and from the other scattered information which we possess, the favourite haunts of the Motmots are known to be the depths of retired forests generally near the vicinity of water; they are solitary, or live in pairs only; ut in mountains often repeated note, breed in holes in the banks of ravines or in hollow trees, and live upon insects, reptiles, small or young birds, and fruits or berries; and as we learn from the notes of our correspondent, they occasionally also search for their food upon the ground.

The Motmots seem to be confined chiefly to the northern half of the southern continent of America, one at least, as its name implies, extending into the Mexican provinces; it is probable also that the different species are local or restricted

Sir W. Jardine on the Habits of Priomomes.

No. 38. JANUARY 1841.


No. III. On the History and Habits of the Birds forming the Genus Priomotes of Illiger.

The genus Priomotes, or the Motmots of British writers, is a small group of beautiful birds peculiar to the New World. They are all very closely ailed by their habits, and have the
colours of the plumage and the distribution of its markings assimilating so remarkably with each other, that some confusion
does not still exist in the distinction of the species; and there
is also much difficulty in always recognising with certainty
that to which the observations of travellers relate. In our
latest ornithological system by Mr. Swainson, two species have been separated from Priomotes, under the subgeneric title of Crypticus, characterized by the great dilatation of the bill; while in the old form, as now restricted, we appear at present to know six distinct birds.

The P. brasiliensis is the species from which the genus was originally established, and it is the only one regarding the habits of which we have hitherto had any authentic record. The notes of both Asa and Waterston refer to it.


† P. brasiliensis; rubescens; Bahamana, Sw.; Mexicanus; Martinii; and natalensis. — Orn. Illust. p. 42. N. S.

‡ Of this species, described by Asa, two specimens were preserved alive, and were kept in confinement for five months. It is a rare, strong, bold omnivorous and observing bird; it ate small pieces of bread, or mere crumbs of rice meal, which before swallowing it struck several times against the ground, as if believing them alive, it wished to kill them. Sometimes I saw them eat water-locusts and oranges; but they never drank or took any notice of nectar, either whole or pounded, nor did they use the fact to hold with. If the piece was large they left it; but what they liked best were small birds, which I let come into the room, and they followed on them a great

in their distribution; that which we have now under consideration, we do not know as inhabiting the continent at all. Mr. Swainson gives the Bahamas casually generally as its native country; and in the locality of the specimens before us we have it stretching to the very south-eastern extremity of the West Indian islands, but we do not know if the species occurs also in Cuba, St. Domingo, &c., or continuously along the group; on the continent the first species which occurs in Guiana* and the Brazils is the old P. Brasiliensis.

Our native correspondent in Tobago has procured and forwarded to us skins and specimens in spirits of what we consider to be the P. Bahamense of Swainson, which have enabled us partially to examine its internal structure; but before noticing this or making any remarks upon the place the group should occupy in our system, we shall transcribe Mr. Kirk's observations upon their habits, which may be usefully compared with the notes from various authors which we have given beneath.

"This beautiful species, with his hair-like plumage and spotted tail-feathers, is a very common and obtrusive bird in this island; and it may be fairly said that if they are passed unobserved it will be no fault of their own, for they will sit and look stupidly down upon any intruder until he comes within a yard, when they generally accept him with their usual low hollow-sounding note, Who, Who, which with very little legibility may be converted into Who are you? and, indeed, reports are current of instances of their having been answered, in the belief that the question was put by a human being; and when the Priornites demanded over and over again Who are you? in a dark and solitary grove, it is not a matter of surprise that a poor ignorant African (as the story goes) should, after giving an explanation which proved unsatisfactory, take to his heels and leave the 'king' in the undisputed possession of his forest.

"The Priornites of Tobago builds a nest, or rather occupies the cavity of some deserted yellow ant's nest, or other hole, generally in the bank of a road or gully, or scar by the side of some rivulet, though it does not follow that it should always be near water. The entrance is generally very small, from two to two inches and a half in diameter, and the hole is pierced from three to nine feet into the bank, sometimes directly in, at other times along the bank, parallel, and at no
great depth; but the aperture widens as it proceeds, especially where there is a turning or angle, otherwise it would be impossible to save the two centre feathers of the tail; at the extremity it is widened to about two feet in diameter, where about the month of May, without the slightest preparation, they deposit three or four dusky cream-coloured eggs, about the size of those of a pigeon.

