

as the animal must sometimes move and must be sometimes turned over, we ought to find some specimens with the flexure partly on one side and partly on the other, but no such specimens have occurred to me.

I am inclined to believe that it arises from some peculiar predilection of the animal itself, by which it probably more easily obtains its food in the peculiar situation in which it resides.

These shells were sent to England from China by one of Mr. Fortune's collectors. They were accompanied by some specimens of reptiles and insects, on which the Chinese collectors had been exercising their ingenuity in hopes of adding to their value. Thus there was a stuffed specimen of a Night Lizard (*Gecko Reevesii*) which had a square tuft of hair from some mammal stuck on the back of its neck.

A Snake, which had the claw of a mammal surrounded with fur inserted on each side of its neck just behind the head, so as to make it appear as if it had rudimentary feet armed with large claws.

Several of the Coleopterous insects, especially the larger *Cerambyces*, were painted, so as to give them quite a different appearance from the usual and natural colour of the species.

I may add that the work was so coarsely executed as to be discovered on the most cursory examination of the specimens, and could only have been intended to deceive the most ignorant collectors.

3. OBSERVATIONS ON THE GENUS *NERITA* AND ITS OPERCULUM. BY DR. J. E. GRAY, F.R.S., V.P.Z.S., PRES. ENT. SOC., ETC.

The distinction of the species of this genus is rather difficult; therefore whatever assists in dividing the species into smaller groups is of use, as limiting the number of species between which any doubt can be entertained.

Considerable confidence has therefore been placed in the form of the surface of the inner lip, which in some species is smooth, in others tubercular or ridged, or both ridged and tubercular; but in examining a large series of specimens from the same locality, though the character is generally permanent, the tubercles or ridges vary considerably in number and size, and are sometimes almost entirely wanting. It is to be observed that in many of the species which have this part tubercular, the tubercles are more distinct and crowded in the younger, and especially the youngest, than in the older, or what is usually called the more perfectly developed state of the species. In other genera such characters are generally more developed in the shells formed in the most perfect state of the animal. Mr. Adams has formed subgenera on the surface of the inner lip.

My studies on Mollusca have proved to me that few parts offer

more important and better characters for the separation of the families, genera and species, than the operculum. This has been illustrated in the family *Neritidæ*.

The family is well characterized by the form of this part, and the possession of the internal apophysis or shelly lobe under the nucleus forming a kind of hinge on the sharp inner lip of the shell.

In my paper in the 'Philosophical Transactions' for 1833, I stated that the structure of the operculum offered the best character to separate the *Neritæ* from the *Neritinæ*, and I there observed, "The operculum of *Nerita* agrees in form with that of *Neritina*, but differs in having no cartilage on its edge, which is furnished instead with a groove in its outer surface, being covered with a thick, variously formed shelly deposit as in the genus *Turbo*, and in its inner surface being lined with a thick, callous, polished coat. Between the outer and inner coat there exists a very distinct concentrically striated horny layer, like the operculum of *Littorina*, and the left muscular scar is deeply grooved like that of the subannular operculum.

"This difference in the structure of their opercula forms an excellent distinctive character between these two genera."

In the same paper I observed, "The difference in the outer surface of the opercula of the genus *Nerita* affords a good character for the separation of the species."

I have lately had an opportunity of examining a large number of freshly collected *Nerites*, with their opercula dried in the mouth of the shell, so that there can be no doubt that they are the real opercula of the species, and that these opercula have not been put into the mouths of the shells at random, as is too often the case with shells which have passed through the hands of dealers*.

The species may be divided according to their opercula as follows:—

1. *Operculum polished, with a broad, slightly raised, concentrically grooved, submarginal band.* *Nerita*.

N. polita. Costal grooves arched (fig. 1).

N. lineolata. Costal grooves straight (fig. 2).

2. *Operculum polished, with a broad, slightly raised, granulated, submarginal band.* *Ritena*.

N. plicata (fig. 3).

The specimens vary slightly in the distinctness, and especially in the breadth, of the tubercular submarginal band.

3. *Operculum with a broad, raised, convex, smooth, submarginal band.* *Tenare*.

