle of the females.

Both sexes of *T. dominicensis* usually have more or less rufous on the crown of the head; but I have seen two males in which this feature is entirely absent.

I have taken the following measurements of this species:—

	Wing.	Tarsus.	Middle toe *s. u.*	Culmen.
		Males.		
	in.	in.	in.	in.
St. Domingo (N. M.)	6·80	1·35	1·00	0·50
Six from Cuba (N. M. and coll. S. & G.)	7·05 to 7·25	1·30 to 1·40	0·85 to 1·00	0·50 to 0·55
		Females.		
Three from Cuba (N. M. and coll. S. & G.)	7·40 to 7·55	1·40 to 1·45	0·95 to 1·00	0·55 to 0·65

There remains but one other Transatlantic Kestrel for our consideration, *T. sparverioides*, a native of Cuba, but apparently not entirely limited to that island, as a young male, or possibly a very dark female, killed in St. Domingo by M. de Saussure, was described and figured by that gentleman under the title of *Hypotriorchis ferrugineus* in the Rev. et Mag. de Zool. for 1859, p. 117, pl. 3. fig. 1*, and more recently Mr. Lawrence, in his 'Catalogue of the Birds of Dominica' (Pr. U.S. Nat. Mus. 1878, p. 65) quotes the following from a communication by Mr. Ridgway, "I have a male *T. sparverioides* in the plumbeous plumage from South Florida."

Dr. Gundlach, in his notes on the Birds of Cuba, has expressed his opinion that *T. sparverioides* is only a dark race of *T. dominicensis* (=*leucophrys*), and writes to the following effect:—"One finds all transitions from one colouring to the other; and birds of both colourings frequently pair with each other" †. This may be so; but I have never seen a specimen of an intermediate character, or showing traces of hybridism between *T. dominicensis* and *T. sparverioides*. Mr. Ridgway also says, in writing of these two species, "I have never yet seen a specimen which was not decidedly one or the other" ‡. Mr. Ridgway (*loc. cit.*) describes an old male of *T. sparverioides* as, "above, continuously dark plumbeous from bill to tail." The description given by Mr. Sharpe is apparently taken from a younger male, as indicated by "a tinge of rufous on the interscapulary region," and the "deep bay" of the lower rump and upper tail-coverts, with reference to which I may mention that, in three nearly adult males in the collection of Messrs. Salvin and Godman, plumbeous feathers are appearing amongst the earlier rufous plumage of the last-named parts.

* The bird figured is supposed by Dr. Gundlach to be a "dark female," as he considers that if it had been a young male it would have had "only one transverse band on the tail," instead of several as represented in the figure. Lawrence, Ann. Lyc. N. Y. vii. p. 248 (1860).

† Journ. für Orn. for 1854, Supplementary portion, p. 84.

‡ Land-Birds of North America, vol. iii. p. 162 (footnote).

Mr. Ridgway gives detailed descriptions of an old and a young male, and of an old and a young female*, to which I would refer, as Mr. Sharpe describes the male only, and that but in one phase of plumage. I would only remark, with reference to Mr. Ridgway's description of the adult male, that one character mentioned by him, viz. that "the black runs along the edge of each feather [of the tail] bordering it nearly to the base," is not a constant one. Messrs. Salvin and Godman possess three males in which it is entirely wanting, and a fourth, in which it is absent from the two external pairs of rectrices.

I may add that, in the males which I have examined, the under wing-coverts exhibit a mixture of slate-colour and white, which in the younger males assumes the arrangement of distinct transverse bars; but in the females this part of the plumage is of two shades of rufous.

I may also observe that, in most adult males that I have seen, the rufous feathers of the under tail-coverts are conspicuously tipped with white, whilst in the females these feathers have a subterminal mark of dark brown.

The following remarks as to the coloration of the young of Cuban Kestrels, and perhaps of *T. sparverioides* in particular, are extracted from Dr. Gundlach's notes, to which I have already referred:—"The young males are not marked like the females, as d'Orbigny assumes; I have reared young birds from the nest, and found that when full-grown they were distinguished from the old birds only by a darker colour and more numerous spots." It is, however, possible that Dr. Gundlach here refers to the young of *T. dominicensis*, as he holds the opinion of there being no valid specific distinction between *T. dominicensis* and *T. sparverioides*, and his meaning is, in consequence, in this passage, obscure.

I have taken the following measurements from specimens of *T. sparverioides*:—

* By an evident misprint, Mr. Ridgway's description of the old female bears the prefix ♂ instead of ♀.

	Wing.	Tarsus.	Middle toe s. u.	Culmen.
	in.	in.	in.	in.
Five males (N.M. and coll. S. & G.)	7·00 to 7·20	1·30 to 1·45	0·85 to 1·00	0·45 to 0·55
Three females (N.M. and coll. S. & G.)	7·20 to 7·40	1·40	0·85 to 1·05	0·45 to 0·55

XLVI.—*A Contribution to the Ornithology of Gilgit.*

By John Scully.

[Continued from p. 453, and concluded.]

124. Leptopœcile sophiæ, Sev.

The occurrence of this interesting species in the Indus valley, at an elevation of little over 5000 feet, shows how little this region has been explored by Indian ornithologists. Had this portion of our territories been worked, we should have secured this bird long before M. Severtzoff, who has so accurately described it. The following are measurements of an adult pair of *L. sophiæ*, shot in the Gilgit district in January at an elevation of about 5500 feet:—Male: wing 2·02 inches, tail 2·13, tarsus 0·75, culmen 0·4. Female: wing 2 inches, tail 2·1, tarsus 0·74, culmen 0·4. The outermost tail-feather 0·4 shorter than the uropygials; exposed portion of first primary 0·65; fourth, fifth, and sixth primaries equal and longest; third primary equal to seventh in length.

125. Ægithaliscus leucogenys, Moore.

This species is a permanent resident in the district, but is very local. I only found it along the course of the main valley above Gilgit, in a tract about sixteen miles in length, from Bargo to Singal, at elevations of from 5500 to 7000 feet; there it was fairly common in summer and winter in the forests and among the tamarisk bushes along the banks of the river.

In the adult the bill is black; irides pale creamy or white;

feet pale orange; claws dusky or brown. The young are out of the nest by the middle of May. In a young bird obtained on the 19th of that month the stripe down the throat is pale pinkish; with dusky bases to the feathers; the head is paler than in the adult; the wing-feathers are margined on the outer webs with pale rufous, and the flanks and abdomen are buff. In more advanced birds the throat-stripe is dusky.

126. Parus melanolophus, Vig.

Confined to the pine forests from 7000 to 12000 feet. The sexes are alike, the female only averaging slightly smaller than the male. In fresh specimens the tarsi and toes are always a bluish leaden colour.

127. Parus rufonuchalis, Blyth.

This Tit is also a denizen of the pine forests, where it breeds; but it is occasionally found low down in the main valleys after heavy weather; thus, I shot a specimen in Gilgit itself (4900 feet) on the 21st April. A young bird, obtained on the 20th July at an elevation of 9000 feet, has the parts that are velvet-black in the adult replaced by dull sooty, the back and abdomen are suffused with olive-colour, and the axillaries and under tail-coverts are pale buff.

128. Parus nipalensis, Hodgs.

This is one of the most familiar birds in the Gilgit district, where it abounds throughout the year in all the lower valleys. In winter it is quite gregarious, and may be constantly seen feeding on the ground after the manner of a Sparrow. The young, which differs greatly from the adult, has been fully described (*antea*, p. 73). In five adult specimens the wings measure 2·85 to 2·93 inches, tail 2·6 to 2·8, tarsi 0·64 to 0·75.

129. Accentor nipalensis, Hodgs.

According to my experience this *Accentor* only occurs in small numbers in the district in mild or ordinary winters. I never saw it in such numbers as Major Biddulph records for the exceptionally severe winter of 1877–78. Gilgit specimens are decidedly paler above and less rufous than most

specimens of *A. nipalensis* from Sikkim; but that species is so close to *A. alpinus*, Bechst., that it is impossible to insert an intermediate species between them. The Gilgit bird agrees best with *A. nipalensis*, and is, no doubt, properly referred to that form.

130. Accentor altaicus, Brandt.

A rare cold-weather visitor, except in severe winters. A male shot in January at an elevation of 8000 feet measured —wing 3·8 inches, tail 2·4, tarsus 0·9, culmen 0·6.

131. Accentor jerdoni, Brooks.

Gilgit specimens of this *Accentor* are identical with an example from Dharmsala, obtained and named by Mr. Brooks. This species seems to be perfectly distinct from the eastern *A. strophiatus*, Hodgson. The differences are pointed out by Mr. Brooks in his original description (J. A. S. B. 1872, p. 327). In *A. jerdoni* the head, between the lateral black streaks, is quite plain, while in *A. strophiatus* the head is boldly streaked exactly like the back. I note, however, that the bill is variable, and that there is no constant difference between the two species in this respect. I have examined a specimen of *Accentor multistriatus*, David, from "Yangkyonpo," in Mr. Seebohm's collection; and it seems to me the same in every respect as *A. strophiatus*.

132. Accentor atrogularis, Brandt.

A winter visitor only to the main valley, arriving about the middle of October and leaving in the third week in March. The birds are usually found in pairs, and are not very shy. I have shot specimens of this *Accentor* in orchards, where they were running about on the sward near rose-bushes; when alarmed in such situations they occasionally seek shelter on the lower branches of small fruit-trees.

133. Accentor fulvescens, Severtzoff.

This species is a winter visitor to Gilgit, and is common there from the first week in October to the third week in March; it comes to us from the north. I have now forty-five specimens of this *Accentor*; and I have no hesitation in

saying that it is a good species, thoroughly distinct from *Accentor montanellus*, Pallas, with which Mr. Dresser confounds it. Gilgit examples are identical with Turkestan specimens named by M. Severtzoff, and with birds collected by myself in Eastern Turkestan. The differences between *A. montanellus* and *A. fulvescens* are carefully pointed out by Col. Prjevalsky (Rowley's Orn. Miscl. vol. ii. p. 186).

134. Corvus corone, Linn.

This Crow appears to be rare in Gilgit. I procured only a pair, one bird on the 22nd May and the other on the 2nd October, both being adult. The male measured in the flesh —length 21·5 inches, wing 13·4, tail 8·65, tarsus 2·6, culmen 2·3, depth of closed bill at nostrils 0·75; and the female—length 20·4, wing 13·1, tail 8·2, tarsus 2·4, culmen 2·2, depth of closed bill at nostrils 0·7. The outermost tail-feathers are 1·2 shorter than the middle ones. The specimens agree perfectly with a series of the European *C. corone* with which I have compared them. They are sharply distinguished from *C. levaillanti* by having a much smaller bill, by the throat-hackles extending further down towards the breast (these feathers being large and glossed purple in *C. corone*, smaller and green-coloured in *C. levaillanti*), and by the whole lower surface and hind neck being glossed with purple, while in *C. levaillanti* these parts have a greenish steel gloss.