"When the young have been hatched they remain in the nest until able to fly; they are supported by the parents, and are fed upon snakes, beetles, berries, &c., and in every nest which I have found there was below the young thousands of huge maggots, bred and fed there. I suppose by the nauseous fragments of insects left by the young birds. The young are easily tamed, and will eat almost everything, such as frog, cock-roaches, &c., and when driven out of doors they grow always to regain the house, where with unerring aim they would dart upon the smallest insect moving upon the ceiling. They are exceedingly acute in sight, nothing that moved passing their observation. They do not assist with the feet in destroying life, but will hold a snake of two or three feet long in their web-like bill, and continue to strike him against the ground until life is extinct, when they begin at one end and swallow him whole. I have also seen one with a very large lizard swallowed to the head and arms, which apparently could not be then got further."

In reply to some additional queries, our correspondent again writes on the 22nd of March: "The Priornites never catch their prey upon the wing like the Flycatchers; they frequent dark solitary groves, and are fond of being in the vicinity of marshy gullies or rivulets; in such places I have often surprised them, sometimes singly and sometimes in pairs, with the bill and breast dirty as if they had been searching the earth for insects, the moist spots around bearing evident symptoms of having been so examined. When they seize a snake they never let go their hold, as if to renew it more securely, but turning the head to the right and to the left keep striking the snake sharply against the branch on which they are perched, for they, in a wild state, never remain on the ground a moment after I saw them catch their food. In speaking of the seizing of cock-roaches on the roof, I must be understood to refer to the young which I had domesticated: and in such cases the cock-roaches were not flying, but were running along the ceiling; when seized, the Priornites invariably alighted upon the floor, against which it would repeatedly strike the insect before swallowing. The domesticated Priornites*

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* The specimens brought home by Mr. Schumberg from Guiana were all P. Brasiliensis.

† Two centenaries and a quarter.—Lard. Cyclop., Animals in Mammals, p. 332.
used at times to sit in our portico, from whence it would dart down into the flower-garden, seizing the lizards indiscriminately without regard to size; when hungry I have seen them kill and attempt to swallow one ten inches long; I have often extracted the lizard in such instances when the tail protruded from four to six inches out of the bird's mouth; at other times, when it had succeeded as far as the hind legs, and the bird appeared in a state of suffocation. They feed also on soft fruits; I used several large seeds from the stomach of one a few days since. The two spatulate tail-feathers are entire at the first moult, but when or how they become spatulate, I am sure no one in Tobago knows. The birds have always been reported to assist with their bill, hence my anxiety to domesticate them for the purpose of ascertaining the fact; but in this I have always failed, for the tail had no sooner extended four or five inches than it was broken off by the cage or floor. One thing is certain, that at this season, viz. from October until May or June, we may search in vain for a specimen without the spatulate tail, while between June and October they may be met with in abundance; this leads me to the conclusion that it is natural, and that they assume the spatulate appearance with the first moult and unassisted.

The specimen of the Tobago Motmot which we have received, vary in length from seventeen to fourteen and a half inches; when compared with P. Brasilianus, the blue colour enshrouding the crown covers less space on the occiput, the feathers are not so elongated, and the tail is pale or greenish at their base, and not of the deep and uniform cobalt of the Brazilian bird; the upper part of the plumage is nearly similar in tint, but the whole of the lower parts and under wing-covers are of a deep and uniform brownish-orange, relieved only by the black elongated feathers, which appear through nearly the whole group in a similar situation.

