March 23, 1847.

William Yarrell, Esq., Vice-President, in the Chair.

The following communications were read:—

1. NOTE ON THE BREEDING OF THE OTTER IN CONFINEMENT IN THE ZOOLOGICAL GARDENS, REGENT'S PARK, IN 1846. BY JAMES HUNT, HEAD KEEPER.

The female Otter was presented to the Society by Lady Rolle on the 4th of February 1840, being apparently at that time about three months old. She remained without a male till the 11th of March 1846, when a large male was presented to the Society by the Rev. P. M. Brunwin, of Braintree, Essex, in whose possession it had been for some months, and had been kept in a cellar. His weight when first taken was 21 lbs., but he was not above half that weight when he arrived at the Gardens, having wasted much in confinement and become very weak in the loins, from which he soon recovered after his arrival. About a month after his arrival there was a continual chattering between him and the female during the night, which lasted for four or five nights; but they did not appear to be quarrelling. Nothing further was observed in their manners or in the appearance of the female to make me think she was with young, until the morning of the 13th of August, when the keeper that has the charge of them went to give them a fresh bed, which he does once a week; while in the act of pulling out the old bed he observed two young ones, apparently five or six days old, and about the size of a full-grown rat: he immediately put back the bed, with the young on it, and left them. On the 21st the mother removed them to the second sleeping-den, at the other end of their enclosure, and several times after she was observed to remove them from one end of the house to the other, by pushing them before her on a little straw; her object in removing them appeared to be to let them have a dry bed: on the 9th of September they were first seen out of the house; they did not go into the water, but crawled about, and appeared very feeble.

On the 26th of September they were first seen to eat fish, and follow the mother into the water: they did not dive into the water like the mother, but went into it like a dog, with their head above water; and it was not until the middle of October that they were observed to plunge into the water like the old ones. On the 22nd of December the water was let out of the pond for the purpose of cleaning it, which is done once a week: the animals were shut up in their sleeping-den, but they let themselves out when the pond was but half-full of water, and the young ones got into it and were not able to get out without assistance; after they had been in the water

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some minutes the mother appeared very anxious to get them out, and made several attempts to reach them from the side of the pond where she was standing; but this she was not able to do, as they were not within her reach. After making several attempts in this manner without success, she plunged into the water to them, and began to play with one of them for a short time, and put her head close to its ears, as if she was making it understand what she meant; the next moment she made a spring out of the pond, with the young one holding on by the fur at the root of the tail with its teeth; having safely landed it, she got the other out in the same manner: this she did several times during a quarter of an hour, as the young ones kept going into the water as fast as she got them out. Sometimes the young held on by the fur at her sides, at others by that at the tail. As soon as there was sufficient water for her to reach them from the side of the pond, she took hold of them by the ears with her mouth and drew them out of the pond, and led them round the pond close to the fence, and kept chattering to them, as if she was telling them not to go into the pond again.

2. NOTES IN ADDITION TO FORMER (Zool. Proc. 1843, p. 108, and 1846, p. 9) PAPERS ON SOUTH AMERICAN ORNITHOLOGY. BY T. BRIDGES, ESQ., CORR. MEMB.

The beautiful species of *Eudromia* mentioned in my letter to Mr. Waterhouse (Proc. for 1846, p. 9) proved to be the bird characterized by Mr. Vigors under the name of *Tinamotis Pentlandii* (Proc. 1836, p. 79). On September 15, 1845, I found three couple in the pass of Tapaquilcha, between the town of Calama and the city of Potosi: they were close to the snow, at an altitude of about 14,000 feet, with the *Pepoaza*, skulking among the isolated stones which not unfrequently occur in grassy places in the valleys of the main chain of the Andes. When they rise they utter a shrill and loud whistle, and fly a mile perhaps, getting up rapidly and shooting off in a horizontal direction.

About twenty miles further on the road I stopped at a post-house, and there the natives brought a fresh-laid egg, which they said was the egg of this species. There could be no doubt about it, as I was engaged at the time in skinning one of the three specimens we had obtained. It was light green, larger than a lapwing's, and very obtuse at each end. It had none of that polished texture which is so characteristic in the Tinamous. I regret that it was accidentally broken.

Although I sought for this bird in many similar situations throughout Bolivia, I never again succeeded in finding it.

Tinamotis elegans; *Eudromia elegans*, D'Orb. & Geoff. Mag. de Zool. 1832, t. 1.

I met with this species on the eastern side of the Andes—I believe it never occurs on the Chilian side—in the vicinity of the city of Mendoza, in the Argentine Republic. It has an immense range over the grassy plains at the base of the Andes which run southward

to Patagonia. I believe it generally is found in pairs; at least the only two I ever saw alive were together. My men informed me that it is abundant on the Pampas, near the forts of San Raphael and San Carlos, between 33° and 34° south lat.* The young bird presents no difference in plumage from the adults, having even the crest well-developed: it seems therefore to form an exception to the generally received rule, that where the parent birds have the same plumage the young is different from either.