135. Corvus cornix, Linn.

A winter visitor only, and fairly common in the valleys from the middle of November to the third week in March. All the specimens secured are thoroughbred *C. cornix*, not showing any signs of interbreeding with *C. corone* or any other stranger. The Gilgit birds are paler than European examples, but do not otherwise differ.

136. Corvus levaillanti, Less.

I cannot concur with Major Biddulph in his view that there are two species of Crows of this type in Gilgit. On the contrary, I am satisfied that we have only one species—the Long-tailed Hill-Crow, so common in the Himalayas. The sup-

posed difference in habit referred to (*antea*, p. 77) is merely due to season: in winter these Crows affect the lower valleys, are gregarious, and circle about in the air in a fashion that has often been described; in summer they are found at higher elevations, and then, of course, mostly associate in pairs, as they are breeding. As to the small size of some of Major Biddulph's specimens, I suggest that these were females, and possibly with the wings and tail not fully grown. It is singular that a large proportion of these Crows in collections are moulting the wing- and tail-feathers, so that, without a careful examination of these parts, some examples may easily be considered so small as to represent a distinct race.

My series of this Crow from Gilgit agrees perfectly with Mr. Sharpe's description of *Corone levaillanti* (Cat. iii. p. 39). I do not think that the separation of *Corone* and *Corvus* as genera, as advocated by Mr. Sharpe (Cat. iii. p. 5) can be maintained on the shape of the wings. I find two specimens of *C. sinensis* (which is the same as *C. levaillanti*, and should be referred to *Corone*, according to Sharpe) with the wing of *Corvus*, *i. e.* first primary equal to longest secondaries; while the type of *C. culminatus* (which is *Corvus* apud Sharpe) has the first primary about an inch shorter than the longest secondaries, and would therefore fall under *Corone*.

138. Corvus umbrinus, Hedenb.

I think it very improbable that this species occurs in Gilgit. *C. umbrinus* is essentially a bird of the desert and of low elevations, and is therefore not at all likely to be found in a highly mountainous country at an elevation of 12000 feet. I never saw any true Raven in the Gilgit district; but some examples of *C. corax* may possibly stray there occasionally.

139. Corvus frugilegus, Linn.

The Rook is common in the district from the third week in October to the third week in April. It keeps aloof from the Crows, but associates amicably with the Jackdaws and Starlings, the two latter being often found in a flock of Rooks. The Gilgit birds agree perfectly with specimens from England and Turkestan.

140. Colœus monedula (Linn.).

The Jackdaw is not uncommon from the middle of October to the first week in December, and again from the beginning of March to the third week in April. It does not breed in the district; and I never noticed it during the season of extreme cold.

Colœus collaris, Drummond.

Two specimens, both females, procured in March and October, are referable to this subspecies or race. They have a marked white half-collar extending from the sides of the neck and above the interscapulary region; and the breast and abdomen are paler and more grey than in *C. monedula*. The measurements are :—Wings 9·3 inches, tail 5·3, tarsus 1·5 and 1·6, bill to gape 1·35 and 1·4. The second primary is about 0·4 shorter than the fifth, instead of being equal as in my examples of *C. monedula*.

141. Nucifraga multipunctata, Gould.

Two young birds, obtained in the third week in July at an elevation of 9000 feet, have the head and nape much paler brown than in adults, the tippings to the wing-coverts are fulvous (not white), and on the under surface of the body the feathers are pale fulvous, with narrow central streaks of white. Two adults, shot in the middle of May, are moulting, the body-feathers and the primaries being equally in process of renewal.

142. Pica rustica (Scop.).

The Gilgit Magpie is quite identical with European specimens of *P. rustica*. In none of my examples does the white on the inner webs of the quills extend to the tip, as in the race called *P. leucoptera*; the tips of the primaries are blackish for about three quarters of an inch.

143. Fregilus graculus (Linn.).

In seven specimens the wings vary from 11·2 to 12·3 inches. After an examination of a large series of these birds from various parts of the Himalayas and from Europe, I quite agree with Mr. Sharpe (Cat. iii. p. 147) that *F. himalayanus*, Gould, cannot be separated from *F. graculus*.

144. Pyrrhocorax alpinus, Vieill.

This species is far less common in the district than *F. graculus*. I only found it twice near Gilgit, at the end of December and in January.

145. Sturnus vulgaris, Linn.

This Starling is not uncommon on passage south in October, and again on its way north from the middle of March to the middle of April; a few birds remain in the valley throughout the winter. In six specimens preserved the upper parts from hind neck to tail are green.

146. Sturnus purpurascens, Gould.

This species is found in Gilgit at the same season as *S. vulgaris*, and in about equal numbers. I have killed examples of the two species at one shot. In the five skins preserved the upper parts from the hind neck downwards are purple.

147. Sturnia pagodarum (Gmel.).

The occurrence of this species so far north as Gilgit is noteworthy. A male shot there on the 26th August measured in the flesh—length 8 inches, wing 4·35, tail 2·85, tarsus 1·05, bill from gape 1. Gape and base of bill cobalt-blue, ring round bill at nostrils green, anterior half of bill indian yellow; irides bluish white; feet and claws greenish yellow.

149. Passer indicus, Jard. & Selby.

This Sparrow is mainly a migratory species with us, being a summer visitor, and breeding in the lower valleys; but in the winter of 1879–80, I observed it in small numbers throughout the winter, and preserved specimens in November, December, January, and February. I suspect that it only leaves the district completely in severe winters, and does not migrate very far. In my series the males have the wings 3 to 3·2 inches, and the females 2·9 to 3·05.

150. Passer hispaniolensis, Temm.

A rare winter visitor. I shot only a pair, about the end of November, when it may have been merely passing southwards.

151. Petronia stulta (Gmel.).

A winter visitor, and common from the third week in November to the third week in March. In thirteen males the wings varied in length from 3·9 to 4·2 inches, and in four females from 3·7 to 3·9.

152. Emberiza leucocephala, Gmel.

The Pine-Bunting is tolerably common in the main valley in mild winters: it often associates with *Emberiza stracheyi*, but can always be distinguished from that species by its note. In the males the wings measured 3·6 to 3·8 inches, in the females 3·4 to 3·5. One male bird had the mandibles crossed as in *Loxia*, the maxilla to the right.

153. Emberiza stracheyi, Moore.

This can hardly be regarded as a very good species. Gilgit specimens are in many respects intermediate in coloration between *Emberiza cia* and *E. stracheyi* from Simla.

A nestling, obtained on the 22nd July at an elevation of 9000 feet, had the head, mantle, and back rufous brown, all the feathers with broad central black streaks; rump and upper tail-coverts rufous, with narrow central black streaks; two well-marked rufous-buff wing-bands formed by the tips of the coverts; inner secondaries broadly edged on outer web with rufous; rest of wings and the tail as in the adult; supercilium pale fulvous; lores, cheeks, and ear-coverts dusky, the feathers with pale-buff margins; chin greyish white; rest of under surface buff, the throat, breast, and flanks boldly streaked with blackish; lower tail-coverts unstreaked rufous buff.

154. Emberiza hortulana, Linn.

This species is rare in Gilgit, and only occurs on passage. I obtained a male on 9th May which measured—wing 3·5 inches, tail 2·75, tarsus 0·85, culmen 0·5. This specimen agrees completely with examples of *E. hortulana* from Norway with which I have compared it. I have examined the type of *Emberiza shah*, Bonap., from Persia, in the Paris Museum; it is certainly nothing but an example of *E. hortulana*.

155. Emberiza huttoni, Blyth.

Fairly common on passage throughout the month of September, not obtained in spring. Gilgit specimens are identical with examples from Kandahar, whence the specimens originally described by Blyth were collected.

156. Emberiza stewarti (Blyth).

Common in the lower parts of the Gilgit valley, from Gakuch to the Indus; it arrives during the first week in April, and leaves for the south again about the middle of September. Eight males have the wings 3 to 3·25 inches, and four females 2·8 to 2·87. A young male shot in the first week in September only differs from the adult female in having rufous margins to the outer webs and tips of the latter secondaries, and in showing a faint indication of the chestnut breast-band of the male bird.

157. Emberiza schœniclus, Linn.

A winter visitor in small numbers from December to March. A male shot in Gilgit on the 15th December measured—length 6·3 inches, wing 3·3, tail 3, tarsus 0·75, bill to gape 0·42. Gilgit examples of this species agree completely with specimens from Eastern Turkestan, Kandahar, and Asia Minor. As to "*E. schœniclus*, var. B, Pallas," mentioned *antea*, p. 81, this has been shown by Mr. Seebohm (Ibis, 1879, p. 39) to be *E. passerina*, Pallas, a species quite distinct from *E. schœniclus*, Linn.

158. Euspiza luteola, Sparrm.

Merely a bird of passage with us; obtained from the third week in August to about the middle of September, when it was doubtless on its way south. In 'The Ibis,' 1880, p. 66, Capt. Wardlaw Ramsay gives an interesting account of the nidification of this species. He had not then met with any account of its breeding-habits, having overlooked my note on the subject in 'Stray Feathers,' 1876, p. 167. I found the bird breeding abundantly about Yarkand in 1875.

Euspiza, sp.

A single immature bird of this genus, a male, shot in Gilgit

on the 28th August, differs so much from examples of *E. luteola* of the same sex and age, that it probably represents a distinct species. The following is a description:—Head, hind neck, and back with all the feathers broadly streaked down the centre with brownish black, and their margins buff, suffused with greenish yellow; rump and upper tail-coverts greenish yellow, with narrow dark-brown shaft-streaks; rectrices dark brown, the outermost pair paler, and all with pale yellowish margins to the outer webs and tips; wing-coverts, primaries, and secondaries brown, all margined on the outer webs and tips with sullied white; lores and chin buff; cheeks and ear-coverts sandy brown, faintly washed with yellow; whole lower surface dull yellow; the throat, breast, and flanks boldly striped down the centres of the feathers with dark brown; axillaries pale yellow, with greyish-white bases; under wing-coverts greyish white, spotted with brown near the edge of the wing. Longest secondaries 0·8 shorter than longest primary, intermediate in length between the eighth and ninth quills. Length 6·5 inches, wing 3·3, tail 2·7, tarsus 0·77, culmen 0·52.

