

roulini are longer, narrow more gradually towards their extremities, and are more arched (see figs. 1 and 2); and, secondly, in the much less elevation of the cranial crest in *T. roulini*, the upper surface of this ridge being continued in nearly the same horizontal plane as that of the nasal bones, instead of forming a considerable angle with it. Besides these points, the fronto-nasal suture was nearly straight in *T. roulini*, instead of being deflected forwards between the two nasals as in *T. americanus*, and the deep grooves at each side of the nasal bones were broader in *T. roulini* than in *T. americanus*.

A communication was read from Viscount Walden, F.R.S., President of the Society, containing an Appendix to his paper on the Birds of Celebes, read at the meeting held on the 2nd of May, 1871.

The first portion of this communication contained additional observations upon the species contained in the former list.

The second portion contained a list of twelve additional species, with remarks upon them, thus raising the total number of authentically recorded Celebean birds to 205.

This paper will be published in full in the Society's 'Transactions.'

Prof. Owen read the eighteenth of his series of memoirs on the extinct birds of the genus *Dinornis*, in which the characters of a supposed new species of *Dinornis*, from the south island of New Zealand, allied to *D. crassus*, were pointed out, and the species was proposed to be called *Dinornis gravis*. To this was added a *résumé* of the described species of *Dinornis*.

This memoir will be published entire in the Society's 'Transactions.'

Mr. H. E. Dresser exhibited eggs of the Marbled Duck (*Querquedula marmorata*), lately obtained by Major Howard Irby near Seville.

The following papers were read:—

1. On the Habits of the Swallows of the Genus *Progne** met with in the Argentine Republic. By W. H. HUDSON, C.M.Z.S. With Notes by P. L. SCLATER.

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Before leaving Buenos Ayres last summer I had begun to write about our Swallows, and in the present communication will speak of

* After examining a considerable series of skins of birds of this genus from various parts of America, I have come to the conclusion that there are only four well-marked forms which merit specific rank, namely:—

1. *Progne purpurea* (Linn.).

Under this head I include all the American "Purple Swallows," of which

the three species of *Progne* found in this country. The *Progne chalybea*, a handsome bird, the largest of its tribe in this neighbourhood, is worthy of the specific name *domestica* given to it by some authors, being preeminently domestic in its habits. It never breeds in banks as *Progne purpurea* often does, or in the forsaken domed nests of other birds in trees, a situation frequently resorted to by the *Hirundo leucorrhoa*, but is so accustomed to the companionship of man as to make its home in populous towns as well as in the country habitations. It makes its appearance here about the middle of September, and apparently resorts to the same breeding-place every year. It is a familiar, noisy, and, in the season of courtship, a pugnacious bird, very common, though not so numerous as the smaller species, which disputes with it the right to the breeding-chinks and holes beneath the eaves. The nest is roughly constructed of dry grass, hair, feathers, and other materials; the eggs white, pointed, and five in number. When the entrance to its building-hole is too large it partially closes it up with mud mixed with straw; if there be two entrances it closes one altogether. It is thus very seldom that this bird requires to use mud in building; and it is the only one of our Hirundines that uses such a material at all. When quitting its nest or on a person's approach, this Swallow utters an exceedingly loud startled cry, several times repeated. It also has a song composed of several agreeably modulated notes, and pitched in that thick rolling intonation which is peculiar to many of the Swallows. This song sounds but low when the bird is close at hand, and yet may sometimes be distinctly heard when the songster appears but a speck in the distance. It is one of the pleasantest songs that heralds our summer, though it is perhaps rendered more so from associations than from intrinsic sentences or melody. The favourite resort of old and young birds when the

Prof. Baird, in his 'Review of North American Birds,' p. 273 *et seq.*, makes several species (*P. subis*, *P. elegans*, *P. cryptoleuca*, and *P. furcata*). This species extends from the United States down to the Rio Negro. It is not, however, I believe, found on the western side of the Andes southwards of Ecuador, *Progne furcata* of Baird, described from Chili, having been probably received from Mendoza (*cf.* Philippi et Landb. Cat. Aves Chilenas, p. 88), whence I have also received specimens.

2. *Progne chalybea* (Gm.).