The Indians have a singular method of taking this bird. Having attached a noose to the end of a cane four or five yards long, they walk round and round in gradually contracting circles, until they are near enough to slip the noose over its head, and then, with a sudden jerk, they strangle it.

Attagis Gayii, Geoff. et Lesson, Cent. Zool. t. 47.

I believe the Chilian and Bolivian species are identical. I found the bird on the same day as *Tinamotis Pentlandii*, inhabiting the margins of frozen brooks near the post-house of Tapaquilcha. The Indians there know it as the Puco-puco, from its call-note. Like *Thinocorus D'Orbignianus*, these birds evince great attachment to each other, and call immediately if separated. At that season they were in pairs and breeding, but I did not obtain the egg.

Diglossa carbonaria, D'Orb. & De Lafres.

Diglossa sittoides, D'Orb. et De Lafr.

Birds of this genus are found in the temperate region, where the thickets commence, at an altitude of from 8000 to 10,000 feet. I found these species among bushes of *Salvia* and *Eupatorium*, on the slopes which fall into the valley of Cochabamba, and most abundantly at a place called Ticquepaya. They have precisely the habits of flycatchers. *D. carbonaria* I have watched often, sitting motionless on the highest twig of a bush until he discovered a passing insect, on which he descended, and then returned to his post. I may mention that the vicinity of Cochabamba was the only district in which these two species occurred to me.

Diglossa mystacalis, De Lafr.; *Diglossa mystacea*, G. R. Gray in Gen. of Birds, pl. 42.

Lives entirely in the thickets, hopping from bough to bough, as if in pursuit of insects. I have often seen this species insert its bill into a scarlet and purple flower allied to the *Arbutus*, but whether for the purpose of capturing insects or of extracting honey I was not able to ascertain. Its habitat is the Yungas of La Paz.

I believe that the specimen described by M. le Baron De Lafres-naye was from my collection.

Colaptes rupicola, D'Orb., is a Bolivian species, entirely terrestrial. I found it on the elevated table-land called the Punas, which form the departments of Potosi, Chuquisaca, Cochabamba, La Paz, and

* The specimens now in the British Museum were obtained from this locality, as well as those of *Rhea Darwinii*.

Oruro. They are occasionally intersected by valleys and isolated mountains, but the unbroken plains are sometimes several leagues in extent. You find *C. rupicola* at an altitude of 12,000 to 14,000 feet, and generally in the grass, where it feeds. On being disturbed it takes an undulating flight towards some rock, on which it settles, for this country is entirely destitute of trees. It most frequently occurs in little companies of five or six.

Another species of *Colaptes*, which frequents the warm plains of Moxas, near the town of Trinidad, not unfrequently resorts to the trees which there grow in forest patches, and in this particular it resembles *C. chilensis*.

The genus *Dendrocolaptes*, as far as I have had opportunities of observing their habits, exactly resemble the woodpeckers, ascending the trees and searching the bark in a similar manner, and even supporting themselves by the tail. In the plains between the Indian town of Loretto and Trinidad, about long. 62°, I found a beautiful instance of the modification of form to a particular end, in the apparently singular species

D. procurvus, D'Orb. & De Lafr.

As far as my experience goes, it only occurs in the open palm-groves which crown the undulating elevations which here and there rise up above the ordinary level of this district. In them I found a palm called Mutacu, with foliage like the date-palm. The short peduncles of the fallen leaves afford shelter to numerous coleoptera, and they grow from the trunk in a curve exactly similar to that which characterizes the bill of this species, so that as he runs up the trunk he is able to search all these lurking-places to the very bottom, although their form renders them impregnable to every other assailant.

In the dense forests, where this particular palm is never to be found, I observed an abundance of the other species, but *D. procurvus* not once.

3. DRAFTS FOR A NEW ARRANGEMENT OF THE TROCHILIDÆ. BY JOHN GOULD, F.R.S. (CONTINUED—SEE ANTE, pp. 7, 16.)

The *Ornism. Sappho* of Lesson, and a nearly-allied species which I shall describe in the present paper, appear to differ in so many characters from all the genera of this family hitherto instituted, that I propose to place them in a distinct genus or subgenus, under the name of COMETES, with the following characters:—

COMETES, nov. gen.

Char. gen.—*Rostrum* capite longius, cylindraceum, decurvatum.

Cauda valdè furcata, plumis latis, truncatis. *Tarsi* nudi. *Pedes* moderati. *Digitus* et *unguis* postici digito et ungue mediis breviores.

Gen. char.—Bill longer than the head, cylindrical, and curving downwards; tail much-forked, feathers broad and truncate; tarsi bare; feet moderately large; hind-toe and claw shorter than the middle toe and claw.