This bird differs from immature *E. luteola* in having the throat and breast striped with brown, and in the wing being differently shaped. In *E. luteola* the difference between the longest secondaries and longest primaries averages 0·57, the longest secondary being intermediate in length between the sixth and seventh quills. In the British Museum there is an undetermined specimen of a Bunting, received from the Moscow Museum, coloured exactly like my Gilgit bird; it measures—wing 3·4 inches, tail 2·8, culmen 0·53, secondaries short of point of wing 0·85. This bird is certainly not any stage of *E. aureola*. I do not propose any name for it, as I have only examined specimens in immature plumage.

159. Euspiza melanocephala (Scop.).

This species merely passes through the district on migration, and is rare. I obtained only one immature specimen, on the 17th September. In immature dress this Bunting can only

be distinguished from the same stage of *E. luteola* by its superior size and notably larger bill and coarser feet.

160. Mycerobas carnipes (Hodgs).

I have compared Gilgit examples of this species with others from Kansuh and Tibet, and cannot detect any difference in size or colours. There cannot be any doubt that *Coccothraustes speculigera*, Brandt, from Northern Persia, is merely a synonym of *C. carnipes*, Hodgson.

161. Pyrrhula aurantiaca, Gould.

The following are measurements of eight specimens of this Bullfinch :—Length 5·7 to 5·9, wing 3·1 to 3·3, tail 2·4 to 2·53, tarsus 0·65, bill to gape 0·44 to 0·5, culmen 0·35 to 0·4. The adult female has the head, nape, ear-coverts, and sides of neck ashy, the hind head being tinged with dark grey; back and mantle olive, with a faint tinge of red; fore neck and breast reddish ash, rest of lower surface dull yellow; the remaining parts as in the male. Young males, in the middle of October, closely resemble the female in colour; but the head, hind neck, and ear-coverts are overlaid with the olive hue of the back.

162. Carpodacus mongolicus, Swinhoe.

Erythrospiza incarnata, Severtzoff.

Very common in large flocks throughout the winter, at an elevation of little less than 5000 feet; from May to October it is only found at higher elevations, where it breeds. I have compared Gilgit specimens of this bird with Swinhoe's type of *Carpodacus mongolicus* (in Mr. Seebohm's collection), and find that the species is identical. The Chinese bird is not darker than Gilgit or Turkestan examples; neither does it differ from them in any respect whatever. The adult female only differs from the male in being slightly smaller and in having the rose colour less intense. The following are the extreme dimensions of sixty-eight specimens of this species :—Length 5·3 to 6·15 inches, wing 3·35 to 3·8, tail 2·2 to 2·5, tarsus 0·63 to 0·7, bill to gape 0·4 to 0·43.

164. Carpodacus erythrinus (Pall.).

Common from the 18th April to the middle of September.

In twenty adult specimens the wings in the males measure 3·25 to 3·5 inches, and in the females 3·15 to 3·3.

165. Propasser rhodochlamys (Brandt).

This species is very common, and is found at 5000 feet and less throughout the winter; in summer it occurs up to an elevation of about 9000 feet. I cannot detect any difference in colour, in either sex, due to season; and, in fact, in my series of this bird there is less variation among individuals than in any other species of which I have examined equal numbers. Females are rather smaller than males, but not constantly so; young males are absolutely inseparable from adult females in size and colour. I did not obtain any immature males showing the transition from the female to the male plumage. The following are measurements taken from thirty fresh specimens:—Length 6·9 to 7·4 inches, wing 3·4 to 3·8, tail 2·8 to 3·2, tarsus 0·75 to 0·9, bill to gape 0·62 to 0·7.

168. Carduelis caniceps, Vigors.

This Goldfinch, which is the same as *C. orientalis*, Eversmann, is very common at an elevation of about 5000 feet from the first week in November to the first week in March; in summer it is only found in the district at higher elevations, where it breeds. In twenty-four specimens the males have the wings 3·15 to 3·3 inches, and the females 3 to 3·1.

169. Metoponia pusilla (Pall.).

A permanent resident in the district, and common; found at 5000 feet throughout the winter. Birds shot in April, when they must have been about nine months old, have only one or two red feathers on the head. In twenty-four specimens, of both sexes, the wings vary from 2·75 to 3·05 inches.

170. Linaria brevirostris (Gould).

Extremely common at an elevation of about 5000 feet from the first week in November to the first week in April; it probably breeds in the district at high elevation. In spring it is found about Gilgit in huge flocks; on the 7th March I picked up thirty-four specimens after one shot. Young males resemble the adult females in not having any pink colour on

the rump; but the pale tips to the wing-coverts and the margins of the inner secondaries are broader. Sixty-six males measured—length 5·3 to 5·8 inches, wing 2·93 to 3·2, tail 2·4 to 2·85, tarsus 0·6 to 0·7, bill to gape 0·39 to 0·43; and thirty-two females—length 5·15 to 5·4, wing 2·83 to 3, tail 2·3 to 2·5, tarsus 0·6 to 0·65, bill to gape 0·38 to 0·4.

171. Linaria cannabina (Linn.).

Fairly common in winter at an elevation of 5000 feet, from the beginning of November to the end of February. Gilgit specimens differ considerably from English ones, as noted *antea*, p. 87, but agree well with examples from Persia and Asia Minor. Many of my male birds are red on the rump, and have a red streak on the throat. If this pale eastern form of *L. cannabina* is to be separated, it should apparently bear the name of *L. bella*, Ehrenberg, with *L. fringillirostris*, Bonap., as a synonym. Thirteen males shot at Gilgit measured— length 5·4 to 5·9 inches, wing 3·1 to 3·3, tail 2·3 to 2·54, tarsus 0·6 to 0·67, bill to gape 0·44 to 0·47; and twelve females—length 5·5 to 5·8 inches, wing 3·05 to 3·25, tail 2·3 to 2·42, tarsus 0·6 to 0·65, bill to gape 0·43 to 0·45.

172. Fringilla montifringilla, Linn.

The Brambling only occurs on passage, and is not common. I have compared my Gilgit specimens with a large series of European ones; and they do not differ in any respect. In European specimens the white bar does not not extend right across the wing; it begins on the outer web of the fourth quill, precisely as in the Gilgit specimens.

174. Fringillauda sordida, Stoliczka.

Very common at an elevation of about 5000 feet from November to the first week in April; obtained in the third week in June at 9000 feet. In nineteen males the wings measure 3·9 to 4·1 inches, and in nine females 3·64 to 3·83.

175. Calandrella brachydactyla (Leisl.).

The Short-toed Lark is found in Gilgit in March on its way northwards, and is common again from the third week in September to the first week in November on its way south.

In a dozen specimens the males have the wings 3·5 to 3·85 inches, and the females 3·4 to 3·6.

176. Melanocorypha bimaculata (Ménétr.).

This Lark passes through the district in small numbers on migration in October and March; a few pairs may remain with us in mild winters, as a specimen was shot in Gilgit on the 9th December.

177. Calandrella pispoletta (Pall.).

This Lark is of rare occurrence in Gilgit, and has only been secured during the autumn migration. I obtained one specimen, a female, on the 14th November, of which I noted the following particulars:—Length 6·3 inches, wing 4, tail 2·7, tarsus 0·82, hind claw 0·33, culmen 0·47, secondaries short of longest primaries 0·75. In colour and markings this example is identical with the specimen described and figured by Dresser in the 'Birds of Europe' as *C. pispoletta* (Pallas); but it is to be noted that, according to Herr v. Homeyer (J. f. O. 1873, p. 197), this form is not the true *Alauda pispoletta* of Pallas, but should stand as *Calandritis heinii*, Homeyer.

178. Alaudula adamsi, Hume.

This species is *not* found in Gilgit. I was wrong in my surmise (quoted by Major Biddulph) that I had obtained specimens of this Lark.

179. Otocorys penicillata (Gould).

Very common at an elevation of 5000 feet, from the end of October to the middle of April. The following are measurements of a dozen fine males:—Length 7·3 to 7·8 inches, wing 4·55 to 4·85, tail 3·2 to 3·7, tarsus 0·8 to 0·9, bill from gape 0·64 to 0·73.

I wish to notice, in connexion with this species, the very distinct *O. longirostris*, Gould, which has been considered identical with *O. penicillata* by Messrs. Hume and Dresser. The accompanying woodcuts of the adult males in breeding-plumage of these two species will, I think, show that the birds are quite different.

Otocorys longirostris does not occur in Gilgit, but is common at the head of the Astor valley, about eighty miles in a direct line from Gilgit. The following are measurements of

Otocorys penicillata.

Otocorys longirostris.

males of *O. longirostris*, for comparison with those given above of *O. penicillata* :—Length 8·25 to 8·5 inches, wing 4·95 to 5·2, tail 3·6 to 3·75, tarsus 0·92 to 0·95, bill from gape 0·8 to 0·82. I will now mention the main distinctions between these two forms, premising that I refer to adult males in breeding-plumage. *O. longirostris* is a conspicuously larger bird than *O. penicillata*; it has no black band on the forehead, while *O. penicillata* has a broad one; the black band on the side of the neck is separated from the black patch on the breast by an intermediate white bar a quarter of an inch

in width, whereas in *O. penicillata* the black on the side of the neck is quite continuous with the breast-patch; the sincipital tufts are shorter in the larger bird, and the bill is longer, more slender, and more curved. There are other minor differences in the plumage; and the females are easily distinguishable. The habits of the two species are quite different. *O. longirostris* is a strictly alpine bird, never quitting the mountains; *O. penicillata* swarms in winter in the Gilgit valley and about Yarkand and Kashghar; and of all the large number of larks of this type shot by Major Biddulph and myself in the localities just mentioned, not one can be referred to *O. longirostris*.

The fact that the validity of *O. longirostris* has been questioned is probably due to several causes. In the first place, the name *O. longirostris* at once raises a prejudice against the species; in a group like the Larks, where the bill is so variable, the title selected is rather unfortunate. *O. penicillata* certainly has the bill very variable in size; and some Persian specimens especially have a large and deep bill, but still never quite like that of the species I am endeavouring to defend, which, moreover, by no means depends on its bill alone for recognition. Again, *O. penicillata* in winter has the black of the neck and breast much concealed by pale tips to the feathers; and thus, in some specimens, the breast- and neck-patches seem to be quite separated, as in *O. longirostris*; the bases of the feathers, however, will be found to be black in these examples; and such cases are really no reason why these two species should be united. Due regard being paid to sex, age, and season, the two forms are readily separated. Mr. Blanford (Stray Feath. 1879, p. 183) maintains the distinctness of *O. longirostris* and *O. penicillata*; and I quite agree with him.

