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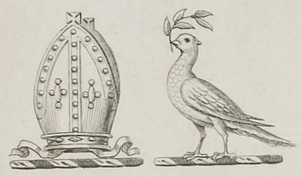

J. G. Barclay.

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JUNE 9, 37

A

MONOGRAPH

OF

THE TROGONIDÆ,

OR

FAMILY OF TROGONS.

BY

JOHN GOULD, F.R.S. &c.

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1875.

TO

HIS GRACE

THE DUKE OF ARGYLL, K.T., F.R.S., &c.,

IN TESTIMONY OF

APPRECIATION OF HIS LIFE-LONG INTEREST IN ORNITHOLOGY, AND WITH A DEEP SENSE OF THE VALUE, IN THE ADVANCEMENT OF OTHER SCIENCES, OF THE ORIGINAL RESEARCHES TO WHICH HE HAS DEVOTED THE PORTION OF TIME WHICH COULD BE SPARED FROM THE DISCHARGE OF IMPORTANT PUBLIC DUTIES,

This Second Edition of

A MONOGRAPH OF THE TROGONIDÆ,

OR FAMILY OF TROGONS,

IS DEDICATED,

BY

THE AUTHOR.

PREFACE.

THE 'Trogonidæ' was the second Monograph undertaken by me, and was published in 1838. I quote the following phrases from my preface to the original edition, as it shows our position in regard to this family of birds nearly forty years ago, after the most strenuous exertions to arrive at a complete knowledge of them:—

"Having brought this Monograph to a close, I am led to hope that my labours in the elucidation of a tribe of birds hitherto involved in much confusion will not be destitute of some degree of value, more especially in the eyes of ornithologists, introducing to their notice, as it does, many new species, and clearing up the difficulties with which many of those even common in our cabinets have been previously surrounded,—difficulties arising from several causes, among which may be enumerated the differences in plumage which obtain so often between the males and females, as well as between the young males and the adults of the same sex, in some of the minor groups; to which may be added the circumstance of the subject not having been attempted by naturalists possessing command of those ample resources necessary for extricating the subject from the labyrinth of confusion in which it has long been involved.

"It would be presumptuous in me to say that this Monograph is fully completed, or that I have figured every existing species; on the contrary, I have reason to believe that many will yet be discovered, both in the Old and New World, particularly in those remote regions which civilized man has seldom, if ever, visited: but in order to render the work complete up to the present time, I have not only done my utmost to add every species to my own collection, but have visited all the principal Museums of Europe, both public and private, and, as in previous instances, have experienced the greatest kindness and cooperation from the various eminent naturalists, private individuals, and the officers of the natural-history department of every public institution. Indeed, without the liberality I have experienced, it would be impossible that a work

of this nature could have been successfully completed; and I am proud to bear my testimony to the liberal spirit which has been manifested towards me by the scientific world in general. Among those to whom I am especially indebted I may mention the Earl of Derby, Prince Massena, of Paris, M. Temminck, M. John Natterer, of Vienna, Dr. Lichtenstein, of Berlin, W. Swainson, Esq., Sir William Jardine, Bart., and T. C. Eyton, Esq. My thanks are also due to my friend Mr. Martin, of the Zoological Society of London, for the kind manner in which he has at all times rendered me his assistance in this and my other publications."

Of the honoured friends mentioned in the foregoing paragraph, only one, Mr. Eyton, remains to me; all the others, alas! have passed away. In writing again a preface to a Monograph of the Trogonidæ, it is impossible not to recall their memory with a sigh; but at the same time it would be wrong to allow regrets to mingle with the acknowledgments which are due to my friends and coadjutors of the present day. It is with pleasure that I recognize the fact that for every single student of ornithology to be found forty years ago, there are at least twenty now; and I cannot close these remarks without recording my obligations to Dr. Sclater, Mr. Salvin, and Mr. Bowdler Sharpe for the assistance they have rendered me in the preparation of this second edition. With the history of this family will also be remembered the names of Mr. Lawrence and Professor Baird in America, Dr. Finsch of Bremen, Herr A. von Pelzeln of Vienna, and especially Drs. Cabanis and Heine, who, in their well-known 'Museum Heineanum,' have given a very elaborate descriptive review of the family; and, although not acquiescing in all their conclusions, I must acknowledge my frequent obligations to this useful work.

Lastly I have to remark that, although I entitle this work a second edition of the Trogonidæ, it is in reality a new publication, all the plates having been redrawn, and many new species figured for the first time, so as to bring the history of the family down to the present day.

INTRODUCTION.

At the commencement of the Introduction to the first edition I stated that, in selecting the family of Trogons as the subject of my second Monograph, I was influenced by the full conviction, not only that it was one fraught with interest, but that much was left buried in obscurity, which when brought to light would materially tend to the advancement of ornithology. That my language was justified has been amply proved during the course of nearly forty years which have elapsed since those words were written; for instead of the *thirty-four* different kinds then figured, we are now acquainted with *forty-six* species of Trogons, *thirty-three* of them being American, *eleven* Indian and Indo-Malayan, and *two* African.

As their general structure and their habits sufficiently indicate, the Trogons belong to the fissirostral tribe of the Insessores. Greatly insectivorous, they seize the flitting insect from the leaves of trees, which their wide gape enables them to do with facility; while their feeble tarsi and feet are such as to qualify them merely for resting on the branches as a post of observation whence to mark their prey, and to which, having given chase, to return. As in all other groups, however, we shall find modifications of the type, constituting the ground of generic or subgeneric divisions.

"The Trogons may dispute the palm of beauty with the Humming-birds. Their plumage in certain parts shines with metallic brilliancy, and exhibits all the colours of the rainbow. On other parts the tints, though opaque, are not less rich and splendid; but a very short neck, feet disproportioned to their figure and bulk, and a long and broad tail injure the harmony of their form, and give them a heavy port and aspect. Their

long attenuated feathers, with barbs disarranged and luxuriant, make them appear more bulky than they really are. These too are so feebly implanted, that they fall at the slightest agitation; and their skin is so delicate that it will tear at the slightest tension."

"These birds are solitary and extremely jealous of their freedom. They never frequent inhabited or open tracts. They delight in the silence of deserts, where they even fly the society of their consimilars. The interior of the thickest forests is their chosen abode for the entire year. They are sometimes seen on the summit of trees; but in general they prefer the centre, where they remain a portion of the day without descending to the ground, or even to the lower branches. Here they lie in ambush for the insects which pass within their reach, and seize them with address and dexterity. Their flight is lively, short, vertical and undulating. Though they thus conceal themselves in the thick foliage, it is not through distrust; for when they are in an open space, they may be approached so nearly as to be struck with a stick. They are rarely heard to utter any cries, except during the season of reproduction; and then their voice is strong, sonorous, monotonous, and melancholy. They have many cries, from the sound of one of which their name is derived."

"All those whose habits are known nestle in the holes of worm-eaten trees, which they enlarge with their bills, so as to form a comfortable and roomy residence. The number of eggs is from two to four; and the young are born totally naked; but their feathers begin to start two or three days after their birth."

The position of the Trogonidæ in the 'Systema Naturæ' has been, and still is, a subject of debate amongst ornithologists; but that the family is a very homogeneous one is admitted on all hands. Professor Huxley, in his Classification of Birds (P. Z. S. 1867, p. 467), places the Trogons in the Coccygomorphæ, in which are associated a number of families of birds under the following arrangement:—

a. The first toe turned forwards, as well as the others.

Coliidæ.

b. The fourth toe temporarily or permanently turned backwards, as well as the first.

Musophagidæ.	Ramphastidæ.
Cuculidæ.	Capitonidæ.
Bucconidæ.	Galbulidæ.

c. The second, third, and fourth toes turned forwards, the first backwards.

Alcedinidæ.	Meropidæ.
Bucerotidæ.	Momotidæ.
Upupidæ.	Coraciidæ.

d. The first and second toes permanently turned backwards, the third and fourth forwards.

Trogonidæ.

From this it will be seen that the Trogonidæ stand alone in this last group in the curious arrangement of the toes. Other differences of internal structure are also observable, amongst which may be mentioned the presence of the basipterygoid processes in the skull, which are not seen in the other families mentioned above.

Mr. Wallace, in his admirable paper on a natural arrangement of birds (Ann. N. H. 1856, vol. xviii. p. 197), has the following remarks on the Trogons, which he places in the Fissirostral series between the Goatsuckers (though at some distance from the latter) and the Jacamars, Motmots, &c. He writes:—"We must observe that many continental ornithologists still place the Trogons among the climbers, because they have their toes placed two and two, whereas those of the Kingfishers are arranged as in the majority of birds. But this is a point of detail which does not in the least affect the habits; for the toes are in both cases connected together at their basis so as to form a broad sole, giving a firm support to the bird without grasping. In both the leg is equally short and weak; and in both all the habits depending on the feet are precisely similar. Of how very little importance this change in the position of the toes is, unaccompanied by a change in their form, motion, or mode of connexion with each other, we may judge from the fact of there being species of Kingfishers and of Woodpeckers with only three toes, and which yet have no perceptible difference of habits from the rest of the family. It

would be as reasonable (and as unnatural) to withdraw these birds from their respective families and form of them a new three-toed family, as to separate the Kingfishers from the Trogons for the reasons assigned. As an instance how totally unable the Trogons are to use their feet for any thing like climbing, we may mention that the Trogons of South America feed principally on fruit, which one would think they would get by climbing or walking after if they could. But no; they take their station on a bare branch about the middle of the tree, and having fixed their attention on some particular tempting fruit they dart at it, seize it dexterously on the wing, and return to their original seat. Often while waiting under a fruit-tree for Chatterers or Pigeons, have we received the first intimation of the presence of a Trogon by the '*whir-r-r*' of its wings as it darted after a fruit. It is curious that this habit seems confined to the Trogons of America. In the East I have never yet observed it, and in the numerous specimens I have opened nothing has been found but insects. The African Trogons also appear to be wholly insectivorous."

Mr. Salvin has also kindly forwarded a note on the American Trogons, as they have come under his observation during his travels:—"In habits, Trogons are inactive whilst at rest, and they remain a considerable time almost motionless on the branch on which they are perched. The position of the body when thus resting is nearly vertical, and the tail hangs at but a slight angle from the vertical line. Their flight is short, rapid, and spasmodic; but they appear to seize most of their food, whether it be insect or fruit, when on the wing. Of the former, the larvæ are mostly preferred, and I have not unfrequently found large caterpillars in the stomachs of those I shot.

"Trogons are usually found singly or in pairs; but I have, when in pursuit of Quezals, on rare occasions seen several individuals at one time. Then, perhaps excited by the calls of the hunter, they evince unusual activity, and fly from tree to tree and branch to branch uttering a chattering note. Trogons always remain under the shade of the forest-trees. They are to be met with on boughs at some distance from the ground, but not in the tops of the trees."

Mr. Belt, in his entertaining work 'The Naturalist in Nicaragua' (pp. 122, 123), gives a note on the birds of this family met with in that country:—

"The Trogons are general feeders. I have taken from their crops the remains of fruits, grasshoppers, beetles, termites, and even small crabs and land-shells. Three species are not uncommon in the forest round San Domingo. In all of them the females are dull brown or slaty black on the back and neck, these parts being beautiful bronze-green in the male. The largest species (*Trogon massena*, Gould) is 1 foot in length, dark bronze-green above, with the smaller wing-feathers speckled white and black, and the belly of a beautiful carmine. Sometimes it sits on a branch above where the army of ants are foraging below; and when a grasshopper or other large insect flies up and alights on a leaf, it darts after it, picks it up, and returns to its perch. I sometimes found them breaking into the nests of the termites with their strong bills, and eating the large soft-bodied workers; and it was from the crop of this species that I took the remains of a small crab and land-shell (*Helicina*).

"Of the two smaller species, one (*Trogon atricollis*, Vieill.) is bronze-green above, with speckled black-and-white wings, belly yellow, and under-feathers of the tail barred with black. The other (*Trogon caligatus*, Gould) is rather smaller, of similar colours, excepting the head, which is black, and a dark blue collar round the neck.

"Both species take short, quick, jerky flights, and are often met with along with flocks of other birds (Flycatchers, Tanagers, Creepers, Woodpeckers, &c.), that hunt together, traversing the forests in flocks of hundreds belonging to more than a score of different species; so that whilst they are passing over, the trees seem alive with them.

"Mr. Bates has mentioned similar gregarious flocks met with by him in Brazil; and I never went any distance into the woods around San Domingo without seeing them. The reason of their association together may be partly for protection, as no rapacious bird or mammal could approach the flock without being discovered by one or other of them; but the principal reason appears to be that they play into each other's hands in their search for food.

"The Creepers and Woodpeckers and others drive the insects out of their hiding-places under bark, amongst moss, and in withered leaves. The Flycatchers and Trogons sit on branches and fly after the larger insects, the Flycatchers taking them on the wing, the Trogons from the leaves on which they have settled. In the breeding-season the Trogons are continually calling out to each other, and are thus easily discovered. They are called 'viduas' (that is, 'widows') by the Spaniards."

The habit of consorting with other species was also noticed by my late friend John Natterer, who, as recorded in my first edition, informed me that he has seen them, though very rarely, congregating together, and more than one species in company—a circumstance which he considers may be accounted for on the principle that instinct leads them by some migratory movement to abandon one district at a certain season of the year in search of another where food is more abundant. These migrations, however, cannot be extensive, inasmuch as their wings are not adapted for a lengthened flight; besides which, every new district of any great extent presents us with its peculiar species; for example, none of the species inhabiting Mexico has been found in Brazil, and *vice versâ*.

The disposition of the feathers in the Trogonidæ is, according to Nitzsch, very similar to that prevalent in Passerine birds; but the neck is completely bare for a considerable space. The feathers are peculiarly soft and dense. The skin of the Trogon is perhaps thinner and more delicate than that of any other bird, and exceedingly difficult to remove, as the feathers drop out on the slightest touch; so that many a specimen is spoilt by the bird falling against a branch after being shot.

Much confusion has arisen in the synonymy of this family from a want of knowledge of the peculiarities of young and maturing birds. An examination of a very extensive series shows that the tail-feathers in young individuals are longer and more pointed; and when barred, the white bars are wider and less numerous. In the maturing bird the rectrices become squarer with successive moults, and the amount of white in the bars less in quantity. The wing-coverts, too, are subject to considerable variation in the young; these are frequently distinctly mottled with buff, as is shown in the Plates of *T. melanocephalus* and *Pharomacrus auriceps*, juv. These markings are replaced by the style of colours shown in the adult.

But the variation does not end here; for in such species as possess freckled coverts, the freckles become finer as the bird becomes older; and in those in which the coverts are black, the black becomes purer and more dense. In the case of *Pharomacrus mocinno* the young males in their first plumage are only distinguishable from the females by their more pointed rectrices; but after they assume the normal colour of the adult bird, the longer they live the longer and wider the tail-coverts become, the more prolonged the wing-coverts, and the more elevated the crest.

In the 'Comptes Rendus' for 1857 (vol. xlv. p. 688), Professor Bogdanoff gave an account of some chemical experiments which he made with the plumes of *Pharomacrus auriceps*, and showed that by immersing the red breast-plumes in spirit all the colour is taken out of them. The red pigment of these feathers he calls "zooxanthine." We remember that M. Jules Verreaux has also stated that in heavy storms of rain, the red breast of *Hapaloderma narina* at the Cape becomes completely washed out, and is renewed again in its full intensity only after an interval of some days. A similar fact is noticed in the red wing-feathers of the Touracous and in some of the American Chatterers (*Cotinga*).

In the fourth part of the 'Museum Heineanum,' Messrs. Cabanis and Heine introduce a number of new generic names into this family of birds. The value of these genera is very small. Thus we find *Pothinus* used for a group of yellow-breasted Trogons including *T. aurantiiventris*, a species perhaps not properly separable from *T. puella*, which is left in true *Trogon*. The rest of the yellow-breasted Trogons are placed in a genus *Aganus*; whilst for *T. surucura* another generic name, *Hapalophorus*, is proposed, the species being in fact most nearly allied to *T. aurantius*. For the black-tailed Trogons the generic name *Troctes* is proposed, and with more reason than in the other instances; but here a subdivision seems hardly admissible, seeing that an intermediate species exists in *T. clathratus*, which partly closes the gap between *Trogon* and *Troctes*. Lastly, the genus *Pharomacrus* is divided into two, *Tanypeplus* and *Pharomacrus*; but this, again, seems to me to be carrying generic subdivision too far.

The species described as *Trogon neoxenus* and placed, in the first part of this edition of the 'Trogonidæ,' under the new generic name *Euptilotis*, is also considered by Messrs.

Cabanis and Heine to be properly separable; and for it they proposed the name *Septuas* in the 'Museum Heineanum' (iv. p. 206). Of this scarce species two specimens, an adult and a young bird exist in the Berlin Museum, besides those mentioned in this work.

The following additional remarks on species are necessary, in order to include the observations of ornithologists which have been published during the progress of the present work through the press.

PHAROMACRUS.

P. MOCINNO.

Since the text accompanying the Plate of this species was written, I have noticed that Bonaparte in his 'Conspectus Volucrum Zygodactylorum,' p. 14, adopts the specific name *mocinno*, thus furnishing further evidence in favour of the priority of that name over his title of *paradiseus*.

P. AURICEPS.

A name (*P. heliactin*) has been proposed by Messrs. Cabanis and Heine (Mus. Hein. iv. p. 207) for the Ecuadorean race of *P. auriceps*. It is stated to be smaller than the more northern bird, but not otherwise different. As specimens from Antioquia are intermediate in size, and as size alone is a specific character of very doubtful value, I think that the Ecuadorean bird had best be considered merely a race of *P. auriceps* and not a true species. In like manner the *P. xanthogaster* described by Counts Turati and Salvadori (P. Z. S. 1874, p. 652), I have little doubt, is a variety of *P. auriceps*, but of interest when the relationship of *T. aurantiiventris* to *T. puella* is considered.

TROGON.

T. CALIGATUS.

To the synonymy of this species the name *T. concinnus* must be added; this name was proposed by Mr. Lawrence for a bird from Panamá which must certainly be considered a young male of *T. caligatus*.

T. MASSENA.

Costa-Rica specimens of this species are said by Messrs. Cabanis and Heine to be smaller than Mexican ones, and to show signs of a white breast-band. These authors suggest that, should these differences prove to be constant, the Costa-Rican bird be called *T. hoffmanni*. I have examined a large series from all parts of Central America, and fail to find any justification for separating the southern bird.

During the progress of the present work, additional information has been published on the two following species, which I now add:—

TROGON PUELLA.

The range of this species is now known to be much more extensive than formerly supposed. Its occurrence in Mexico is assured by the receipt of specimens from Señor De Oca, from the neighbourhood of Jalapa. In Guatemala *T. puella* is found both in Vera Paz and in the forests of the great volcanoes of Agua and Fuego, as well as those of the low-lying lands bordering the Pacific. From Costa Rica many specimens have been sent, collected chiefly in the forests stretching towards the Atlantic Ocean. Lastly the most southern point whence I have seen specimens is the volcano of Chiriqui.

TROGON MELANOCEPHALUS.

Mr. Salvin writes to me, "Of this species the following localities have to be recorded in addition to those mentioned in your book:—Merida in Yucatan, where Dr. A. Schott obtained specimens, one of which we possess through the kindness of the Smithsonian Institution; in Guatemala it is a scarce bird, and we have but one specimen, obtained at Choctum in the lowlands of Vera Paz; in Honduras *T. melanocephalus* would appear to be commoner, as the late Mr. G. M. Whitely obtained many examples of it near Medina on the Atlantic side; on the Pacific side of the same country I once met with several birds near La Union in the Bay of Fonseca; Mr. Belt met with it at Chontales; and I have seen several examples from Costa Rica, which appears to be the southern limit of its range."

In general terms, the Trogonidæ may be said to be distributed at the present day throughout the forest-countries of the Indo-Malayan Region, Equatorial and South Africa, and

the Neotropical or South-American Region. The range of the family in past periods of the earth's history appears to have been much more extensive, as M. Alphonse Milne-Edwards has identified two humeri as belonging to a species of Trogon, which were found in the Miocene formations of the Allier, in France. These he described in his work 'Oiseaux Fossiles de la France,' ii. p. 395, as belonging to a species which he proposed to call *Trogon gallicus*.

In America the Trogonidæ are strictly confined to the warmer parts of the southern continent, and some of the West-India Islands; the most northern part where they are found in Mexico appears to be Mazatlan on the Pacific, and the valley of the Rio Grande on the Atlantic side. Thence they spread southwards over the whole intertropical portion of South America, and as far south as the extension of the wood-region of the southern provinces of Brazil. Trogons are absent from the more southern portion of the continent, as well as from the western coasts of Chili and Peru. In the West Indies the two largest islands, Cuba and San Domingo, have each a peculiar species; but none have yet been noticed in any of the other islands, not even in Jamaica or Port Rico, both of which possess forests suitable for their sustenance. From the Antilles proper I exclude the island of Trinidad and Tobago, which belong zoologically to South America. In Trinidad two species identical with continental ones occur.

SYNOPSIS OF THE TROGONIDÆ.

SPECIES OF THE NEW WORLD.

THE ORBITS ALWAYS COMPLETELY FEATHERED.

A. Bill moderately stout; maxilla with a single terminal notch; wing- and tail-coverts more or less elongated. PHAROMACRUS.

- a^1. Occipital crest well developed; four central tail-coverts far exceeding the rectrices. 1. *mocinno.*
- b^1. Occipital crest moderate; tail-coverts shorter than, or hardly exceeding the rectrices.
  - a^2. Three outer rectrices terminally white.
    - a^3. Occipital crest green; base only of outer rectrix black . . . . 2. *antisianus.*
    - b^3. Occipital crest golden green; basal half of outer rectrix black . . 3. *fulgidus.*
  - b^2. Rectrices black.
    - c^3. Bill yellow; coverts a little longer than rectrices . . . . . 4. *auriceps.*
    - d^3. Bill red; coverts shorter than rectrices . . . . . 5. *pavoninus.*

B. Bill feeble; maxilla with a single terminal notch; wing-coverts not elongated; tail-coverts only slightly so; head with elongated lateral plumes . . . . . EUPTILOTIS.

A single species (*E. neoxenus*).

C. Bill moderate; edges of both mandibles strongly serrated; wing- and tail-coverts not elongated; tail-feathers without prolonged terminal emarginations; wing-coverts either wholly black or minutely freckled with black and grey; throat and chest either green or blue or greyish black; no subterminal black spot on outer web of the two outer rectrices on each side . . . . . TROGON.

a. Bill moderate; three outer tail-feathers on each side beneath either terminally white or conspicuously banded with white; tail much rounded, lateral feather not reaching much beyond the middle of the tail.

a^1. Female brown or olive-brown above.

a^2. Belly red or deep orange.

a^3. Male with a large square terminal white spot on each of the three outer rectrices on each side.

a^4. Rest of these rectrices black . . . . . 1. *mexicanus*.

b^4. ,, ,, ,, white, freckled with black . . . . 2. *ambiguus*.

c^4. ,, ,, ,, black, crossed with white bars . . . 3. *elegans*.

d^4. ,, ,, ,, black, crossed with obsolete white bars . . 4. *personatus*.

b^3. Male with three outer rectrices on each side black, conspicuously barred with white bars.

e^4. Terminal white bar not wider than the rest.

a^5. Belly red . . . . . 5. *puella*.

b^5. Belly deep orange . . . . . 6. *aurantiiventris*.

f^4. Terminal white bar wider than the rest . . . . . 7. *collaris*.

b^2. Belly bright lemon yellow.

c^3 Male with three lateral rectrices on each side, barred with equal black and white bars (except terminal white bar, which is wider); yellow of breast deeper . . . . . 8. *atricollis*.

d^3. White bars on tail wider than black ones, yellow of breast paler . . 9. *tenellus*.

b^1. Female leaden grey above.

c^2. Tail barred on three outer rectrices on each side in both sexes.

e^3. Belly yellow.

g^4. Head black . . . . . 10. *caligatus*.

h^4. Head blue.

c^5. Wing-coverts mottled . . . . . 11. *meridionalis*.

d^5. Wing-coverts black . . . . . 12. *ramonianus*.

f^3. Belly red.

i^4. Head and breast dark blue . . . . . 13. *variegatus*.

k^4. Head and breast with green shade . . . . . 14. *behni*.

d^2. Tail in male with graduated white termination on three outer rectrices, in female barred.

g^3. Belly yellow.

l^4. Basal half of outer rectrix white . . . . . 15. *viridis*.

m^4. Base only of outer rectrix white . . . . . 16. *chionurus*.

h^3. Belly red . . . . . 17. *bairdi.*

e^2. Tail of female, like that of male, not barred.

i^3. Top of head blue.

n^4. Belly yellow . . . . . 18. *aurantius.*

o^4. Belly red . . . . . 19. *surucura.*

k^3. Top of head dark leaden grey . . . . . 20. *citreolus.*

f^2. Tail with square white terminations to the three outer rectrices in both sexes. 21. *melanocephalus.*

b. Bill strong; tail-feathers beneath either wholly black or very narrowly crossed with white bars; no terminal white patch; tail less rounded, lateral feather reaching far beyond middle of tail.

g^2. Tail with three outer feathers on each side narrowly barred with white 22. *clathratus.*

h^2. Tail wholly black beneath in male.

l^3. Chest with white pectoral band.

p^4. Tail short, central rectrices with black terminal band above . . 23. *melanurus.*

q^4. Tail long, central rectrices wholly green above, without terminal black band . . . . . 24. *macrurus.*

m^3. Chest without white pectoral band . . . . . 25. *massena.*

D. Throat and chest grey; a subterminal black spot on the outer web of the two outer rectrices on each side. TMETOTROGON.

A single species (*T. roseigaster*).

E. Tail-feathers with prolonged terminal emarginations; wings and wing-coverts conspicuously marked with white . . . . . PRIONOTELES.

A single species (*P. temnurus*).

SPECIES OF THE OLD WORLD.

WITH A SPACE ROUND THE EYE MORE OR LESS DENUDED OF FEATHERS.

F. Bill moderate, maxilla serrated as in *Trogon* . . . . . HAPALODERMA.

a. Wing-coverts indistinctly freckled with grey and black, and washed with green; basal half only of outer rectrix black . . . . . 1. *narina.*

b. Wing-coverts finely freckled with grey and black; base only of outer tail-feather black . . . . . 2. *constantia.*

G. Bill robust, with a single terminal notch . . . . . HARPACTES.

a. Throat black.

a^1. Size large: wing exceeding 4 inches in length.

a^2. Chest black.

a^3. With no white pectoral band; head black, washed with blood-red . 1. *diardi.*

b^3. With a white pectoral band; head without rufous.

a^4. Larger, with a red nape-band . . . . . 2. *kasumba.*

b^4. Smaller; no red nape-band . . . . . 3. *fasciatus.*

b^2. Chest rosy . . . . . 4. *ardens.*

b^1. Size small: wing not more than $4\frac{1}{2}$ inches in length.

c^2. Rump scarlet . . . . . 5. *duvauceli.*

d^2. Rump sandy brown . . . . . 6. *rutilus.*

b. Throat rosy red.

c^1. Larger: wing $5\frac{1}{2}$ inches . . . . . 7. *hodgsoni.*

d^1. Smaller: wing 5 inches . . . . . 8. *erythrocephalus.*

c. Throat yellow.

e^1. Head green; breast yellow, with a dull green pectoral band.

e^2, Larger: wing $5\frac{1}{2}$ inches . . . . . 9. *reinwardti.*

f^2. Smaller: wing 5 inches . . . . . 10. *mackloti.*

f^1. Head yellowish; breast orange, with no pectoral band . . . . . 11. *oreskios.*

1. *diardi.*

2. *kasumba.*

3. *fasciatus.*

4. *ardens.*

5. *duvauceli.*

6. *rutilus.*

7. *hodgsoni.*

8. *erythrocephalus.*

9. *reinwardti.*

10. *mackloti.*

11. *oreskios.*

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2. Pharomacrus antisianus.
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7. Trogon mexicanus, *Sw.*
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36. Harpactes diardi.
37. Harpactes kasumba.
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39. Harpactes ardens.
40. Harpactes duvauceli, *Temm.*
41. Harpactes rutilus.
42. Harpactes hodgsoni, *Gould.*
43. Harpactes erythrocephalus.
44. Harpactes reinwardti.
45. Harpactes mackloti.
46. Harpactes oreskios.

PHAROMACRUS MOCINNO.

J. Gould & W. Hart del et lith.

Walter Imp.

PHAROMACRUS MOCINNO.

Quezal.

Specific Character.

Trog. cristatus; tectricibus caudæ superioribus longissimis tripedalibus; suprà et ad guttur pectusque splendidè aureo-viridis; ventre crissoque coccineis; rectricibus sex intermediis nigris, reliquis albis ad basin tantummodo nigris.

Fœm. vel Junior. *Capite, gutture pectoreque obscurè viridibus; dorso viridi; ventre cinerascenti-brunneo; crisso coccineo; capite subcristato; tectricibus caudæ superioribus brevibus; rectricibus externis albis nigro fasciatis.*

Rostrum flavum, in junioribus (?) nigrum; *tarsi* brunnei.

Beak gamboge yellow; head covered with long filamentous plumes forming a rounded crest; from the shoulders spring a number of lance-shaped feathers, which hang gracefully over the wings; from the rump are thrown off several pairs of narrow flowing plumes, the longest of which, in fine adults, measure from three feet to three feet four inches; the others gradually diminishing in length towards the rump, where they again assume the form of the feathers of the back; these plumes, together with the whole of the upper surface, throat, and chest, are of a most resplendent golden green; the breast, belly, and vent are of a rich crimson scarlet; the middle feathers of the tail black; the six outer ones white for nearly the whole length, their bases being black; feet brown.