1. COMETES SAPHO. *Ornism. Sappho*, Less., Ois. Mouch. t. 27, 28.

2. COMETES PHAON, sp. nov. *Com. (Mas) capite, collo, alarum tectricibus, et corpore inferiore, brunni-viridibus; dorso, caudæ tectricibus, caudæque, intensè fulgente coccineis; rectricibus ad basin nigro-fuscis, ad apicem holosericis atris; alis fuscis purpurascensibus; gula luminosè metallicè viridi.*

Male.—Head, neck, wing-coverts and under surface brownish green; back, upper tail-coverts and tail rich deep lustrous crimson; bases of the tail-feathers blackish brown; the tips deep velvety black; wings purplish brown; throat rich lustrous metallic green.

Female.—Tail of the same crimson colour as that of the male; she also possesses the lengthened and curved bill.

Total length, 7 inches; bill, $1\frac{1}{8}$; wing, $2\frac{3}{4}$; tail, 4.

This fine species is a native of Peru, and differs from the *Sappho*, which inhabits Bolivia, in having the tail rich crimson instead of flame-colour, and in having a much longer and more curved bill. The two specimens exhibited, which are male and female, have been kindly lent me, for the purpose of describing, by the Earl of Derby.

4. ON EIGHT NEW SPECIES OF AUSTRALIAN BIRDS; AND ON ANTHUS MINIMUS, VIG. AND HORSF., AS THE TYPE OF A NEW GENUS CHTHONICOLA, GOULD. BY JOHN GOULD, F.R.S.

ARTAMUS ALBIVENTRIS. *Art. loris, spatio infra oculum, et mento, atris; capite, collo, et dorso superiore, fusco-griseis; pectore et abdomine pallide griseis, colore griseo in tectricibus caudæ inferioribus albo mergente; tectricibus caudæ superioribus, caudæque, nigris; tertid parte apicali rectricum omnium, intermediis duabus exceptis, albd.*

Lores, space beneath the eye and the chin deep black; head, neck and upper part of the back brownish grey; lower part of the back and the wings dark grey, becoming gradually deeper towards the tips of the feathers; primaries and secondaries narrowly edged with white at the tip; under surface of the wing white; ear-coverts, chest, and abdomen pale grey, passing into white on the under tail-coverts; upper tail-coverts and tail black; the apical third of all but the two middle feathers white; irides dark brown; bill yellowish horn-colour, becoming black at the tip; feet blackish brown.

Total length, 7 inches; bill, $\frac{7}{8}$; wing, $4\frac{1}{8}$; tail, $2\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Hab. Darling Downs, New South Wales, &c.

Remark.—This species differs from the *A. cinereus*, to which it is most nearly allied, in the white colouring of the abdomen and under tail-coverts. Two specimens have come under my notice, both of which were killed by Mr. Gilbert, one on the Darling Downs, in New South Wales, and the other at Peak-range Camp, one of the stations so named by Dr. Leichardt during his expedition from Moreton Bay to Port Essington.

ACANTHIZA APICALIS. *Acan. plumis in fronte corvinis, fusco mar-*

ginatis; cauda latâ fasciâ fusco-nigrâ prope apicem transversim ornata, apice ipso albo; tectricibus caudæ superioribus rufo tinctis.

Feathers of the forehead deep buff, edged with dark brown; all the upper surface, wings and tail light olive-brown; tail crossed near the extremity with a broad and distinct band of brownish black, and largely tipped with white; upper tail-coverts tinged with rufous; throat and chest greyish white, each feather margined with black, giving that part a mottled appearance; flanks, abdomen and under tail-coverts pale buff; irides light red; bill, legs and feet dark brown.

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

Hab. Swan River, Western Australia.

Remark.—Distinguished from *A. Diemenensis*, *A. pusilla*, and *A. Ewingii*, to all of which it is nearly allied, by its large size, by its larger and rounder tail, by the broad and distinct band of black which crosses the tail-feathers near their extremities, and by their being largely tipped with white.

CYSTICOLA ISURA. *Cys. colli lateribus, nuchâ, et uropygio pallidè rufis; vertice, dorso, secundariisque, saturatè brunni-nigris, singulis plumis stramineo marginatis, et latâ fasciâ atrâ transversim prope apicem infra ornatis.*

Sides and back of the neck and rump pale rufous; crown of the head, back and secondaries deep brownish black, each feather margined with buff; tail dark brown, margined with buff, and crossed on the under side near the tip with a broad conspicuous band of black; under surface deep buff, becoming paler on the chin and centre of the abdomen; bill brown; feet yellowish brown.

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

Hab. Southern coasts of Australia.

Remark.—Distinguished from the other members of the genus by the shorter and more truncated form of its tail, which has suggested the specific term assigned to it.

CHALCITES OSCULANS. *Chal. capite, corpore superiore, alisque, nientè olivaceo-fuscis, colore eodem in humeris primariisque saturatiore, sed in tectricibus caudæ superioribus albicante; caudâ intensè olivaceo-fusca, plumâ quâque ad apicem albâ; pectore et abdomine pallidè cinnamominis.*

Head, all the upper surface and wings glossy olive-brown, becoming darker on the shoulders and primaries, and fading into white on the upper tail-coverts; tail dark olive-brown, each feather tipped with white, and the lateral one on each side crossed on the inner web with five bars of white; ear-coverts black, encircled with white; under surface of the wing, throat, breast and abdomen pale cinnamon-brown, fading into white on the under tail-coverts; bill brown; feet olive-brown.