180. Alauda dulcivox, Hodgs.

This large Sky-Lark, so common in Gilgit in winter, is distinct from the next species (*A. guttata*), but only doubtfully so from *A. arvensis*. After comparison of my birds with a large series of *A. arvensis* from Europe, I find that the Gilgit

examples average larger and paler, but I cannot make out any perfectly constant differences. In eighteen males the wings measure 4·5 to 4·85 inches, and in seven females 4·1 to 4·25.

181. Alauda guttata, Brooks.

It is difficult to decide whether our summer Sky Lark should be referred to *Alauda gulgula*, Frankl., or considered distinct from that species; it seems to be merely a large pale race of *A. gulgula*. In ten males the wings measure 3·9 to 4·1 inches, and in four females 3·6 to 3·7.

182. Galerita cristata (Linn.).

The Gilgit race of this common species is small and very grey-coloured. In the males the wings measure 4 to 4·1 inches, and in the females 3·75 to 3·85.

183. Alsocomus hodgsoni (Vig.).

A summer visitor only to the forests, not found in the main valley. A male example from Gilgit agrees completely with an adult male from Moupin in Mr. Seebohm's collection.

The female differs from the male in having all the colours more dull; the cap is ashy, there are fewer white spots on the coverts, the ruddy triangular marks on the feathers of the lower parts begin on the chest only, and do not extend to the fore neck, the flanks are more invaded by dusky ash-colour; and the sides of the neck are more uniform grey.

In none of the specimens I have examined are there any white spots on the flanks.

184. Columba casiotis (Bonap.).

This Wood-Pigeon is a fairly common summer visitor; it arrives about the middle of April, and leaves in the middle of November. It breeds in the forests above 8000 feet, and is found in the main valley at about 5000 feet, on arrival in April and May, and again in October and November on its way down south. Adults of this species are well distinguished from the European *C. palumbus* by having a buff instead of a pure white neck-patch; but young birds, before the assumption of the neck-patch, are precisely similar in both forms.

186. Columba livia, Bonap.

I cannot agree with Major Biddulph that we have two species of Pigeon of this type in Gilgit. I paid much attention to these birds, shot scores of them, and preserved the palest and darkest specimens; and after careful comparison of my series, I have no hesitation in saying that the dark typical *C. intermedia* does not occur in the district. But, on the other hand, our birds are not typical *C. livia*; they vary greatly in tint, but are always a little darker than European *C. livia*; the colour of the rump ranges from pale grey to white. Specimens showing every gradation of colour between *C. livia* and *C. intermedia* have been recorded, and several names have been proposed for these intermediate forms; but as it is admitted that there is no constancy in the coloration of these races, it seems best to retain only two names for the extreme forms. I class the Gilgit pigeon as *C. livia*, seeing that it is nearer to that form than to *C. intermedia*.

187. Columba rupestris, Pall.

This Pigeon is not uncommon in the lower valleys in winter, but in summer is only found at high elevations; I have shot it at an elevation of 5000 feet as late as the 9th April. Neither in my Gilgit examples, nor in a large series from Tibet, China, &c. can I detect any white shoulder-patch, such as is mentioned by Major Biddulph (*anteà*, p. 92). Gilgit specimens agree perfectly with the type of *C. leucozonura*, Swinhoe, in Mr. Seebohm's collection.

188. Columba leuconota, Vig.

I obtained a specimen in the middle of October at an elevation of about 8000 feet.

189. Turtur ferrago (Eversmann).

This Dove is common in the district in summer, and breeds there; it arrives in the third week in April.

In 'The Ibis,' 1880, p. 68, Captain Wardlaw-Ramsay has discussed the question of the distinctness of the present form from *T. orientalis* (Lath.), and has shown clearly that the only difference between the two supposed species lies in the colour of the lower tail-coverts and tips of the rectrices. *T.*

ferrago having these parts white, while *T. orientalis* has them of various shades of grey. Now, in Stray Feathers, 1879, p. 340, I mentioned that in a series of these Doves obtained in Nepal there was every possible gradation of colour in the parts supposed to be diagnostic, and therefore that the differences alluded to were certainly not constant. It is possible, however, that *T. ferrago* and *T. orientalis* may interbreed in a common meeting-ground such as Nepal; and it will perhaps be more convenient to give a distinct name to the extreme forms. On this view the Gilgit specimens must all be referred to *T. ferrago*.

As to the difficulty experienced by Capt. Wardlaw-Ramsay in reconciling Eversmann's description of the tail of *T. ferrago* with the Dove now under consideration, I think all becomes plain if we suppose a misprint of one word: for "albis" substitute "fuscis," and the description will be quite correct—thus, "rectricibus apice albis, exceptis duabus mediis totis *fuscis*."

190. Turtur auritus, Gray.

This species appears to be a summer visitor only, and is much less common than *T. ferrago*; I did not secure a specimen. Its occurrence in Gilgit is very interesting; it is not found in any other portion of British India, except Quetta.

191. Turtur cambayensis (Gmel.).

I also only obtained one specimen of this Dove in Gilgit, on the 27th January; it is evidently very rare with us. This species, which has been supposed to be the same as *T. senegalensis*, differs from examples of the latter which I have examined in its smaller size, less bright colours, and brown rump and upper tail-coverts, which are precisely the same colour as the back; *T. senegalensis* has a dark grey rump; but I do not know that these differences are constant.

192. Turtur suratensis (Gmel.).

According to my observation this Dove is only found about Gilgit from November to March; I never met with it in summer.

193. Tetraogallus himalayensis, Gray.

A fine male of this species measured in the flesh—length 27·1 inches, wing 12·1, tail 8·7, tarsus 2·65, bill to gape 1·5; it weighed 5 lb. 11 oz. Examples from Eastern Turkestan, which have been referred to *T. himalayanus*, differ considerably from my Gilgit specimens; the former are paler and more brown, with not nearly such strong contrasts of colours. Five eggs of this species, taken in the Gilgit district on the 28th April at an elevation of about 10,000 feet, measure in length 2·57 to 2·65 inches, and in breadth 1·84 to 1·85.

194. Caccabis chukar (Gray).

The Gilgit Chikore agrees exactly with the race from Ladak (*C. pallescens* of Hume). This form ought possibly to be separated from *C. chukar*; it is not merely a pale form of that species, as the name might lead readers to infer, but is distinguished by an appreciably different coloration. In the Gilgit specimens the upper parts and wings are very grey, a rufous-brown tinge being only present on the hind head and as a band across the interscapulary region; the breast is pure French grey; and the black bars on the flanks are wider than in typical *C. chukar*. The Chikore of Eastern Turkestan (*C. pallidus* of Hume), however, is only slightly paler and more sandy-coloured than *C. chukar* from the southern slopes of the Himalayas, and should not be separated from the latter.

195. Coturnix communis, Bonn.

The Common Quail is a summer visitor to Gilgit, and breeds there in small numbers. It arrives about the end of March, and leaves at the end of September. I never saw it in winter.

196. Otis tetrax, Linn.

This species appears to be merely a straggler to Gilgit; and it seems to me certain that it does not breed in the district.

197. Charadrius fulvus, Gmel.

This species appears merely to pass through the district in

spring; in autumn it occurs in small numbers, and hardly makes any stay. I secured two specimens, both males, on the 27th September and 3rd October; the wings measure 6·2 and 6·7 inches; and the axillaries are dark grey.

199. Ægialitis curonica (Gmel.).

This Plover is common in Gilgit on passage from the end of March to the first week in May, and from the third week in September to the middle of October. Eight specimens preserved have the wings 4·5 to 4·7 inches, and agree completely with European examples.

200. Ægialitis hiaticula (Linn.).

This species seems to be only a rare straggler to Gilgit in autumn. I obtained but one specimen, a female in immature plumage and lacking the black frontal band, on the 11th October 1879. This example agrees completely with English specimens of the same age, and measures—length 7 inches, wing 4·9, tail 2·25, tarsus 0·93, mid toe and claw 0·85, bill from gape 0·58. *Ægialitis hiaticula* has only once, with certainty, been recorded from the plains of India (Str. Feath. viii. p. 198, 1879).

201. Vanellus vulgaris, Bechst.

Common in spring and autumn on passage; but a few remain in favourable spots throughout the winter; they do not leave the district for the north until about the first week in April. As to the note about the coloration of the sexes (*anteà*, p. 94), it is certain that the adult female has the lores, chin, and throat black as in the male; the specimens having these parts white were probably immature. The adult female in breeding-plumage only differs from the male in having a shorter crest and the colours less vivid.

202. Chettusia gregaria (Pallas).

This species passes through Gilgit on migration in spring and autumn, without making any stay. Occasional specimens were secured between the 4th March and 8th April.

203. Lobivanellus indicus (Bodd.).

Apparently only a straggler to Gilgit in spring. I heard

its unmistakable cry once, in June 1879, but neither saw nor heard it afterwards until the following year, when I secured a fine specimen on the 24th April.

204. Grus virgo (Linn.).

A flock passed over Gilgit on the 21st March, flying northwards.

205. Scolopax rusticula, Linn.

The Woodcock is found about Gilgit, in ordinary winters, only in very small numbers. It may breed in the district, in the mountains at high elevations, but certainly not in the Gilgit valley. A pale-coloured female, shot in December, had the wing 7·6 inches in length, and weighed 9·75 oz.

206. Gallinago solitaria (Hodgs.).

I found this fine Snipe in fair numbers about the middle of October, in a small valley near Gilgit, at an elevation of 9000 feet. It very rarely occurs in the main valley.

207. Gallinago scolopacina, Bonap.

My dates for the arrival and departure of the common Snipe quite agree with those given by Major Biddulph. Very few birds remain about Gilgit throughout the winter; but they are found in fair numbers in autumn and spring, on passage.

208. Limosa ægocephala (Linn.).

This species is found in Gilgit on migration only, in spring during the first half of April, and in autumn in the third week in September. The following are dimensions of a male in summer plumage, and of a female in winter-dress:—

♂. Length 17·1 in., wing 8·45, tarsus 3·15, bill at front 4·15.
♀. „ 19·7 „ „ 8·9, „ 3·85, „ „ 4·8.

209. Machetes pugnax (Linn.).

Not uncommon on passage; in spring observed in the third week in March, and in autumn obtained from the first week in September to the middle of October.

