

occurred: a specimen of *Nymphalis Populi* was recorded in the 'Memoires de l'Academie Royale de Bruxelles,' having the head of the larva instead of that of the perfect insect.

Mr. Gregson sent for exhibition a pair of *Coleophora vitisella*, and the case of the larva of this species.

Mr. Stevens read an extract from a letter received by him from Mr. A. R. Wallace, written from Lombock, in which he remarked the paucity of insects of all orders in that locality, attributable to the greater part of the island being now devoted to the cultivation of rice.

The Secretary read the following extract from a letter from G. H. K. Thwaites, Esq., Director of the Botanic Garden, Peradenia, Ceylon, to William Spence, Esq.:—

"I have often observed, on the whitewashed walls of the houses here, a whitish-coloured spider stationary for hours, with its head downwards and its legs extended (a pair of intermediate ones much shorter than the others), and two long spinnerets; but it was only a short time ago I had an opportunity of observing the curious mode in which it entraps its prey. When an insect makes its appearance on the wall near it, it commences running round and round it with the greatest rapidity, spinning a web all the time, which confines the legs, wings, &c., of the poor victim most effectually, and has just the effect of a lasso thrown over its limbs. With this knowledge of the spider's habits we can understand the use of the long spinnerets, and that the short pair of legs enable it to make a more rapid and smaller series of turns round its victim."

Mr. Westwood had great pleasure in stating that it was the intention of Messrs. Saunders and Hewitson to commence the publication of a second volume of their splendid work on 'Exotic Butterflies.'

Part II. of Vol. iv. of the New Series of the Society's 'Transactions,' published in October, was on the table.—*E. S.*

Inquiry respecting Serpula contortuplicata.—I should be very much obliged if any of your readers would state whether it is a common occurrence for the *Serpula contortuplicata* to shed, or cast away, the trumpet-shaped operculum with which it is furnished: this happened a week since to a very fine specimen in one of my tanks, and although I feared that it was a precursor of death, as yet the gills protrude as strongly and the animal seems as sensitive as before the loss of the operculum, which now lies at the bottom of the tank an object of great beauty.—*C. R. Lighton; Ellastone, November 29, 1856.*

Proceedings of Natural-History Collectors in Foreign Countries.

MR. A. R. WALLACE.*—"Ampanam, Lombock, August 21, 1856.—Another month has passed since I wrote to you, and there is still no chance of a passage to Macassar; having missed one opportunity by

* Communicated by Mr. S. Stevens.

being away from the village, I am afraid to go out in the country any more, and here there are nothing but dusty roads and paddy fields for miles around, producing no insects or birds worth collecting: it is really astonishing, and will be almost incredible to many persons at home, that a tropical country when cultivated should produce so little for the collector: the worst collecting-ground in England would produce ten times as many species of beetles as can be found here, and even our common English butterflies are finer and more numerous than those of Ampanam in the present dry season; a walk of several hours with my net will produce perhaps two or three species of *Chrysomela* and *Coccinella*, and a *Cicindela*, and two or three Hemiptera and flies; and every day the same species will occur. In an uncultivated district which I have visited, in the south part of the island, I did indeed find insects rather more numerous, but two months' assiduous collecting have only produced me eighty species of Coleoptera! why there is not a spot in England where the same number could not be obtained in a few days in spring. Butterflies were rather better, for I obtained thirty-eight species, the majority, however, being *Pieridæ*; of the others, *Papilio Peranthus* is the most beautiful.

“The birds have, however, interested me much more than the insects, as they are proportionably much more numerous, and throw great light on the laws of geographical distribution of animals in the East. The Islands of Baly and Lombock, for instance, though of nearly the same size, of the same soil, aspect, elevation and climate, and within sight of each other, yet differ considerably in their productions, and, in fact, belong to two quite distinct zoological provinces, of which they form the extreme limits. As an instance, I may mention the cockatoos, a group of birds confined to Australia and the Moluccas, but quite unknown in Java, Borneo, Sumatra and Malacca; one species, however (*Plyctolophus sulphureus*), is abundant in Lombock, but is unknown in Baly, the island of Lombock forming the extreme western limit of its range and that of the whole family. Many other species illustrate the same fact, and I am preparing a short account of them for publication. My collection here consists of sixty-eight species of birds, about twenty of which are probably not found west of the island, being species either found in Timor and Sumbawa or hitherto undescribed. I have here, for the first time, met with many interesting birds, whose structure and habits it has been a great pleasure to study, such as the *Artamidæ* and the genera *Ptilotis*, *Tropidorhynchus*, *Plyctolophus* and *Megapodius*.