Total length, $7\frac{1}{2}$ inches; bill, $\frac{7}{8}$; wing, $4\frac{5}{8}$; tail, $3\frac{7}{8}$; tarsi, $\frac{3}{4}$.

Hab. New South Wales.

Remark.—I have applied the term of *osculans* to this species, because in it are united in a remarkable degree the characters of the

genera *Cuculus* and *Chalcites*; but as those of the latter genus predominate, I have retained it therein.

SYNOÏCUS DIEMENENSIS. *Syn. fronte, loris, et mento griseo-albis, stramineo tinctis; vertice saturatè brunneo, medio lined stramineo notato; omni corpore superiore fasciis irregularibus transversis griseis, nigrisque, castaneisque, vario; mediis plumis lined griseo-albd ornatis.*

Forehead, lores and chin greyish white, tinged with buff; crown of the head dark brown, with a line of buff down the centre; all the upper surface irregularly marked with beautiful transverse bars of grey, black and chestnut, each feather with a fine stripe of greyish white down the centre; primaries brown, mottled on their external edges with greyish brown; all the under surface greyish buff, each feather with numerous regular somewhat arrow-head-shaped marks of black, and many of them with a very fine line of white down the centre; bill blue, deepening into black at the tip; irides orange; feet dull yellow.

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

Hab. Van Diemen's Land.

Remark.—Nearly allied to *S. Australis*, but of a much larger size and with the markings of the upper surface more numerous and varied.

SYNOÏCUS SORDIDUS. *Syn. saturatè fuscus minutè nigro maculatus; mediis plumis corporis superioris inferiorisque latâ fasciâ griseo-cæruleâ longitudinaliter ornatis.*

General plumage dark brown, minutely freckled with black, each feather of the upper and under surface with a broad stripe of bluish grey down the centre; feathers of the head and back of the neck with a spot of blackish brown at the tip, those down the centre of the head and a few of the back feathers with white shafts; chin buff; flank-feathers with an arrow-head-shaped mark of black near the tip.

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

Hab. South Australia.

Remark.—With the exception of *S. Sinensis*, this species is the least of the genus yet discovered; it moreover differs from them all in the absence of any varied markings, in lieu of which all the feathers of the upper surface have a broad bluish grey stripe down the middle.

PORZANA LEUCOPHRYS. *Por. fasciâ à mandibulæ superioris basi ad angulum oculi posticum ductâ griseo-albâ; maculâ latâ atrâ ab oculo ad rictum extensâ; nuchâ, corpore superiore, caudâque, fusco-nigris; capitis, colli, et pectoris, lateribus griseis; mento, et medio abdomine albis.*

From the base of the upper mandible to the posterior angle of the eye a streak of greyish white; from the eye to the gape a broad patch of deep black; crown of the head brownish black; back of the neck, upper surface and tail brownish black, each feather margined with pale reddish, the latter colour becoming very conspicuous on the wing-coverts and scapularies; wings pale brown; sides of the head,

neck and breast grey; chin and centre of the abdomen white; flanks and under tail-coverts rufous; upper mandible reddish brown; tomia of both mandibles tile-red; legs and feet oil-green, blotched with light ash-colour.

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

Hab. Port Essington and Northern Australia.

Remark.—This bird differs from every other species of the genus inhabiting Australia, in having a superciliary stripe of white, in the black colouring of the lores, and in the olivaceous tint of the plumage.

Plotus Novæ-Hollandiæ. *Plot.* (Mas) *gula figurâ sagittæ cuspidis alba notatâ; latâ fasciâ alba à mandibularum basi quatuor uncis in colli latera extensâ; scapularibus lanceolatis, lanceolatâ maculâ in medio, et caulibus atris ornatis.*

Male.—An arrow-head-shaped mark of white on the throat; a broad stripe of the same colour commences at the base of the mandibles, extends for about four inches down the sides of the neck, and terminates in a point; head, neck and all the upper surface of the body greenish black, stained with brown and with a patch of deep rusty red in the centre of the under side of the throat; under surface deep glossy greenish black; wings and tail shining black; all the coverts with a broad stripe of dull white, occupying nearly the whole of the outer and a part of the inner web, and terminating in a point; scapularies lanceolate in form, with a similar shaped mark of white down the centre, and with black shafts, the scapular nearest the body being nearly as large as the secondaries, and having the outer web crimped and the inner web with a broad stripe of dull white close to the stem; the secondaries nearest the body with a similar white stripe on the outer web, close to the stem; centre tail-feathers strongly and the lateral ones slightly crimped; orbits naked, fleshy, protuberant, and of a yellowish olive, mottled over with brown specks; irides of three colours, the ring nearest the pupil being dull orange-buff; to this succeeds another of marbled buff and brown, and to this an outer one of orange-buff; naked skin at the base of the lower mandible wrinkled and yellow; upper mandible olive, under mandible dull yellow, both becoming brighter at the base; feet yellowish flesh-colour, becoming brown on the upper part of the outer toes.