211. Tringa minuta, Leisl.

The Little Stint is common in Gilgit on passage: in spring

it was found during the first week in April; and I shot it on its way southwards from the 12th September to the 26th October.

212. Tringa temminckı, Leisl.

Temminck's Stint is also common in Gilgit during the season of migration. I obtained it on its way north from the 14th to the 22nd May, and while it was passing southwards from the 10th September to the 23rd October.

213. Totanus glareola (Linn.).

This species is less common in Gilgit than *T. ochropus* or *T. hypoleucus*. On its northward migration it is found with us from the 23rd April to the middle of May. It is never seen between May and September. On its autumnal migration it appears about the 12th September, and remains in the district only a very short time.

214. Totanus ochropus (Linn.).

Very common on migration from the beginning of April to about the middle of May; and again from the middle of August to the end of September. A few rare stragglers pass the winter in the district, as I shot a specimen once on the 3rd January.

215. Tringoides hypoleucus (Linn.).

Common on passage to the north from the 12th April to the 23rd May: on its way southwards it first appeared on the 4th September; and I shot a straggler as late as the 29th December.

216. Totanus glottis (Linn.).

This species is tolerably common in Gilgit on its northward and southward migrations. I obtained a number of specimens during the latter half of April and in the first half of September.

218. Totanus calidris (Linn.).

The Redshank only occurs on passage, and then in very small numbers. I shot a specimen on the 10th April, and saw others in the first week in September.

219. Himantopus candidus, Bonnat.

Passes through the district, in small numbers, in spring and autumn. Specimens were shot on the 18th April and 15th September.

Hydrophasianus chirurgus (Scop.).

This species, not included in Major Biddulph's list, seems to be merely a straggler to our district. The only specimen seen in Gilgit, an adult male in breeding-plumage, was shot on the 26th April; it was found on a pool of water near the Gilgit river, and was solitary. The following are measurements of this example:—Length 17 inches, wing 7·8, tail 8·9, tarsus 2, mid toe and claw 3·1, hind claw 1·15, bill to gape 1·24.

220. Fulica atra, Linn.

Common in spring and autumn on passage; I never observed it in winter. Many specimens were obtained from the first week in March to the middle of April.

221. Gallinula chloropus (Linn.).

I found this species common on passage, throughout April and October only.

222. Porzana maruetta, Leach.

My specimens of this Rail were obtained from the 12th to the end of April. Some birds breed in the district; but, owing to their shy disposition, I failed to ascertain the date of their departure in autumn.

223. Porzana bailloni (Vieill.).

A summer visitor in small numbers to the main valleys, especially where rice is cultivated. A few pairs breed about Gilgit.

224. Porzana parva (Scop.).

This species appears merely to pass through the district in spring and autumn; it is found in Sindh in winter; and the birds that visit us probably breed further north. I shot three specimens in Gilgit between the 5th October and 2nd November; and these agree perfectly with European examples of this Rail with which I have compared them.

225. Crex pratensis, Bechst.

I obtained only a single specimen of the Corncrake at Gilgit, on the 8th October; the bird was found on a small watercourse which ran by the side of a field of Indian corn. The species was never observed on any other occasion. My example, a female, measured—length 10 inches, wing 5·4, tail 2·25, tarsus 1·5, middle toe and claw 1·5, bill from gape 1; the bill was flesh-coloured, grey at the tip; irides brown; feet drab, claws pale brown. The specimen agrees perfectly in plumage with English examples with which I have compared it.

226. Rallus aquaticus, Linn.

A migratory species in Gilgit, occurring in small numbers from the middle of March to the end of April; I did not ascertain the date of its passage in autumn; but it does not seem to breed in the district, and certainly is not found there in winter. My specimens agree perfectly with European examples of this species. *Rallus indicus*, of which I have examined Chinese, Japanese, and Indian examples, is distinguished from *R. aquaticus* by having a dark brown or dusky stripe continued from the lores under the eye and over the upper part of the ear-coverts; but there is apparently no other *constant* difference.

227. Ciconia nigra, Linn.

The Black Stork is found in Gilgit only on migration in spring and autumn. On its passage north it was observed from the middle of February to the third week in April, sometimes in large flocks of over one hundred birds; in autumn it seems to pass over without halting in the district. A fine adult male shot on the 16th April measured—length 43·5 inches, wing 22·5, tail 10·3, tarsus 8·5, bill from gape 8·25; weight 7 lb.

228. Ardea cinerea, Linn.

This Heron is common in Gilgit, according to my observation, throughout March and April, when on its way to the north, and from the middle of August to the beginning of October, when repairing southwards; I have no evidence of

its breeding in the district. My specimens agree completely with European examples, and consequently do not accord with the description of *Ardea brag* from Cashmere.

229. Ardetta minuta (Linn.).

I only secured one specimen of the Little Bittern in Gilgit; it was captured in a rice-field on the 20th September. The example, an immature male, agrees well in plumage with specimens of a similar age from Holland. Length 14·3 inches, tail 1·9, tarsus 1·6, mid toe and claw 2·1, bill from gape 2·5; iris bright pale yellow, orbital skin pale green; bill pale grey, dusky along culmen; feet green, claws black.

230. Nycticorax griseus (Linn.).

The Night-heron is a summer visitor to Gilgit, but is only found there in very small numbers; a few pairs probably breed in the district. An adult female, obtained on the 5th May, with a wing 11 inches, had a crest 6 inches long, and weighed 14 oz.

233. Spatula clypeata (Linn).

The Shoveller is not uncommon in Gilgit on migration in spring and autumn; I shot specimens from the middle of April to the first week in May, and again throughout September. A female shot on the 30th September is remarkable in having precisely the plumage worn by the adult male from July to October; the lesser wing-coverts are glossy grey-blue, and the inner half of the speculum bright green.

234. Anas boscas, Linn.

Although some specimens of the Mallard are to be obtained throughout the winter in Gilgit, it is most common there in October and November, and again in March and April, the greater number of the birds that visit us evidently wintering further south.

235. Anas strepera, Linn.

This Duck merely passes through the district in spring and autumn, hardly making any stay in Gilgit, which is not a favourable locality for the duck tribe. I obtained specimens

of the Gadwall in the first week in October, and observed it again in March.

236. Anas acuta, Linn.

I obtained this Duck in Gilgit from the third week in September to the end of October, and from the first week in February to the middle of April, but never observed it in November, December, or January. A male shot on the 28th September is in summer plumage, with the uropygials only 0·3 longer than the next pair.

237. Anas penelope, Linn.

The Wigeon evidently only passes through Gilgit on migration. I shot a solitary example, the only one I ever saw there, on the 23rd March.

238. Anas crecca, Linn.

Fairly common in October and November, and in March and April; a few stragglers only seem to remain with us throughout the winter. On the spring migration I obtained specimens of this Teal as late as the 26th April.

239. Anas circia, Linn.

This Teal is more scarce with us than *A. crecca*, and is only found during the autumn and spring migrations. I obtained it throughout September, and from the first week in March to the 21st April.

241. Fuligula nyroca (Güld.).

A through-passer in spring and autumn; specimens were secured on 28th March and 4th October.

242. Fuligula cristata (Linn.).

This species also merely passes through the district on migration; I obtained only one specimen in Gilgit, on the 5th March.

244. Podiceps fluviatilis (Tunst.).

Rare, and only seen on passage. I obtained a female near Gilgit in nearly full breeding-plumage on the 5th April.

Larus ridibundus, Linn.

The Black-headed Gull, which is not included in Major Biddulph's list of Gilgit birds, is a rare visitor to the district, apparently on migration. I obtained only one specimen, a male in winter plumage, on the 2nd May.

247. Hydrochelidon hybrida (Pall.).

This Tern is tolerably common about Gilgit in spring and autumn. I shot many specimens from the 22nd April to the 13th May, when on its way to its breeding-haunts, and again from the 23rd August to the 8th October, while it was passing southwards.

248. Hydrochelidon nigra (Linn.).

This species must be expunged from the list of birds of Gilgit. Major Biddulph misunderstood my remarks about the five Terns I had shot (*anteà*, p. 102). I was referring to something that had been published about the diagnosis of the three species of *Hydrochelidon*; and I intended to say that, if measurements alone were to be relied upon, some of my specimens might be *H. leucoptera* or *H. nigra*. As a matter of fact all the examples referred to are immature *H. hybrida*. It is to be hoped, therefore, under these circumstances, that Gilgit will not be quoted as a locality for the Black Tern.

249. Phalacrocorax carbo (Linn.).

This Cormorant is tolerably common along the larger rivers in the district. It is a summer visitor to Gilgit, and doubtless breeds there; I observed it continuously from the first week in March to the middle of September, but never saw it in winter. The following are the measurements and weight of a female in the plumage of the first year, shot on the 21st April:—Length 30·5 inches, wing 12·7, tail 7, outer toe and claw 3·6, tarsus 2·1, bill from gape 3·6; weight 3 lb. 13 oz.

XLVII.—*On some new and little-known Species of Trochilidæ.* By Osbert Salvin and F. D. Godman.

(Plate XVI.)

The following notes relate to certain species of Trochilidæ which have recently come into our possession. We publish them in order to render them available for the completion of the 'Supplement to the Trochilidæ,' commenced shortly before his death by the late John Gould, and now, we understand, to be brought to a conclusion.

Glaucis dohrni.

Mr. Whitely has lately brought us a specimen of this species in good condition; and we have compared it with the three examples in the Gould collection now in the British Museum, which include the types of *Grypus spixi* and *Glaucis dohrni*. There can be no doubt now that both these names must be referred to one species, *Glaucis dohrni*, and that the differences assigned to them are to be attributed to a difference of sex. The more bronzy red colour of the type of *G. spixi* is probably due to the specimen having at one time been preserved in spirits.

Our specimen is apparently a male, and is of a somewhat brassy green above, as is the type of *G. dohrni*.

As regards the generic position of this species, it seems to occupy a somewhat intermediate place between *Grypus* and *Glaucis*. The bill is nearly as straight as in the former genus; but the serration of the extremities of the mandibles is not so fully developed, neither are the terminal hooks. In the coloration of the rectrices it stands alone. On the whole, it had best stand in *Glaucis*, where Mr. Elliot finally decided to place it (Syn. H. B. p. 7).

Anthocephala floriceps.

