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XVI.—Horæ Zoologicæ

Sir W. Jardine

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XVI.—*Horæ Zoologicæ*. By SIR W. JARDINE, Bart.

“Donec ergo meliora innotuerint, hisce utere, lector optime, quorum finis est, ei Scientiæ parare viam, qua nulla utilior, nulla nobilior.”

It is proposed to bring together in a series of short papers the zoological information which may from time to time come into the possession of the author. Many curious forms continually present themselves which are left unnoticed, because their descriptions alone would not be of sufficient extent to form a “paper” for our periodicals. It will be his endeavour to illustrate these as often as possible, so that their descriptions may serve as a mark for others, from which to note those points in their history which are unknown, or which from the outward form only may be supposed or hinted at. There is much important information gained in correspondence with naturalists in foreign countries, which can scarcely be communicated except in detached portions. The notes which accompany collections from abroad are in some instances so extensive as to be useful in forming skeleton lists for some departments of the Fauna of particular districts and become extremely interesting in connexion with the geographical distribution of species;—and the examination of specimens received in spirits will furnish many subjects for illustration, which may tend to increase our knowledge of the structure of genera, the proper station of which in our systems is scarcely yet determined.

No. I.—*On the History and Habits of Crotophaga*.

For some time past we have annually received considerable collections of birds from the island of Tobago by the attention and exertions of Mr. James Kirk, who since 1825 has superintended the management of various estates there. The specimens which have been received will enable us soon to give a synopsis of the birds inhabiting the above-mentioned island, which will show a much more extensive list than what might be expected within such limited bounds, and will be found to contain several birds interesting both on account of their form and their hitherto supposed comparative rarity. But the col-

lections are still more enhanced in value by the notes which Mr. Kirk has now commenced to send to us, and which are the result of observations made during leisure time since he resided in Tobago; and it is now our object to communicate a part of these, without delaying for the completion of our proposed synopsis.

Crotophaga is a genus belonging to the new world, evidently composed of comparatively few species, one of those remarkable small groups where the distinctions rest on minute variations of the markings and proportions, while the general form keeps extremely similar, and one distribution of colour and of general tint prevails in all the members. At this time the specific distinctions are not well understood, and it will be extremely difficult for even an experienced ornithologist to separate the species without the possession of an extensive series from various localities. Mr. Swainson has described four species in addition to the greater and lesser Ani (*C. Ani* and *major*, of Systems), considering that mentioned by Lesson and Quoy and Gaimard as identical with one of them*. The characters are taken from the form of the bill and the markings and rugosities, or the want of them, on its surface; but, without wishing to throw any doubt on the claim these have to species, we would remark that the changes which the bill may undergo from youth to maturity, both in regard to its outline and markings, have scarcely been ascertained. By most writers and travellers the *Crotophagæ* have been described as gregarious, noisy†, often familiar, frequenting Savannas and pastures, feeding on insects as well as seeds and grains, fre-

* Animals in Menageries, p. 321.

† "They live chiefly upon ticks and other small vermin, and may be frequently seen upon the cows and oxen in the fields; they are often observed to fly on their backs, unless they lie down for them, which if much troubled with ticks they generally do when they see the birds about them, but if the beast be heedless they hop once or twice round it, looking very earnestly in the face every time they pass, as if they seemed to know that it was only necessary to be seen to be indulged. They are very noisy birds, and are of the most common sorts in all the pastures of Jamaica; their flight is low and short."—*Brown's Nat. Hist. of Jamaica*, p. 474. Fol. edit. 1756.

"In Jamaica it haunts the woods on the edges of the Savannahs, and is very common, making a loud noise upon the sight of mankind—Directs the planters in search of their runaway slaves."—*Sloane's Jamaica*, ii. p. 298. Fol. edit. 1725.

quently alighting on the backs of the flocks in search of the vermin with which they are infested, breeding in a community, and sometimes using a common nest, in which several together deposit and hatch their eggs, the nest being placed upon trees, bushes, or upon the ground*. In reading over Mr. Kirk's remarks upon the Tobago species it will be found that they generally agree with the notes we have given from various travellers, &c. But we find no trace of their ever building upon the ground, or of using a common nest†; the latter fact, if it ever takes place at all, being probably confined to some other species. In the system which Mr. Swainson has so successfully wrought out, *Crotophaga* is placed among the *Cuculidæ* to form a connexion with the *Rasores*, and among that order of birds only do we find a few species which incubate in a common nest. In other parts of their manners and structure,

* "*Crotophaga* for instance resembles the *Rasores*; both have such a weak flight that they seldom proceed far upon the wing; both habitually live and build their nests upon the ground, and both associate in flocks. Among hundreds of the common Ani which we have seen in South America we never beheld one perch upon anything higher than a bush, and this was but seldom, as they are habitually terrestrial birds, totally differing in œconomy and habits from the European or American cookoos."—*Lardner's Cabinet Cyclopædia*, 'Birds,' ii. p. 161.