“The islands of Baly and Lombock are inhabited by Malayan races, closely allied to the Javanese. Baly has several rajahs, who are under the protection of the Dutch; Lombock has one rajah, who governs the whole, and is quite independent. These two islands are wonderfully cultivated,—in fact, they are probably among the best cultivated in the world: I was perfectly astonished when, on riding thirty miles into the interior, I beheld the country cultivated like a garden, the whole being cut into terraces, and every patch surrounded by channels, so that any part can be flooded at pleasure; sometimes a hollow has the appearance of a vast amphitheatre, or a hill-side of a gigantic staircase, and hundreds of square miles of an undulated country have been thus rendered capable of irrigation, to effect which almost every stream has been diverted from its channel and its waters distributed over the country. The soil is a fine volcanic mould of the richest description, and the result of such a mode of cultivation is an astonishing fertility; the ground is scarcely ever unoccupied; crops of tobacco, Indian corn, sugar cane, beans and cucumbers, alternate with the rice, and give at every season a green and smiling appearance to the island: it is only on the summits of the hills and on the tops of the undulations, where water cannot be brought, that the ground is left uncultivated, but in these places a short turf gives food to the cattle and horses, which are very abundant, and clumps of bamboos with forest and fruit trees have all the appearance of an extensive park, and a pleasing contrast to the more regularly cultivated districts. I have been informed by parties capable of forming a judgment that in the best cultivated parts of Java so much labour has not been expended on the soil, and even the industrious Chinese can show nothing to surpass it: more than half the Island of Lombock consists of rugged volcanic mountains, which are quite incapable of cultivation, yet it exports more than 20,000 tons of rice annually, besides great quantities of tobacco, coffee, cotton and hides. Our manufacturers and capitalists are on the look-out for a new cotton-producing district: here is one to their hands. The islands of Baly, Lombock and Sumbawa can produce from ten to twenty thousand tons of cotton annually; it costs here uncleaned about $1\frac{1}{2}$ cent a-pound; the qualities are various,—some, I believe, very good, so it can easily be calculated whether, after cleaning, it would pay.

“A. R. WALLACE.”

the next. I have had three months' excellent collecting: to give you an idea of the quality, there are five species of Prionidæ new to me, and I think four new to Science. I saw M. De Gand: he spent two months at Tabatinga, and then descended to Parà, and I have heard nothing more of him; he complained much of his sufferings: it is a terrible hard country up river; he complained of scarcity of insects,—showed me all his captures; some dozen good things new to me, *viz.* a Cicindela (fine), a Pelidnota, a Macraspis, a Batonota, some fine Erotyle, &c. Mr. Hauxwell has been with me again; I think he will do nothing more in birds, which is a pity, as no one has the tact with Indians that he has; he could get several faithful hunters, whilst none of the rest of us can get one, and in birds little can be done without them: the bad price given for his fine collection of river Ucayali is the cause.

“H. W. BATES.”

Mr. ALFRED R. WALLACE.—“Macassar, September 27, 1856. At length I am in Celebes! I have been here about three weeks, and as yet have not done much, except explored the nakedness of the land,—and it is indeed naked,—I have never seen a more uninteresting country than the neighbourhood of Macassar: for miles around there is nothing but flat land, which, for half the year, is covered with water, and the other half is an expanse of baked mud (its present state), with scarcely an apology for vegetation; scattered about it are numerous villages, which, from their being imbedded in fruit trees, have the appearance of woods and forests, but which, in fact, are little more productive to the insect collector than the paddy-fields themselves. Insects, in fact, in all this district there are absolutely none. I have got a bamboo-house near one of these villages, about two miles from the town, which does very well for my head-quarters: to get into the country is difficult, as it belongs to native princes, and there is no accommodation whatever for Europeans: there is, however, a patch or two of forest about six or eight miles off, and to it I have made several excursions, and got some birds and butterflies, but no beetles, which, at this season, seem altogether absent. I cannot help comparing the facilities of the collector on the Amazon with the difficulties here: whether at Parà, Santarem, Barra, Obidos or Ega, or any other town or village, you may always find good forest collecting-ground within a few minutes' or half-an-hour's walk of the place,—you can live in the town, and collect in the country round. In no place in the East that I have yet seen can this be done: miles of cultivated ground absolutely barren for the naturalist extend round every town and