* *Operculum smooth.*

N. Peloronta (fig. 5).

* In Adams's Genera of Shells, t. 42. f. 1, *a, b*, a granular operculum, probably that of *N. signata*, is figured as that of *Nerita polita*.

**** Operculum granular.**

N. ornata (fig. 4). The younger shells have the inner lip more granular, and the adult more ridged.

4. *Operculum uniform, granular, without any raised or distinct submarginal band.* Natere.

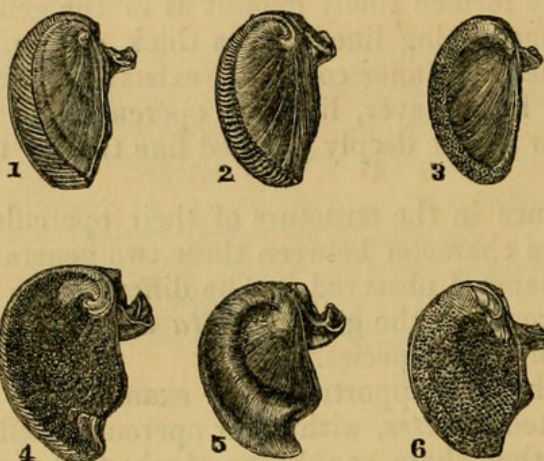
*** Inner lip granulated.**

N. exuvia.

N. Malaccensis.

N. albicilla (fig. 6).

N. Senegalensis.



1. *Nerita polita.*

4. *N. ornata.*

2. *N. lineolata.*

5. *N. Peloronta.*

3. *N. plicata.*

6. *N. albicilla.*

**** Inner lip ridged.**

N. variabilis.

N. Chameleon.

N. versicolor.

N. tessellata.

***** Inner lip smooth.**

N. signata. The granules large, in lines.

N. atra.

N. inconspicua.

The *Puperita pupa*, from the West Indian Seas, has an operculum of a single coat, with a polished surface like *Neritina*. This genus, in the 'Guide to the Mollusca in the British Museum,' is by mistake put in the same section as *Nerita*, instead of that of *Neritina* (see p. 137).

February 23, 1858.

Dr. Gray, F.R.S., V.P., in the Chair.

Mr. Gould brought before the notice of the Society a highly interesting series of birds collected by Mr. A. R. Wallace in the Aroo Islands. Among them were two species of Birds of Paradise—*Paradisea apoda* and *P. regia*. Hitherto these magnificent birds have only been sent to this country in a mutilated condition, their skins having been prepared and dried by the Papuans frequently without their wings, and almost always without their legs; Mr. Wallace's skins, however, are perfect, and in the highest possible condition. They comprise not only adult males and females, but young birds in various stages of development. Mr. Gould remarked that the ornithology of the Aroo Islands, like that of New Guinea, partook more of the character of the Australian fauna than of any other. The *Picidæ* (Woodpeckers) and *Bucerotidæ* (Hornbills), so common in India and the Indian Islands, are totally wanting, while the *Meliphagidæ* (Honeyeaters) and the *Halcyonidæ* (Kingfishers) are very numerous; on the other hand, the collection did not contain a single *Malurus*, nor any of the *Finches*—forms represented by numerous species even in the northern parts of Australia. Mr. Gould, in remarking upon the beautiful plumes which adorn the *Paradiseæ*, stated that he considered they were in their most perfect state just prior to the breeding season, and that the bird was then adorned in its greatest beauty,—a beauty assumed apparently not only for the purpose of attracting the females, but to exhibit to each other their gorgeous finery, when they assemble and perform many curious and extraordinary evolutions. In South America the Cock of the Rock (*Rupicola*) has many singular habits at the like season, while in Australia the Bower Birds attract every one by the curious structures they make for a similar purpose: Mr. Gould instanced also the Peacock, the Turkey, and the well-known Ruff of the British Islands, as birds which assemble and make such displays.