"Il en est de même (se laisse facilement approcher) des nichées d'anis, qui, vivant en famille, s'expose à la file sur un même branche aux coups du chasseur."—*Quoy et Gaimard, Voy. de Freycinet*, p. 19.

"At Balia, or rather its vicinity, the chattering crows (*Crotophaga*) are looked upon superstitiously, and their bills are reckoned a good antidote against poison."—*Dampier's Voy.*, iii. p. 50. 8vo edit. 1729.

† "*Hujus speciei aves amplissimos in sepibus nidos construunt et quinquaginta simul in uno eodemque nido ova ponunt et incubant.*"—*Brisson, Synop. Method.* ii. p. 92.

The author of the article 'Ani' in the 'Dictionnaire Classique d' Histoire Naturelle' gives the summary of our previous notes, but is more minute on the subject of nidification: "Un seul et même nid, dont l'étendue est augmentée selon les besoins, recoit ordinairement toutes les couveuses de la troupe. Ce nid est construit solidement entre de larges bifurcations d'un buisson épais ou d'un arbre touffu; il se compose de branches sèches et d'herbes fines entrelacées; ses bords sont assez relevés, et son diamètre est quelquefois d'un pied et demi. Il arrive presque toujours que, pendant l'incubation, les œufs se mêlent; alors les couveuses en rassemblent indifféremment sous leur aile vivifiante autant qu'elle peut en couvrir, et dès que ces œufs sont éclos, les parens, hors d'état de reconnaître leur véritable progéniture, donnent chacun à leur tour la becquée à tous ceux qui se présentent."—i. p. 367. Art. *Ani*.

We regret being unable to quote the description of Azara; our copy of that work is unfortunately deficient in the last volume, and the Edinburgh libraries do not possess it.

particularly their activity on the ground and propensity to hide from danger, we are reminded also of the *Grallatores*; many members of both orders run with great swiftness and thread their way with ease through thick herbage and tangled reeds. The *Rallidæ* among the latter show much activity, and naturally live in places rank with vegetation, and the knife-like bill of *Crotophaga*, the superciliar bristles, and the strong shafts to the feathers of the forehead, all bear analogy to the defences upon the bill and head of the rails and their allies. The internal structure of the bird, which we shall notice hereafter, exhibits little affinity to either of these orders. Mr. Kirk has thus described their manners in a letter received from him during the last winter:—

“ This bird, with his grotesque bill, is only of recent appearance in this island. I am informed that the first pair seen here was in the years 1822 or 1823: at that period however there were few individuals here who devoted the smallest portion of their leisure to the pursuit of natural history, and hence a strange bird might for a short time have evaded the observation of those who took no interest in such matters. But when we look to the noisy and obtrusive habits of the bird itself, combined with its singular whistling note and very singularly shaped bill, and seeing its haunts are strictly confined within the limits of our cultivation, and more especially to low lands in the vicinity of what *we* call clear pastures or low shrubberies, swamps, &c., we are constrained to believe that a single pair could scarcely have located themselves for any length of time in any quarter of the island without exciting the curiosity and arresting the attention of some individual.

“ On my arrival here, in January 1825, there were only a very few specimens to be met with, and those few were shy, an attribute which seems to desert them as they increase in numbers, for the general impression entertained by any calm observer (*en passant*) would be that they could kill at any hour or any day at least five or six at a single shot, and that that may sometimes be done I will admit while they cluster upon the tops of dry shrubs morning and evening pluming and adjusting their feathers, for it is to trees or shrubs containing the least foliage that they chiefly resort for this purpose.

Before I commenced this memorandum regarding the habits of the *Crotophaga* I entertained a very different opinion as to the facility of procuring them from what I do at this moment; and it may be worth relating here for your information, that, with the view of complying with your request, I went out on two successive days to procure perfect specimens to send home in spirits; but, strange as it may appear, out of fourteen birds which I shot I could only lift three, and those so much destroyed, as to render them useless for the purposes for which they were intended. From this I wish to convey that if the bird is not actually shot dead, its propensity to hide is such, that if there is a cane-piece, a vine, or grass plot within reach, the last expiring effort is to hide its head, and you will the more readily conceive our difficulty by this information, that what we call comparatively clear pastures may nevertheless (from the rapidity of the vegetation, where we can only perhaps afford to clear them once yearly) be covered with prickly creeping vines of all descriptions, three or four feet high; and it often happens, that in consequence of the hurry to procure the specimens just shot, the ornithological sportsman finds himself lacerated from the foot to the face, being lanced with a thousand hooked prickles at the same moment; it was in such a situation that I found myself on the 26th of September last, under the oppressive heat of a vertical sun.