Total length, from the bill to the end of the tail, 12 to 14 inches; wing 8 to 9; tail 8 to 9; tarsi 1; length of longest plume about 3 feet.

The female or young of the year have only rudiments of the long plumes, seldom reaching more than an inch beyond the tip of the tail; the feathers of the crest are more rounded and not filamentous; the feathers of the shoulders but slightly lanceolate; the outer tail-feathers white barred with black, the centre ones black; the whole of the chest, throat, and head obscure green, the remainder of the upper surface bright green; the breast and belly greyish brown; vent fine scarlet; bill black.

Trogon pavoninus. Temm. Pl. Col. 372 (not of Spix).
Pharomacrus mocinno. La Llave, Registr. Trim. i. p. 48 (1831).
Trogon resplendens. Gould, P. Z. S. 1835, p. 29.
——— *paradiseus.* Bp. P. Z. S. 1837, p. 101 (1826, ubi?).
Calurus resplendens. Gould, Mon. Trog. ed. 1.
Pharomacrus paradiseus. Salv. Ibis, 1861, p. 138.

It is scarcely possible for the imagination to conceive any thing more rich and gorgeous than the golden-green colour which adorns the principal part of the plumage of this splendid bird, or more elegant and graceful than the flowing plumes which sweep pendent from the lower part of the back, forming a long train of metallic brilliancy. Nature appears to have ordained that birds possessing unusual brilliancy of plumage should be inhabitants of retired and obscure situations; and in strict conformity with this law the Quezal, by far the most beautiful of its tribe, is to be found in the most dense and gloomy forests, remote from the haunts of civilized man, which may, perhaps, account for its being so little known to Europeans until within the last few years; for although the long plumes were used to adorn the head-dresses of the ancient Mexicans, and at a later period were transmitted by the Spaniards from time to time to Europe, yet it is only very recently that we have become acquainted with the entire bird. I believe the first perfect example was received by

the late Right Hon. George Canning; after that statesman's decease it passed into the hands of Mr. Leadbeater. The representation of this bird in the 'Planches Coloriées' of M. Temminck is undoubtedly the first that was published; but the author evidently confounded it with a nearly allied species discovered in Brazil, and figured in the 'Avium Species Novæ' &c. of Dr. Spix.

The principal part of the above remarks was published in a former edition of this work nearly thirty years ago. In the long interval which has elapsed much additional information has been obtained respecting this fine bird; and I am greatly indebted to Mr. Osbert Salvin for the full and interesting statement subjoined, which I am sure will be read by every ornithologist with the greatest pleasure:—

"In the 'Ornithology' of Francis Willughby (edited by John Ray, Fellow of the Royal Society, and published in the year 1678), page 385, will be found 'An Appendix to the History of Birds, containing such Birds as we suspect for fabulous, or such as are too briefly and inaccurately described to give us a full and sufficient knowledge of them, taken out of Franc. Hernandez especially.' Under the heading 'Of fair-feathered Birds' Willughby translates from Hernandez as follows:—'Its feathers have made the Quetzaltototl more precious than gold; and therefore it is called the *bird of feathers*. It hath a crest, and is in good part adorned with Peacocks' feathers, of the bigness of a *Pie* or *Pigeon*, having a crooked yellow Bill, and Feet something yellow. The Tail is composed of very long feathers of a shining green and of a Peacock colour, like for shape to the leaves of *Flouer-de-luce*, and covered above with other black ones, but beneath and where they touch the Peacock-coloured or purple ones (which are in the middle) inclining to green, as if nature took care of the beauty of the middle feathers. The crest consists of shining and very beautiful feathers. The breast and neck underneath are covered with a red and shining plumage, and with a purple [pavoninâ], as is also the back and sides under the wings and the belly between the legs; but the feathers in this last place are of a fainter colour, slender, and soft. The feathers of the wings are very long, tinctured with a dilute green and ending in sharp points. The feathers growing on the shoulders are green, but black underneath; but those between the wings are sometimes crooked and of the colour of the claws. The feathers of this bird are highly esteemed among the *Indians*, and preferred even before gold itself—the longer ones for crests and other ornaments, both of the head and whole body, both for War and Peace, but the rest for setting in feather-works and composing the figures of saints and other things, which they are so skilful in doing as not to fall short of the most artificial pictures drawn in colours. For this purpose they also mingle and weave in together with these the feathers of the *Humming Bird*. These birds live in the province of *Tocolotlan*, beyond *Quantemallam*, towards *Honduras*, where great care is taken that no man kill them. Only it is lawful to pluck off their feathers, and so let them go naked; yet not for all men indifferently, but only for the lords and proprietors of them; for they descend to the heirs as rich possessions. *Francisco Hernandez*, in some pretermitted annotations, adds concerning the taking these birds some things worth the knowing. The fowlers (saith he) betake themselves to the mountains, and, there hiding themselves in small cottages, scatter up and down boiled *Indian* wheat, and prick down in the ground many rods besmeared with birdlime, wherewith the birds entangled become their prey. They fly in flocks among trees, on which they are wont to sit, making no unpleasant noise with their whistling and singing in consort. They have by the instinct of nature such knowledge of their riches that, once sticking to the birdlime, they remain still and quiet, not struggling at all, that they may not mar or injure their feathers. The beauty whereof they are so in love with that they choose rather to be taken and killed than, by endeavouring to get their liberty, do any thing that may deface or prejudice them. They are said to pick holes in trees and therein to build and breed up their young. They feed upon worms and certain wild *Pinnæ* of that sort which Mexicans are wont to call *Matzatli*. They love the open air, nor hath it been yet found that ever they would be kept tame or brought up in houses. They make a noise not much unlike *Parrots*, but they have a cheerful and pleasant whistle and they sing thrice a day, to wit, in the morning, at noon, and about sunset.'

"Thus wrote Hernandez now two hundred years ago; and Willughby, his translator, evidently doubted the existence of such a bird as his Quetzaltototl. It was not until the year 1825 that a magnificent bird of the family of the Trogons was made known to science, which can be no other than the bird Hernandez described so many years before. When seeking for objects for illustration in his well-known work the 'Planches Coloriées des Oiseaux,' M. Temminck had lent to him by Mr. Leadbeater a bird which he described and figured (Pl. 372) under the name *Trogon pavoninus*, supposing the species to be the same as one then recently described by the Brazilian traveller, Spix, under that name. In 1831, however, De la Llave renamed the same bird, bestowing upon it the barbarous title *Mocinno*, under which it is now known to the

scientific ornithologist. Still, neither were Hernandez's notes confirmed, nor was there any thing further recorded respecting the habits of the species, nor yet were the localities frequented by it sufficiently known until the French traveller De Lattre described his visit to its haunts in Vera Paz in the 'Echo du Monde Savant,' in an article which was afterwards reprinted in the 'Revue Zoologique' for 1843. From about this date specimens began to be sent to Europe in some numbers, so that the Quezal was henceforth a well-known bird.

"In the month of March in the year 1860, during one of my ornithological rambles in Guatemala (the *Quantemallam* of Hernandez), I found myself at Coban, the chief town of the Department of Vera Paz, and in the very centre of the districts in which *Pharomacrus mocinno*, or Quezal, is found. From here I made an excursion into the mountains lying to the eastward of Coban for the express purpose of hunting up Trogons in their native haunts, and took with me two of the most experienced Quezal-hunters of Vera Paz. The same afternoon that we reached the forests we intended to explore I was rewarded by securing my first Quezal. We had just started after resting in a deserted rancho of an Indian, and were making our way to the forest across the old corn-patch through which the track passed. I was threading my way amongst the decaying trunks of the felled trees, when Filipe, one of my hunters, came running back to say that Cipriano, the other, had heard a Quezal. Being most anxious to see this bird myself, as well as to be able to boast of its having fallen to my own gun, I hurried up, sat down on my wide-awake in most approved style close to Cipriano, who was calling the bird, and waited, all eyes and ears, for the result. I had not to wait long; for a distant clattering note warned us that the bird was on the wing, and a moment afterwards there sat on a bough not seventy yards before me a splendid male,—a sight that alone made up for all the toil and disappointments of the previous days. Cipriano wanted to creep up to within shot; but I kept him back, not wishing to lose such an opportunity of watching the actions of this grand bird in its natural state. It sat, as other Trogons do, almost motionless on its perch, the body remaining balanced upon its tiny feet in the same position, the head only being moved occasionally in a slow deliberate way from side to side. The tail was not suspended quite perpendicularly, but hung at an angle of as much as 15 or 20 degrees to the vertical line, and was jerked open and closed again suddenly every now and then, causing the long pendent tail-coverts to vibrate gracefully as they swung in the air. I had not seen all; for a ripe fruit caught the bird's eye, and in a moment he sprang from his perch, all life and activity, plucked the berry and returned to his resting-place. This performance displayed the gorgeous colouring of the bird to the greatest possible advantage. How common a remark it is of people, when looking at stuffed specimens of Humming-birds, 'What lovely little things these must look in life when they are flying about!' But it is not so, as will be at once seen by placing a Humming-bird twenty yards from you. At that distance how faintly do the brilliant colours show, except in the most favourable light and position. This is not the case with the Quezal, whose brilliant colours reflect themselves in every light. The rich metallic green which forms the chief colour is lustrous, from whatever position it is viewed; and when seen in combination with the deep scarlet of the breast and the pure white of the tail its vividness is, if any thing, enhanced. The brilliant plumage of the living Quezal arrests the eye at once; and thus clothed the bird stands unrivalled, even amongst the feathered denizens of the American tropics. The Birds of Paradise alone hardly surpass it amongst the birds of the east. Such were my passing reflections as I sat with the living Quezal before me, when a low whistle from Cipriano cut my observations short, and the bird, settling on a nearer bough, was a moment afterwards in my hands—the first Quezal I had seen and shot.

"The cries of the Quezal are various. They consist principally of a low double note, *whe-oo*, *whe-oo*, which the bird repeats, whistling it softly at first and then gradually swelling it into a loud but not unmelodious cry. This is often succeeded by a long note, which begins low, and after swelling dies away as it began. Both these notes can be easily imitated by the human voice. The bird's other cries are harsh and discordant. They are best imitated by doubling a pliant leaf over the first fingers, which must be held about two inches apart: the two edges of the leaf being then placed in the mouth and the breath drawn in, the required sound is produced. Cipriano was an adept at imitating these cries; but I failed to produce them for want of practice. When searching for Quezals the hunter whistles as he walks along, here and there sitting down and repeating the other notes. As soon as he hears a bird answering at a distance, he stops, and imitates the bird's cries until it has approached near enough to enable him to shoot it from where he stands, or to creep up to within shot. The female generally flies up first, and perches on a tree near the hunter, who takes no notice of her, but continues calling till the male (who usually quickly follows the female) appears. Should the male not show himself, the hunter will sometimes shoot the female. The flight of the

Quezal is rapid and straight; the long tail-feathers, which never seem to be in his way, stream after him. The bird is never found but in forests composed of the highest trees, the lower branches of which (*i. e.* those at about two thirds of the height of the tree from the ground) seem to be its favourite resort. Its food consists principally of fruit; but occasionally a caterpillar may be found in its stomach.

"Sometimes several males are found together; and then the scene is most exciting as they fly to and fro, their long tails streaming after them.

"Besides the mountains in the neighbourhood of Coban, Quezals are found in several other parts of Guatemala, indeed wherever forests of sufficient extent exist, at elevations varying from 6000 to 8000 or 9000 feet above the sea-level. Such forests are to be seen in the district of San Antonio or Chilasco, above the plain of Salania in Vera Paz, in the high range of Chiantla, the southern slopes of the great Cordillera, below Quezaltenango, and in the volcanoes of Agua and Fuego. From all these places I have seen specimens; and in one of the ravines of the last-mentioned, Mr. Godman, who travelled with me in 1861-62, shot a male with the tail-feathers nearly fully grown in the month of December. The months of February, March, and April, however, are the months when the tails reach their full development."

"The only authentic account of the nesting-habits of the Quezal are given by Mr. Robert Owen in 'The Ibis' for 1861, p. 66. He there says:—"In an expedition to the mountain of Santa Cruz [Vera Paz], one of our hunters told me that he knew of a Quezal's nest about a league from Chilasco, a place in the same range, and offered to shoot for me the female and bring me the eggs if I would send my servant to help him. This I accordingly did; and my man returned with the hen and two eggs. They stated that they found the nest in a hollow of a decayed forest-tree, about 26 feet from the ground. There was but one orifice, not more than sufficiently large to allow the bird to enter; and the whole interior cavity was barely large enough to admit of the bird turning round. Inside there were no signs of a nest beyond a layer of small particles of decayed wood, upon which the eggs were deposited. The mountaineers all say that the bird avails itself of the deserted hole of a Woodpecker for its nesting-place, probably founding the supposition on the evident inaptness of the bird's beak for boring into trees."

These eggs are of a bluish green colour, without spots or markings, their form is a roundish oval, only slightly more tapering at one end. They measure—axis 1·4 inch, diameter 1·15 inch.

Considerable variation can be seen in the dimensions of the long caudal plumes of this bird, even in specimens all coming from the same country; some have the central coverts as broad as the hand and a yard and a quarter long, whilst others are much narrower.

In the southern district of its range (Costa Rica and Veragua) these narrow-feathered birds are alone found; and upon this character chiefly the bird from those countries has been called by Dr. Cabanis *Pharomacrus Costaricensis*; but the difference seems to be hardly sufficiently pronounced to warrant the separation of the two birds. In Veragua, specimens have been sent me from Chiriqui and the higher Cordillera eastward of that volcano as far as Calovevora, which lies to the northward of the village of Calobre. Beyond this point to the south-east Quezals have not been observed, the low-lying lands of the Isthmus of Panama possessing a hot climate unsuited to their economy.

The figures in the accompanying Plate are taken less than the natural size.

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J. Gould and H.C. Richter del. et lith.

PHAROMACRUS ANTISIANUS.

Hullmandel & Walton Imp.

PHAROMACRUS ANTISIANUS.

Beautiful Train-bearer.

Specific Character.

Mas.—*Capite viridi, semi-cristato; rectricibus tribus externis utrinque albis.*

Male.—Head, throat, chest, all the upper surface of the body, wing- and tail-coverts deep bronzy green, the green hue prevailing on the lower part of the back; wings black; under surface of the body and under tail-coverts deep blood-red; thighs black; four centre tail-feathers black; the three outer ones black at the base, and white for the remainder of their length, with black shafts; bill bright yellow.

Total length, 13¾ inches; *bill*, 1; *wing*, 7¼; *tail*, 7¼.

Female.—Head and chest brown, the latter washed with green; wing-coverts and back reddish green; upper tail-coverts golden green; wings black; primaries brownish black, margined with buff; lower part of the abdomen and under tail-coverts light blood-red; tail black, the three outer feathers on each side toothed on their outer webs and narrowly tipped with greyish white.

Trogon Antisianus, D'Orb. Mag. de Zool. 1837, Ois. pl. 85.
——— *antisiensis*, D'Orb. Voy. de l'Am., p. 381. pl. 86. f. 1.
——— (*Calurus*) *pulchellus*, Gould, Mon. of Trog., List of Plates, sp. 22.
——— *pulchellus*, Gould, Mon. of Trog., pl. 22.
——— *Peruvianus*, Gould, MSS.
Calurus antisianus, Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Calurus*, sp. 7.—Ib. List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. 1, *Fissirostres*, p. 46.—Sclater in Proc. of Zool. Soc., part xxiii. p. 137.
——— *pulchellus*, Bonap. Consp. Gen. Av., p. 152, *Calurus*, sp. 6.

It would appear that science is indebted to M. Alcide D'Orbigny, the celebrated French traveller, for the discovery of this exceedingly beautiful species; for it was in his collection that I first saw an example during my visit to Paris in 1837. At that time the female was unknown, nor had it been discovered when the first edition of this monograph was published. In the interval between 1837 and 1858 many novelties have been obtained, not only in this group of birds, but in most other departments of zoology and the allied sciences, and I am now, therefore, enabled to figure both sexes of this fine bird, and to state that it not only inhabits Peru, but that it is also found in Ecuador, and as far south as Santa Fé de Bogota in New Grenada, as is proved by my having at this moment before me a specimen from the latter province, and another sent me by Professor Jameson from Quito: in all probability Bogota is its utmost northern limit, and Ecuador and Peru its true and native habitat. It is without question a truly beautiful species, the bright raised tuft of green feathers which rise above the nostrils adding much to its elegance, and, together with the all but wholly white outer tail-feathers, at once distinguishing it from the *P. fulgidus*.

"We have met with this species," says M. D'Orbigny, "in the midst of the hot and humid forests of the Yungas to the east of the Andes in the republic of Bolivia: there it is always rare, and almost entirely confined to the neighbourhood of the torrents in the thickest parts of the woods. Its manners, like those of the other members of the genus to which it belongs, are melancholy and wild. One often hears in the morning and in the evening its monotonous cry, which nearly resembles the word *Couroucou*; but how many difficulties are there to be conquered before one can reach this bird in the midst of a country perhaps the most unfrequently visited of the world!"

The Plate represents both sexes of the size of life.

Hullmandel & Walton Imp

J. Gould and H. C. Richter, del. et lith.

PHAROMACRUS FULGIDUS, *Gould.*

Hullmandel & Walton, Imp.

PHAROMACRUS FULGIDUS, *Gould.*

Shining Train-bearer.

Specific Character.

Mas.—*Capite aureo-viridi; rectricibus tribus externis utrinque ad basin nigris, per partem apicalem dimidiam albis.*

Male.—Face and head golden bronze; chest, wing-coverts, upper surface of the body and upper tail-coverts deep golden green; wings jet-black; tail black, the apical portion of the three outer feathers on each side white, with black shafts; under surface very deep blood-red; thighs black; bill rich yellow.

Total length, $12\frac{3}{4}$ inches; *bill*, 1; *wing*, $7\frac{1}{4}$; *tail*, 7.

Female.—Head dark brown; chest brown, washed with green on its upper portion; wing-coverts and back reddish or bronzy green; upper tail-coverts golden green; wings black; primaries blackish brown, margined with buff; lower part of the abdomen and under tail-coverts light blood-red; tail black, the three lateral feathers on each side toothed on their external webs and narrowly tipped with greyish white.

Trogon (*Calurus*) *fulgidus*, Gould, Mon. of Trogons, List of Plates, sp. 24.
Trogon fulgidus, Gould, Mon. of Trog., pl. 24.
Calurus fulgidus, Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Calurus*, sp. 6.—Ib. List of Spec. of Birds in Coll. Brit. Mus., pt. ii. sect. 1, *Fissirostres*, p. 46.—Bonap. Consp. Gen. Av., p. 152, *Calurus*, sp. 4.—Sclater in Proc. of Zool. Soc., part xxiii. p. 137.

The *Pharomacrus fulgidus*, like the *P. Antisianus*, has of late years been sent to Europe in tolerable abundance from Venezuela, whence many specimens were brought by the late Mr. Dyson. It occasionally arrives in collections from Bogota; in what locality these latter specimens have been collected is unknown to me, but I believe the bird is only found to the westward, and perhaps the north-westward of that city.

It may be at all times distinguished from the *P. Antisianus* by the basal half of the tail-feathers being black, and the terminal portion only being white; it has also a more golden-coloured head, and a lesser amount of the tufted crest-like feathers which spring from before the nostrils; in size also it is rather smaller.

The specimens from which the figures in the first edition of this monograph were taken, and which were at that time in the possession of Madame Goubie, of Paris, were not fully adult, and consequently the bills were not so highly coloured as at the period of maturity.

The Plate represents both sexes of the natural size.

J. Gould and H. C. Richter, del. & lith.

PHAROMACRUS AURICEPS, *Gould.*

Hullmandel & Walton, Imp.

PHAROMACRUS AURICEPS, *Gould.*

Golden-headed Train-bearer.

Specific Character.

Mas.—*Capite splendide aureo-viridi ; rostro flavo ; caudâ in toto nigrâ.*

Male.—The whole of the head, throat, cheeks and back of the neck golden bronze ; chest, all the upper surface, wing- and tail-coverts rich golden green ; wings and tail jet-black ; breast, abdomen and under tail-coverts of the deepest blood-red, inclining to crimson ; feathers clothing the tarsi black ; bill yellow ; feet reddish brown.

Total length, 15½ inches ; *bill*, 1¼ ; *wing*, 8 ; *tail*, 8.

Female.—Face, chin and head chocolate-brown ; chest, upper surface, wing- and tail-coverts golden green ; wings brownish black ; primaries margined with buff ; across the breast a band of brown ; abdomen and under tail-coverts blood-red ; tail black, the three outer feathers toothed on their outer webs and slightly tipped with white ; bill blackish brown.

Trogon (*Calurus*) *auriceps*, Gould in Ann. and Mag. Nat. Hist., vol. ix. p. 238.

Calurus auriceps, Gray and Mitch. Gen. of Birds, vol. i. p. 71. pl. 25, *Calurus*, sp. 6.—Ib. List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. 1, *Fissirostres*, p. 46.—Bonap. Consp. Gen. Av., p. 152, *Calurus*, sp. 3.—Sclater in Proc. of Zool. Soc., part xxiii. p. 137.

Like the other members of the genus, this large and powerful species of *Pharomacrus* appears to be strictly a dweller among mountainous districts, and to be especially abundant in the neighbourhood of Santa Fé de Bogota, great numbers being comprised in every large collection of birds sent from that city ; I also possess a single specimen which was transmitted to me direct from Quito by Professor Jameson ; it is probable, therefore, that it may hereafter be found to inhabit all the intermediate countries between these two somewhat distant localities. Like the *P. Pavoninus*, this species has a black tail ; but it differs from that bird in many other respects, especially in its much greater size and in the bright yellow colouring of its bill, which organ is blood-red in *P. Pavoninus*. Dr. Percy has called my attention to an interesting article on the colouring matter of this species by M. An. Bogdanow, of Moscow, in the "Comptes Rendus," tom. xlv., Nov. 1857 ; but as these observations are more fitted for the Introduction, they are omitted here.

I am not quite certain whether the bird represented by the back figure in the accompanying Plate is a young male or a female, but I believe it to be the former ; still, to distinguish the young males from the females with certainty, it will be necessary to resort to actual dissection.

The figures are of the natural size.

J. Gould & Hart del. et lith.

PHAROMACRUS AURICEPS,
IMMATURE MALE.

Walter imp.

PHAROMACHRUS AURICEPS.

Immature Male.

It is not a little surprising that, out of the multitude of skins of the members of this family of birds that have arrived in this country during the last twenty years, not more specimens of the immature, or what, perhaps, ought to be called the "second dress" of these Trogons should have come to light. That Trogons don a very peculiar and pleasing garb for a short time of their existence is very evident. We see this strikingly illustrated in the youthful bird figured in the accompanying Plate; while a specimen of about the same age, and exhibiting a similar character of markings, is figured in my Plate of *Trogon melanocephalus*. The same kind of plumage is put on by the Indian Trogons, as is evidenced by the young bird figured in the Plate of *Harpactes reinwardti*.

I have never set myself up as a systematist; but yet I have never been forgetful of the importance of small characters in the great and difficult task which lies before all ornithologists—I mean the establishment of a purely natural system of birds. To arrive at this desirable result the works of specialists are necessary, especially those which take the form of that most useful of all works, a complete monograph of a family or order of birds; but in all my writings I have endeavoured to remember that a natural system of birds can only be developed by some master mind, who will take into consideration every single aspect of the study, and blend into one harmonious whole the elements of classification contained in the science of ornithology —that is to say, oology, osteology, internal anatomy, &c. For such a study the variation of plumage, too often neglected, affords most satisfactory connecting-links between families and genera of birds; and it is for this reason that I made such a particular point of figuring all the young birds possible in my recent work on the Birds of Great Britain; and in the present volume it will be found that I have also given illustrations of the immature plumage of the Trogons wherever practicable.

The youthful dress of the Trogonidæ is perfectly unique, as far as I am aware, in the whole Avian series; and, from the rarity of immature specimens in collections, I do not doubt that it is only put on for a very short time, as is the case with the Flycatchers. And it is the more remarkable because in the case of other Fissirostral Picariæ such as the Kingfishers, Motmots, Jacamars, Rollers, &c. (birds somewhat allied to the Trogons), we do not find any such striking difference between the adult and young plumages.

The specimen figured is one in my own collection, and was sent from Merida by Mr. A. Goering.

J. Gould & H C Richter del et lith.

PHAROMACRUS PAVONINUS.

Walter Imp.

PHAROMACRUS PAVONINUS.

Red-billed Train-bearer.

Specific Character.

Mas. *Rostro ad basin miniaceo, ad apicem flavo ; caudâ nigrâ.*

Male.—Head and breast glossy green in some specimens, rich golden green in others; wings and the whole of the upper surface rich glossy green; upper tail-coverts green, the two centre ones reaching to the end of the tail, but rarely exceeding it; wings and tail black; breast and under tail-coverts rich scarlet; feathers of the thighs and tarsi black with green reflections; irides dark red inclining to carmine; feet ochre-yellow; bill carmine at the base and yellow at the tip.

Total length $13\frac{7}{2}$ inches, *bill* $1\frac{1}{4}$, *wing* $7\frac{1}{2}$, *tail* 7.

Female.—Head, throat, and chest dark greyish brown, tinged with green; upper part of the abdomen dark greyish brown, the lower part and the under tail-coverts deep scarlet; feathers of the thighs and tarsi black with green reflections; shoulders and the whole of the upper surface including the upper tail-coverts, which nearly reach to the end of the tail, rich green; wings brownish black with the outer edges of the feathers buff; tail-feathers black, the two outer on each side obscurely rayed with greyish white; upper mandible dark brown, under mandible dusky carmine becoming brown at the point; irides brown.

Trogon pavoninus, Spix, Av. Bras., tom. i. p. 47, tab. xxxv.—Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 219.—Gould, Proc. of Zool. Soc. 1833, p. 107, 1835, p. 29, & 1836, p. 12.—Id. Mon. of Trog., pl. 23.

Calurus pavoninus, Swains. Class. of Birds, vol. ii. p. 338.—Gray, Gen. of Birds, vol. i. p. 71, *Calurus*, sp. 2.—Bonap. Consp. Gen. Av., tom. i. p. 293, *Calurus*, sp. 2.—Burm. Syst. Uebers. Th. Bras., tom. ii. p. 273, & ibid. note sp. 3.

Tanypeplus pavoninus, Cab. et Heine, Mus. Hein., Theil iv. p. 205.

Pharomacrus pavoninus, Sclat. and Salv. Proc. of Zool. Soc. 1867, p. 583.

If ornithologists will examine and compare my figures of the various species of this truly beautiful section of the *Trogonidæ*, they will perceive at a glance that the characters of each are so clearly defined that but little attention will be required to distinguish one from another. The bird here represented is the only species of the form that has yet been discovered with a red bill; if, then, this peculiarity be kept in view, and the uniform brownish-black colouring of the tail be remembered, the bird will be readily recognized. Its native country is the interior of Brazil, where it inhabits most, if not all, the great primæval forests bordering the rivers of that extensive region, but more particularly those which flow into the mighty Amazon. Spix was the first who made us acquainted with this fine bird by his figure of it on the thirty-fifth Plate of the first volume of his work on the Birds of Brazil. The late John Natterer brought specimens with him when he returned from his sojourn of eighteen years in the same country, kindly leaving with me a male and a female when passing through London *en route* to Vienna. He at the same time informed me that he had had

frequent opportunities of observing the bird in a state of nature among the great woods bordering upon the upper parts of the Amazon and the Rio Negro, where it is only seen among the highest branches. Since that period examples have been brought to England by Mr. Wallace; and I possess a beautiful specimen obtained by Mr. Hauxwell at Chamicuros. Upon examining the contents of the stomach, Mr. Natterer almost invariably found it to consist of the fruit of a certain species of palm; he therefore concluded that this, together with various berries and stoned fruits, forms its subsistence. It arrives in the localities above mentioned when its favourite fruit is ripe; and when the trees no longer yield an adequate supply retires again to other districts.

To Mr. Wallace I am indebted for the following notes, which cannot fail to be of interest to all who admire this fine family of birds:—The *Pharomacrus pavoninus* "inhabits the virgin forests of the higher and dry lands, and is never seen in low woods or among the trees growing on the flooded grounds; but it sometimes visits the plantations to feed on fruit, particularly the soft berries, about the size of currants, of the different species of *Melastoma*, the juice of which imparts a purple hue to their stomachs. These fruits are always taken when the bird is on the wing. The bird usually sits quietly among the branches until hunger impels it to dash out, whirl round the tree, and seize its food in its passage; it likewise feeds on insects, which are also taken on the wing, the bird darting after them and returning to the same branch in the manner of a Flycatcher. The cry of this species is very peculiar, and different from that of the other Amazonian Trogons; it consists of two notes sufficiently loud to be heard a long way off. The Indians ascertain the whereabouts of the bird by imitating this cry, which it immediately answers. On ascending the Amazon the bird was first noticed about the mouth of the Rio Negro, and became more plentiful on the upper part of that river; it was actively engaged in the search after insects about sunset, but was not seen to be thus engaged after darkness had set in."

The Plate represents the two sexes, of the natural size. The Plant is the *Eugenia Brasilensis*.

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J. Gould and H. C. Richter, del. & lith.

EUPTILOTIS NEOXENUS, *Gould.*

Hullmandel & Walton, Imp.

EUPTILOTIS NEOXENUS, *Gould.*

Welcome Trogon.

Specific Character.

Mas.—*Rostro cærulescenti-cinereo ; vertice, pectore, sic et dorso summo aurantiaco-viridibus ; capite cum penicillo gracili et elongato utrinque ornato ; corpore subtus coccineo.*

Male.—Face, ear-coverts, lengthened tufts posterior to the eye, and chin black ; head oil-green ; chest, sides of the neck, tips of the wing-coverts and upper surface bronzy green, passing into bluish green on the lower part of the back and upper tail-coverts ; bases of the wing-coverts and wings brownish black ; the primaries margined at the base of their external webs with white ; under surface and under tail-coverts fine blood-red ; thighs dull black ; tail deep bluish green, the three outer feathers on each side largely tipped with white ; bill dark horn-colour.