Female.—Upper surface blackish brown, each feather margined with greyish white; under surface buffy white. In other respects similar to the male.

Total length, 36 inches; bill, 4; wing, $13\frac{1}{2}$; tail, 9; tarsi, 2.

Hab. The rivers of the whole of the southern coast of Australia.

Remark.—Very nearly allied to the *Plotus* inhabiting Java, but distinguished from it by the shortness of the scapularies and by its larger size.

Mr. Gould also exhibited to the Meeting a specimen of the *Anthus minimus* of Messrs. Vigors and Horsfield, and having pointed out the particulars in which it differs from the members of the genus *Anthus*, proposed to constitute it the type of a new genus, with the following appellation and characters:—

CHTHONICOLA, nov. gen.

Char. gen.—*Rostrum* breve, a basi descendens, mandibulâ superiore ad apicem levè dentatâ, in lateribus compressâ. *Tomia* introrsum curvatæ. *Alæ* concavæ, primario primo perbrevis, tertio, quarto, quinto et sexto longitudine æqualibus. *Tarsi* moderati. *Digiti* breves, posticus medio brevior. *Ungues* anteriores magis quam in "*Antho*" curvati.

Gen. char.—Bill short, gradually descending from the base; the upper mandible slightly notched at the tip, compressed laterally; *tomia* curving inwards; wings concave; the first primary very short, the third, fourth, fifth and sixth nearly equal and the longest; tail slightly concave, and all the feathers of an equal length; tarsi moderately long; toes short, the hinder toe somewhat longer than the middle one; front claws more curved than in the genus *Anthus*.

5. DESCRIPTION OF A NEW SPECIES OF AMPHIOXUS FROM BORNEO.

By J. E. GRAY, Esq., F.R.S., ETC. ETC.

Capt. Sir Edward Belcher having most kindly sent to the British Museum the various species of reptiles, worms, &c. in spirit which had been collected during the voyage of H.M.S. Samarang, I hasten to lay before the Society the description of what appears to be a new species of Lancelet (*Branchiostoma*, Costa = *Amphioxus*, Yarrell), premising that I have sent a second specimen to Dr. Clarke, R.N., of Haslar, who has kindly promised to send me some anatomical details of it, which shall be communicated to the Society as soon as they arrive.

I may remark that the specimen from Borneo very much resembles in size the specimen which Mr. Couch obligingly sent to me from Cornwall, and, like it, is more silvery and considerably larger than numerous specimens I have received through the kindness of Dr. Kolliker from Naples. This difference in colour may arise from the Naples specimens having been placed in stronger spirits; but it gives the Cornish and the Borneon specimens much more the resemblance of Annelides, which generally have this metallic iridescent silvery hue.

The resemblance of the Borneon to the Cornish specimen is so striking, that it is very difficult to draw a distinction between them with neatness or brevity; yet they appear to my eye sufficiently different to induce me to regard them as distinct species, which the great geographical distance between their habitats renders probable.

Amphioxus Belcheri.—The Borneon Lancelet appears rather thicker and more convex on the sides than *Amph. lanceolatus*, and the convex ridge which occupies the place of the dorsal fin appears higher and more closely divided by internal transverse septa than in that species, and these septa appear more numerous. I have not been able to observe any beards on the margin of the mouth, which is thickened and rounded; but this may arise from the specimen not being in good condition, especially in this part where it has been injured by the spines of a *Spatangus* which was in the same bottle.

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Hab. Borneo, at the mouth of the river Lundu.

I may remark, that the comparison of these Lancelets from Naples, Cornwall and Borneo has induced me to think that most probably the species from Naples may be distinct from the Cornish. All our specimens are smaller and more opaque; the beards of the mouth appear finer; and the dorsal ridge above referred to appears comparatively smaller, even making allowance for the difference in the size of the specimens.

6. A FEW REMARKS ON THE GEOGRAPHICAL DISTRIBUTION OF BIRDS IN THE WEST INDIES. BY WILLIAM DENNY, ESQ.

Humboldt, Vigors, Swainson and other eminent naturalists, lament the defective state of knowledge respecting the zoology of the West Indies. The Flora of Jamaica has been often successfully explored; the geology of a great portion has been investigated by De la Beche; the ornithology and entomology however remain nearly in the state in which they were left one hundred years since by Sir Hans Sloane. In all the departments of the natural history of the Antilles much still remains to the inquirer, but in zoology he has an almost unexplored field for his researches. The region of Tree-ferns has been left unexamined for the botanist, the western half of Jamaica for the geologist; but with the exception of about sixty species of birds noticed by Sloane and Browne, the entire ornithology is unknown*, including all the species peculiar to the mountainous districts.