“The young also evince great dexterity in hopping from branch to branch; for long ere they are able for flight they leave the nests, and may frequently be seen perched on the top of a shrub or thicket of vines with a congregation of adult birds; but as the parents retire from the intruder by flight, the young birds prepare by long and rapid leaps to get to the ground, and in such a situation suffice it to say that you might calculate with as much certainty upon the capture of a rat in full possession of all its faculties as upon that of the young *Crotophaga*. Only two days ago, in a comparatively clear pasture, where there was nothing but grass about twelve inches long, I handed one to my servant, who by some means or other let it slip through his fingers in my presence, and notwithstanding our united exertions and that of a third party the bird made its escape. Since, another has been procured and the man-

ners attentively watched. It is exceedingly wild and bites wickedly, and frequently draws blood with its claws. It readily devours grasshoppers (if alive), these constituting their principal food. In a wild state I have known them devour tadpoles with avidity in dry weather, and I have often been informed that they have been seen to pick the ticks from the stock in the pastures : this I will not contradict, but never saw ; I watched them for upwards of an hour yesterday, and the result was, that three of these birds took their station around an ox, within three or four feet distance, sitting on the alert, hopping gradually forward with every motion of the ox as he browsed along, and springing on every insect that started before him.

“On looking at this curious bird a question naturally presents itself to the beholder, What can be the use of such a singularly sharp rigid bill ? and although at first sight we are apt to pronounce this bill grotesque and deformed, we shall find on more mature consideration that the superintending care and providence of an all-wise Creator is manifest here as in all his works, for no other conformation could have suited his purposes so well. As they have been destined like other species to labour for their food, and as it has more particularly been their lot to search for it upon the ground and in a climate where the foliage is thick and luxuriant, the manifestation of the supreme wisdom is apparent when he views with what ease the *Crotophaga* can pounce upon his prey through the thickest foliage : by lowering the head the knife-ridged bill is so brought in contact with the grass, &c., as to throw the herbage to each side, enabling the bird to pursue the insect without the slightest resistance.

“They are in no ways anxious to be exalted, for they seldom choose a high tree when there is a suitable shrub in the vicinity ; and although there are great numbers now in every estate where cultivation has been extended, yet they seldom fly in flocks of more than twenty, and even to that extent they may scarcely be called flocks, like the Rooks of Europe, or the Yellow-tail (*Cassicus cristatus*) of Tobago ; but seem rather to follow each other in short flights from shrub to shrub, sounding their note as they proceed, which is a whistle of two syl-

lables, shorter but not unsimilar to the first note of the Curlew while soaring aloft, the latter part of the note of the Keel-bills being in a sharper key and ending with the letter *p*, or somewhat like the syllables *whoorip*. They are very often come upon by surprise while searching for their food amongst vines and long grass; on such occasions a single bird evinces the greatest distress by violent efforts of wing and elaborate and frequent irregular repetition of its usual note; while on the contrary to see them descend from an eminence, a tree, or shrub, &c., nothing can exceed the ease and gracefulness of their movements as they glide through the air without a motion of wings except a slight alternate raising and depressing of these members, with a gently elevated tail.

“I have heard it observed that these birds make one general nest, and that numbers of them contribute in adding to the stock of eggs; this I cannot contradict, but do not credit. On this point I am not sufficiently informed, for although I have been in search after their nests for several years and offered rewards for procuring them, yet where there are hundreds of the birds,—and they are apparently increasing with rapidity,—our stock-keepers have never succeeded in finding me one nest. I however fortunately fell in with one last year, in the beginning of October (1837). It was built in the fork of a lime tree, covered with a thicket of misseltow vine, and situate within fifteen feet of the dwelling-house door of one of our labourers. His description went to say that towards evening and morning a flock of the birds used to assemble upon the tree and in its vicinity, where they kept up a considerable noise. I made it my study to watch them on several occasions, but was unable to gather anything of importance. I robbed the nest of one egg daily to the amount of nine, and on my tenth visit found the nest with two broken eggs lying at the root of the tree. It was rudely constructed of coarse materials, chiefly small sticks, with the more pliable portions placed inside, but was totally destitute of any soft substance as a lining. Another nest was discovered towards the end of the same month constructed in a similar manner, but placed on this occasion on a pretty high tree, also covered with a creeping vine; this being left undisturbed

five eggs were laid, from which two young birds were produced*. From what I have observed on those two instances I am inclined to believe that the report of their uniting in the construction of the nest and their hatching in concert is erroneous, but I shall endeavour ere long to procure more information when I shall again address you."