This species ranges from Mexico down to Buenos Ayres. I have skins in my collection from these extremes and many intermediate localities, and am not able to distinguish them. I have hitherto usually employed Baird's name *leucogastra* for it. It is the *Golondrina domestica* of Azara, undè *Hirundo domestica*, Vieillot.

3. *Progne dominicensis* (Gm.), of the Antilles, of which the adult male has a blue-black throat like the back. See Baird, Rev. A. B. p. 279.

4. *Progne tapera* (Linn.).

Of this species I have skins from Bogota, Puerto Cabello, Brazil, and Buenos Ayres; so that it likewise has an extensive range. I include under this head *Phæoprogne fusca* and *P. tapera* of Baird.

I have in some cases altered Mr. Hudson's scientific names (taken from former papers of myself and Mr. Salvin) to suit this nomenclature.—P. L. S.

breeding-season is over is to the broad leafy tops of an old ombée tree ; and it is usually on these trees that they congregate, in parties of from twenty to a hundred, before leaving us in February.

If the species comprised in each genus or subgenus always resembled each other as closely as the *P. chalybea* and *P. purpurea*, it would be an easy thing indeed to classify ; for I am not acquainted with any two distinct species more nearly resembling each other than these birds. The difference in the hue of the under-plumage and a divergence in one of the breeding-habits separates them ; otherwise they are identical. Several times I had seen the *P. purpurea* in Buenos Ayres, usually a single individual seen after midsummer, associating with parties of the *P. chalybea*, and in size, language, and flight so exactly like it, that I, not knowing the bird, was almost inclined to think it a rare variety.

On arriving at Bahia Blanca last summer I found the *P. purpurea* quite numerous there, and the only large Swallow in that region, the range of the other species of *Progne* not extending so far south. Again, at Carmen de Patagones I observed great numbers of them. They arrive there late in September, and leave before the middle of February, breed under the eaves of houses or in walls, and build a nest like that of the *P. elegans*. But numbers also breed in the holes in the steep clay- and sand-banks of the Rio Negro. Judging from the appearance of all the breeding-places I examined, I am of opinion that they never excavate holes for themselves, but merely take possession of old forsaken burrows of quadrupeds and of the Burrowing Parrot (*Conurus patachonicus*). I have remarked that the two species described are identical in language ; the loud shrill excited scream when the nest is approached, the various other short notes when the bird sweeps about the air, and the pleasingly modulated and leisurely uttered song are all possessed by the two species without the slightest difference in strength or intonation. This circumstance appears very remarkable to me, because, though two distinct species do sometimes possess one or more notes alike, the greater part of the language will always be found different, and also because I have noticed that individuals of one species in different localities do vary more in language than in any other particular.

In widely separated districts on the Pampas I have observed a considerable difference in the notes of birds of the same species, particularly in the songs of song-birds. I paid great attention to this matter while in Patagonia, and in several species common to that region and to Buenos Ayres found so great a difference in voice, that I was fully convinced that birds have a greater tendency to vary in language than in any thing else. It is, however, worthy of remark that it is in resident species only that I have noticed this tendency to vary ; the language of a passage-bird seems everywhere the same. I may at another time have more to say on this subject.

The third species, *Progne tapera*, is more slender, and has a greater extent of wing than the two birds described ; and instead of the beautiful steel-blue (their prevailing colour), his entire upper plumage is dull dusky brown, the under white. But if these differences

of hue and structure merely serve to show that he is not a very near relation of the two preceding species, those exhibited in his habits remove him very far indeed from them. *Progne tapera* is a very garrulous bird, and is no sooner arrived early in September than we are apprised of the circumstance by the notes which the male and female incessantly sing in concert, fluttering and waving their wings the while, and seeming quite beside themselves with joy at their safe arrival. Their language is more varied, the intonation bolder and freer than that of our other Swallows; the length of the notes can be varied at pleasure; some are almost harsh, others silvery or liquid, as of trickling drops: they all have a glad sound; and many possess that remarkable characteristic of shaping themselves into words or, rather, a fancied resemblance to words.