Total length, 13¼ inches ; *bill*, 1⅛ ; *wing*, 8 ; *tail*, 8.

Female or *Young Male.*—Head and face blackish brown ; breast olive-brown, slightly washed with bronzy green ; upper surface and tail as in the male, but not so brilliant ; wings similar, but paler, and with some blotches of dull buffy white on the innermost secondaries ; abdomen and under tail-coverts light blood-red.

Trogon (*Calurus*) *neoxenus*, Gould, Mon. of Trogons, List of Plates, sp. 25.
——— *neoxenus*, Gould, Mon. of Trogons, pl. 25.
Calurus neoxenus, Gray, List of Spec. of Birds in Coll. Brit. Mus., p. 46.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Calurus*, sp. 5.—Bonap. Consp. Gen. Av., p. 152, *Calurus*, sp. 5.

I first became acquainted with this species about the year 1836, when an immature specimen came into my possession, an examination of which satisfied me that it was the young of a very splendid bird, which could not fail of being welcomed with feelings of gratification by every ornithologist ; I therefore gave it the name of *Trogon neoxenus* (Welcome Trogon), and figured it under that appellation in the first edition of this monograph. Subsequently an adult example of each sex were presented to me by the late Mr. Floresi, to whose memory a tribute is due for his exertions in the cause of natural science. An examination of these additional examples at once convinced me that the species did not belong to the genus *Pharomacrus*, as I had previously supposed, but exhibited characters differing not only from those of that genus, but from those of all the other genera of the family, and consequently that a new genus must be established for its reception, and this I have accordingly done, under the appellation of *Euptilotis*. It will be seen, on reference to the accompanying Plate, that not only does the bird differ from the *Pharomacri* in the character of its plumage, but that it has a more lengthened and less robust bill, and that the head is adorned with long and fine hair-like plumes,—a feature very unusual among the Trogons, and which is only to be found in this species and to a certain extent in *Priotelus temnurus* and *Trogon roseigaster*.

I regret that I did not learn from Mr. Floresi what particular part of Mexico this bird inhabits ; but I have every reason to believe that it dwells on all the high lands, even farther north than the city, and probably in the neighbourhood of the Real del Monte mines, as it was in that district that most of his birds were procured. At present it is extremely rare in our collections, and examples of no one member of the class Aves would be more welcome to collectors both in this country and on the continent of Europe.

The figures are of the natural size.

J. Gould & W. Hart del et lith.

TROGON MEXICANUS, Sw.

Walter Imp.

TROGON MEXICANUS, *Swainson.*

Mexican Trogon.

Specific Character.

Trog. supra nitenti-viridis, pectore dorsoque concoloribus; gutture, regione auriculari alisque nigris, his cinereo punctatis; torque pectorali albâ; ventre crissoque coccineis; rectricibus duabus intermediis viridibus nigro terminatis, duabus proximis utrinque nigris, reliquis basaliter nigris latè albo terminaliter fasciatis.

Fœm. *Suprà olivascenti-brunnea, pectore dorsoque concoloribus, hôc vix rufescente lavato; torque pectorali cinerascente obsoletâ; corpore reliquo subtùs coccineo; alis nigris brunneo parcè maculatis; remigibus externis albo fimbriatis; rectricibus duabus intermediis castaneis nigro apicatis, duabus proximis utrinque nigris, reliquis albo nigroque fasciatis; rostro brunneo, mandibulâ flavâ.*

Adult male.—Beak bright yellow; throat and ear-coverts black, gradually blending with the green which covers the chest and the whole of the upper surface; two centre tail-feathers green, with black tips, the two next on each side wholly black, the three outer feathers on each side black, with white tips; wings black, with the exception of the primaries dotted with grey; on the chest a crescentic band of white; breast, belly, and under tail-coverts a fine scarlet; feet brown.

Total length from 11 to 12 inches; wing $5\frac{3}{4}$; tail $7\frac{3}{4}$.

Adult female.—The top of the head, throat, chest, and back dark brown, inclining to olive on the upper surface and to rufous on the chest; across the latter an obscure band of light grey; the upper part of the belly brownish grey, the lower part and vent scarlet; wings black, slightly freckled with brown on the outer edges of the secondaries and shoulders, the outer edges of the primaries fringed with white; two middle tail-feathers chestnut-brown tipped with black, the two next on each side wholly black, the remainder strongly barred with black and white for nearly their whole length; bill yellow, clouded with brown.

Trogon mexicanus. Swains. Phil. Mag. 1827, p. 440.—Id. Zool. Illustr. 2nd ser. pls. 82, 107.—Gould, Monogr. Trogon. pls. 1, 2.—Gray, Gen. B. i. p. 70.—Id. Cat. Fissir. Brit. Mus. p. 41.—Bp. Consp. i. p. 150.—Sclater, P. Z. S. 1858, pp. 367, 387.—Scl. & Salv. Ibis, 1859, p. 132, et 1860, p. 41.—Sclater, Cat. Am. B. p. 276.—Cab. & Heine, Mus. Hein. iv. p. 168.—Gray, Hand-l. B. i. p. 82.—Scl. & Salv. Nomencl. Av. Neotr. p. 103.

——— *glocitans*, Licht. Preisverz. mex. Th. v. Deppe u. Schiede, p. 1, et Journ. f. Orn. 1863, p. 55.

"——— *morgani*, Swains." Gould, Mon. Trog. ed. 1.

Trogonurus mexicanus. Bp. Consp. Vol. Zyg. p. 14.

Since the first edition of the present Monograph but little has been added to the history of this beautiful Trogon. Great difficulty often attaches to the identification of the young male, which differs from the adult in having white bars on the tail-feathers. However, in the other edition, I was able to figure a young male, lent me by Mr. John Taylor, which shows the assumption of the uniform black tail, and thus precludes the idea that these individuals with different-coloured tails belong to different species. Mr. Taylor's specimens

were from Real del Monte, in Mexico; and it has been collected at Oaxaca by M. Boucard, and at Jalapa by De Oca. Although chiefly known from Mexico, this species goes as far as Guatemala, where Mr. Salvin met with it on the Volcan de Fuego. He gives the following note respecting the species:—"The colour of the eyelid of this species, both in the male and female, almost exactly corresponds with the red colour of the breast in each, that of the male being much more brilliant than that of the female, in fact bearing the same ratio to it as the colour of its breast to that of the female's breast. It is probable that in many cases the colour of the soft parts about the eye &c. may be determined by reference to some portion or portions of the plumage where it is exactly represented. In the Trogons this seems eminently the case. A few days ago I shot a pair of *Trogon caligatus*, in which the colour of the eyelid in the male was exactly represented by the colour of the yellow breast, that of the female by the fainter yellow of its breast. The same is the case with *T. puella*. I think, therefore, that with tolerable safety the eyelids of these American Trogons may be said to correspond with the colour of the breast. It certainly is true in all cases which I have noticed."

The following has been kindly sent to me by Mr. Salvin:—

"The Mexican Trogon, as its name implies, is found in Mexico; and, as collections made in the highlands of that country seldom fail to contain examples, it would appear to be a common bird. Besides the valley of Mexico, it occurs in the State of Vera Cruz, whence specimens have been forwarded from Jalapa by M. de Oca. Mons. A. Boucard, too, found it in the State of Oaxaca, near Cinco Señores. In Guatemala *Trogon mexicanus* enjoys a wide range throughout the higher districts. I met with it in the Volcan de Fuego and also in Vera Paz, near Coban, in the valley of the Motagua, as well as in the woods overlooking the Plain of Salamá; and it is doubtless to be seen in all suitable forests in the mountainous districts. Guatemala, however, would appear to be the extent of its range in a south-easterly direction, as it has not yet been noticed in any of the other Central-American republics.

"Like other members of this family, *Trogon mexicanus* is found in forests, usually sitting on the lower branches of the high trees. When at rest it sits almost motionless; but its flight from one branch to another is quick though not sustained, as they never fly far. I found them most abundant in evergreen-oak woods. These oaks clothe, with greater or less density, the mountain-sides from an elevation of 5000 to about 7500 feet, and some of them (for there are many species in Guatemala) grow into magnificent trees. *Trogon mexicanus*, however, does not keep strickly to the oak-woods, for on one occasion I was lucky enough to be shown a nest in a tree forming part of a scrubby forest at an elevation of not more than 3000 feet, *i. e.* considerably below the oak-region. This was at a place called Chuacus, a small village in Vera Paz, situated in a valley which runs into the great valley of the river Motagua. This nest was in a hole in the bole of a small tree, about 15 or 20 feet from the ground. The male bird flew out, and I secured the eggs, three in number. They were slightly pointed, and of a very pale greenish colour, not pure white when fresh. There was no nest, the eggs being laid on the floor of the hole."

The young male of this species has bars on the tail, which would lead many persons to suppose pertained to another; but this is not the case.

Nothing further seems to have been recorded respecting the habits and economy of the Mexican Trogon.

The figures are from a pair of birds in my own collection.

The Plate represents male and female, of the size of life.

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J. Gould and H. C. Richter, del. et lith.

TROGON AMBIGUUS, *Gould.*

Hullmandel & Walton, Imp.

TROGON AMBIGUUS, *Gould.*

Doubtful Trogon.

Specific Character.

Mas.—*Facie nigrâ; pectore et corpore suprà aureo-viridibus; humeris tectricibusque alarum ornatè cinereis et fusco irroratis; rectricibus tribus externis utrinque albis, crebrè fuscescenti-nigro punctis; rectricibus quatuor intermediis fuscescenti-rufis cum apicibus nigris.*

Male.—Face and throat black; chest, sides and back of the neck, and upper surface rich golden bronze, gradually passing into golden green on the lower part of the back; primaries black, margined externally with white; wing-coverts and secondaries grey, finely marked with transverse zigzag lines of black; two centre tail-feathers rich fiery-red bronze, broadly tipped with black; the two next on each side blackish brown, broadly tipped with black; three outer feathers on each side brownish black at the base and white at the tip, the intermediate portion being white, minutely dotted or freckled with black, the freckles assuming the form of a distinct but irregular narrow bar where the freckling terminates; breast and under surface rich scarlet, separated from the green of the throat by a crescent of white; tarsi slate-grey, gartered below with scarlet and white; bill bright yellow.

Total length, 11 inches; *bill*, $\frac{7}{8}$; *wing*, 5; *tail*, $6\frac{1}{2}$.

Female.—A mark of white behind the eye and on the ear-coverts; head, upper surface and chest light olivaceous brown; primaries brown, margined with white; wing-coverts and outer webs of the secondaries light olivaceous brown, minutely rayed with black; two centre tail-feathers cinnamon-brown, tipped with black; the two next on each side brown, margined with cinnamon-brown; three lateral feathers brown at the base, crossed on their margins and near the extremity with irregular freckled bands of brown on a white ground; upper part of the breast pale brown; lower part of the abdomen and under tail-coverts scarlet, separated from the brown by a band of greyish white; bill yellow.

Trogon ambiguus, Gould in Proc. of Zool. Soc., part iii. p. 30.—Ib. Mon. of Trogons, pl. 4.—Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon*, sp. 11.—Bonap. Consp. Gen. Av., p. 149, *Trogon*, sp. 11.

I have ventured to separate this bird from the *Trogon elegans*, to which it closely assimilates. The points of difference consist in the obscure and pale, but finely-dotted markings of the outer tail-feathers, in opposition to the strong and well-defined black bars on the same part in *Trog. elegans*, while at the same time the centre of the wing is much more finely and minutely barred in the former than in the latter. Had I seen only a single individual of each of these birds, I might have taken a different view of the subject; but my comparisons having been made upon several individuals, I feel but little hesitation in assigning to the present bird, at least provisionally, the rank of a distinct species.

The localities in which these two birds appear to be indigenous are distinctly separated from each other, —all the examples I have seen of *Trogon ambiguus* having been exclusively received from the northern and western States of Mexico, while the *Trogon elegans* is strictly limited to the southern and Guatemala.

A figure and description of this bird appeared in the first edition of this monograph, and after a lapse of twenty years I am unable to add any further information respecting it, save that I have in the interval received other specimens from San Blas. Besides the differences pointed out above, I observe that the tail is fully an inch shorter than that of *T. elegans*, and that the *T. ambiguus* is altogether smaller than that species. Another point of difference also occurs in the bright fiery bronze colouring of the two middle tail-feathers, which cannot be excelled in richness, and which is but slightly indicated in *T. elegans*, the corresponding feathers in that bird having only a wash of this fine tint.

The Plate represents the two sexes of the natural size.

J. Gould & H. C. Richter, del. et lith.

TROGON ELEGANS, *Gould.*

Walter Imp.

TROGON ELEGANS, *Gould.*

Graceful Trogon.

Specific Character.

Mas. *Facie, capite anticè, auribus guttureque nigris; alis brunnescenti-nigris, in medio cinereis albo transversim flexuosè lineatis; rectricibus duabus intermediis proximarumque duarum utrinque pogoniis externis cupreo-viridibus; reliquis ad basin nigris, ad apicem albis, in medio præsertim pogonii externi albo nigroque fasciatis.*

Fœm. *Auribus in medio lineâque circum oculum albis; torque pectorali subobsoletâ; suprà et ad pectus cinereo-brunneus olivaceo tinctus; alis in medio cinereis maculis saturatioribus notatis; remigibus brunneis; ventre anticè brunnescenti-griseo in coccineum posticè transeunte.*

Male.—Face, fore part of the head, ear-coverts, and throat black; chest, back of the neck, back, and upper tail-coverts green; a white crescent separates the green of the chest from the breast, which together with the belly and under tail-coverts is scarlet; wings brownish black, the primaries having their outer edges fringed with white; secondaries and centre of the wings grey, strongly marked with zigzag transverse lines of black; two middle tail-feathers green with bronzy reflections on their outer webs, only the inner webs black; all six are largely tipped with black; the remaining six black at the base and white at the tip, the middle portions of these latter feathers barred with black and white; bill yellow.

Total length about 12 inches, *wing* 6, *tail* $7\frac{1}{4}$.

Female.—Bill yellow; centre of the ear-coverts and a small rim round the eye white; the whole of the upper surface and chest greyish brown with a tinge of olive; primaries brown, their outer edges fringed with white; centre of the wings and secondaries grey, faintly speckled with spots of a darker colour; a faint pectoral band of white separates the feathers of the chest from those of the breast, which is light brownish grey on the upper part, gradually passing into scarlet below; two centre tail-feathers dull brown tipped with black, two next on each side black, the remainder are black at the base and white at the tip, the middle portion being white, irregularly blotted with black.

Trogon elegans, Gould, in Proc. of Zool. Soc., 1834, p. 26.—Id. Mon. of Trog., pl. 3.—Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon*, sp. 13.

Trogonurus elegans, Bonap. Consp. Vol. Zygod., p. 14, gen. 2*c*, 22.

The beautiful Trogon here figured under the specific title of *elegans* is a native of Mexico, Guatemala, and Honduras, countries rich beyond measure in zoological productions. It is most nearly allied to the bird I have called *ambiguus*, the chief point of difference being in the decided barring of the outer tail-feathers, and in the stronger markings of the wings.

The lengthened tails of many of the Mexican Trogons form a feature which distinguishes them from all

the other species of the American continent; and in this particular the *Trogon elegans* is especially conspicuous, inasmuch as its tail is longer than that of any other of the smaller species of the genus.

The female is readily distinguished from the male by her more obscure and less gay colouring.

The principal part of the foregoing appeared in the first edition of this Monograph; during the thirty years which have since elapsed so little information has been acquired respecting this bird that even the following brief note obligingly sent to me by Mr. Salvin must be regarded with interest.

"You ask me about *Trogon elegans*; unfortunately I never met with the species in Guatemala, though I believe it does occur occasionally in collections from Vera Paz. A little to the southward, in the neighbouring State of Honduras, the bird would appear to be more abundant, as Mr. George Cavendish Taylor, in his remarks on the birds observed during his journey across that country, states that he saw several of these birds in the forest, on the plain of Comayagua, and that he had no reason to suppose they were otherwise than common (Ibis, 1860, p. 117). The only skin I possess is that of a male which was obtained by the late Mr. Bridges in the woods bordering on Virgin Bay, Lake of Nicaragua. Southward of this I know of no recorded instance of the occurrence of this Trogon."

The Plate represents a male and a female, of the size of life. The plant is the *Bignonia radicans*.

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J. Gould & H. C. Richter, del. et lith.

TROGON PERSONATUS, *Gould.*

Walter Imp.

TROGON PERSONATUS, *Gould.*

Black-faced Trogon.

Specific Character.

Trog. vertice, corpore superiore et pectore splendidè aureo-viridibus; loris, plumis auricularibus, et gutture nigris; rectricibus caudæ duabus intermediis ex aureo virescenti-fuscis, ad apicem nigris; utrinque proximâ pogonio interno et apice nigris, pogonio externo ex aureo virescenti-fusco; rectricibus externis nigris, lineis albis crebris et undulatis minutè fasciatis, ad apicem latè niveis; alis nigris, tectricibus et secundariis lineis cinereis minutis et irregularibus crebrè fasciatis; abdomine et corpore subtùs coccineis; colore coccineo à viridi disjuncto lunulâ albâ; rostro aurantiaco.

Fœm. *Capite, pectore et corpore superiore fuscis; rectricibus caudæ duabus intermediis sordidè castaneis; gutture et plumis auricularibus nigris; abdomine et corpore subtùs coccineis, hôc colore à fusco pectorali disjuncto lunulâ albâ.*

Male.—Crown of the head, all the upper surface, and chest rich golden green; lores, ear-coverts, and throat black; two middle tail-feathers golden greenish brown and tipped with black, the next on each side have the inner web and tip black and the outer web golden greenish brown; the outer feathers black, crossed by numerous fine irregular bars, and largely tipped with pure white; wings black, the coverts and secondaries finely pencilled with irregular zigzag markings of light grey; primaries margined externally with light grey; abdomen and under surface scarlet, separated from the green of the chest by a narrow crescent of white; bill orange-yellow; feet yellowish brown.

Female.—Head, chest, and upper surface brown; two middle tail-feathers dull chestnut-brown, tipped with black; the two next on each side black on their inner webs and at the tip, and dull chestnut-brown on their outer webs; the remaining feathers black on their inner webs at the base, largely tipped with white, the intermediate portion being crossed by alternate irregular bars of black and white; wings as in the male, the coverts and secondaries freckled with yellowish brown instead of grey, and ear-coverts black; abdomen and under surface scarlet, which colour is separated from the brown of the chest by a crescent of white; bill and feet yellowish brown.

Total length 11 inches; bill $\frac{7}{8}$; wing $5\frac{1}{4}$; tail $6\frac{1}{2}$; tarsi $\frac{5}{8}$.

Trogon personatus. Gould, Ann. & Mag. N. H. ix. p. 237 (1842).
——— *heliothrix.* Tsch. Wiegm. Arch. 1844, p. 300, et Fauna Peruana, pp. 41, 257.
Trogonurus personatus. Bp. Consp. Vol. Zyg. p. 14.
Trogon propinquus. Cab. & Hein. Mus. Hein. iv. p. 175.
? ——— *assimilis.* Gould, P. Z. S. 1846, p. 67.

Ornithologists are at the present moment divided in opinion as to whether the very common Trogons which inhabit the hill-country of Columbia, Ecuador, and Peru are referable to one, two, three, or more species, or whether these birds, having minor differences in markings and structure, should be considered mere local varieties of a widely spread bird; at all events it has been considered, by some of my colleagues, unnecessary to figure more than that first described.

The bird to which I originally gave the name of *personatus* is the one chosen for illustration in the accompanying Plate.

On this subject Mr. Salvin has been good enough to send me the following note :—

"This Trogon is sent in some numbers from the United States of Columbia in the collections made in the vicinity of Bogotá, and is thus, so far as the Trogons from this country are concerned, one of the best known of the whole group. Passing southwards it would appear to be almost equally common in the adjoining country of Ecuador, where, however, the distinct title of *T. propinquus* has recently been bestowed upon it by Messrs. Cabanis and Heine. As their characters were drawn from a single immature male specimen, they are not entitled to much consideration, especially as birds from Ecuador do not seem to be really distinguishable by any characters worthy of the name from Bogotá examples. That Tschudi's *Trogon heliothrix* also belongs to the same species I have no doubt; for, on a further examination of specimens sent from Peru by Mr. Whitely and called by us *T. heliothrix* (P. Z. S. 1869, p. 598), I am unable to detect any real difference between them and typical Bogotá birds.

"The most northern points in the range of this Trogon are Merida, where specimens were obtained by M. Anton Goering, and the mountain-ranges which lie to the eastward of the valley of the Magdalena, where Mr. Claude Wyatt met with it in his journey through that country. The latter traveller gives (Ibis, 1871, p. 375) the following interesting account of this species. He says :—'After leaving Canuto our road lay over a mountain where these birds must be tolerably common. We saw three that day in the oak-forest near the highest point of our road, at an elevation of about 8500 feet, and one in the denser forest lower down. We afterwards met with them occasionally in other parts of the forest until near Cachiri. The skin of these birds is exceedingly delicate; and the feathers come out in handfuls when they are shot, should they fall even a short distance before reaching the ground. . . . . They are very tame, and generally sit motionless up in the trees (where the cock bird, should his back be turned to you, is very difficult to see), and allow one to ride by within a few yards. I have, however, seen them hawking for insects, and returning to the same perch, like a Flycatcher. From the gullet of one of those we shot we took a lizard. Their range seems to extend from an elevation of about 7000 to 8500 feet. Iris dark brown.'

"In Ecuador Fraser obtained *Trogon personatus* at several places. On specimens shot at Matos he says (P. Z. S. 1858, p. 555) :—'*Pilco*' (native name). 'Irides dark hazel; rim round the eyes red or very deep orange; bill, feet, and legs yellow. High up in the mountain, on the tops of the trees. Stomachs contained fruit, vegetable matter, and insects.' He found it also at Pallatanga and above Puellaro. Tschudi found it in Peru, where Mr. Whitely obtained specimens in the valley of the Cosnipata.

"It will thus be seen that this species is strictly confined in its range to the slopes of the Andes, and probably is seldom found in forests having a lower elevation than 6000 feet."

The Plate represents two males and a female, of the size of life.

J. Gould and H C Richter del. et lith.

TROGON PUELLA, *Gould.*

Hullmandel & Walton Imp.

TROGON PUELLA, *Gould.*

Rayed-tail Trogon.

Specific Character.

Mas.—*Corpore subtùs coccineo; caudâ nigrâ; rectricibus tribus externis crebrè albo fasciatis.*

Male.—Lores, ear-coverts and throat black; head, all the upper surface and chest green; wings black, the coverts and secondaries freckled with white, and the primaries with a narrow line of white along the basal portion of their outer webs; all the under surface scarlet, separated from the green of the chest by a semilunar mark of white; two middle tail-feathers deep yellowish green; the two next on each side yellowish green on their outer, and black on their inner webs, the whole six tipped with black; three outer feathers on each side black, crossed by numerous narrow bars of, and narrowly tipped with, white; thighs black; bill orange; irides reddish brown; eyelash light coral-red; feet dark grey.

Total length, $10\frac{1}{2}$ inches; *bill*, $\frac{7}{8}$; *wing*, $5\frac{1}{4}$; *tail*, 6.

Female.—Face and throat dull black; chest and all the upper surface olive-brown, becoming richer or more yellow on the upper tail-coverts; wings blackish brown; the primaries margined externally with white; wing-coverts and secondaries brown, freckled with black; under surface light scarlet, separated from the brown of the chest by a semilunar mark of white; two centre tail-feathers rich brown; the two next on each side rich brown on their outer and black on their inner webs, all six tipped with black; three outer feathers on each side blackish brown, minutely dotted on their outer webs, and on a portion of their inner webs near the tip, with blackish brown on a greyish white ground, these dottings set so thickly as to form a bar near the tip, the extremity of which is greyish white; under mandible, and base of the upper, yellow; culmen brownish black.

Trogon puella, Gould in Proc. of Zool. Soc., part xiii. p. 18.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Trogon*, sp. 24.—Bonap. Consp. Gen. Av., p. 149, *Trogon*, sp. 8.
—— *Xalapensis*, DuBus, Esq. Orn. pl. 5.

This well-marked Trogon is an inhabitant of Central America, particularly the countries of Honduras and Guatemala; and that it must be common in the Vera Paz Mountains, is evidenced by the numbers which have been sent to this country by George U. Skinner, Esq. The only figure of this bird with which I am acquainted is that published by the Baron DuBus in his "Esquisses Ornithologiques" under the name of *Trogon Xalapensis*, from which appellation it would appear that it extends its range to Mexico; but personally I have not received or seen examples from that country.

The *Trogon puella* is rendered one of the most conspicuous members of its family by the markings of the tail, which consist of a series of narrow cross-bars of white on a jet-black ground, extending throughout the apical portion of each of the three outer tail-feathers; the usual terminal broad band of white being absent, or but slightly indicated by the last white bar being a trifle broader than the rest. The female differs very much from the male, not only in having those parts of her plumage brown which are green in the other sex, but also in the total absence of bars on the three outer tail-feathers, those feathers being merely clouded or sprinkled with extremely small dots of dark brown on a light greyish white ground, with a narrow bar of black succeeded by another of white at the tip.

The Plate represents both sexes of the natural size.

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J. Gould and H. C. Richter del. & lith.

TROGON AURANTIIVENTRIS, *Gould.*

Hullmandel & Walton, Imp.

TROGON AURANTIIVENTRIS, *Gould.*

Orange-breasted Trogon.

Specific Character.

Mas.—*Corpore subtus aurantiaco; caudâ nigrâ, rectricibus tribus externis utrinque albo crebrè fasciatis.*

Male.—Lores, ear-coverts and throat black; head, all the upper surface and chest bronzy green; wings brownish black; the coverts and secondaries freckled with white, and the primaries with a narrow line of white along the basal portion of their outer webs; all the under surface orange, separated from the green of the chest by a semilunar mark of white; two middle tail-feathers deep yellowish green; the two next on each side yellowish green on their outer, and black on their inner webs, the whole six tipped with black; three outer tail-feathers on each side black, crossed by numerous narrow bars of, and narrowly tipped with, white; thighs black; bill orange; irides reddish brown; eyelash light coral-red; feet grey.

Total length, 10 inches; *bill*, $\frac{7}{8}$; *wing*, 5; *tail*, $5\frac{3}{4}$.

Female.—Face and throat dull black; chest and all the upper surface olive, becoming richer or more yellow on the upper tail-coverts; wings black; the primaries margined externally with white; wing-coverts and secondaries olive, freckled with black; under surface light orange, separated from the olive of the chest by a semilunar mark of white; two centre tail-feathers rich brown; the two next on each side rich brown on their outer, and black on their inner webs, all six tipped with black; three outer feathers on each side blackish brown, minutely dotted on their outer webs, and on a portion of their inner webs near the tip, with blackish brown on a greyish-white ground, these dottings set so thickly as to form a bar near the tip, the extremity of which is greyish white; base of the upper mandible and under mandible yellow; culmen brownish black.

Trogon aurantiiventris, Gould in Proc. of Zool. Soc., part xxiv. p. 107.—Sclater in Ibid., pp. 139, 286.

——— *Sallæi*, Bonap. Compt. Rend., May 1856.

This bird is much more rare in the collections of Europe than the *Trogon puella*, from which it differs only in the colouring of the under surface being deep orange instead of scarlet. I think it probable that the *T. puella* and *T. aurantiiventris* may ultimately prove to be merely varieties or races of one and the same species. I have seen analogous instances among some of the Brazilian Trogons, and further investigation of the subject may throw some light upon this supposition; should it be confirmed, the species of the family will be somewhat diminished; at present I have no alternative but to consider and figure them as distinct, a step which would even be necessary were they to prove identical, since representations of both states of plumage would be requisite to their due illustration. I believe that no change of colouring from orange to scarlet, or from scarlet to orange, takes place, but that each colour is assumed from the beginning.

The native country of the Orange-breasted Trogon is the Pacific side of Veragua and Costa Rica. In Mr. Sclater's "List of Mammals and Birds collected by Mr. Bridges in the vicinity of the Town of David, in the Province of Chiriqui, in the State of Panama," published in the twenty-fourth part of the "Proceedings of the Zoological Society," it is stated to inhabit the dense forest on the Boqueti, and that it is also found further down towards David; and in his "Catalogue of the Birds collected by M. Auguste Sallé in Southern Mexico," published in the same part of the Society's "Proceedings," it is stated that he found this bird near the town of Cordova, in the State of Vera Cruz: if this be really the case, the opinion given above is greatly strengthened, inasmuch as *T. puella* is also said to have been found there.

I must remark that the female, as well as the male, has the breast orange, and that with this exception the colouring is precisely the same as that of *T. puella*. My specimens of *T. aurantiiventris*, however, are a trifle smaller than those of *T. puella*.

The Plate represents both sexes of the natural size.

J. Gould & W. Hart del et lith.

TROGON COLLARIS, *Vieill.*

Walter Imp.

TROGON COLLARIS, *Vieill.*

Collared Trogon.

Specific Character.

Suprà aurato-viridis; rectricibus duabus intermediis aurato-viridibus nigro terminatis, duabus proximis nigris extus aurato-viridibus, reliquis nigro alboque transfasciatis; tectricibus alarum minimis dorso concoloribus, reliquis et secundariis flexuosè nigro alboque vermiculatis; primariis nigris extùs albo limbatis; loris, regione paroticâ gulâque nigris; gutture et pectore superiore aurato-viridibus; torque pectorali albo; corpore reliquo subtùs coccineo.