On the 22nd of March last Mr. Kirk again wrote to me, after having still further attended to some of the disputed points of the habits of *Crotophaga*. "In some of my former letters I mentioned that I should advance nothing on hearsay as authentic, and to that I have steadily adhered. Since my account of the *Crotophaga's* manner of breeding, as reported in my last, I have had an opportunity of further corroboration by the examination of another nest with seven eggs, taken from a thicket of shrubs and vines about six feet from the ground. The nest, as I have already observed, is of such rude manufacture, that I could not forward it without enclosure in a parcel to prevent the falling asunder; by an examination of it however I am convinced that you would require no further evidence to bring you to the conviction that the *Crotophaga* of Tobago builds on shrubs, nay even on a tree at times, and *never* on the ground." In regard to the nature of its food and manner of seizing it, Mr. Kirk also remarks, "I have watched the bird eagerly for the last six months, I may say every day, and although I have been told by some of my neighbours, on whose integrity I can depend, that they have seen them picking ticks from the legs and belly of our oxen in the pasture, it has never yet fallen to my lot to witness it, nor did I ever find *one tick* in their stomach. I have however seen one lately upon a sheep's back while lying in the pasture, but I have seen the magpie of Europe in the same position. I do not attempt to deny the probability of their eating ticks, but I maintain that grasshoppers form their chief food, and that these are principally obtained by attendance upon the stock while browsing through the foliage. They are also in dry weather close attendants about small rivulets, principally in the morning and evening, where they

* The eggs are white or greenish white; the longitudinal diameter from $1\frac{3}{8}$ inch to $1\frac{1}{2}$ inch and a half.

feed upon tadpoles, and may be described, if the grass be not too long, huddled together in a flock of from twenty to thirty, and so close as to resemble an old coat or cloak at a little distance."

From the near alliance which the species of *Crotophaga* present to each other it may be necessary to describe the Tobago birds as minutely as possible, which we are enabled to do by the possession of skins and specimens in spirits, forwarded to us by our active and intelligent correspondent. From the form and markings of the bill exhibited in the annexed wood-cut we feel inclined to refer it to the *C. rugirostra* of Swainson, though from the manner in which the dimensions are given in that ornithologist's 'Two Centenaries' we are not so sure that our birds agree in the latter point.

C. rugirostra, Sw. ? Wrinkled-billed Keel-bill ; provincially in Tobago, "Old Wife."

Entirely black, glossed with violet reflexions on the wings and tail ; feathers of the head, neck and body with conspicuous glossy margins ; bill wrinkled transversely downwards ; total length from 13 to 15 inches.

The specimens received vary in total length from 13 to rather more than 15 inches, in one of about $14\frac{1}{2}$ inches in length ; the depth of the bill is 1 inch ; the length to the extremity of the rictus $1\frac{1}{4}$; length of the wing from the shoulder to the end of the fourth or longest quill 6 inches, of the tail from its insertion $7\frac{3}{4}$; from beyond the wings $4\frac{1}{2}$; expanse of the wings $16\frac{1}{2}$; of the tarsus $1\frac{5}{8}$; the centre toe, including the claw, nearly the same. In the specimens received in spirits the bill

is of a grayish-black, at the base of the maxilla inclining to bluish-black; it varies in the elevation or development as seen in the cut. No. 1, drawn from a bird fully 15 inches in length, being much arched. No. 2, considerably less developed, belonging to a smaller specimen ($13\frac{1}{2}$ inches) either in the moult or scarcely having attained full plumage. The mandible in both is wrinkled transversely downwards. The eye is protected by strong superciliary bristles, but the space between it and the rictus is nearly bare of feathers, a few scattered bristly plumes only covering it. The ridge of the bill enters among the plumes of the forehead, which run down in a narrow point on each side towards the nostrils, and at this part and above the eyes they show strong rather elongated shafts, somewhat similar to what we perceive in some of the *Rallidæ*, and are without doubt intended to protect the face while they seek for their prey among the thick herbage. This structure in a less degree extends also over the head, cheeks, throat and sides of the neck, the feathers being there rigid and somewhat lanceolate in form. The ground tint of the plumage of the body is a dull black, each feather being margined with a glossy band of a yellowish metallic lustre on the head and neck, on the back and lower parts of steel-blue and violet. These bands, on the vent, flanks, and under tail-covers are wanting. The wings and tail are of a shade of black deeper than that of the body, and are richly tinted with violet reflexions; the secondaries, greater covers, and tail in some lights showing darker narrow transverse bars; the tail is rounded and very ample; the feathers broadening towards the tips, and in its whole appearance reminding us of that member in several of the *Rasorial* genera; in all our specimens it consisted only of eight feathers; the legs and feet are black, the tarsus and middle toe very nearly of equal length, the claws slightly hooked. The exterior toe is subversatile, but the structure of the foot is in other respects ambulatorial. Mr. Kirk states that the eyes are "very dark, apparently blue, except in sunlight, when they assume a very dark hazel-like colour."