In Mr. Simons's last collection is a specimen of this species, the first female that has yet been obtained, the male having hitherto remained unique in the late Mr. Gould's cabinet. The only difference that we can detect between it and the

type is in the bill, which is somewhat longer than in the male specimen. It also has the head the same colour as the back, doubtless a sexual character. This specimen was shot at San José, on 30th March, 1880, at an elevation of 5000 feet above the sea, in the Sierra Nevada de Santa Marta, and therefore not far from the place where the original example was secured.

Except that the head of the male of this species is coloured in a remarkable manner, there is nothing in it that we can see to prevent it being included in the genus *Adelomyia*, where, indeed, Gould first placed it, and to which we think it may well be restored. The female very strongly resembles the well-known members of *Adelomyia*, the chief point of distinction being the absence of spots on the throat.

Timolia lerchi.

To Mr. Whitely we are also indebted for a skin of this species—the second, so far as we know, that has been obtained. This specimen, Mr. Whitely informs us, he found in a collection of Brazilian birds; but there is nothing in the make-up of the skin to guide our opinion as to its origin. The type of *T. lerchi*, which is now in Mr. Elliot's collection, is said to have been obtained in Colombia. The true habitat of the species has yet to be ascertained.

In determining this specimen we have been guided by Mulsant's description and figure (Hist. Nat. Ois.-Mouch. iv. p. 191) and an original drawing in one of the late Mr. Gould's portfolios. There can be little doubt our bird is of this species; but the colouring of the head, though of a decidedly blue cast, is not as blue as the figure and description would lead one to expect.

Eucephala pyropygia, sp. n.

Viridis, capite summo et corpore subtus nitenti-cæruleo-viridibus, gutture toto medio cæruleo læte lavato; dorso postico russato, tectricibus supracaudalibus cuprescenti-rubidis; alis fuscis; cauda vix rotundata, chalybeo-nigra; rostro nigro; long. tota 3·4, alæ 1·9, caudæ rectr. med. 1·1, rectr. ext. 1·0, rostri a rictu 0·9.

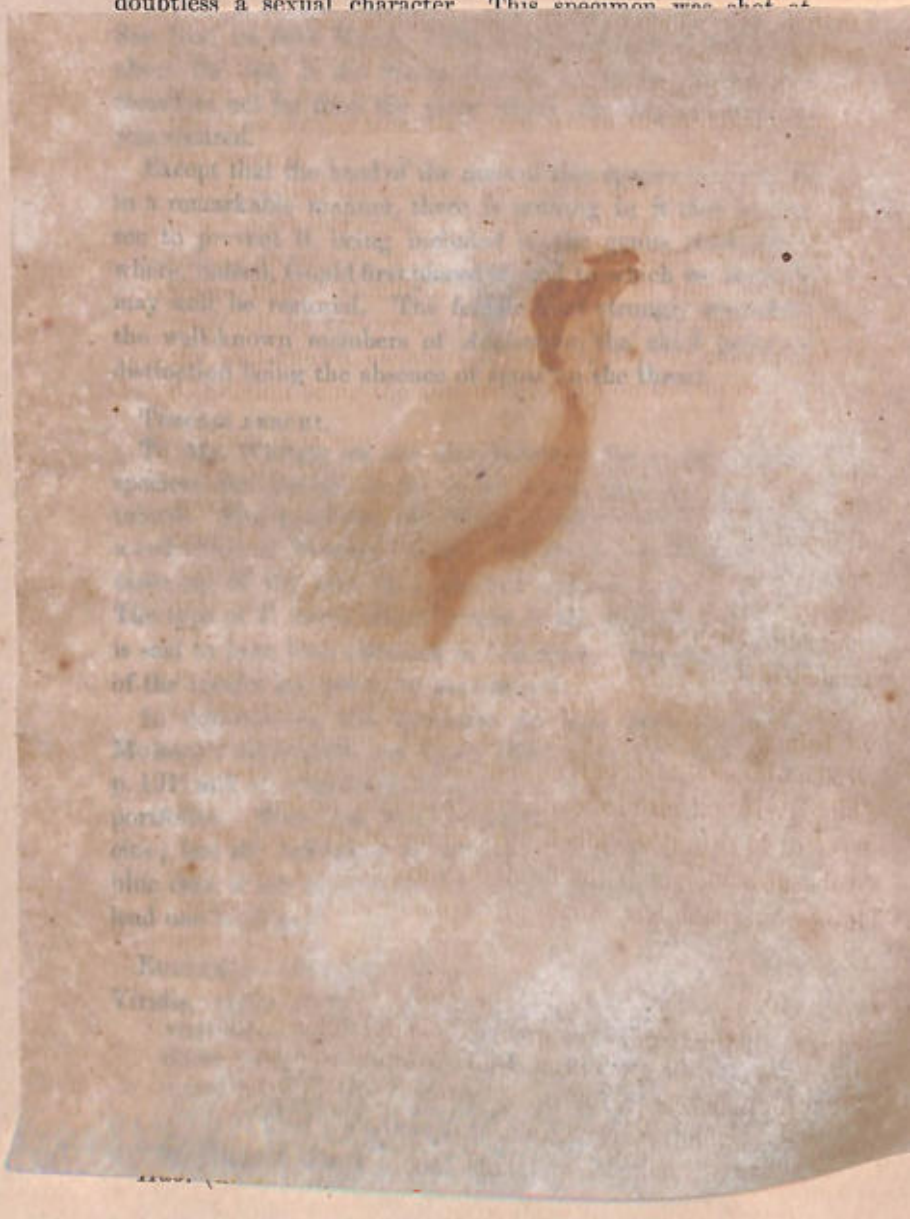
Hab. (ut dicitur). Respublica Æquatorialis.

J.G. Keulemans lith.

Hanhart imp.

EUCEPHALA PYROPYGA.

type is in the bill, which is somewhat longer than in the male specimen. It also has the head the same colour as the back, doubtless a sexual character. This specimen was shot at



J.G. Keulemans lith. Hanhart imp.

EUCEPHALA PYROPYGA

Obs. *E. hypocyaneæ* affinis, sed capite nitente distinguenda.

This is also one of Mr. Whitely's recent discoveries, he having found it in company with a number of well-known Ecuador species of Humming- and other birds; so that it is reasonable to suppose it came from that country. Its position in this genus seems to be certainly next to *Eucephala hypocyanea*, near to which *E. subcærulea*, Elliot, must also stand; but from both these species it differs in having a shining green crown slightly washed with blue.

PANYCHLORA RUSSATA, sp. n.

Aureo-viridis, pileo antico et corpore toto subtus nitidissimis, tectricibus alarum cupreo tinctis; cauda elongata, cupreo-viridi nitida; rostro nigerrimo: long. tota 3·0, alæ 1·7, caudæ 1·3, rostri a rictu 0·75. *Fem.* subtus griseo-albida, regione parotica nigra; cauda viridescenti nitida, ad basin fascia subterminali chalybeo-nigra instructa; rectricibus omnibus præter duas medias albo terminatis.

Hab. Manaure, San Sebastian and San José, Sierra Nevada de Santa Marta, Colombia (*F. Simons*).

Obs. *P. poortmanni* similis, sed cauda et tectricibus alarum cupreo tinctis distinguenda.

This is the *Panychlora* we left undetermined in our paper on Mr. F. Simons's collections from the Sierra Nevada of Santa Marta (Ibis, 1879, p. 205; 1880, p. 174). Having since received other specimens from the same traveller in better condition, we are enabled to compare them more satisfactorily with the allied species.

The russet coppery hue of the tail and the wing-coverts seems to distinguish it from all other species of *Panychlora*; and therefore it becomes necessary to name it.

The tail-feathers are wide and rounded at their ends, and rather longer than usual in members of this genus; but their peculiar metallic colour at once indicates the position of the species.

XLVIII.—*On three apparently New Species of* Iyngipicus.

By Edward Hargitt.

Among the many races and species of *Iyngipicus* which have come under my notice, there are three which I consider of sufficient importance to be worthy of the attention of ornithologists, and to be distinct from those already named.

Of these the first is apparently a thoroughly distinct and good species, and is of especial interest as coming from North-east Borneo. It resembles in general coloration and certain characters *Iyngipicus temmincki* from Celebes, being an olive-backed bird. It may be briefly described as follows:—

Iyngipicus ramsayi, sp. n.

I. similis *I. temmincki*, sed paullo major; subtus flavo clare lavatus; præcipue remigibus rectricibusque concoloribus et fascia occipitali lata scarlatina, haud interrupta, et dorso haud fasciato, fascia quoque superciliari alba ad latera colli producta distinguendus: long. tota 5·5, culm. 0·75, alæ 3·2, caudæ 1·3, tarsi 0·6.

Hab. In Borneo septentrionali-orientali. Typus in mus. R. G. Wardlaw Ramsay.

The second species has already been alluded to by Lord Tweeddale in his paper on the birds collected by Mr. Everett in Zamboanga and Basilan (P.Z.S. 1878, p. 943; 1879, p. 69); he, however, refrained from giving it a name. As I hope to be able to show later on (in a synopsis of the genus *Iyngipicus*), *I. validirostris* of Blyth is the same as *I. maculatus* (Scop.); and I therefore consider that the species from Zamboanga and Basilan requires another title, as follows:—

Iyngipicus fulvifasciatus, sp. n.

I. similis *I. maculato*, Gm., ex insula Luzonica, sed cauda fulvescente, nigro late transfasciata, uropygio fulvescente, vix maculato, occipite macula utrinque lata notato distinguendus: long. tota 5·5, culm. 0·75, alæ 3·25, caudæ 1·45, tarsi 0·6.

J.Smit lith. Hanhart imp.

1 POOSPIZA ERYTHROPHRYS
2 SYNALLAXIS WHITII

Hab. In insulis Philippinis "Basilan" et "Mindanao" dictis. Typus in mus. R. G. Wardlaw Ramsay.

Supra fusca ochraceo tincta; pileo et regione auriculari utrinque cinereis; superciliis longis, castaneis; alis nigri-

J.Smit lith. Hanhart imp.

1. POOSPIZA ERYTHROPHRYS.
2. SYNALLAXIS WHITII.

Hab. In insulis Philippinis "Basilan" et "Mindanao" dictis. Typus in mus. R. G. Wardlaw Ramsay.

The remaining bird I propose to call

Iyngipicus pumilus, sp. n.

I. similis *I. canicapillo*, sed valde minor et rectricibus 4 centralibus nigris concoloribus distinguendus: long. tota 4·85, culm. 0·52, alæ 2·78, caudæ 1·3, tarsi 0·55.

Hab. in terra Tenasserimensi meridionali. Typus in mus. nostr. (*coll. E. W. Oates*).