Irides saturatè brunneæ; *rostrum* flavicanti-aurantiacum; *pedes* saturatè cinerei.

Fœm. *Brunnea; torque pectorali albo; corpore reliquo subtùs coccineo; tectricibus alarum brunneis nigro vermiculatis; rectricibus tribus utrinque extimis nigro lineolatis et punctatis alboque terminatis.*

Rostrum brunnescenti-aurantiacum.

Adult Male.—Crown of the head and whole of the upper surface rich golden green; throat and ear-coverts black; two middle tail-feathers golden green, the two next on each side golden green on their outer edge, the inner webs black, and the whole six tipped with black; the three outer feathers on each side strongly barred with black and white; primaries black with their outer edges white; secondaries and wing-coverts transversely waved with zig-zag lines of black and white; a semilunar collar of white separates the golden green of the chest from the abdomen, which, with the under tail-coverts, is scarlet; bill rich yellowish orange; irides dark brown; feet dark grey.

Female.—Head, chest, and upper surface of body brown; the two middle tail-feathers rich chestnut-brown, the two next on each side chestnut-brown on their outer webs and black on the inner, the three lateral feathers on each side freckled with black and tipped with white; a band of white separates the brown of the chest from the abdomen, which is scarlet as in the male; bill brownish orange.

Total length $9\frac{3}{4}$ inches; bill $\frac{5}{8}$; wing $4\frac{3}{4}$; tail $5\frac{1}{4}$; tarsi $\frac{5}{8}$.

Le Couroucou rosalba. Levaill. H. N. Couroucous, pl. 6.
Trogon collaris. Vieill. N. Dict. d'Hist. Nat. viii. p. 320.—Gould, Mon. Trog. ed. 1, t. 5.—Gray, Hand-l. B. i. p. 82.—Scl. & Salv. Nomencl. Av. Neotr. p. 104.
——— *castaneus.* Spix, Av. Bras. i. p. 48, t. 37 (fem.).
——— *auratus.* Swains. An. in Menag. p. 329.
"——— *rosalba,* Cuv." Hartl. Verz. Mus. Brem. p. 12.
Trogonurus collaris. Bp. Consp. Vol. Zyg. p. 14.
Trogon eytoni. Fraser, P. Z. S. 1856, p. 368.
——— *elegans.* Licht. in Mus. Berol. (*fide* Cabanis).
——— *erythrinus.* Licht. in Mus. Berol. (*fide* Cabanis).
——— *curucui,* Linn. Cab. & Heine, Mus. Hein. Th. iv. p. 177.
——— *exoptatus,* Cab. & Heine, Mus. Hein. Th. iv. p. 179.
——— *virginalis,* Cab. & Heine, Mus. Hein. Th. iv. p. 173.

This species, by some authors supposed to be the *Trogon curucui* of Linnæus (but doubtfully so, as it appears to me), was first certainly named by Vieillot in 1817, and Levaillant's figure of his "*Couroucou*

rosalba" referred to. It is quite possible that the *Couroucoui* of Marcgrave, as well as the *Trogon brasiliensis viridis* of Brisson, also refer to the same species; but of this there appears to be less certainty. *Trogon collaris* has a very extensive range in South America. Levaillant's "*Couroucou rosalba*" is said to have come from Cayenne; and in the adjoining country of Venezuela it is also found, as well as in the island of Trinidad, where Léotaud and also Mr. E. C. Taylor met with it. The Venezuela bird has been separated under the name *Trogon exoptatus* by Messrs. Cabanis and Heine; but, judging from a skin obtained by M. Goering at Caripé, I more than doubt the validity of this supposed species.

Mr. Salvin's notes on the species are as follows:—"From the States of Columbia skins of *Trogon collaris* are not unfrequently sent in the collections made in the vicinity of Bogotá; and quite recently Mr. T. K. Salmon, who is now engaged in exploring the districts in the neighbourhood of Medellin, has sent a number of specimens. These differ to a slight extent from normal *T. collaris* chiefly in having the terminal white portion of the tail-feathers narrower. In this respect they stand in an intermediate position between *T. collaris* and the Central-American *T. puella*, in which the terminal white tail-band is almost of the same width as the rest of the bars of the tail. This bird has also received a name from Messrs. Cabanis and Heine, who call it *T. virginalis*, their description being based upon specimens obtained by Fraser at Pallatanga, in Ecuador. The difference, so far as I can see, is very slight, and traced from a very variable character in this group of the Trogonidæ. Passing on to Peru, Mons. Constantine Jelski met with *T. collaris* during his expedition to the district of Junin. The places where he collected specimens are recorded by Dr. Taczanowski as Monterico, Soriano, and Amable-Maria. Turning eastwards from this point into the valley of the Amazons we find that Mr. Bartlett met with it both on the Upper and Lower Ucayali and also at Chamicuros. Spix also obtained it at Tabatinga, and Natterer at Barra do Rio Negro. The latter traveller also sent specimens from the 'Engenho do Capt. Gama' and Villa Maria, in Mato Grosso. Lastly, in Eastern Brazil Prince Maximilian found it at Rio de San Mato, near Bahia; and under the name of *Trogon eytoni* it has been recorded by Fraser from Rio de Janeiro.

"Little has been noticed of the habits of *T. collaris*. Spix speaks of its food consisting of fruit and insects; and Léotaud gives the following note of its habits as observed by him in the island of Trinidad:—'Ce joli *Couroucou* est sédentaire ici. Ses mouvements sont lents et rarement répétés; il semble ainsi ne renoncer qu'à regret à un repos que troubleraient déjà trop souvent les besoins de l'existence. Son cri est rond, mais peu sonore; il a cependant un timbre qui attire l'attention; on croit y découvrir une certaine crainte de rompre le silence si solennel de nos forêts; c'est le cri de certains oiseaux de proie nocturnes qui trouble à peine le calme de la nuit. Sa parure si brillante ne redouterait point le vif éclat de la lumière, et pourtant l'oiseau ne quitte jamais les endroits couverts et surtout éloignés et élevés. Sa nourriture consiste principalment en baies et en insectes.'"

The figures in the Plate are life-size.

J. Gould & W. Hart del et lith.

TROGON ATRICOLLIS, *Vieill.*

Walter Imp.

TROGON ATRICOLLIS, *Vieillot.*

Black-throated Trogon.

Specific Character.

Trog. vertice, dorso pectoreque summo viridibus; tectricibus alarum et secundariis extùs nigris cinereo vermiculatis; primariis extùs albido limbatis; regione paroticâ guttureque nigris; torque pectorali albo indistincto; rectricibus duabus intermediis cuprescenti-viridibus, duabus proximis nigris externè viridibus, reliquis nigris albo latè terminatis albo et nigro transfasciatis.

Fœm. *Capite, dorso, gutture et rectricibus sex intermediis brunneis, his nigro terminatis; rectricibus reliquis obsoletiùs fasciatis; ventre aurantiaco sordidiore.*

Rostrum flavum, vix olivascens.

Adult male.—Beak yellow, clouded with olive; throat and ear-coverts black; chest, top of head, and entire upper surface green; two centre tail-feathers green, with slight bronzy reflections, the two next on each side black, with their extreme outer edges of the same green as the two middle ones, the tips of all being black, the three outer ones on each side black, tipped with white, and regularly barred on the outer web with black and white as well as towards the tip of the inner one; wing-coverts and secondaries black, finely and delicately freckled with grey; primaries black, with a narrow external edging of white; under surface fine orange, separated from the throat by an indistinct pectoral band of white; feet brown.

Female.—Head, throat, upper surface, and six middle tail-feathers brown, the latter slightly tipped with black, the remaining tail-feathers as in the male, but not so regularly barred; the wing-coverts freckled with brown on a black ground; the primaries black, margined on the outer edges with white; under surface orange, but not so pure as in the male.

Total length about 9 or 10 inches; wing $4\frac{1}{2}$; tail 6.

Yellow-bellied Green Cuckoo. Edwards, Gleanings Nat. Hist. pl. 331.
Couroucou à queue rousse de Cayenne. Buff. Pl. Enl. 736.
——— *orangé.* Levaill. H. Nat. Couroucous, p. 14, pl. 7, 8, 9.
Trogon rufus. Gm. S. N. i. p. 404.
——— *atricollis.* Vieill. N. Dict. d'Hist. Nat. viii. p. 318.—Id. Gal. des Ois. i. pl. 31.—Gould, Monogr. Trogon. pl. 8.—Gray, Hand-l. B. i. p. 83.—Scl. & Salv. Nomencl. Av. Neotr. p. 104.
——— *viridis.* Spix, Av. Bras. i. p. 50 (*nec* Linn.).
Trogonurus lepturus. Swains. An. in Menag. p. 331.
Trogon chrysochlorus. Natt. & Pelz. Sitz. Akad. Wien, xx. p. 49.—Pelz. Orn. Bras. p. 20.
——— *scalaris.* Licht. in Mus. Berol. (*fide* Cabanis).
Pothinus atricollis. Cab. & Heine, Mus. Hein. Th. iv. p. 180.

"There can be little doubt," says Mr. Salvin, "that the figures of the old authors, Edwards, Buffon, and Levaillant, quoted above, all apply to this bird, and also that a strict application of the law of priority points to the exceedingly inappropriate title of *Trogon rufus*, bestowed upon it by Gmelin, as the name this bird ought to bear.

"Setting aside the name of *T. rufus* as inappropriate, and *T. lepturus*, proposed by Swainson, which is a pure synonym of *T. atricollis*, as well as the MS. title of Lichtenstein's quoted by Dr. Cabanis, the other names given to this bird all refer to races or supposed races occurring in different districts of its range. Thus the South-Brazilian bird has been separated by Herr von Pelzeln as *T. chrysochlorus*, and the Central-American as *T. tenellus* by Dr. Cabanis, Vieillot's name, *T. atricollis* being applicable to the race found in Guiana and the valley of the Amazons.

"Having on several occasions, both by myself and with Mr. Sclater, closely examined numerous specimens of this bird from all parts of its range with a view to test the right of these various races to rank as species, I have always come to the conclusion that such a rank could not be granted them without rendering it exceedingly difficult, if not impossible, to assign to every specimen its right name. To show how varied is the state of opinion on this point, I may add that Dr. Cabanis, Mr. Gould, and Mr. Lawrence, uphold the distinctness of *T. tenellus*, the two former rejecting *T. chrysochlorus* as distinct from *T. atricollis*. Dr. Finsch agrees with Herr von Pelzeln in maintaining the specific rank of *T. chrysochlorus*, suggesting (as it appears to me rightly) that the birds described in the 'Museum Heineanum' really were *T. chrysochlorus* and not *T. atricollis*. I think myself that the differences observable are so slight that they may be regarded rather as tendencies to vary in a particular direction in a particular locality than as fixed, definite, specific characters. At the same time I must say that, if their separation be maintained, the South-Brazilian has equal, if not stronger, claims to be considered distinct from the Guiana race than the Central-American has. The Guiana bird is in fact almost precisely intermediate between the races found in Brazil and Central America. The white bands of the tail are widest and fewest in *T. tenellus*, narrowest and most numerous in *T. chrysochlorus*. The central tail-feathers have a bluish shade in *T. tenellus*, and are most bronzy in *T. chrysochlorus*. The wing-coverts are coarsely mottled in the former, finely in the latter. In all these points *T. atricollis* is intermediate."

Leaving the northern form, *T. tenellus*, to be noticed in a separate article. I will now trace the range of *T. atricollis*, including with it *T. chrysochlorus*.

Buffon alludes to its occurrence in Cayenne. It also occurs in Demerara, where Schomburgk met with it; but westwards of this district I have not yet come across any recent allusion to its occurrence in Venezuela or Trinidad, though Levaillant mentions its presence in the latter island. Throughout the valley of the Amazons it is found apparently in abundance. Natterer obtained nine examples during his voyage at Nas Lages, Borba, Marabitanas, Cocuy, and Barra do Rio Negro; while on the Upper Amazons, or Solimoens, Spix met with it, and subsequently Mr. E. Bartlett within the frontiers of Peru at Chamicurros. In Southern Brazil Prince Maximilian found it at Bahia, whence, and also from Rio de Janeiro, numerous specimens are constantly sent to Europe. In the province of Sao Paulo Mr. J. F. Hamilton found it pretty generally distributed throughout the forest, but not abundant in any one locality. He adds that it is of rather solitary habits, and that he never saw two together. In the same district, at Ypanema, Natterer secured fifteen examples, and upon these he bestowed the name *chrysochlorus*, afterwards described by Herr von Pelzeln. *Trogon atricollis* is also found still further south, in the province of Rio Grande do Sul, whence Mr. Rodgers has sent us specimens.

The figures in the Plate are of the natural size.

J. Gould & W. Hart del. et lith.

TROGON TENELLUS, *Cab.*

Walter imp.

TROGON TENELLUS, *Cabanis.*

Graceful Trogon.

Specific Character.

Trog. splendidè aurato-viridis, capite et jugulo vix saturatioribus; fronte angustâ, loris et facie laterali cum gutture toto nigris; fasciâ pectorali albâ vix distinctâ; corpore reliquo subtùs lætè aurantiaco-flavo; alâ nigrâ, primariis angustè albo limbatis; tectricibus alarum minimis dorso concoloribus, reliquis et secundariis extus albido transversim vermiculatis; rectricibus duabus mediis cuprescenti-aureis nigro terminatis, duabus proximis nigris extùs cuprescenti-aureis, reliquis versus basin pogonii interni nigris, albo latè terminatis et albo latè fasciatis. Rostrum flavum, versus basin virescens.

Adult Male.—Above metallic green, richer on the head, upper breast, rump, and upper tail-coverts, and having a slightly golden appearance on the back and sides of the breast; a narrow frontal line, lores, sides of the face, and throat black; least wing-coverts green, like the back, the remainder coarsely vermiculated with greyish white and black lines, as also are the secondaries; all the rest of the coverts and quills black, the primaries narrowly edged with white externally; centre tail-feathers of a burnished copper-colour, with a terminal band of black, the next two black on the inner web and at the tip and coppery on the outer web only; three outer tail-feathers broadly tipped with white and banded with black and white, the bases of the inner webs black, gradually increasing in extent towards the centre of the tail; under surface of body beautiful orange-yellow, paler and whiter near the green of the breast, forming a very indistinct pectoral band.

Total length $9\frac{1}{2}$ inches; wing $4\frac{3}{4}$; tail 6; tarsus $\frac{3}{4}$.

Trogon tenellus, Cab. J. f. O. 1862, p. 173.
——— *atricollis*, Scl. & Salv. P. Z. S. 1864, p. 364.—Gray, Hand-l. B. i. p. 83.

I believe this species to be distinct from *Trogon atricollis*, though undoubtedly very closely allied. It is a smaller bird, and is to be further distinguished by the more distinct white barring of the tail-feathers, the white bars being rather wider than the alternate black ones.

"This race of *Trogon atricollis* was first characterized by Dr. Cabanis in the 'Journal für Ornithologie' for 1862, from a single example of a young male included in the collection formed in Costa Rica by Drs. Hoffmann, von Frantzius, and Ellendorf, which first made us acquainted with the ornithological riches of that, up to that time, unexplored country. Since this first specimen was obtained numerous others have been sent from Costa Rica, where it would appear to be by no means rare in certain districts. Other localities, mentioned in Mr. Lawrence's list of Costa-Rica birds, published in the 'Annals of the Lyceum of New York' in 1868, are Guiatil, Barranca, Angostura and Pacuare.

"Costa Rica, however, is not the most northern point of the range of this bird; for Mr. Belt, the author of the interesting book 'The Naturalist in Nicaragua,' found it during his stay at the mines of Chontales.

"Writing of it and of *T. caligatus*, he says (p. 122):—'Both species take short, quick, jerky flights, and are often met with along with flocks of other birds—Flycatchers, Tanagers, Creepers, Woodpeckers, &c., that hunt together, traversing the forests in flocks of hundreds belonging to more than a score of different species . . . . . The Flycatchers and Trogons sit on branches and fly after the larger insects, the Flycatchers taking them on the wing, the Trogons from the leaves on which they have settled. In the breeding-season the Trogons are continually calling out to each other, and are thus easily discovered. They are called "viadas" (that is, "widows") by the Spanish.'"

"In Veragua *T. tenellus* appears to be quite abundant. Arcé, to whom we are chiefly indebted for a knowledge of the birds of that country, has sent us from time to time specimens from the Volcano of Chiriqui and San Miguel de Bagaba, as well as from Santa Fé, Santiago de Veragua, the Cordillera de Tolé, Chitra, and Calovevora. On the Isthmus of Panama it is also common, as M'Leannan procured many specimens at Lion-Hill Station, and two years ago I myself shot an example in the woods near Obispo Station. It was sitting motionless in an upright position, after the manner of its tribe, on one of the lower branches of a forest tree, my attention being attracted by its yellow breast. Two other localities where this bird is found on the isthmus remain to be stated—one being Chepo, where Arcé secured specimens, the other the falls of the river Truando, where Mr. C. J. Wood, who was attached to Lieut. Michler's exploring expedition, met with it. He says that 'it was seen only once in the Cordillera, and that it was very unsuspicious and easily shot.' "—Salvin.

The single figure in the accompanying Plate is life-sized.

TROGON CALIGATUS, *Gould.*

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

TROGON CALIGATUS, *Gould.*

Gartered Trogon.

Specific Character.

Mas.—*Vertice et gulâ nigris; ad nucham, sic et ad gulam cærulescenti-violaceo conspicuè marginatis; humeris, tectricibusque alarum nigro cum cinereo irroratis; abdomine flavo; tarsis nigris, albo succinctis; rectricibus tribus externis utrinque nigro alboque fasciatis.*

Male.—Face, head, throat and ear-coverts black, bounded at the back of the neck by a collar, and on the breast by a broad gorget of bluish green in some specimens, and purplish green in others; upper surface green, washed with bronze on the back and scapularies; wings black, the basal portion of the primaries margined with white; wing-coverts and outer webs of the secondaries grey, marked transversely with very minute, irregular and wavy lines of black; two centre tail-feathers and the outer web of the next on each side deep glossy green, the inner webs of the two latter, and the tips of all six black; the three lateral feathers on each side alternately barred with black and white, and largely tipped with white; flanks grey; centre of the abdomen and under tail-coverts orange-yellow; feathers of the thighs and tarsi black, terminating in a fringe of white immediately above the toes; bill bluish horn colour; feet olive.

Total length, 8 inches; *bill*, $\frac{7}{8}$; *wing*, $4\frac{3}{4}$; *tail*, 5.

Female.—Head, throat, chest, back and upper tail-coverts slaty black; wings black; primaries margined at the base with white; coverts and outer webs of the secondaries transversely rayed with white; two centre tail-feathers slaty black, the two next on each side brown; all six tipped with jet-black; three outer feathers on each side blackish brown on their inner webs, white on their outer, crossed by numerous bands of black, and largely tipped with white; under surface fine orange-yellow.

Trogon caligatus, Gould, Mon. of Trogons, pl. 7.—Gray, List of Spec. of Birds in Coll. Brit. Mus., p. 43.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Trogon*, sp. 18.—Bonap. Consp. Gen. Av., p. 149, *Trogon*, sp. 17.—Sclater in Proc. of Zool. Soc., part xxiv. p. 286.

To commit an error, although unintentionally, leads to unpleasant reflection; to acknowledge and amend it is becoming to every one; but this should more particularly be done by the man of science; I must therefore confess that I certainly did make a mistake in my former illustration of this species, when I coloured the entire head blue instead of black, and thereby sadly puzzled every ornithologist who has had occasion to study this group of birds: how the error arose I cannot imagine, and had I not still by me the original specimen from which the figure was taken and coloured, I might not have detected the mistake I had made, and which is duly corrected in the accompanying Plate.

The *Trogon caligatus* enjoys a wider range of habitat than most of the other species of the family. Its head-quarters, or, more properly, the centre of its area, is Guatemala, whence it extends as far north as Cordova in Mexico, and south as the Isthmus of Panama, and, if I mistake not, to the Caraccas and Venezuela, as I possess skins which I believe were collected in those countries. Some trifling differences exist between the Caracca specimens and those from Mexico, and both slightly differ from Guatemalan examples. The Cordovan specimens are the largest, those from Caracca the smallest, while the Guatemalan are intermediate in size; still these differences are so slight that they can only be regarded as mere varieties or races of one and the same species.

The *Trogon caligatus* is a neat and compact little bird, and the bright orange of its breast must form a very striking and effective contrast to the dense foliage of the gloomy forests which this and the other members of the genus are known to inhabit.

The Plate represents the two sexes of the natural size.

J. Gould & W. Hart del. et lith.

TROGON MERIDIONALIS, *Sw.*

Walter imp.

TROGON MERIDIONALIS, *Swains.*

Little Trogon.

SPECIFIC CHARACTER.

Trog. capite pectoreque purpureis, aliquando viridi tinctis; auribus guttureque nigris; dorso saturatè aureo-viridi; alis nigrescenti-brunneis, remigibus albo marginatis, secundariis tegminibusque pulverulenti-cinereis; ventre aurantiaco; rectricibus intermediis duabus duarumque utrinque proximarum pogoniis externis viridibus, harum pogoniis internis nigris, his omnibus nigro apiculatis, reliquis albo nigroque fasciatis.

Rostrum plumbeum, ad apicem pallidiùs; *pedes* saturatè plumbei.

Fœm. *Saturatè cæruleo-cana, ventre aurantiaco; alis nigris, secundariis tegminibusque albo transversim lineatis; remigibus extimis utrinque tribus ad basin nigris, pogoniis externis albis nigro fasciatis.*

Male.—Crown of the head and chest rich purple, changing to greenish purple in some specimens; throat and ears black; back and upper tail-coverts dark green tinged with gold; wings blackish brown, the primaries edged with white, secondaries and lesser wing-coverts finely powdered with grey; breast and underparts rich orange; middle tail-feathers deep green, two next on each side green on their outer webs and black on the inner, all six tipped with black, three outer feathers on each side strongly barred with lines of black and white; bill lead-colour, lighter at the tip; feet dark lead-colour.

Female.—Whole of the head, chest, back, and six middle tail-feathers dark bluish grey; the three lateral feathers on each side black at their base, their outer edges white barred with black; wings black, secondaries and lesser wing-coverts finely marked with transverse lines of white; under surface orange; bill dark horn-colour.

Total length $8\frac{3}{4}$ inches; bill 1; wing $4\frac{1}{2}$; tail $4\frac{3}{4}$ tarsi $\frac{1}{2}$.

Trogon meridionalis. Swains. An. in Menag. p. 332.
——— *sulphureus.* Spix, Av. Sp. Nov. vol. i. pl. 38, p. 48?—Scl. & Salv. Nomencl. p. 104. —Gray, Hand-l. i. p. 83.
Aganus caligatus. Cab. & Heine, Mus. Hein. Th. iv. p. 186.
?——— *devillii.* Cab. & Heine, Mus. Hein. Th. iv. p. 191.
?——— *crissalis.* Cab. & Heine, Mus. Hein. Th. iv. p. 190.
?*Trogon violaceus.* Gm. Syst. Nat. i. p. 404.
Aganus violaceus. Cab. & Heine, Mus. Hein. Th. iv. p. 190.
Trogon sulphureus. Spix, Léotaud, Ois. Trin. p. 101.

THIS species is very sparingly dispersed over the northern parts of Brazil, but is more abundant in Cayenne, Trinidad, and the adjacent islands. It is one of the commonest species in our cabinets, there being few collections sent from the last-named countries which do not contain examples.

The birds figured by Dr. Spix under the name of *Trogon sulphureus* are in all probability intended for this species, but in several particulars do not accord with it: I have therefore considered it best to adopt the name assigned to it by Mr. Swainson, who has paid much attention to the South-American members of this group.

The sexes offer the usual differences in the colour of their plumage, the male being clothed above with rich green, while the female has the same parts dark bluish grey: the young during the first year are like the female.

Thus much, excepting the synonymy, was said in the first edition of this Monograph; and I really have not much more to add, further than that my figures are made from Trinidad specimens. In order to throw as much light as possible on this somewhat intricate subject I have availed myself of Mr. Salvin's experience, which is embodied in the following note:—

"The first point to look to in determining a member of this very difficult section of the Trogonidæ is to see if the crown of the head is *black* or *blue*. If the former, the bird doubtless belongs to *T. caligatus*, *i. e.* the *caligatus* of the second edition of this work. If the head is blue the bird belongs either to *T. meridionalis*, to *T. ramonianus*, or to a race closely allied to one or other of these birds—the difference between the two named being further shown by the wing-coverts of the former being mottled grey and black, while in the latter these are almost wholly black. It is not always possible to distinguish birds belonging to the blue-headed group with certainty, as not unfrequently specimens occur which have the wing-coverts only slightly mottled, thus showing that indications are not wanting to prove that *T. meridionalis* and *T. ramonianus* gradually merge into one another. This fact determined Mr. Sclater and myself to place both under the name *T. meridionalis* in our 'Nomenclator Avium Neotropicalium.'

"To *Trogon meridionalis* the name *T. violaceus* of Gmelin has been applied by several authors; but this is a point I think that can never be satisfactorily determined; and as Gmelin's name is introduced with a description so manifestly inaccurate, for instance where he speaks of its yellow eyebrows! the selection of the first name, about which there can be no doubt, is by far the preferable plan to be adopted. This undoubtedly is Swainson's title bestowed upon this bird in 1838. It has been suggested (Mon. Trog. ed. 1, t. 9) that Spix's name *T. sulphureus* might be intended for this species; and so far as the female is concerned I am inclined to think this may be so; but the male, I have less doubt, belongs to *T. atricollis*; so that the name *T. sulphureus* had best be dismissed also.

"Swainson's bird, which is still extant in the museum of the University of Cambridge, is said to have been obtained in the Bahama Islands by Mr. Lees. This locality is doubtless incorrect, as is also shown by other birds described by Swainson from Mr. Lees's collection, and there is every reason to suppose that the specimen really came from Trinidad or Venezuela.

Most unfortunately for the puzzling synonymy of this group of Trogons, Messrs. Cabanis and Heine did not consult the first Part of this edition of the 'Trogonidæ' when compiling their account of the family in the fourth part of the 'Museum Heineanum;' its existence was doubtless unknown to them. They would probably have been saved the attempt made to fix the name *caligatus* to a blue-headed bird from Cartagena, and also the description of the true *T. caligatus* of Central America under the new name of *Aganus braccatus*. Other species of this form are described by the same authors, the validity of which I have no means of testing beyond the published descriptions. These are:—*Aganus lepidus*, from Ecuador, which appears to me more likely to be *T. caligatus* than any thing else; *Aganus crissalis*, from Bahia, whence I have never yet seen specimens (this bird is described as having a blue head); *Aganus devillii*, based upon a description by MM. Deville and Des Murs of a bird from Santa Maria, on the Upper Amazons, and supposed by them to be *Trogon meridionalis* of Swainson. Further research will be necessary to establish these supposed species.

"To M. Léotaud we are indebted for a knowledge of the habits of this bird, as observed by him in the island of Trinidad. He says it leads the same kind of life as *T. viridis*."

The figures in the accompanying Plate are life-size, and from Trinidad specimens.

TROGON RAMONIANA, *Castlenau*

J. Gould and H. C. Richter del. et lith.

Hullmandel & Walton, Imp.

TROGON RAMONIANUS.

Ramon De la Sagra's Trogon.

Specific Character.

Mas.—*Facie nigrâ; vertice et pectore resplendenti-cæruleis; abdomine aurantiaco; alis nigris; rectricibus tribus externis utrinque nigris, fasciis albis regulariter ornatis ad apicem singulis albis.*

Male.—Face, ear-coverts and throat black; head, nape and gorget across the breast deep rich purplish blue, passing, in some specimens, into green on the outer edges; back and scapularies bronzy green, passing into pure green on the lower part of the back and upper tail-coverts; wing-coverts and secondaries black; primaries brownish black, slightly fringed with white; flanks slaty black; abdomen and under tail-coverts fine orange-yellow; thighs black; two centre tail-feathers green; the two next on each side green on their outer, and brownish black on their inner webs; all six tipped with black; three lateral feathers on each side black, conspicuously barred, and largely tipped with white; bill light horn-colour. Total length, $9\frac{1}{4}$ inches; *bill*, $\frac{7}{8}$; *wing*, $4\frac{1}{2}$; *tail*, $5\frac{1}{2}$.

Female.—Head, neck, chest and upper surface brownish black; wing-coverts and secondaries black, crossed by fine lines of white; under surface light orange-yellow.

Trogon Ramoniana, Deville et Des Murs in Rev. Zool. 1849, p. 331.—Castelnau, Expéd. Amér. du Sud, Zool., Ois., p. 33. pl. xi. fig. 2.

This bird was first characterized by MM. Deville and O. DesMurs in the "Revue Zoologique" for the year 1849, and was subsequently described and figured in the zoological portion of M. Castelnau's "Expédition de l'Amérique du Sud," from specimens brought to Europe by that gentleman. Besides the examples procured by M. Castelnau, several others have come under my notice; and I have myself received specimens from Mr. Hauxwell, which had been obtained on the Upper Amazon, and still more recently others procured on the river Napo, through the Messrs. Verreaux, of Paris, from which we may gather that the true habitat of the species is the eastern side of the Peruvian Andes; but over what extent of country it ranges, time and future research alone can inform us.

M. Castelnau states that his examples were procured at "La Mission de Sarayacu, Pampa del Sacramento, au Pérou."

The *Trogon Ramonianus* is an exceedingly well-marked species, and one which cannot be confounded with any other.

The figures are of the natural size.

J. Gould & W. Hart del. et lith.

TROGON VARIEGATUS, ♀ Spix.

Walter imp.

TROGON VARIEGATUS, *Spix.*

Purple-breasted Trogon.

Specific Character.