When the *Crotophaga* is skinned the first impression is that of a general weakness of the muscular parts, and it is so with

the exception of the greater pectoral muscle, which is wide and thick, and covers broadly a sternum comparatively weak and with the keel slightly developed, causing the breast to appear as possessing great power. The principal muscles which are employed in moving the wings are weak, those of the limbs proportionally fuller and stronger, and from the knee downwards tendinous and as if much used. The trachea is simple along its whole length, and the tongue is rather large and resembles that of the *Corvinæ*. The œsophagus on leaving the mouth is widened, but immediately contracts to a simple tube, again widening into a narrow proventriculus interiorly striated with longitudinal rugæ, until within half an inch of the true stomach, where it exhibits a glandular slightly papillose inner surface. The true stomach when distended with food is nearly circular, flattened on the sides, and on the outside appears muscular and strong; on laying it open however the walls are found to be extremely thin, almost membranaceous, and scarcely exceed in thickness any other part of the canal. The intestine is terminated by a wide cloaca, and is furnished at the distance of two inches from the extremity with two oval cæca, $1\frac{1}{4}$ inch in length, joined to the tube by a narrow constriction, but widening at the ends to double the width of the common canal. In the whole of the internal structure, so far as our knowledge of that of *Cuculidæ* extends, the *Crotophagæ* will resemble them, and will bear out Mr. Swainson's views of their position. The intestinal canal approaches nearest afterwards to the conformation of that of some of the *Fissirostres*; but with the exception of largely developed cæca, which however to a great extent prevail among the *Insessores*, we see no approach to either the *Rasores* or *Grallatores*. In the letter which accompanied the specimens in spirits Mr. Kirk states "As the *Crotophagæ* now sent have been principally secured while attending on the herds of cattle and sheep, it might justly be expected that their stomachs will contain *ticks*, but I could prognosticate that you will find them on examination to contain principally large grasshoppers, and I found one examined lately to contain a few seeds of the Guava fruit." The stomachs when opened were found to contain principally

Grylli and *Cimices*, mixed with the small hard stones of a red berry or red pulpy fruit; in some instances the latter formed almost the exclusive contents, but in none have we been able to discover any of the parasites which infest sheep or cattle.

[To be continued.]

XVII.—*Extracts from a few rough Notes of a Journey across the Pampas of Buenos Ayres to Tucuman, in 1835.* By JAMES TWEEDIE, Esq., addressed to Sir W. J. Hooker.

[Concluded from p. 104.]

MAY 8th. In the afternoon left this our dreary 3 weeks' abode, and the cattle being in good condition, travelled all night through a dark dense forest, where the road or rather path was so narrow that 2 carts must wait, should they chance to meet, until the trees have been felled so as to permit of a passage. The numerous feet and wheel tracks raised such a dust as hung over us in heavy clouds all the way, a perfect calm prevailing in the air, and the travellers, carts, and cattle were all of one colour, enveloped or buried in a covering of dry dust. In the morning, about daylight, my driver falling asleep, the bullocks deviated a little from the path and upset my waggon. Fortunately, though I fell from a considerable height and some heavy bales of cloth tumbled upon me, I escaped with only a slight bruise on one of my legs. Next day travelled through a saline country where there was no water and only salt shrubs for the poor animals to eat, and arrived in the evening at the little village of Atamisco, so named from a finely scented shrub, which grows in great abundance about it. Scarcely any vegetable was seen except some coarse herbage, upon which flocks of goats were browsing.

10th. In the morning we arrived at the Rio Pitambella, where we were again occupied 2 days crossing it in 2 canoes fixed together by poles tied across them, by which means each load was carried over at one time. The empty carts were drawn across by bullocks as at the Rio Saladillo. At this pass, having once more time to botanize for 3 days, I found