About thirteen years since an attempt was made to send out a party of naturalists to examine the animals and productions of Jamaica, but it failed; and had the party reached those shores, I doubt that their researches would have thrown much additional light on zoology. The insalubrious nature of the climate in the low grounds, the excessive heat, and many other causes, would probably have rendered their exertions fruitless. The naturalist must alike be familiar with the inhabitants of the deadly swamp and the pathless mountain; he must brave the tropical heat and mountain cold, and the sudden transitions of temperature. It is only those inured to the climate by long residence, and who have had fortitude to resist its debilitating effects, or those born in the country whose habits are active and pursuits congenial, that can sustain these difficulties and dangers.

Placed at nearly equal distance from North and South America, it might be supposed that nearly an equal number of the species of each division of that continent might be found in Cuba and Jamaica. This supposition is not however fully borne out by observation, although from our knowledge of the ornithology of Terra Firma being extremely imperfect, it is difficult to render a conclusion free from error. It will hereafter appear, that of the birds of Jamaica, one-half are common to North America, while hardly one-fifth are also found in the southern region of the New World.

Of those species common to the islands more immediately under

* This want of information has been reduced very considerably at the present moment by the appearance of Mr. Gosse's work 'On the Birds of Jamaica.'

notice, and Mexico, a great identity of genera and species might be expected. Placed in the same degree of latitude, possessing many similar features in scenery, elevation, temperature and productions, with sufficient facility of communication for the feathered tribes, they might, without actual examination, be considered as constituting the same animal kingdom or province. But Mexico is united to the southern portion of the continent by land, while Jamaica is separated by leagues of sea, a great natural impediment to families possessing feeble powers of flight.

Wilson remarks that "in passing along the chain of the Bahamas, towards the West Indies, no great difficulty can occur from the frequency of these islands, nor even to the Bermudas, which are said to be six hundred miles from the nearest point of the continent." Whether this facility of communication between the United States and the greater Antilles may be sufficient to account for the greater preponderance of species from this division than from the southern, may by some be doubted; but it may be as well to bear in mind that the Raptores and long-winged families of the Insessores are common both to the States and Antilles, while the short-winged families are nearly all distinct.

There are many features of resemblance between the ornithology of Mexico and the great Antilles. Nearly all the birds common to the former and the United States are likewise found in Jamaica, while the latter possesses species supposed by Mr. Swainson to be peculiar to Mexico, and I believe that further investigation will tend to show that the distribution of species is very similar.

I will only make one remark, that many birds supposed to belong to the States are in reality tropical or West Indian, and merely very transient and in numerous instances accidental visitors to North America. For example, the *Columba Zenaida* is very rare in the States, while in Jamaica it is the most abundant species in the island, and was mentioned by Sir Hans Sloane.

I will pass over the migration of birds to and from the West Indies, as well as the influence that natural families of plants appearing in distant countries may have in producing it, as being beyond the limits which I have assigned to myself in these observations. I will now give a catalogue of all the birds that I have met with during a sojourn of six years in Jamaica, during which time my leisure hours have been constantly devoted to pursuits connected with natural history.

Birds common to Jamaica, Cuba, and the United States.

Land Birds.

1. Cathartes aura.	6. Pandion haliaëtus (? carolinensis.)
2. Buteo borealis.	7. Strix flammea.
3. Circus americanus.	8. ——— asio.
4. Haliaëtus niger.	9. Hirundo fulva.
5. Accipiter pensylvanicus.	

10. <i>Caprimulgus carolinensis</i> .	29. <i>Sylvicola coronata</i> .
11. — <i>americanus</i> .	30. — <i>maculosa</i> .
12. <i>Alcedo alcyon</i> .	31. <i>Vermivora solitaria</i> .
13. <i>Tyrannus intrepidus</i> .	32. <i>Fringilla tristis</i> .
14. <i>Muscicapa ruticilla</i> .	33. — <i>Zevanna</i> .
15. — <i>virens</i> .	34. <i>Dolichonyx oryzivorus</i> .
16. — <i>fusca</i> .	35. <i>Sturnella magna</i> .
17. — <i>crinita</i> .	36. <i>Icterus versicolor</i> .
18. <i>Vireo olivacea</i> .	37. <i>Corvus ossifragus</i> .
19. <i>Merula minor</i> .	38. <i>Picus carolinensis</i> .
20. — <i>mustelinus</i> .	39. <i>Cuculus carolinensis</i> .
21. <i>Orpheus polyglottus</i> .	40. <i>Certhia maculata</i> .
22. <i>Sciurus aurocapillus</i> .	41. <i>Columba leucocephala</i> .
23. <i>Trichas personatus</i> .	42. — <i>passerina</i> .
24. <i>Sylvicola pusilla</i> .	43. <i>Ortyx marylandus</i> .
25. — <i>americana</i> .	44. <i>Tyrannus Saya</i> .
26. — <i>canadensis</i> .	45. <i>Columba carolinensis</i> (Cuba only).
27. — <i>minuta</i> .	
28. — <i>pensilis</i> .	

Birds of Jamaica and Cuba observed in Terra Firma, but unknown in North America.