The *P. tapera* seldom or never alights on the ground or on the roofs of houses, but solely on trees. It breeds only in the *ovens* of the Oven-bird (*Furnarius*); I, at least, have never seen a pair breed in any other situation, after having observed them every summer of my life. An extraordinary habit! for, many as are the species possessing the parasitical tendency of fixing on other birds' nests to breed in, none of them confine themselves to the nest of a single species, except the bird I am describing. So soon as these Swallows arrive, each pair takes up its position on some tree, and usually on a particular branch; a dead twig extending beyond the foliage is a favourite perch. Here they spend much of their time, never appearing to remain long absent from it, and often, when singing their notes together, fluttering about it with a tremulous uncertain flight like that of a hovering butterfly. Twenty or thirty days after their arrival they begin to make advances towards the oven that stands on the nearest post or tree; and if it be still occupied by the builders or rightful owners, after much time being spent in sporting about and reconnoitring it, a feud begins that is often exceedingly violent and protracted many days.

In seasons favourable to them the Oven-birds build in autumn and winter, and breed only in spring; so that their broods are able to fly by the end of October; when this happens the Swallows that breed in November and December quietly take possession of the forsaken fortress. But accidents will happen even to the wonderful fabric of the Oven-bird. It is sometimes destroyed, and must be rebuilt; its completion has perhaps been retarded for months by drought, or by the poor condition of the birds in severe weather; or the first brood may have perished, destroyed perhaps by a Rat or young Opossum. November, and even December, may thus arrive before some of them have hatched their eggs; and it is these unfortunate late breeders that suffer from the violence of the marauding Swallows. Many of the ovens I open contain the eggs of the Oven-bird, buried under the nest of the Swallows; and I have frequently witnessed the wars of these birds with the profoundest interest. After the Swallows have taken up their station near the oven, they occasionally fly towards and hover about it, returning again to their stand. By-and-by, instead of returning as at first, they take to alighting at the mouth of the coveted

home; this is a sort of declaration of war, and marks the beginning of hostilities. The Oven-birds, full of alarm and anger, rush upon and repel them as often as they approach; they retire, but not discomfited, and only warbling out their gay notes in answer to the outrageous indignant screams of the *Furnarii*. Soon they return, the scene is repeated, and this desultory skirmishing often continued for many days. But at length the lawless invaders grown bolder, and familiar with his strength and resources, will no longer fly from the master of the house: desperate struggles now frequently take place at the entrance, the birds again and again dropping to the ground clutched together, and again hurrying up only to resume the combat. Victory at last declares itself for the aggressors; and they busy themselves carrying in materials for the nest, screaming their jubilant notes all the time, as if in token of triumph. Thus are the brave and industrious Oven-birds often expelled from the house that cost them so much labour to build.

It is pleasant, however, to know that this is not the invariable result of the conflict. To the superior swiftness of the Swallow the Oven-bird opposes greater strength, and, it might be added, a greater degree of zeal and fury than can animate its adversary. The contest is thus scarcely an equal one; and the Oven-bird, particularly when its young are already hatched, is often able to maintain its own. But the Swallows never suffer defeat; for when unable to drive the Oven-birds by force from their citadel, they fall back on their dribbling system of warfare, and keep it up till the young birds leave it, when they take possession before the nest has grown cold.

The nest of this Swallow is composed chiefly of large feathers; the eggs are four, long, pointed and pure white.

You will remark that, in all its habits I have mentioned, this bird differs widely from the *P. chalybea*; there is also great dissimilarity in the manner of flight of the two birds. The *P. chalybea* moves with surprising grace and celerity, the wings extended to their utmost; they also love to sail in circles far up in the air, or about the summits of tall trees, and particularly during a high wind. At such times several individuals are usually seen together, and all seem striving to outvie each other in the beauty of their evolutions.

The *P. tapera* is never seen to soar about in circles; and though when hawking about for flies it sweeps the surface of the grass with amazing swiftness, at other times it has a flight strangely slow, and in a fashion peculiar to itself: the long wings are depressed as much as those of a wild duck when dropping into the water, and constantly agitated with flutterings short and rapid as those of a butterfly.

Neither is the bird gregarious like all its congeners, though sometimes an individual associates for a while with a party of Swallows of another species, but this only when they are resting on fences or trees; for as soon as they take flight he again leaves them. They hold no meetings preparatory to migration, but skim about the fields and open plains in un-swallow-like solitude, and suddenly disappear without having warned us of their intended departure.