I am indebted to Mr. Eugene Oates for having drawn my attention to this bird, and also for having given me the specimens which have served as types. It is from Southern Tenasserim, and probably the same as the small race of *I. canicapillus* mentioned by Capt. Feilden (Hume in 'Stray Feathers,' 1875, p. 59) as inhabiting the densé jungles around Thayetmyo.

XLIX.—*On two new Species of Birds discovered by Mr. E. W. White in the Argentine Republic.* By P. L. Sclater, M.A., Ph.D., F.R.S.

(Plate XVII.)

Mr. E. W. White, F.Z.S., of 27 Calle Corrientes, Buenos Ayres, has lately sent to me for determination a small series of bird-skins collected by himself in the Argentine Republic, partly in the neighbourhood of Buenos Ayres, and partly during his recent expedition to Oran and the upper provinces of the Republic. Mr. White has also placed in the hands of Mr. E. Gerrard, Jun., for sale, some of his duplicate specimens, from which I have been able to obtain several desirable acquisitions for my collection. Amongst the Argentine birds which I have thus had an opportunity of examining, are examples of two apparently new species, which I propose to characterize as follows:—

1. Poospiza erythrophrys, sp. nov. (Plate XVII. fig. 1.)

Supra fusca ochraceo tincta; pileo et regione auriculari utrinque cinereis; superciliis longis, castaneis; alis nigri-

cantibus, harum tectricibus albo terminatis et remigibus primariis extus albo limbatis; subtus castanea, ventre medio albicantiore; subalaribus et remigum marginibus internis albis; cauda nigricante, rectricibus duabus utrinque externis albo late terminatis; rostro plumbeo, pedibus obscure carneis; iride saturate brunnea: long. tota 5·3, alæ 2·4, caudæ 2·4, rostri a rictu 0·6.

Hab. Sierra de Totoral, Catamarca (*E. W. White*).

Obs. Aff. *P. nigrorufæ*, sed superciliis rufis et dorsi colore dilutiore facile distinguenda.

2. Synallaxis whitii, sp. nov. (Plate XVII. fig. 2.)

Supra obscure brunnea, loris et superciliis albis; alis extus et cauda tota ferrugineo-rufis; subtus cinnamomea, in ventre medio dilutior, plaga magna gutturali nigra; remigum marginibus internis et subalaribus cinnamomeis; rostro nigro, pedibus pallide corylinis: long. tota 5·7, alæ 2·5, caudæ rectr. med. 2·6, ext. 0·8, rostri a rictu 0·7.

Hab. Oran, prov. Salta, reipubl. Argentinæ (*E. W. White*).

Obs. Species *S. scutatæ* ex Brasilia proxima, sed dorsi colore non castaneo et crassitie majore diversa.

L.—*Characters of a new Puff-bird of the Genus* Nonnula. By P. L. Sclater.

Upon reexamination of the specimens of the Puff-birds of the genus *Nonnula* in my collection and that of Messrs. Salvin and Godman, I find that two distinct species have hitherto been united under the name *N. frontalis*. The former of these (from the interior of Colombia and Panama), distinguishable by its rufescent crown and cinereous sides of the head, is closely allied to *N. ruficapilla*, and is legitimately entitled to bear the name *frontalis*. The latter (from Ecuador, but extending northwards into Colombia, and southwards into Peru), which has the whole cap brown, like the back, and no cinereous on its sides of the head, may be called

Nonnula brunnea, sp. nov.

Supra brunnea, fere unicolor, loris subrufescentibus; alis et cauda nigricantibus; secundariorum et tectricum marginibus extus dorso concoloribus; rectricum externarum

apicibus et ceterarum marginibus angustis rufescentibus; subtus ferruginea, lateraliter obscurior, in ventre crissoque magis cinnamomea; subalaribus et remigum marginibus internis ventri concoloribus; rostro nigricanti-plumbeo, mandibula inferiore ad basin flavicante; pedibus pallide fuscis: long. tota 5·5, alæ 25, caudæ 2·3, rostri a rictu 1·1.

Hab. in Colombia int., Æquatoria, et Peruvia orientali.

Mus. P. L. S. et S.-G.

I base this species upon three examples obtained by Mr. C. Buckley at Sarayacu, in Ecuador. But Bogota skins and specimens which I have examined from several localities on the Upper Amazons seem to be identical.

N. brunnea will be figured in the forthcoming part of my 'Monograph of the Jacamars and Puff-birds,' which I am hoping shortly to bring to a conclusion.

LI.—*Notices of recent Ornithological Publications.*

[Continued from p. 495.]

94. *Bulletin of the Nuttall Ornithological Club.*

[Bulletin of the Nuttall Ornithological Club; a Quarterly Journal of Ornithology, vol. vi. no. 3, July 1881. Cambridge, Mass.]

Besides the usual communications of more or less local interest, the last Bulletin contains the results of Mr. Cory's expedition to Hayti, in two articles*. The new species of birds discovered are described as *Picumnus lawrencii*, *Phœnicophilus dominicensis*, *Parra violacea*, and *Myiadestes montanus*. Of these the *Picumnus* is of special interest, as the form is quite new to the Antillean avifauna. The total number of birds given in the second article as obtained or observed is 65, which includes "nearly all the species previously recorded from Hayti and Santo Domingo, besides a number new to the Island." An outline map, showing the

* (1) Descriptions of Four New Species of Haitian Birds: p. 129.
(2) List of the Birds of Haiti, taken in different parts of the Island between January 1 and March 12, 1881: p. 151.

localities visited, which are near Port au Prince, at the western extremity of Haiti, is given, and short notes to each species. We trust, however, that Mr. Cory will hereafter give us a more extended treatise on the subject.

95. *Feilden on the Birds of Novaya Zemlya.*

[A Polar Reconnaissance, being the Voyage of the 'Isbjorn' to Novaya Zemlya in 1879. By Albert H. Markham, F.R.G.S. London: C. Kegan Paul & Co., 1881. Note on the Birds collected by Captain A. H. Markham, R.N. By Captain H. W. Feilden, F.G.S., C.M.Z.S.]

Captain Feilden contributes to Capt. Markham's interesting narrative of his 'Polar Reconnaissance' of 1879 an account of the ornithological collection, "consisting of some sixty well-preserved bird's skins, comprising 26 different species." Notes on their distribution, derived from observations made by Capt. Markham, are added. Captain Feilden then gives a very useful account of our previous authorities on the Birds of Novaya Zemlya, and concludes with "A list of the Avifauna of Novaya Zemlya and Waigats," deduced from these sources and from Capt. Markham's collection.

The list comprehends 45 species—amongst which are six Passeres—three of which (*Anthus cervinus*, *Plectrophanes nivalis*, and *Otocorys alpestris*) appear to be regular visitants, and three (*Ruticilla wolfi*, *Plectrophanes lapponica*, and *Hirundo rustica*) occasional stragglers.

96. *Krukenberg on the Colouring-matter of Feathers.*

[Die Farbstoffe der Federn. Von Dr. C. F. W. Krukenberg. Vergleichend-physiologische Studien, Heidelberg, Abth. v.]

In this first communication on the colouring-matters of feathers, Dr. Krukenberg describes the chemical reactions and spectroscopic characters of three different substances (Turacin, Zoonerythrin, and Zoofuloin) present in the red and yellow feathers of birds. Turacin, as yet found only in the feathers of the Musophagidæ, particularly in the red feathers of the wing, gives two different absorption-spectra, according to whether it is in solution or not—a very unusual circum-

stance with organic pigments. A solution-spectrum has two absorption-bands, nearly coinciding in position with those of oxyhæmoglobin, from which, however, Turacin differs greatly in chemical composition, containing, as is well known, copper in abundance. Zoonerythrin gives a continuous spectrum, Zoofuloin one with two absorption-bands, which, however, are not those of Turacin. Attempts to extract blue, violet, and green pigments from feathers so coloured have as yet been unsuccessful; and these colours may therefore depend upon optical, and not chemical, causes.

97. *Ridgway on an American Duck.*

[On a Duck new to the North American Fauna. By Robert Ridgway. Proc. U.S. Nat. Mus. 1881, p. 22.]

The Duck in question is *Fuligula rufina*, of which an example was obtained in Fulton Market, New York, in February 1862, "supposed to have been shot on Long Island Sound." It was at that time believed to be a hybrid, but on further examination turns out to be an immature male of *Fuligula rufina*.

98. *Ridgway on* Amazilia yucatanensis.

[On *Amazilia yucatanensis* (Cabot) and *A. cerviniventris*, Gould. By Robert Ridgway. Proc. U.S. Nat. Mus. 1881, p. 25.]

In this Journal (1879, p. 208) we ventured to dissent from Mr. Elliot's view of referring *Amazilia yucatanensis* (Cabot) to *A. cerviniventris*, and suggested a reexamination of the question. This Mr. Ridgway has now undertaken by comparing Cabot's type with Texan specimens of *A. cerviniventris*. The result arrived at is that the species are distinct; and comparative diagnoses are given.

99. *St. John's 'Wild Coasts of Nipon.'*

[Notes and Sketches from the Wild Coasts of Nipon, with chapters on cruising after pirates in Chinese waters. By Captain H. C. St. John, R.N. 8vo. Edinburgh, 1880.]

Captain St. John's account of his sporting and collecting adventures on the Japanese coasts will be read with great

interest. Many good notes on birds are interspersed in the text, see *e. g.* pp. 7, 97, and 146.

An Appendix contains a reprint of the list of birds of Japan, given in the 'Fauna Japonica,' Capt. St. John being unacquainted with more recent works on the same subject, and a list of birds *not* named in the previous list, but collected by himself.

100. *Sclater's 'Puff-birds and Jacamars.'*

Part V. of this work (July 1881) contains figures of the following species of Bucconidæ :—

Bucco radiatus.
Malacoptila fusca.
Malacoptila rufa.
Malacoptila torquata.
Malacoptila panamensis.
Malacoptila inornata.
Malacoptila fulvigularis.
Malacoptila substriata.
Micromonacha lanceolata.

Part VI., announced to appear in November, will contain the whole of the remaining illustrations.

101. *Stolzmann on* Steatornis caripensis.

[Observations sur le *Steatornis* péruvien. Extrait d'une lettre adressée par M. Jean Stolzmann a M. L. Taczanowski. Bull. Soc. Zool. de France, 1881.]