Viridis; capite summo et pectore superiore purpureis, fronte nigricante; tectricibus alarum et secundariis extùs nigro alboque flexuosè minutè vermiculatis, remigibus reliquis saturatè brunneis, extùs albido limbatis; rectricibus duabus intermediis chalybeo-viridibus nigro terminatis, duabus proximis nigris extùs viridibus, reliquis nigris, latè albo terminatis et versus apicem latè nigro et albo transfasciatis; corpore reliquo subtùs saturatè coccineo; tibiis nigris.

Irides *saturatè brunneæ;* rostrum *flavicanti-album;* pedes *cærulescenti-cinerei.*

Fœm. *Fuliginoso-cinerea, caudâ brunneo tinctâ; alarum tectricibus albo fasciatis; pectore inferiore albo; rectricibus tribus externis utrinque extùs albis nigro fasciatis.*

Male.—Bill yellowish white; head and chest metallic purple merging into black on the forehead; ears, throat, back, and upper tail-coverts green; wing-coverts and secondaries minutely waved with zig-zag markings of black and white; two centre tail-feathers steel-green, tipped with black, the two next on each side black, with their outer edges green; the three outer feathers on each side black at the base and barred with white and black, ending in a square mark of white; the whole of the under surface deep scarlet; thighs black; tarsi bluish grey; irides very dark brown.

Female.—Head, chest, and upper surface of body dark sooty-grey, the wing-coverts distinctly barred with white; upper part of the abdomen white, merging into scarlet on the belly and under tail-coverts; tail deep sooty-grey with a tinge of brown, the three outer feathers barred with black on their outer edges.

Total length 9 inches; wing 4; tail 5; tarsi $\frac{5}{8}$.

Trogon variegatus. Spix, Av. Bras. i. p. 49, taf. 38 A.—Gould, Monogr. Trogon. ed. 1, pl. 5. —Gray, Hand-l. B. i. p. 83.—Scl. & Salv. Nomencl. Av. Neotr. p. 104.
——— *purpuratus.* Swains. An. in Menag. p. 330.
Trogonurus variegatus. Bp. Consp. Volucr. Zygod. p. 14.
——— *purpuratus.* Bp. *l. c.* p. 14.
Hapalophorus variegatus. Cab. & Heine, Mus. Hein. Th. iv. p. 199.

This species has an extensive range over a large portion of the empire of Brazil, though it is doubtless found in the wooded rather than the open *campos* of that vast area. It is somewhat remarkable that Prince Maximilian von Neuwied makes no mention of it in his well-known works, especially as it seems to be by no means uncommon in the vicinity of Bahia, which was one of his chief collecting-grounds. Here it was that Swainson obtained the specimens he subsequently described as *Trogon purpuratus*, the types of which are still preserved in the museum of the University of Cambridge; and from the same district skins are sent in some numbers in the vast collections of bird-skins so constantly forwarded to Europe.

Though common in the province of Bahia, it may be doubted if *Trogon variegatus* extends its range into the more southern provinces of Brazil; but it certainly spreads over the central and western districts, as well as throughout the valley of the Amazons. Natterer, to whom alone we are indebted for any knowledge of the birds of the distant Brazilian province of Matogrosso, found it both at Cuyaba, Villa Maria, and Matogrosso, and then, after journeying down the river Madeira, he again met with it at Barra do Rio Negro, and subsequently at Cajutuba, near Pará. Mr. E. Bartlett secured specimens during his visit to the Upper

Ucayali, within the dominion of Peru; and in the same Republic Mr. Henry Whitely found it in the valley of the Cosnipata."

I am indebted to Mr. Osbert Salvin for the accompanying note:—

"The name *variegatus*, bestowed by the traveller Spix upon this species, appears well chosen; for the extent and character of the markings of the tail vary greatly, especially in specimens from Bahia. It may be from having seen a greater number of specimens from this district that these variations are more apparent in Bahian birds; but I have not yet noticed them to nearly the same extent in specimens obtained from the western confines of the range of the species. Here the white bands of the tail appear to have assumed a more definite order, and specimens in which these bands are almost run together (as in some from Bahia) have not yet come under my notice. This constancy of the white bands of the tail of the Peruvian birds, if such it is, can hardly be held to be a specific character, seeing that *some* Bahia birds are precisely similar, while others differ considerably. Varying as this bird does, it is somewhat surprising that only one synonym has been proposed for it. I may add that I sincerely trust that it may long remain the only one!"

The three figures in the Plate are of the natural size.

TROGON BEHMI, *Gould.*

J. Gould & H. C. Richter del. et lith.

Walter Imp.

TROGON BEHNI.

Behn's Trogon.

Specific Character.

Trog. suprà splendidè aurato-viridis, cupreo nitens; uropygio, supracaudalibus et rectricibus duabus mediis splendidè viridibus, his nigro apicaliter fasciatis; duabus proximis nigris extùs splendidè viridibus, reliquis nigris albo terminatis et albo transversim fasciatis; alis nigris, tectricibus alarum minimis dorso concoloribus, reliquis autem et secundariis externè cinereis minutissimè nigro fimbriatis, primariis angustè albido limbatis; pileo cum cervice et pectore superiore cyanescenti-viridibus, his cupreo nitentibus; fronte, loris et facie laterali cum gutture toto nigris; torque pectorali albo distincto; corpore reliquo subtùs coccineo, hypochondriis cinereis; tibiis nigris; subalaribus et alâ subtùs cinerascenti-nigris, illis interioribus et rectricibus versus basin pogonii interni albis.

Adult male.—Crown of head, hind neck, and breast shining bluish green, with a golden gloss on the sides of the neck and breast, the lores, sides of face, and throat black; across the upper breast a white band; the remainder of the underparts crimson, the sides of the body grey; the thigh-feathers black; entire back and scapulars bright coppery green, with a golden gloss, shading off into metallic grass-green on the rump and upper tail-coverts; the smaller wing-coverts golden green like the back, the rest, as well as the outer web of the secondaries, grey, most finely and delicately freckled with blackish vermiculations, the remainder of the wing black, the primaries with a narrow external edging of white; two centre tail-feathers green, with a coppery gloss, and having a tolerably broad terminal band of black; the next two feathers black, with only the outer web coppery green; the rest black, broadly tipped with white, and distinctly banded across with white, the number of white bars increasing more on the outer feathers; under wing-coverts and inner lining of wing greyish black, the innermost of the former and the inner base of the quills white.

Total length 9 inches; culmen $\frac{5}{8}$; wing $4\frac{3}{4}$; tail 5; tarsus $\frac{1}{2}$.

Trogon behni. Gould, MSS.

When Professor Behn, of Kiel, returned from America, he passed through London and showed me a Trogon, which he kindly left with me as a new and undescribed species. I saw at once that it was a striking bird and was remarkable for some red feathers in its crown. These, however, proved to have been surreptitiously added, as might have been expected; for nature would never have acted so inharmoniously as to have decorated any one of these green Trogons, all of them so perfectly of one type, with such an anomaly as a red crown! But, on mature consideration, I came to the conclusion that the species was distinct on other grounds; and I had a sketch of it prepared, and proposed to name the species after the discoverer: this promise I now fulfil.

During the long interval that has elapsed since the Plate was drawn, two specimens have come under my notice—one brought by Mr. Brydges from Bolivia, the other sent from Peru by Mr. Whitely. The latter bird is in the collection of Messrs. Salvin and Godman, and has much of the appearance of an old *Trogon variegatus*, being considered by Mr. Salvin to belong to that species. The Bolivian bird, however, is different, in the head and chest being green and not blue, while the back is of the richest bronzy or coppery green. As there is some doubt as to the Peruvian specimen, I wish it to be understood that the Bolivian bird, is the typical *Trogon behni*. This is the bird described in the present 'Monograph;' and the illustration here given has been prepared from the same specimen.

The principal figure in the Plate is of the size of life. I regret that, by a misprint, the title has been rendered *Trogon behmi* instead of *T. behni*.

TROGON VIRIDIS, *Linn.*

J. Gould & H.C. Richter del. et lith.

Walter Imp.

TROGON VIRIDIS, *Linn.*

Black-winged Trogon.

Specific Character.

Mas. *Capite suprà guttureque violaceo-purpureis.*
Fœm. *Suprà et ad pectus saturatè plumbeo-cinereus.*

Male.—Bill bluish grey; crown of the head and chest rich violet purple; back and rump rich metallic green; upper tail-coverts blue; two middle tail-feathers green with a tinge of purple, two next on each side black on the inner web, and greenish purple on the outer; the three outer feathers on each side black at their base and white at their tips; wings black; abdomen and under tail-coverts rich orange.

Total length from $10\frac{1}{2}$ to $11\frac{1}{2}$ inches, *bill* $1\frac{1}{8}$, *wing* $5\frac{1}{4}$ to $5\frac{1}{2}$, *tail* $6\frac{1}{2}$.

Female.—Head, chest, and all the upper surface deep leaden grey; wings brownish black; secondaries and scapularies transversely striated with fine lines of white; abdomen and under tail-coverts orange; three outer tail-feathers on each side brownish black, tipped and barred with white.

Trogon Cayanensis cinereus, Briss. Orn., tom. iv. p. 165, pl. xvi. fig. 1.
Couroucou de Cayenne, Buff. Pl. Enl. 195.
Trogon strigilatus, Linn. Syst. Nat., tom. i. p. 167.
——— *viridis,* Linn. Syst. Nat., tom. i. p. 167.—Vieill. Ency. Méth. Orn., part iii. p. 1361.—Less. Traité d'Orn., p. 119.—Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon,* sp. 3.—Burm. Syst. Uebers. Th. Bras., tom. ii. p. 277.—v. Pelz. Orn. Bras., p. 20.
Couroucou à ventre jaune, Levaill. Hist. Nat. Promér. et Guêp., iii.—Courouc. et Tourac., p. 8, pls. 3 & 4.
——— *albane,* Levaill. ibid., p. 10, pl. 5.
Trogon leverianus, Shaw, Mus. Lever., p. 175.—Vieill. Ency. Méth. Orn., pt. iii. p. 1360.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Trogon,* sp. 21.
——— *violaceus,* Spix, Av. Bras., tom. i. p. 50.—Wied, Beitr. Nat. Gesch. Bras., tom. iv. p. 297.
——— *melanopterus,* Swains. Two Cent. and a Quart., p. 332.—Id. Class. of Birds, vol. ii. p. 337.—Gould, Mon. of Trog., pls. 10 & 11.
"*Trogon albiventer,* Cuv.," Bonap. Consp. Gen. Av., tom. i. p. 148, in syn. *Trogon,* sp. 3.
Aganus viridis, Cab. et Heine, Mus. Hein., Theil iv. p. 196.

This is one of the Trogons most frequently sent to Europe, no collection of any extent being destitute of examples. It ranges widely over the South-American continent, and is also found in the Island of Trinidad. While writing I have before me specimens from the latter locality, from Demerara, Cayenne, the river Napo

and Bahia, and the neighbourhood of Rio de Janeiro. John Natterer found it, among other places, at Mato Grosso in October, on the river Xié in June, on the Rio Negro in July, and the Rio Salimoes in December.

It is now very generally admitted by ornithologists that Linnæus's specific name of *viridis* must be hereafter retained for this bird. Swainson's term *melanopterus* would have been a more appropriate appellation; but this term, as well as that of *violaceus* assigned to it by Spix, must give place to the prior designation, however inappropriate it may be. Much confusion has hitherto existed with regard to the synonymy of this species, a confusion mainly caused by the great difference in the colouring of the sexes, and the numerous changes which take place in the plumage of the young males during the first two years of their existence. At first the secondaries and wings are crossed with narrow lines of white, and the tails are barred with white on a black ground. When these tail-feathers are thrown off they are not all shed simultaneously; and thus it frequently happens that two of the outer feathers on one side resemble those borne by the older birds, and present a strong contrast to the unshed barred plumes of the opposite side. The upper surface, too, of the young males is frequently clothed with mingled green and grey feathers, giving them a totally different appearance from the adults of both sexes.

The following remarks on *Trogon viridis* were given in the first edition of this Monograph, and may be repeated here :—This species gives a preference to dense and impenetrable forests, and like the other members of its race is solitary and unsocial in its habits. The male may be distinguished from all others by its large size and by the rich violet colour of its head and chest. The female is more sombre in her colouring, those parts being of a dusky grey which in the male are resplendent green and violet. Burmeister states that this is the commonest species of Trogon inhabiting the Brazilian forests, where it is mostly seen sitting solitary on branches of a moderate height from the ground, and, not being shy, will admit of near approach. Its flight is soft and slow, and extends to but a short distance before it settles again. Like the Parrots it is considered good food by the Brazilians. In the stomachs of some specimens which M. Natterer examined were found the remains of fruit, and an insect nearly allied to *Mantis*.

"This beautiful Trogon" says Prince Maximilian of Wied, "is perhaps the commonest of all the birds inhabiting the parts of Brazil visited by me. It is to be found south in the Serra dos Orgãos near Rio, near Cabo Frio in the Serra de Inuá, where it is very numerous, and proceeds as far north as Guiana; but Azara did not notice it as occurring in Paraguay. It dwells in the lower as well as in the mountainous forests, but especially in those near the coast. Its cry, which may be heard everywhere, is a rather short, often-repeated monosyllabic whistle, gradually descending from a high to a lower tone, and appears to me among bird-voices to be most like the call of the female Turkey (*Meleagris gallopavo*). The bird is so little shy or so simple that, as Azara truthfully remarks, it may be killed with a stick. It is mostly seen sitting motionless on a naked moderately high branch, with its head drawn in between the shoulders, and its tail hanging straight down. On uttering its easily imitated cry it will come like our Cuckoo and alight on a branch near at hand; its flight is noiseless and owl-like. Everywhere abundant, it appears to be more numerous in the majestic forests near the coasts than in the Catinga or Carasco bushes of the hot and dry interior. In the Sertong or the inner parts of the province of Bahia it is called *Pompéo*, in Minas Geraes *Capitao do mato*; but in most of the other provinces all the Trogons are called *Curucua*: it is the *Nit-not-nop* of the Botocudos, and, according to Waterton, is termed *Bochlora* in Guiana. Should the traveller in those uncivilized countries be short of food, the flesh of this bird will prove not unacceptable."

The Plate represents an adult male and a female, of the natural size. The plant is the *Pandanus candelabrum*.

J. Gould & W. Hart del. et lith.

TROGON CHIONURUS, *Sclater & Salvin.*

Walter Imp.

TROGON CHIONURUS.

The Snow-tailed Trogon.

Specific Character.

Trog. similis T. viridi, *sed rectricibus externis fere omnino albis, ita ut cauda clausa omnino alba esse videtur.*

Fœm. *Etiam rectricum externarum apices latè albos ostendit* (Scl. & Salv. *l. c.*).

Adult male.—Head and neck black, with a very slight gloss of purple; back purplish blue, glossed here and there with coppery green, shading off into rich dark purple on the rump and upper tail-coverts; wings entirely black, with the exception of the least coverts, which are coloured like the back; tail dull purple, tipped with black, and inclining to black on the inner web of all but the two centre feathers, the three outer tail-feathers white, with black bases, the latter increasing in extent gradually towards the centre of the tail; sides of face, throat, and upper breast black, the sides of the latter showing a purplish gloss, rest of under surface rich orange-yellow, the leg-feathers black; under wing-coverts black, the innermost whitish, the lower series ashy black, like the inner lining of the quills, the latter being ashy black with white bases to the inner webs of the median primaries.

Total length $10\frac{1}{2}$ inches; culmen $\frac{3}{4}$; wing $5\frac{1}{4}$; tail 6; tarsus $\frac{1}{2}$.

Female.—Greyish above and on the lower parts, including the breast; the rest of the under surface rich orange; wings black, the coverts narrowly barred with white; the outer tail-feathers tipped with white and barred with black on the rest of the white of these feathers.

Trogon viridis, Scl. & Salv. P. Z. S. 1864, p. 364.—Lawr. Ann. Lyc. N. Y. vii. p. 290.
——— *chionurus*, Scl. & Salv. P. Z. S. 1870, p. 843.—Wyatt, Ibis, 1871, p. 374.—Scl. & Salv. Nomencl. Av. Neotr. p. 304.
——— *eximius*, Lawr. Ann. Lyc. N. Y. x. p. 11.

I HAVE taken the characters of this species from Messrs. Sclater and Salvin; and I think I cannot do better than reproduce their remarks on the affinities of the species:—"We have examined numerous specimens of this Trogon from Panama, and have hitherto referred it to *T. viridis*. We convinced ourselves some time ago, on examining an example from Mr. Lawrence's collection, that is was not really *T. viridis*, but were then doubtful whether it might not be *T. venustus*, Cab. & Hein. (Mus. Hein. iv. p. 194). On going into the question again, aided by additional skins of *T. viridis* from various localities, we feel convinced that *T. venustus* (as characterized *l. s. c.*) cannot be considered really distinct from *T. viridis*. We have specimens of this bird now before us from Rio, Bahia, Matto Grosso, Eastern Venezuela, and Bogota, and can find no constant differences amongst them, although there is considerable diversity of tint in the colour of the lower back, and some specimens approach to what Dr. Finsch has recently proposed to call *T. cyanurus* (P. Z. S. 1870, p. 559)!

"On the other hand, three Panama skins in the collection of Salvin and Godman present the remarkable character of the outer tail-feathers above mentioned. The first outer pair are all pure white except a narrow basal patch concealed by the tail-coverts. Of the second pair considerably more than the apical half is white. In the third pair the white apices measure 2 inches in length. We therefore call this bird *T. chionurus*. We have seen other examples of this Panama species in Mr. Lawrence's and Mr. Gould's collections."

Nothing is known of the habits and economy of this fine species; but Mr. Salvin, in a note to me, states:—

"This beautiful species may readily be distinguished from the well-known *T. viridis* by the much greater development of white in the tail-feathers. The first outer pair are all pure white, except a narrow basal patch concealed by the tail-coverts. Of the second pair considerably more than the apical half is white; in the third pair the white apices measure 2 inches in length. When the tail is closed the under surface appears perfectly white. Comparing the amount of white in the tail with that shown in *T. viridis* the distinctness of the two birds is apparent.

"Notwithstanding this difference, the species remained for several years undescribed both in Mr. Lawrence's cabinet and our own; but in 1870 Mr. Sclater and I had occasion to reexamine the question, when it became manifest that this fine species required a name. About the same time Mr. Lawrence also bestowed the name *eximius* upon it.

"The first specimens of this species were forwarded to Mr. Lawrence from the Panamá-Railway line, by the late Mr. James M'Leannan, who afterwards supplied Mr. Godman's and my collection with skins of both sexes. The bird does not seem to extend its range into Central America beyond the railway (though it is there not uncommon), as our collector Arcé did not meet with it in the district of Veragua, which he has so carefully investigated. Further to the southward we know very little of its range, as it does not come within the grasp of the bird-collectors of Bogotá. Mr. Wyatt, however, when travelling in the valley of the river Magdalena, shot a female Trogon which Mr. Sclater and I determined to be of this species. He met with it in the forest near Paturia, and says that he heard the male calling further in, and he noted that the iris was dark brown (Ibis, 1871, p. 374). From this it would appear that the home of *Trogon chionurus* is the low-lying hot forests of the great valley of the Magdalena, and that it extends its range into the Central-American isthmus as far as the foot of the mountains which form the higher ranges of Veragua and Costa Rica."

The Plate represents a male and a female, of the natural size.

TROGON BAIRDI, *Lawrence.*

J. Gould & W. Hart del. et lith.

Walter Imp.

TROGON BAIRDI.

Baird's Trogon.

Specific Character.

Trog. purpurascenti-cyanescens, vix aurato-viridi nitens; pileo et collo postico purpurascentibus; facie laterali et gulâ nigris; pectore antico nigro purpurascenti-nitente; corpore reliquo subtùs scarlatino; alis omnino nigris, tectricibus alarum tantùm minoribus dorso concoloribus; caudâ cyanescenti-viridi, nigro terminatâ, rectricibus intermediis intùs nigricantibus, exterioribus tribus basaliter nigris, versùs apicem gradatim albis.

Fœm. *Schistaceo-nigra, alis caudâque paullò obscurioribus et extùs, nisi in rectricibus quatuor mediis, albo transfasciatis; ventre et crisso coccineis* (Salvin).

Adult male.—Above bluish green, with a beautiful shade of purple, especially on the rump, which is somewhat tinged with bronze also; head and hind neck purple; wings entirely black, excepting the least wing-coverts, which are shining green like the back; the three centre tail-feathers on each side bluish green, tipped with black, the two middle rectrices entirely green, but the next two blackish on the inner web, the three outer tail-feathers black, inclining to white at the tips, this colour gradually increasing on the outer feathers; lores, ear-coverts, sides of face, and throat black; the fore neck black, with a few metallic purple feathers; rest of under surface of body bright scarlet; the inner lining of the wing greyish black, the interior wing-coverts and the base of the inner web of the quills whitish.

Total length 11 inches; culmen 1·0; wing $5\frac{3}{4}$; tail $6\frac{1}{2}$.

Female.—Slaty black; the wings and tail rather darker, and, excepting on the four centre feathers, barred across with white; belly and vent crimson.

Trogon bairdi. Lawrence, Ann. Lyc. N. Y. ix. p. 119.—Salv. Ibis, 1869, p. 316.—Id. P. Z. S. 1870, p. 202.—Scl. & Salv. Nomencl. Av. Neotr. p. 104.

I must congratulate Mr. Lawrence, not only on the good fortune which has placed in his hands such a beautiful species as the present, but also for the happy selection of his specific title, whereby is perpetuated the name of a scientific man who deserves well of his country.

I regret that we know nothing of the habits of this splendid Trogon; but there is doubtless no difference in this respect from other members of the group. At present it has only been found in Costa Rica and Veragua.

"The *Trogon bairdi*," writes Mr. Salvin, "is one of the remarkable additions which have been made to the birds of Central America during the last few years. Up to the year 1861–62 few districts in America were less known ornithologically than Costa Rica; but since that time so numerous are the collections that have been made that our knowledge of the riches of that country may now be said to approach completion. In the year 1868 Mr. Lawrence compiled a list of the birds of Costa Rica, based chiefly upon the specimens sent to the Smithsonian Institution by various collectors. Amongst the skins were two male specimens of this fine bird, which Mr. Lawrence named in honour of Prof. Spencer F. Baird, the well-known ornithologist, who has so many years held the important post of Assistant Secretary to the Smithsonian Institution."

Mr. Lawrence, in his remarks on this species, states that its nearest ally is *T. melanocephalus*; but on this point I venture to differ from him, as the bird now under consideration belongs to a somewhat different group of the genus, and in fact only differs from *T. chionurus* of the Isthmus of Panamá in

having the breast red instead of yellow. This difference, however, is very apparent, as may readily be seen by reference to the drawings of the two species.

As already stated, this species is found in Costa Rica, the original specimens having been obtained at a place called San Mateo. Since that time numerous examples have been forwarded to us by our collector Enrique Arcé, who obtained them at San Miguel de Bugaba on the slopes of the Volcano of Chiriqui; and, more recently still, he has procured others in the forests nearer to Panamá. On the railway-line itself, however, it has not yet been met with, its place being apparently taken by the orange-breasted *T. chionurus*.

Nothing has as yet transpired as to its habits and economy.

The figures are life-size.

J. Gould & H.C. Richter, del. et lith.

TROGON AURANTIUS, *Spix.*

Walter, Imp.

TROGON AURANTIUS, *Spix.*

Orange-breasted Trogon.

Specific Character.

Mas. *Vertice pectoreque violaceo-cæruleis nitore viridi, gutture nigrescente; dorso et uropygio intensè viridibus, hôc cærulescente; abdomine medio crissoque splendidè aurantiacis; rectricibus caudæ duabus intermediis intensè viridibus, utrisque duabus proximis nigrescenti-fuscis extùs viridi lavatis; tribus externis versus apicem albis.*

Fœm. *Capite, corpore suprà, gutture, pectore lateribusque nigrescenti-cinereis; caudâ nigrescenti-cinereâ, rectricibus intermediis ad apicem nigerrimis, tribus externis albo extùs marginatis apicibusque albis.*

Male.—Crown of the head and chest violet-blue, with green reflections in some specimens; throat black; back and rump rich dark green inclining to blue on the latter; wings black, with the centre very finely striated with greyish white, and the primaries margined on the outer edges with white; flanks grey; centre of the abdomen and under tail-coverts rich orange yellow; two centre tail-feathers rich green; the two next on each side blackish brown, tinged with green on their outer webs, and all six tipped with black; the three lateral feathers on each side blackish brown at the base, and pure white for the remainder of their length; bill bluish horn-colour; feet purplish lead-colour.

Total length $10\frac{1}{2}$ inches, *bill* 1, *wing* 5, *tail* 6.

Female.—Head, all the upper surface, throat, chest, flanks, and tail grey, the middle feathers of the latter tipped with jet-black, and the three lateral ones on each side margined on their external webs and tipped with white; centre of the wing striated with white; centre of the abdomen and under tail-coverts orange yellow; bill dark horn-colour, becoming lighter at the point; feet purplish lead-colour.

Trogon aurantius, Spix, Av. Bras., tom. i. p. 47, tab. xxxvi.—Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 219.—Temm. Pl. Col., gen. Courouc., sp. 13.—Gould, Mon. of Trog., pl. 14.—Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon*, sp. 7.—Id. List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i., *Fissirostres*, p. 42.—Bonap. Consp. Gen. Av., tom. i. p. 149, *Trogon*, sp. 6.—Burm. Syst. Uebers. Th. Bras., tom. ii. p. 279.—v. Pelz. Sitz. Wien. Akad. Wissensch., tom. xx. p. 505.—Id. Orn. Bras., p. 20.—Sclater, Cat. of Coll. of Amer. Birds, p. 276.

——— *chrysogaster*, Swains. Two Cent. and a Quart., p. 330.—Id. Class. of Birds, vol. ii. p. 337.

Aganus aurantius, Cab. et Heine, Mus. Hein., Theil iv. p. 192.

My late friend John Natterer informed me, when in London some thirty years ago, that this beautiful species, the *Trogon aurantius* of Spix, was not uncommon in the woods near Rio de Janeiro; we learn from August von Pelzeln's "Ornithologie Brasiliens, Resultate von Johann Natterer's Reisen in den Jahren 1817 bis 1835,"

that examples were obtained by Natterer in Minas Geraes, and at Monjolinha; and I have myself received it from other parts of Brazil: that country would therefore appear to constitute its natural habitat. Burmeister, who obtained a male near New Freiburg, states that this species is not so abundant as the *Trogon viridis*, that the Prince of Wied did not meet with it, and that consequently it must be regarded as a Brazilian bird. Much difference exists in the colour of the upper surface of different specimens, particularly of the head and throat, some having those parts of a rich violet purple, while in others they are of a rich metallic green; but as I find no variation in their relative admeasurements, I am led to regard them as merely varieties of the same species. The plumage of the young males resembles that of the female; but their central tail-feathers are at all times glossed with green on the upper surface: still they are apt to puzzle the ornithologist, unless he has made himself acquainted with the peculiar variations in colour to which the immature birds of this family are subject from the circumstance of the feathers of the body frequently undergoing a change before those of the wings and tail. I have a specimen in my collection, in which an almost perfect moult has taken place in the plumage of the body, its tint being nearly as rich as that of the adult: this specimen is also rendered remarkable by the centre of the wing having assumed the minute markings of maturity, while the tail resembles that of the female, in which the white only occupies the outer webs and extreme tips of the three lateral feathers.

The Plate represents a male and female, of the natural size. The plant is the *Passiflora tinifolia*.

J. Gould & H.C. Richter, del. et lith.

TROGON SURUCUA.

Walter Imp.

TROGON SURUCUA.

Surucua Trogon.

Specific Character.

Mas. *Vertice, cervice pectoreque iridescenti-cæruleis; rectricibus intermediis duabus cærulescenti-viridibus, duabus proximis utrinque pogoniis externis cærulescenti-viridibus internis nigris, harum omnium apicibus nigris, reliquis dimidio basali nigro apicali albo; remigibus nigrescenti-brunneis, albo ad pogonia externa fimbriatis.*

Fœm. *Fuliginoso-cinerea; alis brunnescenti-nigris, remigibus albo fimbriatis.*

Male.—Crown of the head, back of the neck, and chest changeable green and violet in some specimens, and almost pure blue in others; throat and face black; back and upper tail-coverts deep changeable golden green, inclining to blue on the rump; the two middle tail-feathers bluish green, the two next on each side with their outer webs only bluish green, the inner black, the whole six tipped with black; the three outer feathers on each side have their basal half black, the remainder white; primaries blackish brown, bordered with white on their exterior edges; secondaries and upper part of the wing freckled with markings of black and white; centre of the abdomen and under tail-coverts crimson; bill olive; irides reddish brown; eyelash orange; feet dark brown.

Total length $10\frac{1}{2}$ inches, *bill* 1, *wing* 5, *tail* $5\frac{1}{2}$.

Female.—Head, neck, chest, back, and rump sooty grey; lower part of the belly and under tail-coverts light crimson; wings brownish black; primaries edged with white; the secondaries and upper part of the wings transversely rayed with greyish white; six centre tail-feathers brownish grey tipped with black, three outer feathers on each side brownish grey margined on their exterior edges and partly so on their inner ones with white; bill olive.

Surucuá, Azar. Apunt. Hist. Nat. Paxar. Parag., tom. ii. p. 373. no. 270.

Trogon surucura, Vieill. Nouv. Dict. d'Hist. Nat., tom. viii. p. 322.—Gould, Mon. of Trog., pl. 15.—Gray and Mitch. Gen. of Birds, vol. iii. App. p. 4, app. to p. 69.—Bonap. Consp. Gen. Av., tom. i. p. 148, *Harpactes*, sp. 2.—v. Pelz. Orn. Bras., p. 19.