The following papers were read :—

1. NOTES ON SOME BIRDS FROM SOUTHERN MEXICO.
BY PHILIP LUTLEY SCLATER, M.A., F.L.S.

M. Edouard Verreaux of Paris has lately received a very fine series of birds from the *tierra caliente* of Southern Mexico—the same country where the collections made by MM. Sallé and Botteri, which I have already brought before the notice of this Society, were formed. He has kindly submitted to my inspection specimens of such of the species as have not been included in my former lists, concerning which I beg to offer the following remarks, together with a few corrections of statements made in my previous papers on this subject.

1. *MICRASTUR GILVICOLLIS*.—*Sparvius gilvicollis*, Vieill. ; *M. concentricus*, Auct.

A fine specimen in M. Verreaux's Mexican collection agrees perfectly with Mr. Cassin's plate and description of *M. guerilla* (Journ. Acad. Philad. ii. p. 295. pl. 40), and I have no doubt is the same bird. M. Jules Verreaux writes to me that he considered this at first to be the young of *M. concentricus*, though he was afterwards inclined to alter his opinion. Mr. George Gray and Mr. J. H. Gurney, however, both regard this example as referable to an immature stage of *M. concentricus*, and such will probably be found eventually to be the case. The specimen in question has been selected by Mr. Gurney for the Norwich Museum.

2. *CICCABA HUHULA* (Daud.) ; Bp. Consp. i. p. 43 ?

An example, which I am unable to refer otherwise than to this species, has the white feather-margins on the upper surface nearly evanescent, leaving the back nearly uniform slaty black. M. Jules Verreaux, who has examined a second example, considers it as a decidedly different species, probably undescribed ; but I should wish to consult a larger series of specimens before determining as new a bird of this difficult group.

3. *SCOPS FLAMMEOLA*, Kaup.—*Strix flammeola*, Licht. in Mus. Berol. ; *Ephialtes flammeola*, Licht. Nomencl. p. 7.

This diminutive species of *Scops* is described by Kaup in a Monograph of Strigidæ, which will shortly appear in the Society's Transactions. A single specimen obtained by M. Sallé from the vicinity of Jalapa is in the late Prince Bonaparte's collection.

4. *TROGON MASSENÆ*, Gould, Mon. Trog. pl. 16.

M. Verreaux's collection embraces fine examples (♂ et ♀) of this splendid species.

5. *DENDROCOLAPTES SANCTI THOMÆ*. — *Dendrocops sancti thomæ*, Lafr. Rev. et Mag. de Zool. 1852, p. 466.

In M. Verreaux's collection is a fine specimen of this bird, for which I believe M. de Lafresnaye's name is unfortunately chosen, as the present example is from Southern Mexico, and I possess another from Honduras. Besides, I recognize the same species among some drawings by Mr. Bell, of birds obtained on the coast of Mosquitia. I therefore doubt whether it really occurs in the island of St. Thomas, and consider S. Mexico and Central America as its true habitat.

+ 6. *CYPHORINUS PROSTHELEUCUS*. — *Scytalopus prosthaleucus*, ScL. P. Z. S. 1856, p. 290.

I have already made some remarks on this species, which is by no means a *Scytalopus*, but a *Cyphorinus*, closely allied, if not identical, with Cassin's *C. leucostictus*. See *antea*, p. 63.

7. *GRANATELLUS SALLÆI*, Sclater, P. Z. S. 1856, p. 292.

The Vicomte B. Du Bus having kindly forwarded me a copy of his plate of *Granatellus venustus*, it appears that my bird is certainly a good second species of the genus. Mr. George Gray has also shown me an imperfect specimen of *G. venustus* in the British Museum (where the type of *G. sallæi* is also to be seen), whence the same deduction may be drawn.

+ 8. *CATHARUS MELPOMENE*. — *Turdus melpomene*, Cab. Mus. Hein. p. 5; *Catharus aurantiirostris*, Sclater, P. Z. S. 1856, p. 294.

Having forwarded a Mexican specimen of this Thrush to Dr. Hartlaub of Bremen, he informs me that his *C. aurantiirostris* from Venezuela is a different species, distinguished by the olive-green of its upper plumage. We may therefore employ for the Mexican bird (which will form a second member of the genus) the specific term *melpomene*, Cabanis' *Turdus melpomene* being doubtless intended for this bird.