M. Taczanowski communicates M. Stolzmann's observations on *Steatornis*, extracted from his letters. M. Stolzmann met with this wonderful bird in two localities in Peru—Ninabamba in the Department of Caxamarca, and Huabamba in the Department of Amazonas,—and, besides visiting the caves where it passes the day, also observed it in the forests at night. Here it resorts to the trees of various species of *Nectandra*, and plucks their fruits, fluttering over the ends of the branches. The hard seeds of these fruits, as observed by M. Stolzmann in a living specimen of *Steatornis*, are rejected by the mouth.

102. *Shufeldt on the Osteology of* Speotyto *and* Eremophila.

[Osteology of *Speotyto cunicularia*, var. *hypogæa*, and of *Eremophila alpestris*. By R. W. Shufeldt, Bull. U.S. Geol. and Geogr. Surv. vol. vi. no. 1.]

Mr. R. W. Shufeldt, First Lieutenant and Assistant-

Surgeon U.S. Army, describes at full length the various bones which are comprised in the skeleton of these two birds. Mr. Shufeldt's memoir would, perhaps, have been of greater general use if further points of comparison between the two forms, and their allies had been given. Four well-drawn plates illustrate the memoir.

LII.—*Letters, Announcements, &c.*

We have received the following letters addressed to the Editors of 'The Ibis':—

British Museum, June 25th, 1881.

Sirs,—The name which I proposed in 'The Ibis' for the beautiful *Laniarius nigrithorax* of the Gold Coast being a *vox hybrida*, which I ought to have known better than to compound, I am anxious to change it into a more classically correct one, and propose to alter it into *melanothorax*.

A similar instance occurs in *Cinclosoma castaneothorax* of Gould, which ought to be altered, and which I suggest should henceforth be called *erythrothorax*.

I am, &c.,

R. Bowdler Sharpe.

Turin, Zoological Museum.
June 30th, 1881.

Sirs,—In the April number of 'The Ibis' for this year (pp. 258–267) are some "Notes on some Hawks of the Sub-genera *Cooperastur* and *Urospizias*," by Mr. Gurney, concerning which I have to offer a few remarks.

Mr. Gurney describes and figures a young specimen, marked as male by the collector, of *Urospizias albigularis*: this is described as smaller than the type specimen in the British Museum, and more so than the type specimen of *U. meyerianus* (Sharpe), which is the largest of the three; so that Mr. Gurney is ready to conclude "that the still larger *U. meyerianus* (Sharpe) is not" (as supposed by me) "the female

of *U. albigularis*, but a distinct and larger species." I can only reply to this, that having compared together the types of *U. albigularis* and *U. meyerianus*, I have found in their dimensions the usual amount of difference between male and female of the same species of Hawk. As to the specimen described by Mr. Gurney, as it is a very young one, it cannot have the dimensions of a fully adult male; so that we can easily suppose that it might have grown to the dimensions of the type specimen in the British Museum, which I have taken for a male, while I have considered the type of *U. meyerianus* to be the female of the same species. Although it appears to me that such is the state of things, I am quite ready to admit that we want a larger series of specimens before all doubt can be removed as to the question of *U. albigularis* and *U. meyerianus* being the same species or not.

The other point in which I am concerned relates to *Urospizias torquatus*. It seems that Mr. Gurney is inclined to admit that the bird from New Guinea, *U. sharpii* (Ramsay), is probably different from that from the Timor group, *U. torquatus* (Temm.). According to Mr. Gurney the principal difference between the *Urospizias* from the south of New Guinea (which seems to extend also to New Ireland and the New Hebrides) and the one from Timor and Western Australia would be in the under tail-coverts, which are white and unbarred in the second form, while the same feathers are white but transversely barred with rufous in the first form. Such is the case certainly in all the adult specimens (four in number) from Yule Island, which I have still before me; but at the same time I must say that there is a great variation in the intensity of the rufous bars, which in one specimen are very distinct, while in the other three the under tail-coverts are much whiter and the rufous bars less distinct. After four years' interval I no longer remember how the under tail-coverts were in the specimen from Western Australia (*Péron*) in the Paris Museum, nor in the specimens from the Timor group in the Leyden Museum; but Schlegel has figured a specimen from Timor with the under tail-coverts barred, and Mr. Gurney himself mentions another (from the same place)

in the British Museum of a similar description. At present I can only say that, having at the time compared the birds from Yule Island with the specimen from Western Australia in the Paris Museum (type of *Nisus australis*, Less.), and with other specimens in the British Museum, two of which are from Waigiou, as also with those in the Leyden Museum, they all appeared to me to belong to one and the same species.

Should the New-Guinea *Urospizias* (which I have regarded as *U. torquatus*) be specifically different from that of Timor, it cannot be called *U. sharpii* (Ramsay, Pr. Linn. Soc. N. S. W. iii. 1878, p. 173), as assumed by Mr. Gurney, as, before Ramsay used that name, there was already an *Astur sharpii*, Oustalet (Bull. Soc. Philom. ii. 1875, p. 25), from the Marianne Islands.

In answer to the last remark of Mr. Gurney I must confess that I have not examined the types of *Urospizias sylvestris* (Wall.); and also, if I have included Flores among the localities inhabited by *U. torquatus*, it was on Schlegel's authority, and, *perhaps*, also on account of not having found in the specimens from Flores in the Leyden Museum sufficient differences to induce me to consider the birds specifically distinct. I admit that, if such was my opinion, I ought to have quoted *Astur sylvestris*, Wall., among the synonyms of *U. torquatus*, which I have omitted to do by oversight.

If *U. sylvestris* is entitled to specific rank, it follows that Flores must be excluded from the localities inhabited by *U. torquatus*.

I am, sirs,
Yours &c.,
T. Salvadori.

Estancia 'Los Yngleses,' en Ajó, Buenos Ayres,
July 4th, 1881.

Sirs,—In 'The Ibis' for 1880, at p. 22, there are some breeding-notes inserted under the heading of *Lichenops perspicillata*, Gm.

These notes properly appertain to *Agelæus thilius* (Mol.) a species I had not included in my paper of that date; and it is only since the publication of the same that I have discovered the error into which I have fallen.

I am, &c.,

ERNEST GIBSON.

Mr. A. O. Hume, the Editor of 'Stray Feathers,' writing (May 19th last) "on the extreme eastern summits of Munipur, overlooking the unexplored valley of Kubo, and with a distant view of the broad stream of the unknown Ning-tee river" before him, says:—

"I have just had such a misfortune. I discovered here a lovely Pheasant; I succeeded in getting only two males: of one I made a superb skin; the other I had alive; the poor thing had got so tame, and would take rice (boiled) and insects out of my hand. The other night, after almost the first dry hot day we have had, my people, in the middle of the night, managed to set my mat hut on fire. It went up like an explosion of gunpowder; and amongst other things the poor dear Pheasant that I had reserved expressly for you was burnt to death. The feathers were terribly burnt; but I have made a skin of it; and this I will send home to you to give you some idea of what it is like, if, as I believe, it proves to be new. Here I have not even 'Jerdon' or 'Stray Feathers;' but I know all the Pheasants, I *think*; and I believe this is new. The good skin I had luckily sent away before this fire; so that it is all safe. It is such a lovely bird, according to my remembrance closest to *Gallophasis ellioti*, but with the back and rump barred black and white, like, or somewhat like, a *Gallophasis*."

Obituary.—We are grieved to announce the death of Count ERCOLE TURATI, which took place in Milan on the 30th of July, after a long and painful illness, at the age of only 52 years, he having being born on the 10th of July, 1829, at Burto Arsizio.

He was passionately fond of collecting birds, and, being a wealthy man, he succeeded in making one of the most splendid private collections, numbering over 20,500 mounted specimens (with about 500 skeletons), belonging to 7200 species. There is nothing equal or approaching to this in Italy, even in public collections, the richest of these, that of the Museum of Turin, not yet reaching 10,000 specimens.

Count Turati began his collection at the early age of fifteen, in October 1844, with a few birds killed by himself in Lombardy, and gradually increased and even enriched it with important specimens and typical collections. Among these we have to notice Malherbe's typical collection of Woodpeckers, that of Loche's birds of Algeria, and the choicest part of Verreaux's Humming-birds. The New-Guinea collection, consisting of d'Albertis's, Beccari's, Bruijn's, Meyer's, and Laglaize's duplicates, is particularly rich. Some groups are extraordinarily numerous—among others the Birds of Paradise (which includes the finest specimens to be seen), that of the Parrots (containing more than 350 species, with more than 1000 specimens), those of the Woodpeckers, of the Humming-birds, of the Goatsuckers, of the Pigeons, of the Hawks, of the Ducks, and of the Struthious birds. Among the things worthy of particular notice are a mounted specimen and a skeleton of *Alca impennis*, also a mounted specimen of *Nestor productus*, both species, as is well known, being extinct. Besides, in the late Count Turati's collection are more than one hundred typical specimens, some of which are still unique. It would take too long to mention the many typical Papuan specimens described by Meyer or by the undersigned, so we shall only mention here Verreaux's *Diphlogæna traversi*, *Malacoptila castanea*, *Dryoscopus turatii*, and Finsch's *Lamprolia victoriæ*, *Charmosyna josephinæ*, *Goura scheepmakeri*, and many others.

One of the peculiarities of the late Turati's collection is the great number of varieties, albinos, melanisms, and other kinds.

Count Turati's collection was accessible to everybody, as

he was always ready to show, or even to send, specimens to those who wanted them for study; many of them have been mentioned by the undersigned. Unfortunately, being absorbed in business, he had no spare time to study his collection himself, so that his name is connected with that of only two species, viz. *Pharomacrus xanthogaster* and *Rhipidura vidua*. The late Count Turati, besides having given much attention to the birds of Lombardy, furnished the materials for Bettoni's great work, 'Gli Uccelli che nidificano in Lombardia,' which, for the beauty of its plates, is the most splendid of all the ornithological works published in Italy.

We do not yet know what will become of the late Count Turati's magnificent collection, but have no doubt that his heirs will arrange matters so that the splendid monument left by the Count will always be of benefit to science.

Count Turati was a generous man, and always ready to aid scientific enterprises in which researches in natural history were concerned. It is greatly to be wished that others may imitate him, both in Italy and elsewhere.

T. Salvadori.

A letter received from Dr. Finsch, dated Sydney, August 19th, 1881, confirms the report of the death of the well-known German collector Kleinschmidt. He was killed in July last by the natives of New Britain, where he was engaged in collecting for the Museum Godeffroy.

Dr. Finsch, when he wrote, was planning a visit to Thursday Island, in Torres Straits, and the adjoining districts of New Guinea. He had just returned from a short visit to New Zealand, of which he promises us an account for our next Number.

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