Trogon leucurus, Swains. Two Cent. and a Quart., p. 331.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Trogon*, sp. 15.—Bonap. Consp. Gen. Av., tom. i. p. 149, *Trogon*, sp. 15.

——— *curucura*, Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon*, sp. 2.

Curucujus surucua, Bonap. Consp. Vol. Zygod., p. 14. gen. 2*b*. 15.

Trogon surucua, Hartl. Ind. Azar., p.17.—Burm. Syst. Uebers. Th. Bras., tom. ii. p. 274.

Hapalophorus surucua, Cab. et Heine, Mus. Hein., Theil iv. p. 199.

As I have not the slightest doubt that the bird here represented is the *Surucuá* of Azara, I am induced to insert the following nearly literal translation of the account he has given of the species in his celebrated work on the natural productions of Paraguay:—After informing us that *Surucuá* is its native name in that country, he proceeds to state that "it is not common, and does not quit the largest woods, but generally

remains on the upper portions of the trees without descending to the lower branches or to the earth: it sits a long time motionless, watching for insects which may pass within its reach, and which it seizes with adroitness; it is not gregarious, but dwells either in solitude or in pairs; its flight, which is rapid and performed in vertical undulations, is not prolonged. These birds are so tame as to admit of a near approach; I have seen them killed with a stick. They do not migrate, and they are never heard except in the love season; their note then consists but of the frequent repetition of the syllables *pio* in a strong, sonorous, and melancholy voice: the male and female answer each other. They form their nests on the trees by digging into the lower part of the nest of a species of ant known by the name of *cupiy*, until they have made a cavity sufficiently large, in which the female deposits in the month of September two white eggs according to some, and four according to others. I have seen the male clinging to a tree, after the manner of the Woodpeckers, and occupied in digging a nest with his beak, while the female remained tranquil on a neighbouring tree."

Azara states that he has only seen this bird from Paraguay; I have, however, received it from the southern parts of Brazil; and the late John Natterer obtained examples at Mattodentro in November and December, and at Ypanema in February, May, June, July, and August; I am inclined, therefore, to believe that it has a more extensive range than is generally supposed.

The Plate represents the two sexes, of the size of life. The Plant is the *Chamædorea Ernesti-Augusti* (fœm.).

J. Gould & W. Hart del et lith.

TROGON CITREOLUS, *Gould.*

Walton imp.

TROGON CITREOLUS, *Gould.*

Lemon-breasted Trogon.

Specific Character.

Trog. corpore suprà guttureque cærulescenti-viridibus; rectricibus duabus intermediis ad apicem, proximarum duarum utrinque pogoniis internis, reliquisque ad basin nigris, his apicem versus albis; ventre citrino in aurantiacum vergente; alis brunnescenti-nigris, primariorum pogoniis externis albo fimbriatis; rostro cærulescenti-corneo; pedibus brunneis.

Fœm. *Capite, gutture dorsoque saturatè cinereis; rectricibus sex intermediis brunnescenti-nigris; in reliquis mari simillima.*

Male.—Crown of the head, neck, back, and throat bluish green; tips of the two middle tail-feathers, the internal web of the two next on each side, and the base of the remainder black, the rest of each feather white; abdomen lemon-yellow, passing into orange; wings brownish black, the outer webs of the primaries fringed with white; bill bluish horn-colour; feet brown.

Female.—Head, throat, and back dark grey; six middle tail-feathers brownish; in other respects the same as the male.

Total length $10\frac{1}{2}$ inches; bill 1; wing $5\frac{1}{4}$; tail 6; tarsi $\frac{5}{8}$.

Trogon citreolus. Gould, P. Z. S. 1835, p. 30.—Id. Monogr. Trog. ed. 1, pl. 13.—Gray, Hand-l. B. i. p. 82.—Scl. & Salv. Nomencl. Av. p. 104.

——— *lucidus.* Licht. in Mus. Berol. (*fide* Cabanis).

Agamus citreolus. Cab. & Heine, Mus. Hein. Th. iv. p. 197.

This interesting and very rare Trogon is a native of Mexico, and may be distinguished from most other known species by the delicate lemon-yellow of the under surface, by the greater extent of the white on the lateral tail-feathers, and by the uniform colouring of the central portion of the wing.

The foregoing paragraph relates all that was known of the species at the time of publication of the first edition of the 'Monograph;' but I have lately been indebted to my kind friend Mr. Salvin for the following account of the species:—

"Of this well-marked species but little is known. The original specimens, formerly in the collection of the Zoological Society, came from Mexico; but, beyond the indication of the particular places where the species occurs in that country, next to nothing has been added to its history. Herr Deppe, who so largely enriched the Berlin Museum with specimens of the natural objects of Mexico, obtained this bird at Tequistlan and Tehuantepec; and at this latter place Col. A. J. Grayson also met with it. The same careful explorer also says, in a note given in Mr. Lawrence's "Catalogue of the Birds of North-Western Mexico" in the second volume of the 'Memoirs of the Boston Society of Natural History,' that the bird is well distributed throughout the forests of the *tierra caliente* of that region, which includes the district round Mazatlan, where both Col. Grayson and Mr. Xantus procured specimens. Mr. Lawrence says that the collections sent from Tehuantepec by Prof. Sumichrast to the Smithsonian Institution contained numerous specimens of *T. citreolus*. At one time I thought that this Trogon might be included in the birds of Guatemala; but this supposition has not received actual confirmation, though I still think it far from improbable that the bird is to be found in the forests of the province of Soconusco, if not actually in Guatemalan territory. One point seems certain, that its range is restricted to the forests of the western slope of the Cordilleras, which spread out to the shores of the Pacific Ocean.

"It remains to be stated that Messrs. Cabanis and Heine, in their account of *T. citreolus*, place as a synonym *T. capistratus* of Lesson, described in the 'Revue Zoologique' for 1842, p. 136. But from the

locality (Realejo) in Nicaragua whence Lesson's bird was obtained, and the vagueness of the description, I am inclined to assign this name as a synonym of *T. melanocephalus*. The latter bird, as I know from personal observation, is quite common on the shores of the Gulf of Fonseca, Realejo being distant only a few hours' sail. However, Dr. Cabanis may be right; and in that case it is more than likely that the locality assigned to Lesson's specimen is erroneous, and that it really came from further up the coast."

The figures in the Plate are of the size of life, and represent the usual coloration of the bird.

TROGON MELANOCEPHALUS, *Gould*

J. Gould and H. C. Richter, del. et lith.

Hullmandel & Walton, Imp.

TROGON MELANOCEPHALUS, *Gould.*

Black-headed Trogon.

Specific Character.

Mas.—*Vertice pectoreque sordidè nigris; corpore dorso, in toto, violaceo, viridi lucidè lavato; rectricibus tribus externis nigris, ad apicem albis.*

Male.—Head, occiput, throat and chest black; scapularies and back glossy bluish green, passing into violet-blue on the upper tail-coverts; wings black, the basal portion of the outer webs of the primaries fringed with white; two centre tail-feathers greenish blue, tipped with black; the remaining tail-feathers black, the three outer ones on each side largely tipped in a square form with white; breast and under tail-coverts rich gamboge-yellow; thighs black; bill horn-colour.

Total length, $10\frac{1}{2}$ inches; *bill*, 1; *wing*, $6\frac{1}{4}$; *tail*, $6\frac{1}{4}$.

Female.—Head, throat, chest, all the upper surface, wings and tail slaty black; basal portion of the outer webs of the primaries margined with white; three outer tail-feathers squarely tipped with white; abdomen and under tail-coverts gamboge-yellow; thighs black.

Young male.—General plumage slaty black, with a wash of green on the back and upper tail-coverts; the wing-coverts and secondaries with a series of buff markings of different sizes and shapes on their outer webs; the two centre tail-feathers deep bronzy-green, the lateral feathers slightly toothed with white, and the white of the tips prolonged for some distance up the outer web, instead of being of a square form, as in the adult; feathers of the centre of the abdomen and the posterior under tail-coverts clouded black and white.

Trogon melanocephala, Gould, Mon. of Trogons, pl. 12.
—— *melanocephalus*, Gray, List of Spec. of Birds in Coll. Brit. Mus., p. 42.—Gray and Mitch., Gen. of Birds, vol. i. p. 70, *Trogon*, sp. 17.—Bonap. Consp. Gen. Av., p. 149, *Trogon*, sp. 16.—Sclater in Proc. of Zool. Soc., part xxv. p. 227.

The Trogons of Central America and Mexico possess peculiar characteristics, which at once separate them from the species found in Brazil and other parts of South America. In the present case we find a Trogon with a black head, a character not found in any other American species. When fully adult, the male is really a fine bird, the greenish blue of the back being very beautiful, and the three black outer tail-feathers, with their bold and squarely-formed white tips, showing very conspicuously: this latter feature would seem to be common to both sexes, that is, if the birds in my collection with a uniform sooty head, back and chest be of this sex. I say, if the birds so coloured be of this sex, because a suspicion has sometimes arisen that they may constitute another species; but until this be proved, I shall consider them as females of *T. melanocephalus*. I possess a youthful male of this species, having slight indications of white bars on the three outer tail-feathers, especially on their external margins; their tips are white, as in the adult; at this age these feathers do not present the remarkable truncate form of those of the adult, but are narrower and inclined to be pointed. Very young individuals are beautifully marked: one, which I presume to be about six weeks old, is represented by the lower figure in the accompanying Plate; it is in the collection of T. C. Eyton, Esq.

As stated in the former edition of this monograph, the first specimen I obtained of this species was from Tamaulipas; since then I have received fine examples from Mexico and Honduras.

The figures are of the natural size, with a reduced representation of the female.

Gould & W. Hart del. et lith.

TROGON CLATHRATUS, *Salvin.*

Walter Eng.

TROGON CLATHRATUS, *Salvin.*

The Lattice-tailed Trogon.

Specific Character.

Trog. splendidè viridis, vix aureo nitens; pileo cyanescente; facie laterali gulâque nigris; jugulo et pectore superiore dorso concoloribus; corpore reliquo subtùs lætè coccineo; alis nigris, tectricibus alarum minoribus viridibus, reliquis autem et remigum secundariorum pogonio externo cinereis minutè nigro transvermiculatis; caudâ nigro terminatâ, rectricibus duabus mediis omnino viridibus, proximis duabus extùs viridibus intùs nigricantibus, reliquis quatuor utrinque nigris angustè albido transversim lineatis.

Fœm. *Saturatè cinerea, alis et caudâ nigricantioribus; rectricibus tribus externis albo angustè transfasciatis; abdomine rufescente tincto, ventre imo et crisso coccineis; rostro superiore fusco-nigro, basi et mandibulâ inferiore flavis* (Salvin).

Male.—Shining green above, slightly washed with blue, but also inclining to golden green; the head decidedly darker and much more blue; least wing-coverts coloured like the back, the remainder grey very finely waved with tiny zig-zag lines of black; the bastard wing and primary coverts black; quills black, the primaries with an indistinct narrow edging of whity brown to the outer web; the secondaries externally vermiculated with grey like the wing-coverts; the three centre tail-feathers on each side shining green, tipped with black; the two centre rectrices entirely green, but the next two more or less inclining to black on the inner web; the four outermost on each side black, narrowly lined across with whitish, these cross lines disappearing towards the centre of the tail; lores, sides of face, and ear-coverts, as well as the chin and throat, black; fore neck and chest shining green like the back; rest of under-surface crimson; inner lining of quills ashy black, with greyish cross vermiculations on the under wing-coverts.

Total length about $11\frac{1}{2}$ inches; wing $6\frac{1}{4}$; tail $6\frac{1}{2}$; culmen $\frac{3}{4}$.

The female, according to Mr. Salvin (*l. c.*) is "dark grey; the wings and tail being blacker; the three outer tail-feathers narrowly barred across with white; the abdomen tinged with rufous, the lower part of the belly and vent crimson; bill dusky black, the base and the lower mandible yellow."

Trogon clathratus. Salvin, P. Z. S. 1866, p. 75.—Id. P. Z. S. 1867, p. 151.—Id. Ibis, 1869, p. 316.—Id. P. Z. S. 1870, p. 202.—Lawr. Ann. Lyc. N. Y. ix. p. 119.—Scl. & Salv. Nomencl. Av. Neotr.

——— *calthratus.* Gray, Hand-l. B. i. p. 81.

This species was first described by Mr. Osbert Salvin in 1866; and his remarks as to its affinities are as follows:—"At first sight this very distinct species has the appearance of *T. massena* of Gould; but, in addition to a very considerable inferiority of size, the barred tail (a characteristic of a very different section of the Trogonidæ, viz. of that which includes *T. puella*, Gould) at once shows its complete distinctness. It partakes, in fact, to some extent of the characters of both the above-mentioned groups. There are five distinct notches on the edges of both upper and lower mandibles; but these are neither so deep nor so large as in *T. massena*."

It is an inhabitant of Veragua, the exact localities where it has been obtained by Arcé being Santa Fé, Santiago de Veragua, Calovevora, and the Cordillera de Tolé; but more recently it has been shown to extend to Costa Rica, by Mr. Lawrence.

"This exceedingly well-marked species of Trogon," Mr. Salvin says, "seems to occupy a position somewhat intermediate between the two sections represented by *T. massena* and *T. puella*, its real affinity being with the former group. The credit of its discovery is due to Enrique Arcé, who was employed as a collector by Mr. Godman and myself for many years in Central America.

"In a collection formed in the neighbourhood of Santiago and Santa Fé in Veragua and forwarded to us in 1865, were two males of this species, which I described in the Zoological Society's Proceedings for 1866. Subsequently we received others, including females, from the Cordillera de Tolé, Calovevora; and since then the species has been discovered in Costa Rica, specimens having been sent by Carmiol to us, and to the Smithsonian Institution from San Mateo by J. Cooper.

"The range of the species seems strictly limited to the forests of the mountain-ranges of Costa Rica and Veragua, not passing the river San Juan to the northward, or the lowlands of the isthmus of Pamama to the southward. No account of its habits has as yet reached us."

The front figures in the accompanying Plate are of life-size.

J. Gould & W. Hart, del et lith.

TROGON MELANURUS, *Sw.*

Walter Imp.

TROGON MELANURUS, *Swainson.*

Black-tailed Trogon.

SPECIFIC CHARACTER.

Trog. vertice, pectore summo et corpore suprà intensè aureo-viridibus; loris, regione auriculari, gulâque nigris, hôc aureo-viridi nitente; pectore albo transversìm fasciato; corpore subtùs pulcherrimè coccineo; alis nigris, medialiter lineis delicatis albis striatis primariisque extùs albo marginatis; caudâ nigrâ, rectricibus sex intermediis purpureo et viridi tinctis; duabus externis extùs lineis obscuris albis striatis; rostro flavo; pedibus stramineis.

Fœm. *Capite, corpore suprà, gutture pectoreque intensè cinereis; alis nigris, obscurè striis albis medialiter notatis; caudâ nigrâ, rectricibus duabus externis extùs crissoque coccineis.*

Male.—Crown of the head, chest, and all the upper surface dark golden green; space between the bill and the eye, ear-coverts, and throat black, gradually passing into the golden green; breast crossed by a band of white, beyond which all the under surface is rich fiery scarlet; wing black, the centre striated with fine wavy lines of white, and the primaries margined externally with the same colour; tail black, the six centre feathers tinged with purple and green, and the outer web of the lateral feather on each side faintly striated with white, as in the centre of the wing; bill yellow; feet straw-yellow.

Female.—Head, all the upper surface, throat, and breast dark grey; wings and tail black, with a faint indication of the white striæ on the centre of the wing and the outer webs of the lateral tail-feathers; vent and under tail-coverts scarlet.

Total length 12 inches; bill $1\frac{1}{8}$; wing $6\frac{1}{4}$; tail $6\frac{1}{4}$; tarsi $\frac{1}{2}$.

Couroucou à ventre rouge de Cayenne. Buff. Pl. Enl. 452.
Trogon curucui, var. Gm. S. N. i. p. 403.
Le Couroucou d'Amérique mâle à ventre rose. Levaill. Hist. Nat. Courouc. pl. i.
Le Couroucou à ventre rose dans son premier âge. Levaill. *t. c.* pl. 2.
Trogon curucui (nec Linn.). Bonn. et Vieill. Enc. Méth. iii. p. 1362.—Gray, Gen. B. i. p. 69.—Burm. Syst. Uebers. ii. p. 275.—Gray, Hand-l. B. i. p. 81.
Trogon strigilatus. Spix, Av. Bras. i. p. 49.
——— *melanurus.* Swains. An. in Menag. p. 329.—Gould, Monogr. Trogon. text to pl. 18.—Gray, List Fissir. Brit. Mus. p. 41.—Cab. in Schomb. Reis. Brit. Guian. iii. p. 718.—Scl. P. Z. S. 1857, p. 261, et 1860, p. 284.—Id. Cat. Am. B. p. 277.—Scl. & Salv. P. Z. S. 1866, p. 193.—Iid. *op. cit.* 1867, pp. 583, 978.—Iid. *op. cit.* 1869, p. 598.—Pelz. Orn. Bras. pp. 19, 402.—Scl. & Salv. P. Z. S. 1873, p. 292.—Iid. Nomencl. Av. Neotr. p. 104.
Trogon nigricaudatus. Gould, Monogr. Trogon. pl. 18.
Curucujus melanurus. Bp. Consp. Vol. Zyg. p. 14.
Troctes melanurus. Cab. & Heine, Mus. Hein. Th. iv. p. 202.
——— *mesurus.* Cab. & Heine, Mus. Hein. iv. p. 203?

IN the first edition of this Monograph I stated my opinion that Swainson's name of *melanurus* was the best one that could be employed for the present species, as being undoubtedly applicable, and at the same time the oldest recognizable title for it. Although Mr. George Robert Gray believed it to be the true *Trogon curucui* of Linnæus, his opinion has not been concurred in by the majority of ornithologists, neither can I adopt it.

The Black-tailed Trogon is a bird of very wide distribution in South America. It is found in Guiana, and the Museum Heineanum is said to contain an example from Venezuela. Messrs. Cabanis and Heine, in their account of the last-named Museum, separate the Trogon from Ecuador as a distinct species; but I have not found sufficient characters for this specific separation, and I therefore keep it under the heading of *T. melanurus*. Mr. Fraser met with the species at Babahoyo, in the latter country; while in the Amazons it has been procured by Mr. Bates at Ega and on the Rio Javarri, by Mr. Hauxwell at Pebas, and by Mr. Edward Bartlett in Eastern Peru, at Nauta, on the Upper Ucayali, as well as at Yurimaguas, Xeberos, and Santa Cruz, while Mr. Henry Whitely has shot it in the valley of the Cosnipata in Peru.

The British Museum possesses a specimen from Para, procured by Mr. R. Graham, and Mr. Wallace met with it in the same locality. In his excellent work on Natterer's Ornithological Travels in Brazil, Herr von Pelzeln enumerates several places where that model collector obtained specimens. Like the naturalists above mentioned, Natterer found it at Para, and higher up the country on the Rio Negro, at Barra, and Maribitanas; he also procured it in Central Brazil, in the province of Matto Grosso, at Villa Maria, and on the Rio do Sipotuba.

As is the case with nearly all the Trogons, the details as to the habits of the present bird are very scanty. Mr. Fraser alone gives a short note on the species procured by him at Babahoyo, as follows:—"Native name *Chocota*. Irides white; upper mandible with a large yellow spot at the base, lower mandible yellow; legs and feet greenish, soles yellow. Much more active than any other Trogon which I have yet had an opportunity of observing, hopping from branch to branch in the lower part of a large tree in the deep bush, solitary and silent."

On this species Mr. Salvin writes to me:—

"Many authors consider that this bird should bear Linnæus's name *Trogon curucui*; but it is evident, from the references added to the diagnosis given in the 'Systema Naturæ,' that more than one species was confused under the name *curucui*. Moreover Dr. Cabanis, whose authority on such subjects is entitled to the highest respect, considers that the name *curucui* belongs not to the present bird but to *T. collaris*, a view, again, disputed by Dr. Finsch. Under these conflicting opinions I believe that the interests of science are best served by considering Linnæus's name to be incapable of accurate determination, and by selecting the first subsequently proposed name, about which no reasonable doubts can be entertained. The name *melanurus*, bestowed by Swainson, thus becomes a proper title for this Trogon; and as one of Swainson's types is still preserved in the Museum of the University of Cambridge, this name may be used with the greatest confidence. The specimen is a female and bears on its label "*Trogon nigricauda*, Sw. Black-tailed T. Cayenne,"—from which it would appear that although Swainson first thought of using for this bird the Latin rendering of "black-tailed," he adopted the Greek translation when describing it. Under the former it appears in the first edition of the Trogonidæ.

"The bird from Western Ecuador has been separated by Messrs. Cabanis and Heine as *Troctes mesurus*, the differences being stated to consist in its slightly larger size and slight modifications in the coloration of the lower back and the tail-feathers and in the mottling of the wing-coverts. As these differences are traced from the comparison of only four specimens of the two species, it may well turn out that they are not sufficiently pronounced to lead to the conclusion that two really distinct birds of this form exist."

The figures in the accompanying Plate are of the size of life.

TROGON MACRURUS, *Gould.*

J. Gould & W. Hart del. et lith.

Walter Imp.

TROGON MACRURUS, *Gould.*

Long-tailed Trogon.

Specific Character.

Capite corpore suprà pectoreque splendidè aurato-viridibus, uropygio cærulescente; loris, regione paroticâ et gutture nigris; alis nigris, tectricibus lineis delicatis cinereis undatim vermiculatis; primariis extùs albo marginatis; torque pectorali albo; corpore subtùs intensè coccineo; caudâ nigrâ, rectricibus duabus intermediis splendidè virescenti-purpureis nec non utrisque proximis duabus ad marginem externum, reliquis guttulis cinereis adspersis; rostro flavo; pedibus plumbeis.

Head, and all the upper surface, as well as the chest, rich golden green, tinged with blue on the rump; lores, ear-coverts, and throat black, gradually passing into golden green; wings black, with the centre finely striated with irregular wavy lines of greyish white, and the primaries margined externally with white; across the breast a band of white, beyond which all the under surface is of a rich fiery scarlet; tail black, the two centre feathers and the external webs of the two next on each side glossed with greenish purple, the remainder powdered with very fine specks of greyish white; bill yellow; feet lead-colour.

Total length, 13 inches; bill $1\frac{1}{4}$; wing $6\frac{5}{8}$; tail 8; tarsi $\frac{3}{4}$.

Trogon macroura. Gould, Monogr. Trogon. ed. 1, pl. 17.
——— *macrurus.* Gray, Gen. B. i. p. 70.—Id. Hand-l. B. i. p. 81.—Scl. & Salv. Nomencl. Av. Neotr. p. 104.
Curucujus macrurus. Bp. Consp. Vol. Zygod. p. 14.
Troctes macrurus. Cab. & Heine, Mus. Hein. Th. iv. p. 203.

Judging from the very few instances in which *Trogon macrurus* has been met with by collectors since the species was first brought under notice in the first edition of the 'Monograph,' it would appear that the bird is very local, and ranges over a very limited area. Indeed I doubt whether it is to be found beyond the district included between the lower region of the river Magdalena and the Isthmus of Panama as far as the base of the mountainous region of Veragua. M'Leannan obtained specimens, forwarded both to Mr. Lawrence and to Messrs. Salvin and Godman, on the Panama-Railway line. The late Mr. Cassin says, in his account of the birds obtained during Lieut. Michler's survey of the Isthmus of Darien, that amongst some young birds he attributed to *T. massena*, obtained on the river Fernando and the delta of the Atrato, was one that might be the young of this species.

In the Museum Heineanum are two birds ascribed to *T. macrurus*, one young and one female, both of which are said to have come from Cartagena. Beyond these meagre facts nothing is known of this bird.

The accompanying Plate represents an old and a young bird, of the size of life.

J. Gould & H.C. Richter, del. et lith.

TROCTES MASSENÆ.

Walter Imp.

TROCTES MASSENÆ.

Massena's Trogon.

Specific Character

Mas. *Staturâ magnâ; vertice, corpore suprà pectoreque nitidè viridibus; loris, plumis auricularibus et gutture nigris; alâ mediâ cinereâ nigro delicatè striatâ, primariis extus albo marginatis; rectricibus caudæ duabus intermediis purpureo-viridibus, ad apicem nigris; reliquis nigris; pectore corporeque subtùs coccineis.*

Fœm. *Vertice, corpore suprà, gutture, pectore abdomineque superiore intensè cæruleo-cinereis; abdomine imo, lateribus crissoque coccineis.*

Male.—Crown of the head, all the upper surface, and chest fine green; lores, ear-coverts, and throat black, gradually passing into the green; centre of the wing finely pencilled with black on a grey ground; primaries black, margined on their external webs with white; two centre tail-feathers purplish green, tipped with black, the remainder wholly black; breast and under surface rich scarlet; bill yellow; feet greyish olive.

Total length 14 inches, *bill* $1\frac{1}{4}$, *wing* $7\frac{1}{2}$, *tail* 7.

Female.—Crown of the head, the upper surface, throat, chest, and upper half of the belly dark bluish grey; lower part of the belly, flanks, and under tail-coverts scarlet; wings and tail black, the secondaries and lesser wing-coverts powdered with extremely fine spots of grey; upper mandible black; lower mandible yellow; feet dark brown.

Trogon Massena, Gould, Mon. of Trog., pl. 16.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Trogon*, sp. 19.—Gray, List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i. *Fissirostres*, p. 40.—Bonap. Consp. Gen. Av., tom. i. p. 149, *Trogon*, sp. 18.—Sclat. Proc. of Zool. Soc., 1858, p. 96, & 1859, p. 387.—Sclat. and Salv. Ibis, 1859, p. 132.—Salv. Ibis, 1861, p. 146.—Sclat. Cat. of Coll. of Amer. Birds, p. 277.—Cab. Journ. für Orn., 1862, p. 174.—Sclat. and Salv. Proc. of Zool. Soc., 1864, p. 364.—Salv. in Proc. of Zool. Soc., 1867, p. 151.

Curucujus Massena, Bonap. Consp. Vol. Zygod., p. 14. gen. 2 *b*. 16.

Troctes Massenæ, Cab. et Heine, Mus. Hein., Theil iv. p. 204.

Ornithologists will doubtless always be divided in opinion with regard to the value of the minute subdivisions which are found to exist in all large families of birds; on observing that the members of each of these subdivisions are characterized by some peculiar feature, some will be inclined to raise them to the rank of genera, and to assign to them a distinctive designation, while others will be content with merely indicating their existence. With few exceptions, I have kept the American Trogons under two generic appellations—*Pharomacrus* and *Trogon*: one of the exceptions is *Troctes*, of which the present bird may be considered a typical example, as it certainly is the largest species known, its size being nearly equal to that of the greatest of the Train-bearers, *Pharomacri*. It is a very robust bird, and is remarkable for the total

absence of the white pectoral crescent, a character common to so many members of its family; I may remark, too, that were its habits and economy better known, we should doubtless find that its very powerful bill is fitted for some special purpose.

The *Troctes Massenæ* is very common in Guatemala, Costa Rica, and probably in all the other countries southward to the Isthmus of Panama. Specimens from the latter country are smaller than those obtained in more northern localities.

The following particulars respecting this species have been kindly furnished me by Mr. Osbert Salvin, a gentleman who is so intimately acquainted with the ornithology of Central America that all that flows from his pen must be considered of value :—" *Trogon Massenæ*, though abundant in many parts of the vast forests which clothe the warmer portions of the eastern side of the great Central-American Isthmus from Mexico to Panama, does not appear to occur in similar tracts on the western or Pacific side of those countries; nor is it, that I am aware of, to be found in the more broken and thinner forests of the central portion of the Isthmus. Though originally described as occurring in Mexico, it does not seem to be very abundant there, as the only recent records of its capture in that country are given by Mr. Sclater, who states that M. Boucard obtained specimens at Playa Vicente, and that others passed through the hands of the MM. Verreaux (*cf.* P. Z. S. 1858, p. 96, & 1859, p. 387). In Guatemala, Massena's Trogon is very abundant in the province of Vera Paz; and during my excursions to the lowland forests in 1860, and again in 1862, when Mr. Godman and I were together, I had frequent opportunities of observing it. As I said before, it is a bird which inhabits the densest forest, never emerging into the sunlight or the brushwood of an old clearing. It usually flies amongst the lower branches of the forest trees, but still far from the ground. Its habits are quick and spasmodic while in motion, and the very reverse when perched and at rest. A bird is observed to fly past overhead; it alights on a bough, and in a moment assumes an attitude that would lead one to suppose it had not stirred for an hour. When thus perched, the glittering green of the upper plumage and breast is inconspicuous, but the brilliant red of the under parts is an object of mark against the dark foliage of the trees. Its cries are various, but harsh and discordant, none of them being so soft as the call-note of the Quezal. Its food consists principally of ripe fruits, which are plucked whilst the bird is on the wing. Occasionally a caterpillar is added to its repast. The first specimen I saw was in the mountains of Rashché, at an elevation of about 2500 feet above the sea; but at Choctum, which is only half that elevation, it occurred in numbers; not only did we obtain examples ourselves, but every collection made by natives was well stocked with them. Specimens were also procured for us near Teleman, a village situated just where the river Polochic becomes navigable for canoes. Mr. Leyland found *Trogon Massenæ* at Omoa and San Pedro, and in the notes referring to his collection (P. Z. S. 1859, p. 53) he states that 'these birds are met with in pairs; they are very active, making a chattering noise, varied occasionally by a great outcry.' In Costa Rica it appears to be equally abundant; M. Carmiol has recently forwarded us specimens from a place called Valza; and the collection of the Smithsonian Institution, at Washington, contains a plentiful supply from the same sources. A little further southwards, Enrique Arcé found it in Veragua, and has sent us skins from the Cordillera of Tolé and Santiago de Veraguas, whilst from the Panama railway line we have had forwarded to us numerous examples, by that indefatigable naturalist Mr. James M'Leannan, the 'track-master' of Lion Hill Station; the forest surrounding his house seems to be full of these birds. The most southern recorded locality for the occurrence of *Trogon Massenæ* is the river Truando and the delta of the Atrato, where examples were obtained by the Messrs Wood, who accompanied the surveying expedition under Lieut. Michler, as recorded by Mr. Cassin in the Proceedings of the Academy of Natural Sciences of Philadelphia, 1860, p. 135."