9. *PACHYRAMPHUS MAJOR* (Cab.), Sclater, P. Z. S. 1857, p. 78.

This is the bird which I have inserted in the List of M. Sallé's first collection as *P. marginatus*? (P. Z. S. 1856, p. 298).

10. *MYIADESTES UNICOLOR*, Sclater, P. Z. S. 1856, p. 299.

An examination of the specimens of *Myiadestes townsendi* in the collection of the Academy of Natural Sciences of Philadelphia, has shown to me that I was right in considering it different from *M. obscurus* and the present species.

The following is a short description of *Myiadestes townsendi* :—

Brunnescenti-cinereus, alis caudaque nigricantibus, secundariarum marginibus externis albis; fascia alarum duplici extus apparente pallide fulva: rectricibus duabus utrinque extimis albo terminatis: annulo oculari albo.

Long. tota 8·0, alæ 4·4, caudæ 4·0.

M. townsendi was originally discovered by Mr. Townsend on the Columbia river. Dr. Gambel met with it in the mountains between the Rio Colorado and California (Journ. Ac. Philad. i. p. 41), and Dr. Woodhouse found it exceedingly abundant in the Zuni Mountains and from there westwards (see Sitgreave's Report, p. 76). The sexes are coloured alike, as is, I believe, the case in all the species of this genus.

11. *ICTERUS MELANOCEPHALUS* (Wagler), Cassin, B. California, pl. 21. p. 137.

Two different birds appear to have been confounded under the name of *Icterus melanocephalus*. Examples of both these have been forwarded to me by M. Verreaux for examination, and I have likewise specimens of each in my own collection. In general appearance they are much alike; but one (which appears to be Wagler's

species) is rather larger and stronger, and has the greater wing-coverts and secondaries broadly margined exteriorly with white, and has narrow white edgings to the exterior tail-feathers. The other is smaller, weaker, and has the wings and tail uniform black without edgings. This seems to be the bird represented by Mr. Cassin as *Ict. melanocephalus*. He says that the sexes are coloured nearly alike. My specimen of the former bird is from Orizaba, collected by M. Botteri; of the latter from the *tierra caliente*, I believe. An apparently female bird of true *melanocephalus* has the wing- and tail-feathers brown and the general plumage more greenish, but still shows signs of the white edgings of coverts and secondaries. I am not confident as to the real distinctness of these two birds, and for the present forbear to separate them by name; but I cannot avoid acknowledging that they seem to be different.

12. CASSIDIX ORYZIVORA, Cab. Mus. Hein. p. 194.

In M. Verreaux's collection from Southern Mexico are specimens referable to this rather variable species. I have examples also from New Grenada, and it appears to extend over Guiana and Brazil.

13. HÆMOPHILA RUFESCENS, Sw.

The bird described by Prince Bonaparte in the 'Comptes Rendus' for May 12th, 1856, as *Geospizopsis melanotis* (of which I have lately obtained a specimen) is the young either of this species or of *H. superciliosa*, for at present I am unable to distinguish the two satisfactorily. I have already shown that *Geospizopsis typus*, the so-called second bird of the genus, is a female of a species of *Phrygilus* (vide P. Z. S. 1855, p. 160), so that this ugly generic name may be altogether cancelled as useless.

14. GEOTRYGON ALBIFACIES.

Peristera mexicana, G. R. Gray in Mus. Brit.

Peristera albifacies, G. R. Gray in Mus. Brit.

Geotrygon chiriquensis, Bp. Compt. Rend. Orn. Foss. &c. p. 21 (nec *Sclateri*).

Rufo-cinnamomeus, interscapulio purpurascens, alis extus castaneis; pileo toto griseo frontem versus canescente; hoc pure albo: subtus pallide rufescenti-ochraceus, gula albicante, cervice antica et laterali nigro squamulata: pectore plumbescente tincto; remigibus alarum et caudæ rectricibus nigricantibus, his supra brunnescentioribus et (nisi in duabus mediis) albo late terminatis: rostro nigro: pedibus corallino-rubris.