1. <i>Sarcoramphus papa</i> (accidental).	4. <i>Muscicapa ferox</i> .
2. <i>Polyborus brasiliensis</i> .	5. <i>Icterus dominicensis</i> .
3. <i>Circus rutilans</i> .	6. <i>Trochilus furcatus</i> .
	7. <i>Crotophaga ani</i> .

Birds peculiar to the West Indies, and seldom if ever detected in the United States or Terra Firma.

[These birds have been observed in Jamaica and Cuba.]

1. <i>Accipiter fringilloides</i> , Vig.	17. <i>Fringilla Zena</i> .
2. <i>Falco sparveroides</i> , Vig.	18. — <i>noctis</i> , Linn.
3. <i>Hirundo thalassinus</i> , Sw.	19. — <i>jamaicensis</i> , Linn.
4. — <i>Tapera</i> , Linn.	20. — <i>bicolor</i> , Linn.
5. — <i>albicollis</i> , Vieil.	21. — <i>lepida</i> , Linn.
6. — <i>melanogaster</i> , Sw.	22. <i>Carduelis mexicana</i> , Sw.
7. — (undetermined).	23. <i>Icterus bonano</i> , Linn.
8. <i>Caprimulgus jamaicensis</i> , Bris.	24. — <i>cucullatus</i> , Sw.
9. <i>Todus viridis</i> , Linn.	25. — <i>mexicanus</i> , Linn.
10. <i>Merula jamaicensis</i> , Linn.	26. — <i>brasiliensis</i> , Linn.
11. — <i>fusca vel leucophthalma</i> (undescr.).	27. — <i>mexicanus</i> *.
12. — <i>dominicus</i> , Linn.	28. — <i>baritus</i> , Linn.
13. — <i>rubripes</i> , Temm.	29. <i>Leistes humeralis</i> , Vig.
14. <i>Sylvicola dominica</i> , Linn.	30. <i>Corvus jamaicensis</i> , Linn.
15. <i>Pyrrhula nigra</i> , Linn.	31. <i>Trogon temnurus</i> , Temm.
16. — <i>collaris</i> , Vig.	32. <i>Psittacus leucocephalus</i> , Linn.
	33. — <i>æstivus</i> , Linn.
	34. <i>Psittacara nana</i> , Vig.

* *Icterus xanthornis*.

35. <i>Picus carolinus</i> , <i>Linn.</i>	49. <i>Columba montana</i> , <i>Linn.</i>
36. — <i>percussus</i> , <i>Vig.</i>	50. — <i>jamaicensis</i> , <i>Linn.</i>
37. <i>Colaptes auratus</i> , <i>Vieil.</i>	51. — <i>leucoptera</i> , <i>Linn.</i>
38. — <i>Fernandina</i> , <i>Vig.</i> (Cuba only).	52. — <i>minuta</i> , <i>Linn.</i>
39. — <i>superciliaris</i> , <i>Tem.</i> (Cuba).	53. — <i>sylvestris</i> ?
40. <i>Cuculus vetula</i> , <i>Linn.</i>	54. — <i>martinica</i> , <i>Linn.</i>
41. — <i>pluvialis</i> , <i>Gm.</i>	55. — <i>Zenaida</i> , <i>Buon.</i>
42. <i>Certhia flaveola</i> , <i>Linn.</i>	56. — <i>cianocephala</i> , <i>Linn.</i> (Cuba only).
43. — <i>maculata</i> , <i>Wils.</i>	57. { <i>Numida meleagris</i> , <i>Linn.</i>
44. <i>Cynanthus polytmus</i> , <i>Linn.</i>	— <i>maculipennis</i> , <i>Sw.</i>
45. — <i>minimus</i> , <i>Linn.</i>	58. <i>Tanagra gularis</i> .
46. <i>Lampornis mango</i> , <i>Linn.</i>	59. <i>Sitta jamaicensis</i> (not of Sloane or Browne).
47. <i>Columba Caribbæa</i> , <i>Gmel.</i>	60. <i>Pipillo maculata</i> , <i>Sw.</i>
48. — <i>inornata</i> , <i>Vig.</i>	

Note.—Many of the above species have not been referred to modern genera on account of several of them being proposed from data so different that it is difficult for a Transatlantic naturalist to select from such eminent authorities as Vieillot, Swainson, Buonaparte, Cuvier or Temminck. When no authority is given, the nomenclature is that of Wilson.

Water Birds.

The following species, with one or two exceptions, seem equally distributed over the United States, Mexico, Jamaica and Terra Firma, so that no division of them will be necessary.

ARDEIDÆ.

Ardea virescens.
 — *ludoviciana.*
 — *cærulea.*
 — *abba.*
 — *exilis.*
 — *candidissima.*
 — *herodias.*
Nycticorax violacea.
 — *Gardenii.*
Botaurus minor.
Platalea ajuga.
Phœnicopterus ruber (Amer.).

TANTALIDÆ.

Ibis rubra.
 — *alba.*
Tantalus loculator.