From the specimen in spirits, being rather soft and tending to decay, the examination of the soft structures could not be made satisfactorily. The whole muscular system exhibited little strong development; indeed the outward form of the bird (confirmed by our knowledge of its habits) shows no provision for exertion or rapid flight; the skeleton, with the exception of the bones of the head and neck, is likewise as weakly formed. The stomach is small and oval; the proventriculus gradually narrowing into the oesophagus, which is wide and dilated; when distended the stomach appears muscular without, but the walls when cut through show a moderate thickness only. The inner coating is rather coriaceous, and separable easily and cleanly from that next to it. The intestinal canal is narrow, but was too much spoiled to be distinctly made out. The ceca appeared long, and to be given off nearly at the extreme end, and the cloaca is very large. The tongue is lengthened, balefor half an inch, and is slightly feathered on the sides; the muscles of the interior larynx, so far as observed, resemble in number and position those of the Corvidae.

In placing Priotes among the Fissirostrae and near to the Rollers, we believe that Mr. Swainson will ultimately be found to be correct; their weak formation and the internal structure, the wide gap and partially closed rectus, together with their habits, all tend to this place; at the same time their analogies towards the Crows are extremely strong. The elongated form and short wings of Picus and Cryptorina remind us of Priotes, and it is remarkable that in both of these there is a narrowing of the centre tail-feathers, where they are spatulate in the last. In the typical crows the bill is often ragged on the edges; they are carnivorous and insectivorous, and many feed eagerly on fruits and grain, while reptiles are often seized by the stronger species; the tongue is slightly bale, and is fringed on its edges, the commencement of that pinnated or feathered form which more particularly belongs to those species which live much on sweet or pulpy fruits. One other remarkable analogy we would notice, and one perhaps by which it has not yet struck ornithologists to trace the alliance between the various groups. The birds in spirits afforded
Sir W. Jardine on the Habits of Priorities.

numorous specimens of Nirn, some of which were sent to Mr. Denny, who is now engaged on a monograph of the British species of this very curious race of insects. This gentleman obligingly furnished the drawing for the annexed wood-cut, and the following remarks: "It belongs to one of the genera most numerous in species; the most striking character is the great size of the labial or movable organs before the antennae; I know of no species in which they are so large or thick; the nearest approach is in those species infesting the Crow family; you will see these organs thick and strong in the Nirn from the Jay, Raven, Carrion Crow, Rook, and Jackdaw."

The spatulate form of the tail-feathers is another part of the structure of this group which seems to have attracted general observation. It is the popular notion in that native country that the bare portions of the tail-feathers are cut off by the bird itself, which, for this purpose, has been provided with a serrated bill. The observations of Mr. Kirk all tend to disprove this, and we would certainly consider it as merely a state of adult plumage, and when we look around to other groups we see corresponding structures to be far from uncommon. The utility or design of it is not at first apparent, except as an indication of maturity. It is common to both sexes, and does not appear before the second moult; previously the feathers are entire, but there is a narrowing of the web where it becomes afterwards stripped off, and in one or two examples we have seen a lateral feather stripped in the same manner with those in the centre. The bill may be used to dress the feathers, but the serrations on its edges are at once explained by Mr. Kirk's notes, and must prove eminently useful in holding fast the reptiles which constitute a great portion of their food; in different species the serrations vary in their development, being in some irregularly broken, while in others they are regularly serrated. In Cryptochaetes they are very minute, and with the dilated form of the bill may be adapted for seeking a peculiar kind of food.

XXXVI.—On the recent Additions to the Flora of Ireland.

By CHARLES C. BABBINGTON, M.A., F.I.A., &c.

Believing that a catalogue of the addtions to the Flora of Ireland, made since the publication of Mr. Mackay's work, would be an interesting Supplement to the paper by Dr. Kincaid, on "The Early Contributions to the Flora of Ireland," contained in recent Numbers of the Annals, I have, as far as lies in my power, collected together the nature notices of newly-discovered plants, natives of this country, and now present them in a connected form.

1. Cerastium arvense. Common on the sea-shore, s. C. C. B.
4. P. Terskius filiformis. At the same place and time as the last, C. C. B.
10. Leucosurus (Apogae) apicinus (Linn.). Mr. J. Hall found a single specimen, which appeared to agree with the description of this plant better than with that of any other species found on the mountains south of Glen Coe, in Wexford, in 1837. Annals of Nat. Hist. ii. 29.