The Plate represents the two sexes, of the size of life.

TROGON ROSEIGASTER, *Viall.*

J. Gould and H. C. Richter del. et lith.

Hullmandel & Walton Imp.

TROGON ROSEIGASTER, *Vieill.*

St. Domingo Trogon.

Specific Character.

Mas.—*Capite summo et nuchâ olivaceo-viridibus; gulâ pectoreque cinereis; humeris tectricibusque alarum nigris, plumis singulis angustè albo fasciatis.*

Male?—Lores greenish black; crown of the head, nape and upper surface deep oil-green, passing into purer green on the lower part of the back and upper tail-coverts; wings slaty black, the coverts and secondaries crossed by numerous transverse well-defined lines of greyish white; primaries barred throughout the entire length of their outer webs with white; chin, throat, breast and upper part of the abdomen dark grey; lower part of the abdomen and under tail-coverts deep blood-red; two centre tail-feathers bluish green on their outer webs and on the tips of both webs; their inner webs, and a small portion of the outer web near the tip, oil-green; the two next on each side bluish green; the three outer ones on each side bluish green, largely tipped with white; a considerable portion of the outer web is also white, interrupted near the tip by an oval spot of bluish green; bill yellow.
Total length, $11\frac{1}{2}$ inches; *bill*, $\frac{7}{8}$; *wing*, $5\frac{5}{8}$; *tail*, $6\frac{1}{2}$.

Female?—Similar in the general arrangement of the colouring, but the wing-coverts bronzy green and destitute of the white transverse markings, and the primaries margined instead of being barred with white.

Trogon roseigaster, Vieill. Ency. Méth. Orn., part iii. p. 1358.—Gould, Mon. of Trogons, pl. 20.—Bonap. Consp. Gen. Av., p. 149, *Trogon*, sp. 10.—Gray and Mitch. Gen. of Birds, vol. i. p. 69, *Trogon*, sp. 10.—Sclater in Proc. of Zool. Soc., part xxv. p. 235.
——— *domicellus*, Cuv.
——— *rhodogaster*, Temm.
——— (*Temnurus*?) *roseigaster*, Gould, Mon. of Trogons, List of Plates, sp. 20.
Le Couroucou à caleçon rouge, ou Le Couroucou Damoiseau, LeVaill. Hist. Nat. des Courouc., pl. 13.

We are much indebted to M. Sallé for having amply supplied us with specimens of this very beautiful species of Trogon, which previously was only known to ornithologists from the very bad drawing in LeVaillant's "Histoire Naturelle des Couroucous." Its native country is St. Domingo, where several trivial names are applied to it; in some of the provinces it is called *Caleçon rouge*, in others *Dame*, or *Demoiselle Anglaise*; and also *Pie de Montagnes*, from its continually residing among the mountains. In Mr. Sclater's paper on the birds observed by M. Sallé in Southern Mexico, published in the twenty-fifth part of the "Proceedings of the Zoological Society," with notes by M. Sallé, it is stated, on his authority, that the bird "restricts itself to the tops of the loftiest mountains of the interior of the island, and goes in small bands uttering a plaintive cry, by imitating which you can entice them near enough to fire upon them; they perch on the loftiest trees, and eat berries of considerable size, which they swallow entire; they make their nests in the old holes of Woodpeckers, piercing them through to the opposite side; their eggs are white and rounded; they are called *Piragua*."

It is much to be regretted that M. Sallé does not inform us what, if any, are the sexual differences in the colouring of this bird, or whether the specimens with fine transverse lines on the wing-coverts are males or females; I have little doubt, however, that this character is peculiar to the males; and if so, the prominent figure in the accompanying Plate represents a female.

Vieillot was certainly mistaken when he stated that this bird is found in Mexico; I question very much whether it occurs in any other country than St. Domingo; if it does not, it affords another instance of the West Indian Islands being tenanted by peculiar species.

The figures are of the natural size.

J. Gould & H. C. Richter del. et lith.

PRIONOTELUS TEMNURUS.

Walter, Imp.

PRIONOTELUS TEMNURUS.

Cuban Trogon.

Specific Character.

Mas. *Dorso alisque viridibus, harum secundariis ad apicem albo latè unifasciatis, remigibus nigris albo fasciatis; rectricibus intermediis sex viridibus, ad apicem (pogoniis expansis) latè emarginatis, reliquis ad basin viridibus, in medio fasciâ albâ alterâque viridi notatis, ad apicem latè albis.*

The whole of the head and ear-coverts deep glossy steel-blue; back, lesser wing-coverts, and upper tail-coverts shining bronzy green; throat and breast light grey; lower part of the abdomen and under tail-coverts scarlet; greater wing-coverts and secondaries black, margined externally with green and crossed near the tip with a broad bar of white forming two conspicuous bands; spurious wing black barred with white; primaries black, the outer one barred on the basal half of the external web with white; the remainder with a line of white on the basal portion of the outer web, the remaining part of the web being barred with white nearly to the tip; two middle tail-feathers bronzy green passing into deep steel-blue at the tip; the two next on each side deep steel-blue washed with green on their outer margins; the three lateral feathers on each side steel-blue at the base, largely tipped with white, the white extending nearly to the base on the outer web of the external feather; the next two barred with white on the dark portion of the outer web; the white tips of the three lateral feathers on each side are, moreover, very finely sprinkled with brown on the margin of the outer web and on the basal portion of the inner web; bill blood-red, with a broad mark of black on the culmen; feet brown.

Total length $10\frac{1}{2}$ inches, *bill* 1, *wing* 6, *tail* $6\frac{1}{4}$.

Trogon temnurus, Temm. Pl. Col., 326.—Vig. Zool. Journ., 1827, p. 443.—Less. Traité d'Orn., p. 120.—Gould, Mon. of Trog., pl. 19.—D'Orb. in Ramon de la Sagra's Hist. Phys. Pol. et Nat. de l'île de Cuba, p. 165, Atlas, tab. xxvi.

Temnurus albicollis, Swains. Class. of Birds, vol. ii. p. 337.—Gould, Mon. of Trog., syn. spec. *Temnurus*, sp. 1.

Trogon (Temnurus) albicollis, Gould, Mon. of Trog., List of Plates, sp. 19.

Prionotelus, Reichenb. Av. Syst. Nat., pl. lxxxviii.

Priotelus temnurus, Gray, List of Gen. of Birds, p. 10.—Id. Gen. of Birds, vol. i. p. 70.—Bonap. Consp. Gen. Av., tom. i. p. 150.—Cab. Journ. für Orn., 1856, p. 106.

"*Temnurus silens*, Herz. Würtemb.," Hartl. in Naumannia, 1852, part ii. p. 51.

Prionotelus temnurus, Cab. et Heine, Mus. Hein., Theil iv. p. 164.

This Trogon is conspicuously different in form, markings and coloration from every other known species; its most striking features are the broad barring of its wings, and the very singular form of the extremities of the tail-feathers. Its native country is Cuba, where it appears to be so common as to be frequently killed

and used as an article of food; how few, however, of the collections of Europe possess examples, and how rarely is it seen among the skins of birds which are tardily sent from its native country!

In the first edition of this Monograph I observed, "Upon looking at the markings of the wing, we cannot fail to be struck with their resemblance to those on the same part of several of the Woodpeckers; the peculiar termination of the tail also, together with its more attenuated bill, are features equally conspicuous, yet these must be considered as relations of analogy and not of affinity." Still, if my memory serves me correctly, I have been informed that the bird sometimes clings to the boles of trees in the manner represented by one of the reduced figures in the accompanying Plate; as, however, I cannot give my authority for this remark, it must be received with a degree of doubt; at the same time the structure of its tail-feathers would almost induce the belief that it, at least occasionally, indulges in such a habit. I give below all the information that has been published respecting this species, and only regret that neither Duke Paul Wilhelm von Württemberg, nor Señor Ramon de la Sagra states if there be or be not any difference in the colouring of the sexes, a point I have not been able to determine from the examination of specimens; neither do they give any information respecting the nidification &c.

In the zweiten Bandes zweites Heft of the 'Naumannia' for 1852, p. 51, Dr. G. Hartlaub says, "In the year 1824, the Duke Paul Wilhelm von Württemberg brought the first specimen of *Trogon temnurus* of Temminck to Europe. The Duke says, 'I then proposed for it the name of *Temnurus silens*, but was dissuaded from splitting the genus *Trogon*. It is a stupid bird, is called *Serpentaro* by the Creoles, allows people to get nearer to it than the *Arriero* (*Saurothera Merlini*), sits for days lazily on the branches of low trees, and utters a melancholy sound.'"

M. Ramon de la Sagra, in his 'Histoire Physique, Politique et Naturelle de l'île de Cuba,' informs us that "this Trogon, one of the most brilliant members of its family, has only yet been met with in the island of Cuba, of which it is not the least beautiful ornament. It is very common in the woods, its favourite place of abode; and there in the evening, but especially in the morning, its plaintive song may be heard repeated at lengthened intervals. The first portion of the note is higher and louder than the remainder, and is most readily imitated with a horn. It is this habit of uttering its song at the commencement and the close of day that has induced the Guaranis of Paraguay to say, in reference to another species, that it cries in the morning for the sun to rise, and in the evening because it is setting. Dwelling solitarily in the large woods, it perches principally on the lower branches of the trees, and there remains immoveable for hours together, apparently asleep, or at least indifferent to what is going on around it; it is therefore easily shot, and many are killed for the table, its flesh being well flavoured. It lives solely on small seeds, a kind of food apparently incompatible with the form of the bill, which would seem to be better adapted for an insectivorous than a granivorous diet. Its native name, in Cuba, is *Tocororo*."

The front figure represents the bird of the size of life; the fine palm to the fruit of which it is clinging is the *Astrocaryum rostratum*.

HAPALODERMA NARINA.

J. Gould & W. Hart del et lith.

Walter, Imp.

HAPALODERMA NARINA.

Narina Trogon.

Specific Character.

Trog. splendenti-viridis, ventre sanguineo; alis brunneis, secundariis et tectricibus alarum majoribus cinereo-albido pulverulentis, harum pogoniis externis metallicè viridi tinctis; rectricibus duabus intermediis saturatè purpurascenti-viridibus, duabus proximis utrinque olivascenti-viridibus, reliquis saturatè viridibus ad apices latè albis.

Rostrum flavum cæruleo tinctum; *pedes* pallidè brunnescenti-flavi.

Fœm. *Mari similis, sed orbitis, gutture pectoreque rufo-brunneis, hôc dilutiore roseoque parùm tincto, ventre et subcaudalibus saturatè roseis distinguenda.*

Male.—Bill yellow, with a tinge of blue; whole of the head, throat, chest, shoulders, back, and upper tail-coverts resplendent green; breast and under surface bright blood-red; the wings brown, the greater coverts and secondaries powdered with greyish white, the outer edge of each feather having a tinge of metallic green; two centre feathers of the tail dark purplish green, the two next on each side olive-green, the three outer on each side dark green at their base, largely tipped with white; feet light brownish yellow.

Female.—The upper surface and tail closely resemble those of the male; round the eye and throat rufous brown, becoming paler on the chest, which is slightly tinted with rosy pink; lower part of the abdomen and under tail-coverts deep rose-red.

Total length $11\frac{1}{4}$ inches; bill $1\frac{1}{8}$; wing $5\frac{1}{4}$; tail $6\frac{1}{2}$; tarsi $\frac{3}{4}$.

Le Couroucou narina. Levaill. Ois. d'Afr. v. p. 73, pls. 228, 229.

Trogon narina. Vieill. N. Dict. d'Hist. Nat. viii. p. 318.—Gould, Monogr. Trogon. 1st ed. pl. 26.—Finsch & Hartl. Vög. Ost-Afr. p. 155.—Finsch, Tr. Z. S. vii. p. 219.

Apaloderma narina. Swains. Classif. B. ii. p. 337.—Bp. Consp. i. p. 150.—Layard, B. S. Afr. p. 61.

Hapaloderma narina. Cab. & Heine, Mus. Hein. Th. iv. p. 165.—Heugl. Orn. N.O.-Afr. p. 176.

It is a remarkable fact that while the Neotropical and Indian regions abound with species of Trogons, Africa shows but one well-marked type; for although the two species inhabiting the latter continent are easily distinguishable the one from the other, they both belong to one form, which has been considered to belong to a distinct genus, *Hapaloderma* of Swainson. The Narina Trogon is found in Southern and North-eastern Africa, having been discovered in the former part of the continent by the well-known traveller Levaillant. Mr. Layard gives the following account of it:—"It is found throughout forests and wooded kloofs in all the eastern portions of the colony. About the Knysna it is scarce, but, wherever found, exhibits the same shy creeping habits. When apprehensive of discovery, it sits motionless on its branch until alarmed at some act of the fowler, when it precipitates itself headlong into the bush, and is instantly lost to view. It feeds on fruit and insects, and utters a loud moaning note or, perhaps, more correctly speaking, a hoot. Levaillant states that they nest in holes of trees, and lay four, nearly round, white eggs; but this requires confirmation. I have never met with any one who had seen their nests, though I made particular inquiries about them at the Knysna."

It is found in Natal, and is also met with in the Zambesi district, though here, says Dr. Kirk, "It is a decidedly scarce bird. I know of only four specimens having been seen—one in the Zambesi delta, the others at Chibisa, on the Shiré. It seems to frequent trees." Bianconi has recorded it from Southern

Mozambique; and on the west coast it has been obtained by Mr. Monteiro in Benguela and by Mr. Hamilton in the interior of Angola.

During the late Abyssinian expedition Mr. Jesse obtained an example at Taconda, which he kindly submitted to me; and I found that, though it agreed in the main with South-African specimens, it had rather a longer tail, but was not otherwise specifically separable. Dr. von Heuglin, in his work on the ornithology of North-eastern Africa, says that it frequents only the hot wooded districts on the inclines of the Abyssinian highlands, such as, for instance, the slopes of the valleys round Arlet, Moreb, the districts of Wohni and Sarago (W. Abyssinia) and Fazogl. He adds:—"I can say but little respecting the habits of this shy forest-frequenting bird from personal experience. It does not wander, as Rüppell saw it in September and October, Brehm in March, and I in the early summer. In its habits it resembles in many respects the larger *Campephagæ*—sits upright, the head drawn in and with drooping tail, in the densest foliage of high trees, and watches for insects and caterpillars, which it catches with noiseless flight. Verreaux says that its food consists of Lepidoptera, various species of *Mantis*, and flies, but seldom beetles. Its note is a loud mournful cry. It is an excellent ventriloquist, and often seems to be far distant when quite near. In South Africa it breeds in October; and the female is said to lay two or, rarely, three roundish, white, transparent eggs, and the young are said to be fledged in three weeks."

The figures represent a male and female, of the size of life.

J. Gould & W. Hart del et lith.

HAPALODERMA CONSTANTIA, *Sharpe & Ussher.*

Walter Imp.

HAPALODERMA CONSTANTIA, *Sharpe & Ussher.*

West-African Trogon.

Specific Character.

Mas. *Similis* H. narinæ, *sed rectrice extimâ purè albâ et tectricibus alarum canis tenuissimè nigro vermiculatis distinguendus.*

Male.—General colour of the upper surface shining green, as well as the entire throat and fore neck, the green of these parts always having a kind of olive-golden lustre, changing to bright grass-green on the rump and upper tail-coverts; the four centre tail-feathers deep blue, with a narrow border of green; the two next bluish, shading off into brown; the terminal half pure white, increasing in extent on the penultimate feathers, the outermost being pure white excepting at the extreme base; all the wing-coverts (excepting the least ones, which are green like the back) and secondaries greyish white, extremely finely pencilled with black lines; primary coverts greyish black; primaries blackish, the outermost edged with white; under surface of body rich crimson; under wing-coverts greyish black, like the inner lining of the wing; bill light green; iris dark.

Total length $10\frac{1}{2}$ inches; wing $5\frac{1}{4}$; tail $6\frac{1}{4}$.

Hapaloderma narina. Cass. Pr. Philad. Acad. 1857, p. 38.
Trogon narina. Hartl. Orn. W.-Afr. p. 263.
Hapaloderma constantia. Sharpe & Ussher, Ibis, 1872, p. 181.

This beautiful species has long been known to ornithologists, but has been confounded with the Narina Trogon of South Africa, from which it is certainly specifically distinct. It is known at present only from the forest-regions of the Gold Coast and Gaboon, having been procured in the latter country by Du Chaillu. Riis sent specimens from Aguapim; and the typical examples were killed in the Denkera district of the Gold Coast by Mr. St. Thomas D. Aubinn, a native hunter in the employ of Governor Ussher, after whose daughter Constance the species is named.

The principal figure in the Plate is of the size of life, and has been drawn from one of the typical specimens kindly given to me by Mr. Bowdler Sharpe.

HARPACTES DIARDI.

J. Gould & H. C. Richter del. et lith.

T. Walter, Imp.

HARPACTES DIARDI.

Diard's Trogon.

Specific Character.

Trog. capite sanguineo; fasciâ nuchali rosaceâ; dorso arenaceo-brunneo; alis albo nigroque minutè fasciatis, remigibus nigris; gutture pectoreque nigris; ventre miniaceo; rectricibus intermediis duabus brunneis nigro apiculatis, duabus proximis utrinque nigris, reliquis ad basin nigris apicem versus nigro alboque marmoratis.

Fœm. *Fasciâ nuchali nullâ; capite fusco-brunneo; alis brunneo nigroque fasciatis; pectore brunneo; ventre quam in mare pallidiore.*

Rostrum nigrescens; *orbitæ nudæ* coccineæ; *pedes* flavescenti-brunnei.

Male.—Crown of the head deep blood-red; throat and chest black; a nuchal band of rose-pink separates the rich colouring of the head from the back, which, with the upper tail-coverts, is dark sandy brown; wings minutely barred with black and white; quills black; breast and under surface of body carmine; thighs black; two middle tail-feathers rich brown, tipped with black, the two next on each side black, the rest black at their base, and marbled for the remainder of their length with black and white; bill blackish; bare space round the eye purplish red; feet yellowish brown.

Female.—Destitute of the nuchal band and having the top of the head dusky brown; the back and tail as in the male, the outer feathers being less thickly dotted with black; chest brown; wings barred with brown and black; quills black; abdomen pale carmine.

Total length $12\frac{1}{4}$ inches; bill $1\frac{3}{4}$; wing $5\frac{3}{4}$; tail $6\frac{1}{2}$; tarsi $\frac{3}{4}$.

Trogon diardii. Temm. Pl. Col. 54.—Gould, Monogr. Trogon. 1st ed. pl. 30.

Harpactes diardi. Swains. Classif. B. ii. p. 337.—Gray, Gen. B. i. p. 71.—Blyth, Cat. B. Mus. A. S. B. p. 80.—Bp. Consp. i. p. 151.—Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 716.—Gould, B. Asia, part xvii.

Pyrotrogon diardi. Cab. & Heine, Mus. Hein. Th. iv. p. 156.—Salvad. Cat. Ucc. Born. p. 28.

Of this beautiful Trogon I have seen a large number of specimens in the course of my life, and after a very careful comparison I have not been able to separate examples from Malacca from others of Bornean origin. At one time I was inclined to believe in two species; but I have now seen so many specimens from Borneo indistinguishable from Malaccan birds, that I have abandoned this idea. In Borneo the bird seems to be abundant and has been obtained in several localities, viz. at Pontianak by Diard, at Bejadjoe by Solomon Müller, and at Sarawak by Doria and Beccari as well as by Mr. Hugh Low, who has more recently procured it in Labuan. In Malaccan collections it often occurs.

I have already given, in my 'Birds of Asia,' all the details as yet published concerning the species, a correct idea of which can be gathered from the accompanying Plate, which has already appeared in the last-mentioned work. It may be distinguished from the other Asiatic Trogons by the freckled markings of the outer tail-feathers, in which respect it assimilates to some of the American members of the family.

The two sexes are figured in the accompanying Plate, where they are depicted of the natural size. The plant is the *Hoya coriacea*.

HARPACTES KASUMBA.

J. Gould & H.C. Richter del. et lith.

Hullmandel & Walton Imp.

HARPACTES KASUMBA.

Kasumba Trogon.

Specific Character.

Mas. *Vertice, gutture pectoreque nigris, hôc posticè torque albo; abdomine et strigâ inde ductâ nuchamque cingente coccineis.*

Fœm. *Magis obscura; capite guttureque saturatè grisescenti-brunneis; pectore arenaceo-brunneo.*

Male.—Head, throat, and chest jet-black; breast, abdomen, and under tail-coverts deep rose-red, separated from the black of the chest by a crescentic band of white; from below the eye round the back of the neck a narrow band of red; back and upper tail-coverts yellowish brown; wings black, the coverts and tertiaries transversely rayed with fine irregular lines of white, and the shafts of the primaries white at the base; two middle tail-feathers chestnut-brown, tipped with black; the two rest on each side wholly black, the remainder black at the base, and white for the rest of their length, with dark shafts; orbits light violet-blue, becoming of a more fleshy hue near the eyes; bill blue; gape light violet-blue; irides dark brown; feet brown.

Total length about 12 inches, *bill* 1, *wing* $6\frac{1}{2}$, *tail* $6\frac{1}{2}$.

Female.—Head and throat greyish brown; white band on the breast much less conspicuous, under surface sandy brown; markings of the wings bolder, and of a sandy hue, instead of pure white.

Trogon kasumba, Raffl. Linn. Trans. vol. xiii. p. 282.

——— *fasciatus*, Temm. Pl. Col. 321.—Id. Mon. of Trog. in Pl. Col.—Less. Traité d'Orn. p. 121.

——— *Temminckii*, Gould, in Proc. of Zool. Soc., part iii. 1835, p. 29.—Id. Mon. of Trog. pl. 29.

——— *flagrans*, Kuhl, Tijdsch. Nat. Gesch. 1835, p. 336.

Harpactes kasumba, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Gould, Birds of Asia, part viii. pl. 6.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 715.—Sclat. in Proc. Zool. Soc., part xxvii. 1859, p. 460, and 1863, p. 213.

——— *Temminckii*, Swains. Class. of Birds, vol. ii. p. 337.—Gould, Mon. of Trog., syn. spec. *Harpactes*, sp. 1.—Gray, List of Birds in Brit. Mus., part ii. sec. i. *Fissirostres*, p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 4, and vol. iii. App. p. 4, app. to p. 71.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 4.

Trogon (Harpactes) Temminckii, Gould, Mon. of Trog., List of Plates, sp. 29.

"*Trogon Condea*, Cuv.," Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.

Pyrotrogon kasumba, Cab. et Heine, Mus. Hein., Theil. iv. p. 158.

Kasumba of the Sumatrans.

The countries inhabited by this species are Malacca, Sumatra, and Borneo, from all of which I have specimens in my own collection.

In a letter received from Mr. Wallace in 1856, when he was engaged in exploring the Islands of the

Indian archipelago, that gentleman, writing from Singapore, says, "You will think I have forgotten to write to you about the Trogons; but I have not neglected the subject. I remained two months on this island, where the jungle is now only to be found in small patches, but did not meet with any, and I doubt if there be a Trogon in the island. At Malacca, however, whence I have just returned, I met with them. I think there are four species; but as I only obtained males of three, I cannot be certain. Two are of an ordinary size, and two are smaller. One of the larger I take to be *Harpactes Kasumba*: I send you a coloured sketch of the soft parts that you may make a correct drawing for your work. The habits and economy of the Indian Trogons assimilate closely to those of the American."

As nothing can exceed the beauty of this noble bird, the appearance the males must present in their native forests cannot fail to be attractive in the extreme, especially when the rich scarlet colouring of their breasts is contrasted with the equally brilliant green of the luxuriant vegetation of Malacca.

The sexes present a marked difference in the colouring of their plumage, as will be seen on reference to the opposite Plate, where they are accurately depicted, of the size of life.

In Mr. Sclater's notes to the "Observations on the Birds of South-eastern Borneo, by the late James Mottley, Esq.," published in the volume of the Proceedings of the Zoological Society of London for 1863, it is mentioned that specimens were obtained at Bangkank, on the Riam Kiwa, and that the species is one of the principal birds of omen of the Dyaks.

HARPACTES FASCIATUS.

J. Gould & H.C. Richter, del et lith.

Hullmandel & Walton Imp.

HARPACTES FASCIATUS.

Fasciated Trogon.

Specific Character.

Trog. capite, gutture pectoreque fuliginoso-nigris, hôc torque lato albo; ventre coccineo; dorso et supracaudalibus sordidè arenaceo-brunneis; scapularibus et tectricibus alarum majoribus nigris albo flexuose fasciatis; remigibus nigris, pogoniis externis albo fimbriatis; rectricibus duabus intermediis subcastaneis nigro apiculatis, proximis duabus utrinque nigris prope rhachin brunneis, reliquis ad basin nigris, ad apicem albis.

Fœm. *Capite, dorso, gutture pectoreque sordidè brunneis; ventre luteo; pectore haud torquato; scapularibus nigro brunneoque fasciatis.*

Rostrum nigrum, *mandibularum basi et regione ophthalmicâ nudâ* cæruleis.

Male.—Head, neck, and breast sooty black, bounded below by a narrow crescent of white separatiug the sooty black of the breast from the rich carmine-red of the rest of the under surface; upper wing-coverts orange-brown, becoming paler and brighter on the rump and upper tail-coverts; wings black, the coverts and secondaries crossed with numerous fine irregular bars of white, and the primaries narrowly edged with the same hue externally; the two centre tail-feathers chestnut, narrowly tipped with black, the next on each side chestnut at the base and black at the tip, the chestnut advancing in a bifurcated form towards the tip of the outer web; the next on each side entirely black, the three lateral feathers on each side black at the base, largely tipped with white, the white advancing on the margin of the outer web nearly to the base, and the black along the shaft to the tip; irides deep brown; bill and orbits fine deep cobalt-blue; legs light blue.

Female.—Differs from the male in having the head and neck brown, with a yellowish tinge on the chest; the under surface rich ochraceous, and the bars on wings ochraceous brown instead of white.

Total length about 12 inches; wing 5.

Trogon fasciatus. Gm. S. N. i. p. 405: Penn. Ind. Zool. p. 35, pl. iv.
——— *malabaricus.* Gould, P. Z. S. 1834, p. 26.—Id. Monogr. Trogon. pl. 31.—Gray, Gen. B. i. p. 71.
Harpactes malabaricus. Sw. Classif. B. ii. p. 337.—Gray, Cat. Fissir. Brit. Mus. p. 44.
——— *fasciatus.* Blyth, Cat. B. Mus. A. S. B. p. 80.—Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 714.—Gould, Birds of Asia, pt. vi.—Jerdon, B. Ind. i. p. 201.—Holdsw. P. Z. S. 1872, p. 422.
Pyrotrogon fasciatus. Cab. & Heine, Mus. Hein. ii. p. 156.
Kufni Churi, of some Hindoos.
Kurna, of the Mahrattas.
Kakerni Hukhi, of the Canarese.
Rantvam Kondea, of the Cingalese (Kelaart).

The Malabar Trogon is found in Southern India and Ceylon, where it represents the Malayan *Harpactes kasumba.* The male differs from that of the last-named species in its smaller size and sooty-black head and neck; while the female of *H. fasciatus* wants the breast-band, which is conspicuous in the hen of *H. kasumba.*

The late Dr. Jerdon has given the following account of the species in his 'Birds of India:'—"The Malabar Trogon is found in the forests of Malabar from the extreme south to about 17° N. lat., reaching up the Ghâts and hill-ranges to at least 3000 feet. It is also found in some of the forests of Central India and in Ceylon.

"It prefers the more elevated situations, at about 2000 feet or so, and keeps generally to the thickest parts of the woods. It is often to be seen seated motionless on a branch of a tree, occasionally flying off to capture an insect on the wing, sometimes returning to the same perch, but oftener taking up a fresh position, and in this way wandering about a good deal. It is unusually solitary, sometimes in pairs; and I have seen four or five together. Its food consists of various insects, chiefly coleopterous. Layard says that it is found in small parties of three or four, and feeds on Spiders, Mantidæ, and Coleoptera. I am not aware of having heard its note, and certainly have generally found it a silent bird. Tickell, however, says that it has a wild querulous note like the mewing of a cat. Its Hindustani name is given from its sitting with the head sunk in the shoulders, as if it had no neck, or as if dressed up in a faquir's *kufni*."

"In Ceylon," writes Mr. Holdsworth, "it is only found among wild tree-jungles in the southern half of the island. I have seen it about twelve miles from Colombo, in a wild uncultivated district in the low country, and also at Nuwara Eliya, in February; but it is not very commonly met with, and is perhaps somewhat local in its distribution. In its manners it resembles the Flycatchers, and has generally a peculiar fluttering mode of flight."

The sexes are represented in the Plate of the natural size.

HARPACTES ARDENS.

J. Gould and H. C. Richter, del. et lith.

Walter & Cohn, Imp.

HARPACTES ARDENS.

Rosy-breasted Trogon.

Specific Character.