SCOLOPACIDÆ.

Scolopax gallinago (Amer.).

Scolopax grisea.
 — *minor.*
Totanus macularius.
 — *chloropygius.*
 — *flavipes.*
 — *semipalmata.*
Tringa rufescens.
 — *pectoralis.*
 — *minutella.*
 — *pusilla.*
Numenius longirostris.

CHARADRIADÆ.

Charadrius semipalmatus.
 — *vociferus.*
 — *apricarius.*
 — *monnellus.*
 — *pluvialis.*
 — *melodus.*
Squatarola cinerea.
Himantopus melanopterus.

RALLIDÆ.

Rallus minutus.
 — jamaicensis.
 — virginianus.
 Aramus scolopaceus.

Parra Jacana.
 — variabilis.
 Gallinula Galatea.
 — Martinica.

NATATORES.

ANATINÆ.

Dendronessa sponşa.
 Boschas fera.
 — crecca (Amer.).
 — discors.
 — discors occident.
 Dafila caudacuta.
 Chauliodus streperus.
 Anas clypeata.
 Mareca americana.
 Anas ? fistularis.

Podiceps cristatus.
 — auritus.

PELECANIDÆ.

Pelecanus fuscus.
 Tachypetes aquilus.
 Phaëton æthereus.

LARIDÆ.

Larus atricilla.
 — argentatus.
 — parasiticus.
 Sterna fuliginosa.
 — minuta.
 — stolidi.
 Thalassidroma pelagica.
 — Wilsonii.

FULIGULINÆ.

Fuligula marita.
 — cristata.
 Anas ? jamaicensis.
 Anas ? spinosa.
 Anas ? dominica.

Note.—I have been guilty of discourtesy to some authors by excluding species from the catalogue which are assigned to Jamaica in their works. I have never discovered them, and I must plead that they may still reward my more successful researches. I have not included St. Domingo (Haiti) in my list, as I have no local knowledge of its ornithology, but from the writings of Vieillot it appears more extensive than either Cuba or Jamaica.

Regarding an ornithological province as a portion of the earth containing in it a greater number of land species peculiar to, and not extending beyond it, than of those common to it and adjoining countries, it may be asked—Are the greater Antilles a distinct ornithological province, or merely a portion of that of Mexico or the United States ?

There are however curious differences in the birds of the several West Indian islands. Trinidad has a diversified ornithology, apparently identical with the South American continent. Many of the pigeons, woodpeckers and humming-birds differ. The *Columba carolin.* extends to Cuba and Haiti, but not to Jamaica. The *Col. Caribbæa* appears confined to the latter. The *Lampornis mango* of Jamaica is represented in Haiti by *gramineus*. There appears in the former island only one woodpecker, the *Picus carolin.*, while in Cuba

and Haiti there are several. Geological researches may assist the explanation of these anomalies. There are three mountain-ranges of different date and vegetation. One of these constitutes the Bahamas, north side of Haiti and Cuba: the Cibao range, covered with pathless forests of *Pinus occidentalis*, re-appears in Cuba and the Isle of Pines, terminating in Mexico. The precipitous mountains of the Grand Anse are formed of limestone, which is prolonged through Jamaica into Yucatan, covered with its peculiar production, *Myrtus Pimenta*, equally remarkable for its individual beauty and fragrance.

“*Pauca hæc vidimus operum DEI.*”

April 13, 1847.

William Yarrell, Esq., Vice-President, in the Chair.

The following communications were read:—

1. SOME OBSERVATIONS ON THE SKULL OF *PHASCOLOMYS VOMBATUS*.
BY J. E. GRAY, ESQ., F.R.S. ETC. ETC.

In the collection at the British Museum there are three skulls which agree with Prof. Owen's character of *Phascolomys Vombatus*, as described in vol. iii. of the Zool. Soc. Transactions: that is to say, they have only slightly curved upper cutting teeth, short noses, &c. Two were sent from Van Diemen's Land by Mr. Ronald Gunn, and one from N. S. Wales was presented by my late friend and admirable botanist, Mr. Allan Cunningham, F.L.S.

The specimens from Van Diemen's Land are much smaller (the largest being 6 in. 4 lines long), and more depressed and truncated behind, and have two moderate-sized oblong holes in the hinder part of the palate. The specimen from N. S. Wales is one inch longer, and has two large triangular holes in the end of the palate. All the three specimens differ in the size of the teeth, and especially in the size and relative position of the upper cutting teeth.

1. The least of the Van Diemen's Land skulls has rather small grinders, but the upper cutting teeth are small, compressed, rather diverging from each other, forming an angle in front and only touching each other at the truncated inner edge. The crowns of these teeth are 5 lines long and $2\frac{1}{2}$ lines wide. The lower cutting teeth are small with a roundish crown.

2. The other Van Diemen's Land skull, which is rather larger in all its measurements, has larger grinders. The cutting teeth are much larger: the upper large, oblong, diverging from each other, forming together a segment of a circle in front, and only touching