Long. tota 10·5, alæ 6·3, caudæ 3·5, tarsi 1·6.

There has been a great deal of confusion about this Pigeon, caused principally by the practice of publishing names without descriptions, which leaves anybody else who is at work at the same group, the privilege of guessing at what may be the species intended, unless he likes to adopt the safer and more reasonable course of ignoring such

names altogether. This bird is identical with an imperfect specimen in the British Museum, which is named "*Peristera mexicana*" in the 'List of Gallinæ,' &c. published in 1824 (p. 15), and "*Peristera albifacies*" in the 'List of Pigeons' published in 1856 (p. 55), but not described. Prince Bonaparte, making a bad guess at what the bird in question might be, in his 'Conspectus,' part 2, attributed both these names to another bird belonging to a different section, *Leptoptila* (Consp. ii. p. 74. sp. 5), and nearly allied to the *Leptoptila jamaicensis* and *L. rufaxilla*. In the "Additions et Corrections au Coup d'Œil sur l'Ordre des Pigeons," published in the 'Comptes Rendus' for Nov. 1856, the Prince, having discovered his error, proposes to retain the name *Leptoptila albifrons* for the bird so described in his 'Conspectus' (hinting at the same time that it is the same as *Peristera brachyptera* of the B.M. List), and states that the present species of *Geotrygon* is identical with Cabanis' *Geotrygon caniceps*. In this, however, as far as I can make out from the imperfect characters there given, he has fallen into two fresh errors. In the first place, the true *Geotrygon caniceps* of Cuba (Journ. f. Orn. 1856, p. 110) appears certainly distinct from the present *Geotrygon albifacies*. Secondly, the bird described by Prince Bonaparte as *Geotrygon chiriquensis* in the same place (p. 21) is not my *Geotrygon chiriquensis* (P. Z. S. 1856, p. 143), but seems to be the present bird, *G. albifacies*—distinguishable at once from *G. chiriquensis* by the white terminations of the tail-feathers. For my knowledge of this last fact I am indebted to M. Jules Verreaux, who has carefully compared specimens of both the species.

The *Geotrygon albifacies* was obtained by M. Sallé in the environs of Jalapa, and has been received by M. Verreaux from the same part of Mexico. I have taken my characters from a fine example belonging to his collection.

The result of the several papers which I have written on the Ornithology of Southern Mexico gives as inhabiting that country—

1. Accipitres	33
2. Passeres	243
3. Scansores	30
4. Columbæ	11
5. Grallinæ	8
6. Grallæ	22
7. Anseres	7

354 species.

2. NOTE ON THE SKELETON OF THE SHEATH-BILL (*CHIONIS ALBA*). BY T. C. EYTON, Esq., F.L.S.

The general appearance of this skeleton is similar to that of the Plovers; the fissures on the posterior part of the sternum are, however, not quite so deep in proportion to its length, nor is the keel so

broad, but its form is very similar, and distinct from that of other grallatorial birds. It differs from *Thinochorus* (with which I at first thought it might be allied) in having two fissures in the posterior margin of the sternum, *Thinochorus* having but one. On comparing the skeleton with some portion of the skeleton of *Glareola pratincola*, the bones are almost identical in form, particularly the sternum, head and pelvis. I should therefore be inclined to place *Chionis* and *Glareola* in the same family.

Mr. G. R. Gray arranges this form along with the *Thinocorinæ* in his order 'Gallinæ'; Prince Bonaparte, in his 'Conspectus Systematis Ornithologiæ' (1854), places it next to the Gulls, in the order 'Gaviæ.'

3. OBSERVATIONS ON THE GENUS CUSCUS, WITH THE DESCRIPTION OF A NEW SPECIES. BY DR. J. E. GRAY, F.R.S., V.P.Z.S., PRES. ENT. SOC., ETC.

(Mammalia, Pl. LXI. LXII.)