Mas. *Vertice, nuchâ plumisque auricularibus intensè sanguineo-rubris; pectore rosaceo.*
Fœm. *Vertice genisque intensè fuscis; pectore et abdomine pallidè ochraceo-fuscis.*

Male.—Head, back of the neck, and ear-coverts dark blood-red, approaching to black on the forehead and ear-coverts; throat black; back and upper tail-coverts cinnamon; wing-coverts and secondaries black, crossed with fine irregular lines of white; primaries black, margined externally with white; two centre tail-feathers reddish chestnut, tipped with black; the two next on each side wholly black; the three outer ones blackish brown at base, largely tipped with white; the shafts and a series of tooth-like markings on the inner webs blackish brown; chest delicate rose-colour, the remainder of the undersurface scarlet; "bill bright yellow, the base green; ophthalmic region ultramarine blue; inside of the mouth yellow; feet olive-green; the palms and claws yellow; irides brown."

Total length 12 inches, *bill* $1\frac{1}{4}$, *wing* $5\frac{5}{8}$, *tail* 8.

Female.—Crown of the head, cheeks, and upper surface dark cinnamon-brown; throat clouded with blackish brown; breast and all the undersurface light sandy-brown, becoming of a yellower hue on the under tail-coverts; wing-coverts and secondaries blackish brown, crossed with lines of sandy brown; tail as in the male.

Trogon ardens, Temm. Pl. Col. 404.—Id. Mon. of Trog. in Pl. Col.—Gould, Mon. of Trog., pl. 35.

——— *(Harpactes) ardens,* Gould, Mon. of Trog., List of Plates, no. 35.

Harpactes ardens, Gould, Mon. of Trog., Syn. Spec., gen. *Harpactes,* sp. 7.—Gray, List. of Spec. of Birds in Coll. Brit. Mus., part ii. sec. i. *Fissirostres,* p. 44.—Gray and Mitch. Gen of Birds, vol. i. p. 70, *Harpactes,* sp. 7.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes,* sp. 7.—Cassin, Unit. States Expl. Exp. Mamm. and Orn., 1858, p. 229.—Gould, Birds of Asia, part xiv. pl. 7.

Pyrotrogon ardens, Bonap. Consp. Vol. Zygod. p. 14, gen. 5, c. 38.—Cab. et Heine, Mus. Hein., Theil iv. p. 159.

Harpactes rodiosternus, Peale, Zool. Unit. States Expl. Exp., Birds, 1st edit. vol. viii. 1848, p. 166.—Hartl. Wieg. Archiv. tom. viii. pt. 1. p. 112

The Rosy-breasted Trogon is adorned with so many beautiful markings, of which the brilliant colouring of its bill and the extremely delicate rosy hue of its breast are the most conspicuous, that it almost, if not entirely, outvies every other species of its genus. It was first described by M. Temminck, with the specific appellation of *ardens,* from a female in the collection of the Baron Laugier de Chartrouse, of Paris; this

example, which at that time was unique, had been obtained at Mindanao. Since that period specimens have been brought to England by the late Hugh Cuming, from Manilla; I myself have received several fine examples from other parts of the Philippine Islands, and more recently still I have had the opportunity of examining specimens in the Museum at Washington, which had been obtained by the United States Exploring Expedition in the Island of Mindanao—the locality whence came Baron Laugier's specimen; but the species is still comparatively rare in the cabinets of Europe.

The researches of the American naturalists enable me to give a more correct representation of this beautiful bird than I could when the first edition of this Monograph was published, they having carefully noted the colouring of the soft parts. The information respecting it is still, however, extremely meagre, the following short note, transcribed from the 'Mammalogy and Ornithology of the United States Exploring Expedition, 1858,' being all that has been recorded:—"Both Dr. Pickering and Mr. Peale mention the occurrence of this fine species on the Island of Mindanao, one of the Philippines. The latter remarks, 'Our specimen was killed on the 31st of January, near Sambuanga, in the Island of Mindanao. It sits crosswise on the small branches of trees and bushes, and is very active in taking insects on the wing. The clear sunlight, at three o'clock in the afternoon, did not appear to incommode it or others observed at the same time.'"

The Plate represents two sexes, of the size of life. The plant is the *Hoya cinnamomifolia*.

HARPACTES DUVAUCELI.

J. Gould and H. C. Richter, del. et lith.

Hullmandel & Walton, Imp.

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HARPACTES DUVAUCELI, *Temm.*

Duvaucel's Trogon.

Specific Character.

Mas.—*Capite et gulâ nigris; dorso fusco; uropygio nitide coccineo.*

Male.—Head and throat jet-black; breast, under surface, rump and upper tail-coverts of the finest scarlet; back reddish cinnamon-brown; wings black, the coverts and secondaries crossed by numerous fine lines of white; primaries margined at the base of their external webs with white; two centre tail-feathers dark cinnamon-brown, tipped with black; the two next on each side blackish brown; the three outer ones on each side blackish brown at the base, and largely tipped with white; bill, gape, and a naked space over the eye ultramarine blue; irides reddish brown; feet blue.

Total length, 9½ inches; *bill*, 1; *wing*, 4; *tail*, 5¼.

Female.—Head dark brown; back dark cinnamon brown, becoming lighter and washed with scarlet on the lower part of the back and upper tail-coverts; wing-coverts and secondaries alternately barred with ochreous and black; primaries dull black, margined externally with greyish white; under surface orange-brown, becoming lighter and washed with scarlet on the lower part of the abdomen and under tail-coverts; two centre tail-feathers light cinnamon-brown throughout their entire length, the remainder as in the male.

Trogon Duvaucelii, Temm. Pl. Col. 291.—Gould, Mon. of Trogons, pl. 32.

Harpactes rutilus, Gray, List of Spec. of Birds in Coll. Brit. Mus., p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 5.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., p. 150, *Harpactes*, sp. 1.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 712.

Trogon rutilus, Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. viii. p. 313.—Ib. Ency. Méth. Orn., part iii. p. 1358.—LeVaill. Hist. Nat. des Courouc., pl. 14.

Trogon cinnamomeus, Temm. Mon. of Trog. in Pl. Col.

Harpactes Duvaucelii, Swains. Class. of Birds, vol. ii. p. 337.

Trogon (*Harpactes*) *Duvaucelii*, Gould, Mon. of Trogons, List of Plates, sp. 32.

Trogon fasciatus, var. β, Lath. Gen. Hist. of Birds, vol. iii. p. 213.

Ramguba of the Natives of Malacca.

By most ornithologists the present species is considered identical with the bird figured by LeVaillant in his "Histoire Naturelle des Couroucous" under the name of *Trogon rutilus*; but as that figure does not agree with any member of the family, and must have been coloured after the artist's fancy, I consider M. Temminck perfectly justified in giving a new specific name to the bird here represented. Vieillot's description is equally as faulty as LeVaillant's figure, for he commences his description by stating that the head of the bird is of a sombre green; the back, scapularies, rump and upper tail-coverts of a lively red, and the six middle tail-feathers of the same hue;—whereas the head is jet-black, the back and scapularies of a light cinnamon-brown, the upper tail-coverts fine scarlet, and the two middle tail-feathers only of a cinnamon-brown. LeVaillant's artist doubtless had this or some nearly allied species in view; but the colouring could not have been copied from a real specimen, and Vieillot's description was probably taken

from the defective drawing. Not wishing to increase the specific names of the family, I have figured in the following Plate a species which I believe to be distinct from the bird under consideration; and as it has a uniformly coloured back, and more nearly approaches to LeVaillant's figure, I have retained the name of *rutilus* for it, trusting that ornithologists will in future adopt this view of the subject. Had I given a new name, I might have been excused, and even commended for so doing.

For brilliancy of colouring nothing can surpass the tints that adorn the plumage of this little Trogon, which, unlike every other species of the family that has come under my notice, has the rump and lower portion of the back of a scarlet colour, vying in every respect with the rich and fiery hue of the breast. The admiration with which these birds must be viewed even when seen in preserved collections will enable us to form some idea of their still greater beauty in a state of nature, when darting meteor-like through the dark recesses of the dense and gloomy parts of the forests; when so seen they cannot fail to call forth the admiration and increase the enthusiasm of the naturalist who has ventured to seek their haunts in those primitive districts.

I believe the true habitat of the present species, which is perhaps the most highly and beautifully coloured member of the group of birds to which it belongs, is Sumatra and Borneo, while the other (*rutilus*) is from Malasia.

The sexes of the *T. Duvauceli* present the usual difference in the less brilliant colouring of the female, as may be clearly perceived by consulting the above description, or more readily by glancing at the accompanying Plate, where both are figured of the natural size.

HARPACTES RUTILUS.

J. Gould and H. C. Richter del. & lith.

Hullmandel & Walton, Imp.

HARPACTES RUTILUS.

Malacca Trogon.

Specific Character.

Mas.—*Capite et gulâ nigris ; dorso et uropygio rufescenti-fuscis.*

Male.—Head and neck black ; all the upper surface rich reddish cinnamon ; wings black, the coverts and secondaries crossed by numerous fine, irregular, wavy lines of white ; primaries margined externally with white ; breast, all the under surface, and under tail-coverts fine rosy scarlet ; two centre tail-feathers cinnamon-brown, slightly tipped with black ; the two next black ; the three outer ones on each side blackish brown, largely tipped with white ; bill and gape deep cobalt-blue ; the culmen broadly, and the margins narrowly bordered with black or horn-colour ; bare skin above the eye pale sky-blue ; irides dark brown ; feet dusky blue.

Total length, $10\frac{1}{2}$ inches ; *bill*, 1 ; *wing*, $4\frac{1}{4}$; *tail*, $5\frac{3}{4}$.

Female.—Head and throat reddish brown ; upper surface as in the male, but darker ; breast cinnamon-brown ; abdomen and under tail-coverts very light cinnamon-brown, washed with a rosy hue ; primaries and secondaries black, crossed by narrow ochreous bands ; two centre tail-feathers cinnamon-brown, the remainder as in the male.

Enough has been said in my description of *Harpactes Duvauceli* respecting my reasons for applying the term *rutilus* as a distinctive appellation for this bird, which is a native of the Malayan peninsula, and which, so far as I am able to judge from an examination of a vast number of specimens, never has the fine scarlet mark on the rump and upper tail-coverts ; independently of this difference, the present species is a larger and more robust bird than the *H. Duvauceli* ; it moreover has a thicker bill, and the whole of the upper plumage much more dense. Specimens frequently occur in collections sent from Singapore, but which I believe are generally made in Malacca ; at this moment I have several of both sexes before me which I am sure are fully adult, and yet there is not the slightest trace of the scarlet on the rump of either of them ; neither have I seen any indications of it in the specimens contained in the collection at the British Museum, nor in those in the Museum of the East India Company, and in those in the possession of T. C. Eyton, Esq., and others. In a letter transmitted to me by A. R. Wallace, Esq., that gentleman says, "I think there are four species of Trogons in Malacca, but as I only obtained males of two of them, I cannot be certain ; two of them are of the average size, and the other two smaller. Of the smallest I have only a female in a bad state of plumage ; I believe it is *H. rutilus*. The bill and the skin of the gape are deep cobalt-blue ; the culmen broadly, and the margins narrowly bordered with black or horn-colour. The bare skin above the eye is pale sky-blue ; the irides dark brown, and the feet dusky blue." The bird referred to by Mr. Wallace is the bird here figured, and not the *H. Duvauceli*.

The usual difference is observable in the colouring of the sexes, which are correctly represented on the accompanying Plate, of the natural size.

HARPACTES HODGSONI, *Gould.*

J. Gould and H. C. Richter, del. et lith.

T. Walter, Imp.

HARPACTES HODGSONI, *Gould.*

Hodgson's Trogon.

Specific Character.

Mas. *Capite, collo, pectore corporeque subtùs intensè sanguineis.*
Fœm. *Capite, collo, pectore corporeque superiore cinnamomeo-brunneis.*

Male.—Head, neck, and breast deep blood-red, separated from the rich scarlet of the under surface by a crescentic mark of white; back and upper tail-coverts cinnamon-brown, brightest on the rump; wing-coverts and tertiaries striated with fine wavy lines of black and white; primaries black, margined on their outer webs with white; two centre tail-feathers rich chestnut-brown, tipped with black; the next on each side black, with two thirds, from the base, of the outer web, and a fine line down the shaft on the inner web, rich chestnut-brown; the next on each side black, with the basal half of the outer web rich chestnut-brown; the three lateral feathers on each side black, largely tipped with white, which extends some length down the outer web; "bill deep smalt-blue, becoming black along the culmen and at the tip; irides chestnut-brown; orbital skin deep lavender-blue; legs and feet pale lavender" (Jerdon).

Total length $13\frac{1}{2}$ inches, *wing* $5\frac{1}{2}$, *bill* $\frac{3}{4}$, *tail* 8.

Female.—Head, neck, breast, and upper surface cinnamon-brown, palest on the rump and upper tail-coverts; under surface pale crimson, separated from the cinnamon of the throat, as in the male, by a narrow crescent of white; undulations on the wing black and brown instead of black and white.

Trogon Hodgsonii, Gould, Mon. of Trog., pl. 34.

Harpactes Hodgsonii, Gould, Mon. of Trog., Syn. Spec. *Harpactes*, sp. 6.—McClell. in Proc. Zool. Soc., part vii. p. 166.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 3.—Gray, Cat. of Spec., and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 56.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av. tom. i. p. 151, *Harpactes*, sp. 3.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 713.

——— *Hodgsoni*, Jerd. Birds of India, vol. i. p. 202.—Beav. in Ibis, 1865, p. 407.—Blyth, in Ibis, 1866, p. 342.

Trogon (Harpactes) Hodgsonii, Gould, Mon. of Trog., List of Plates, sp. 34.

Harpactes erythrocephalus, Gray, List of Spec. of Birds in Brit. Mus., part ii. sect. i. *Fissirostres*, p. 45.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, app. p. 322.

Pyrotrogon Hodgsoni, Bonap. Consp. Vol. Zygod., p. 14. gen. 5*e*. 39.—Cab. et Heine, Mus. Hein., Theil iv. p. 160.

"*Trogon dilectus*, F. B. Hamilton's MSS., vol. i. p. 63," Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 713.

Suda sohaghin, Bengalese (male), Dr. Hamilton.
Hummesha Peeara ("always thirsty"), Hindoos (male), Hamilton.
Cuchcuchea, Bengalese (female), Hamilton.
Sakvor pho, Lepchas, Jerdon.

"This handsome Trogon," says Mr. Jerdon, "is found in the Himalayas, from Nepaul eastward, in Assam, Sylhet, Arrakan, and Tenasserim. It prefers hilly places at from 2000 to 4500 feet. At Darjeeling I found it chiefly at about 4000 feet, frequenting darkly shaded valleys and flying from tree to tree at no great elevation, or a few of them together, keeping near the same spot, making sallies every now and then, and seizing insects on the wing. It feeds on Coleoptera chiefly. Tickell, who lately observed it on the Tenasserim hills, about 3000 feet and upwards, says that it flies in small troops, is active and vociferous in the morning, solitary and quiet during the heat of the day. I had the eggs of the Trogon brought me at Darjeeling: they were said to have been taken from a hole in a tree; and were two in number, white and somewhat round. There was no nest, it was stated—only some soft scrapings of decayed wood." (Birds of India, vol. i. p. 203.) Capt. Beavan found it among heavy timber trees in the valley of Little Runjeet river, Darjeeling.

In naming the present species after B. H. Hodgson, Esq., I was actuated by a desire to pay a just compliment to a gentleman who, besides diligently fulfilling his official duties as British President in Nepaul, laboured with the greatest assiduity and with the richest result, not only in the field of natural but in many other departments of literature and science.

The Plate represents the two sexes, of the natural size. The plant is the *Benthamia fragifera*.

HARPACTES ERYTHROCEPHALUS.

J. Gould & W. Hart del. et lith.

Walter imp.

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HARPACTES ERYTHROCEPHALUS.

Red-headed Trogon.

Specific Character.

Harp. capite guttureque sordidè sanguineis, torque gutturali angusto albo; corpore reliquo subtùs coccineo; tergo arenaceo-castaneo; tectricibus alarum superioribus nigro alboque fimbriatis; remigibus nigris, extùs albo limbatis; rectricibus duabus mediis castaneis nigro apicatis, duabus proximis utrinque nigris, reliquis nigris, albo latè terminatis.

Fœm. *Capite guttureque arenaceo-brunneo; torque pectorali magis distincto; tectricibus alarum brunneo nigroque fasciatis.*

Rostrum brunneum; *mandibularum basis* et *regio parotica* nudæ coccineæ.

Male.—The head, throat, and chest dull red, with a narrow band of white separating the chest from the breast; the rest of the under surface bright scarlet; back and upper tail-coverts sandy-brown; the wing-coverts finely lined with black and white; primaries black, externally margined with white; two middle tail-feathers chestnut-brown tipped with black, the next two on each side wholly black, the rest black only at their base, with the remaining portion white; naked space round the eyes red; bill black.

Female.—Similarly clothed to the male, except that the whole head and chest are sandy brown, and the linear markings on the wing are brown on a black ground instead of white, which is characteristic of the male only.

Total length from 12 to 13 inches; wing 5; tail $6\frac{1}{2}$ to 7.

Trogon erythrocephalus. Gould, P. Z. S. 1834, p. 25.—Id. Monogr. Trogon. pl. 33.
——— *flagrans.* Müll. Tijdschr. N. G. 1835, p. 336, pl. 8. fig. 2.
Harpactes erythrocephalus. Sw. Classif. B. ii. p. 337.—Gray, Gen. B. i. p. 71.—Id. Hand-l. B. i. p. 84.
——— *flagrans.* Gray, Gen. B. iii. App. p. 4.—Bp. Consp. i. p. 151.
Pyrotrogon flagrans. Bp. Consp. Volucr. Zyg. p. 14.—Cab. & Heine, Mus. Hein. Th. iv. p. 160, note.

Messrs. Cabanis and Heine, in their excellent account of the Trogonidæ in the 'Museum Heineanum,' separate *Pyrotrogon hodgsoni* and *P. erythrocephalus* as two distinct species, keeping the latter title for the Sumatran bird. They state that the latter is very like *P. hodgsoni*, but is smaller in every way, with a shorter wing and tail, the bill being a trifle shorter and stouter and brighter-coloured. As will be seen by a reference to the first edition of this 'Monograph,' the above remarks are very similar to those made by myself respecting these two species; but I have not been able since the publication of that opinion, to add to it either one way or the other; for, beyond the specimens submitted to me by Mr. Temminck, I have seen no more Sumatran examples. While admitting the smaller size and probable distinctness of the island form, I must remind ornithologists that it will probably have to bear the title of *H. flagrans* (Müll.), as my *H. erythrocephalus* came from Burmah, and the probability is that the Burmese and Nepalese Red-headed Trogons are not distinct from each other. The following are the comparative measurements of *H. hodgsoni* and Sumatran *H. erythrocephalus*:—

H. hodgsoni. Total length $13\frac{1}{2}$ inches; wing $5\frac{1}{2}$; tail 8; tarsus $\frac{3}{4}$.
H. erythrocephalus. Total length $11\frac{1}{8}$ inches; wing 5; tail $6\frac{1}{2}$; tarsus $\frac{3}{4}$.

The figures in the Plate are, as nearly as possible, of the natural size.

HARPACTES REINWARDTI.

J. Gould and H. C. Richter, del. et lith.

T. Walter, Imp.

HARPACTES REINWARDTI.

Reinwardt's Trogon.

Specific Character.

Mas. *Capite, dorso tectricibusque caudæ superioribus saturatè viridibus; pectore olivaceo-brunneo; ventre flavo, ad latera aurantiaco.*

Male.—Crown of the head, back, wing-, and upper tail-coverts dark shining green; centre of the wing dark green, crossed by numerous narrow wavy lines of dull yellow; primaries greyish black, margined externally with white; six middle tail-feathers dark glossy green; the three lateral feathers on each side of the same hue at the base of the outer web, and greenish slate-colour on the inner, the outer feather margined with white throughout the entire length of its outer web, the next on each side from near the base to the tip, and the third for about half its length from the tip, all three tipped with white; throat pale orange-yellow; across the breast a broad band of yellowish olive-brown; breast and all the under surface rich orange-yellow; bill deep red; orbits cobalt-blue; space between the orbits and bill pea-green; feet orange.

Total length from $12\frac{1}{2}$ to $13\frac{1}{2}$ inches, *bill* $\frac{7}{8}$, *tail* $7\frac{1}{2}$, *wing* $5\frac{1}{2}$.

Female.—Similar in colour; but the green of the head is duller; the throat is pale yellowish white; the band across the breast is greyish brown, without any of the yellow suffusion seen in the male; the orange of the abdomen is much paler; and the wavy lines of yellow on the centre of the wing are broader, paler, and more conspicuous.

Trogon Reinwardti, Temm. Pl. Col. 124.—Id. Mon. of Trog. in Pl. Col.—Less. Traité d'Orn., p. 122.—Gould, Mon. of Trog., pl. 27.

——— *Reinwardtii*, Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 221.

Apaloderma Reinwardii, Swains. Class. of Birds, vol. ii. p. 337.

——— *Reinwardtii*, Gould, Mon. of Trog., syn. spec *Apaloderma*, sp. 2.

Trogon (Apaloderma) Reinwardtii, Gould, Mon. of Trog., List of Plates, sp. 27.

Harpactes Reinwardtii, Hartl. Verz. Mus. Brem., p. 12.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 9.—Gray, List of Spec. of Birds in Coll. Brit. Mus., pt. ii. sect. i. *Fissirostres*, p. 45.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 9.

——— *Reinwardtii*, Gould, Birds of Asia, part xvii. pl. 4.

Apalharpactes Reinwardtii, Bonap. Consp. Vol. Zygod. p. 14. gen. 5 *e*. 43.

"*Trogon sulphureus*, Begbie," Bonap. Consp. Gen. Av. tom. i. p. 151, in syn. *Harpactes*, sp. 9.

Hapalarpactes Reinwardti, Cab. et Heine, Mus. Hein., Theil iv. p. 162.

Trogon Reinwardti, Huxl. in Proc. Zool. Soc. 1867, p. 444.

The native country of this fine bird is Java, where it was discovered by Professor Reinwardt; and Mr. Wallace informs me it inhabits the western parts of the country, up to an altitude of 6000 feet above the sea.

In the account of the *H. Reinwardti* given in the first edition of this Monograph, I stated that I was indebted to my late valued friend Temminck for an example of the young, a figure of which is given in the accompanying Plate, and, as illustrating the change the bird undergoes between youth and maturity, will not be uninteresting. It will be seen that although, in this immature state, it exhibits a similarity to the adult, particularly in the colours of the back and tail, it differs in the markings of the wings and in the rufous-brown tint of the breast.

The Plate represents a male and a young bird, of the size of life. The Plant is the *Medinilla Javensis*.

J. Gould and H.C. Richter, del. et lith.

HARPACTES MACKLOTI.

T. Walter, Imp.

HARPACTES MACKLOTI.

Macklot's Trogon.

SPECIFIC CHARACTER.

Mas. *Similis* HARPACTI REINWARDTI, *sed valdè minor.*

Male.—Head, neck, and a broad band across the chest olive-green; back metallic or shining green; middle and greater wing-coverts, tertiaries, and outer margins of the secondaries crossed with fine lines of golden yellow; tail dark green, tinged with blue; the three outer feathers on each side tipped and externally margined with white; irides blackish brown; naked orbits blue; space posterior to the gape light green; on the lower eyelids a spot of yellowish white.

Total length $10\frac{7}{12}$ inches, *bill* $9\frac{1}{2}$ lines, *wing* 5 inches, *tail*, $6\frac{1}{2}$.

Female.—Similar in colour, but with the transverse stripes on the wings smaller and paler.

Trogon Mackloti, Müll. Tijdschr. Nat. Gesch., 1835, p. 336, tab. 8. fig. 1.
Harpactes Mackloti, Gray and Mitch. Gen. of Birds, vol. iii. App. p. 4.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes,* sp. 10.—Gould, Birds of Asia, part xvii. pl. 5.
Apalharpactes Mackloti, Bonap. Consp. Vol. Zygod., p. 17. gen. 5 *e.* 44.
Hapalarpactes Mackloti, Cab. et Heine, Mus. Hein., Theil iv. p. 163.

THE *H. Mackloti* is much inferior in size to the *H. Reinwardti.* By some ornithologists they might be considered races of the same species; but I have never seen races differing in size to such an extent. That they represent each other in the respective islands they inhabit is certain, and that we are right in considering them distinct there can be no doubt.

"I have named this species," says Dr. Müller, "in memory of my unfortunate friend and companion for many years, Macklot. It is smaller than the *Trogon Reinwardti* of Temminck, but very much resembles it. The chin, the throat, the whole of the belly, and the under tail-coverts are yellow, on a white ground; the remainder of the head and neck, and a broad band across the chest, olive-green; the back has a beautiful metallic lustre of bottle-green, with a large rust-coloured spot on the uropygium. The middle and larger upper wing-coverts, the tertiaries, and the outer margins of the secondaries are adorned with fine transverse golden-yellow stripes; tail dark green, with a steel-blue tint; the six middle feathers equal in length, and one-coloured; the three outer on each side have white terminal points, and each has a white margin along the outer edge; toes and nails red; eyes blackish brown; naked orbits beautiful blue; space immediately behind the angle of the mouth light green; lower eyelids with a yellowish-white spot.

"Total length $10\frac{7}{12}$ in., French measure; tail $5\frac{11}{12}$; the coral-red bill, from the angle of the mouth to the point, $9\frac{1}{2}$ lines long, 7 lines broad at the base; expanse of the wings 1 foot 2 inches and 9 lines.

"The female is much the same as to colour, but has not the rusty-brown spot on the uropygium, and the yellow stripes on her wings are smaller and fainter.

"The bird was found in the woods on the southern side of the mountains of Singallang in Sumatra."

Thus much only has been written respecting this bird by Dr. Müller, in whose opinion that it is distinct from *H. Reinwardti* I fully concur; as yet, however, I have never met with an example bearing the rusty-brown spot on the uropygium described by him. Can this be a mark of immaturity, and Dr. Müller unconsciously have taken his description from a specimen which had not yet completed its second moult?

The figures are of the size of life. The plant is the *Plectocomia Assamica.*

HARPACTES ORESKIOS.

J. Gould and H. C. Richter, del. & lith.

T. Walter, Imp.

HARPACTES ORESKIOS.

Mountain Trogon.

Specific Character.

Mas. *Capite, gutture pectoreque lutescentibus; ventre aurantiaco in medio, et ad crissum flavo.*
Fœm. *Capite, pectore dorsoque sordidè brunneis; ventre flavo, ad latera subaurantiaco.*

Male.—Crown of the head, throat, and chest greenish yellow; back and upper tail-coverts rich deep chestnut; wings black, their centres rayed with strong bars of white; primaries margined externally with white; two centre tail-feathers rich deep chestnut, crossed at the tip with a narrow band of black, the two next on each side black; three outer feathers black at the base and white at the tip; breast and flanks rich orange, becoming paler on the belly and vent; thighs black; bill black at the tip, yellow at the base; legs and feet flesh-colour.

Total length 10 to $10\frac{3}{4}$ inches, *bill* $\frac{3}{4}$, *wing* $4\frac{3}{4}$, *tail* $6\frac{1}{2}$.

Female.—Head, chest, and all the upper surface dull brown, becoming richer on the lower part of the back and the two middle tail-feathers; the transverse marks on the centre of the wings yellow instead of white, and the under surface yellow, inclining to orange only on the flanks.

Trogon oreskios, Temm. Pl. Col. 181.—Id. Mon. of Trog. in Pl. Col.—Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 220.—Less. Traité d'Orn., p. 121.—Gould, Mon. of Trog., pl. 36.

Harpactes Gouldii, Swains. Class. of Birds, vol. ii. p. 337.

——— *oreskios*, Gould, Mon. Trog., syn. spec. *Harpactes*, sp. 8.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 8.—Gray, List. of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i. *Fissirostres*, p. 45.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 8.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 716.—Gould, Birds of Asia, part xvii. pl. 3.

——— *oreskios*?, Wald. in Proc. of Zool. Soc. 1866, p. 538.

Trogon (Harpactes) oreskios, Gould, Mon. Trog., List of Plates, sp. 36.

Oreskios Gouldi, Bonap. Consp. Vol. Zygod., p. 14, gen. 5 *d*. 41.

Orescius Gouldi, Cab. et Heine, Mus. Hein., Theil iv. p. 161.

The native country of the *Harpactes oreskios* is Java, where it appears, from the number of skins sent to Europe, to be tolerably common, and where all the specimens in my collection have been obtained. I have never seen the bird from Malasia, Tenasserim, or any portion of the Malay peninsula; but it is stated by Viscount Walden, in the Proceedings of the Zoological Society above referred to, to have been found by Captain Beavan at Kookarit Island, Salween River; his Lordship, however, qualifies this statement with a mark of doubt as to the identity of the bird there observed with the present species. It is to be regretted that neither Sir Thomas Stamford Raffles nor Dr. Horsfield, by both of whom the *Harpactes oreskios* must

have been seen in its native wilds, has given any account of its habits and economy. It is a richly coloured species, and is rendered conspicuously different from all its congeners by the peculiar waxen yellow tint of its head and throat, and by the absence of any naked skin round the eyes. The scarlet tints which predominate in the plumage of many of the other species is replaced in the present one by orange, particularly on the breast and under surface. It must be a very beautiful object in its native woods; but with the departure of life the glory of its plumage disappears, for it is never to be seen in dried skins.

When treating of this species in the 'Planches Coloriées,' Temminck states that science is indebted to MM. Diard and Reinwardt for the first knowledge of its existence; and Kuhl informs us that it inhabits woods and mountains, and subsists on insects.

The sexes offer the usual differences, the female being less brilliant, and having the wings barred with yellow and brown instead of black and white.

The figures represent the two sexes, of the size of life. The plant is the *Hoya* (*Otostemma*) *lacunosa*.

Donation collected
Jan 3, 1892 [illegible]

MONOGRAPH OF THE TROGONIDÆ.

BY

J. GOULD.