Mr. Wallace having sent two specimens of this genus to the British Museum, to determine them I went over the previous observations on the genus, and examined the numerous specimens which are in the Museum collection, received from the French voyages of discovery, Mr. J. Macgillivray, the Naturalist of H.M. Ship 'Rattlesnake,' and those now sent from the Island of Ula; and I have come to the belief that they are all to be referred to four species, which are very variable in the colour of the fur; one being variable in both the sexes, and the other, in which the sexes differ greatly from each other, but appear to be permanent in their colour; one species in which the furs of the two sexes are alike and uniform in colour; and one, of which the female sex only is known, which is uniform iron-grey.

The two have the ears small, hairy on both sides, and hidden in the fur; the other two have larger ears, exposed beyond the fur and bald within.

Herr Temminck, in the first volume of the 'Monographies de Mammologie,' published in 1827, divides the short hairy-eared kinds into three species.

At the time he wrote he only had specimens from the northern part of Celebes, brought home by Professor Reinhardt, and from the islands of Banda and Amboyna.

The species evidently depend principally on the colour of the fur, which appears to be very variable in different individuals. It is true that he describes and figures skulls of the different individuals; but the difference between those of *Phalangista chrysorrhæos* and *P. maculata* appears chiefly to depend on the age and development of the specimen figured. M. Temminck and the writers of his school always forget that the skull and other parts of the skeleton are liable to quite as much variation from local circumstances, food,





Welf, lith

M & N. Hanhart, Imp.

CUSCUS CELEBENSIS, ♂ & ♀ Gray.

and other accidental causes, as the colour of the fur or the size of the animal.

1. In *Phalangista ursina* the fur is thicker and closer, and the long hairs thicker than in the other species, blackish, with yellow tips to the longer hairs; and the forehead of the skull is flat. Of this he had several specimens of different ages, all brought by Professor Reinhardt from the northern part of Celebes, the natives of which have not observed any varieties in colouring.

2. *P. chrysorrhos* is described from two specimens brought home by the same Professor, from some of the Moluccas, which have a short cottony fur, of an ash-grey more or less black, and the rump and upper part of the base of the tail golden-yellow.

3. Of *P. maculata* Herr Temminck particularly observes, that the fur in all ages and in both sexes is covered with irregular white or brown spots, which are paler and less marked in the young. The very young are sometimes entirely ashy. They come from Banda and Amboyna.

The yellow colour of the rump and the base of the tail, as far as the specimens in the British Museum show, is common to the ashy specimens, which might be called *P. chrysorrhos*, and the variegated specimens, which might be named *P. maculata*: it is very difficult to distinguish the pale-rumped ashy ones from those without that mark; but it is easy to connect the grey or ashy spotted ones with either the one or the other; and it is impossible to separate the ashy-grey spotted ones from the brown or orange spotted specimens. In one specimen the animal is nearly white, with some small dark spots about an inch over; and in another the animal is white, with red feet, and one large red spot on the middle of the back.

From the examination of the specimens in the British Museum, and of their skulls, I am inclined to believe that the *P. ursina* is distinct, and that *P. chrysorrhos* and *P. maculata* are varieties of the same species.

1. CUSCUS MACULATUS.

Ears almost hidden in the fur, clothed internally and externally with fur; forehead convex; forehead of the skull convex and rounded in front; grinders moderate; fur ashy-grey, or white and grey, or reddish, varied or spotted. Rump and base of the tail yellowish-white.

Phalanger, male, Buffon, H. N. xiii. t. 11.

Phalangista maculata, Desm. N. D. H. N. xxv. 472; Temm. Monog. i. 14. t. 3. f. 1-6; Quoy & Gaim. Voy. Uran. Zool. 59. t. 7; Waterh. Mamm. i. 274. f. .

Phalangista ursina, part., Waterh. Mamm. 267.

Phalangista chrysorrhos, Temm. Monog. i. 12; Waterh. Mamm. i. 271.

Cuscus maculatus, Lesson & Garnot, Voy. Coq. Zool. 150. t. 4.

Cuscus macrourus, Lesson & Garnot, Voy. Coq. Zool. i. 156. t. 5; Waterhouse, Mamm. i. 277.

Hab. New Guinea.



Gray, John Edward. 1858. "OBSERVATIONS ON THE GENUS NERITA AND ITS OPERCULUM." *Proceedings of the Zoological Society of London* 1858, 92–105.
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