village, and to get into the country with any amount of necessary luggage is most difficult and expensive: then, too, the necessaries of life, have all to be brought from the town, which renders living very dear; the only way of moving is by means of porters or small carriages, the cost of which is about ten times that of boat hire, and in many cases you must expose yourself to the risk of life and property, being beyond the sphere of any civilized government. However, I hope soon to make arrangements for a small house near the forest I have spoken of, where I can stay a week at a time, and then bring home and store my collections at my house near Macassar: already I can see that I shall get a pretty good collection of birds. Raptorial birds are abundant (the first place I have seen them so in the Archipelago); I have already seven species, one or two of which I have no doubt are new: of the forty species of birds I have already collected none are handsome, but several, I think, are new, among them a *Cinnyris* and a pigeon; the rare parrot, *Prioniturus platurus*, is not uncommon here, though I have obtained as yet only one specimen. Among my few butterflies are two *Pieridæ*, handsome and quite new, and two or three *Danaidæ* which I do not remember to have seen: I have as yet got no *Papilios*, but do not despair of soon obtaining some fine ones. The place where I hope to do best is Bontyne, about sixty miles from here: there is a road or path overland, but it would be very difficult to take all the luggage I require by that route, and by the sea, at the present time, owing to the wind being contrary, often takes from a fortnight to a month. In about January, however, the wind will be fair, and the trip is then only twenty-four hours, when I shall probably go there, as I am informed there is plenty of forest, and the highest mountains in the island are close by.

“The people here have some peculiar practices. ‘Amok,’ or, as we say, ‘running a-muck,’ is common here; there was one last week: a debt of a few dollars was claimed by a man of one who could not pay it, so he murdered his creditor, and then, knowing he would be found out and punished, he ‘run a-muck,’ killed four persons and wounded four more, and died what the natives consider an honourable death! A friend here, seeing I had my mattrass on the floor of a bamboo-house, which is open beneath, told me it was very dangerous, as there were many bad people about, who might come at night and push their spears up through me from below, so he kindly lent me a sofa to sleep on, which, however, I never used, as it is too hot in this country.

“ALFRED R. WALLACE.”

Of this, which is a high estimate, the expenses of personal board and lodging may with ease be saved, if any sort of introduction is carried to the proverbially hospitable Brazilians of the interior. I have been assured by many that often they have found it to be impossible to spend any money at all.

HAMLET CLARK.

MR. A. R. WALLACE.*—Macassar, December 1st, 1856.—After this you will probably not receive another letter from me for six or seven months, so I must give you a full one now. I am busy packing up my collections here, but have been unfortunately caught by the rains before I have finished, and I fear my insects will suffer. The last four or five days have been blowing, rainy weather, like our February, barring the cold. In a bamboo house, full of pores and cracks and crannies, through which the damp air finds its way at pleasure, you may fancy it will not do to close up boxes of insects in such weather. However, as the wet season has not regularly set in, we may expect a little sun and dry air soon, and then I am ready to pack and close everything. The neighbourhood of Macassar has much disappointed me. After great trouble I discovered a place I thought rather promising, and after more trouble got the use of a native house there, and went. I staid five weeks, and worked hard, though all the time ill (owing to bad water I think), and often, for days together, unable to do more than watch about the house for stray insects. Such a weakness and languor had seized me that often, on returning with some insects, I could hardly rise from my matrass, where I had thrown myself down, to set them out and put them away. However, now that I am back at my cottage near Macassar, with a few of the comforts of civilized life, I am nearly well, and will tell you what I have done.

My collections here consist of birds, shells and insects. In none of these, I am sorry to say, have I got anything very remarkable. The birds are pretty good as containing a good many rare and some new species; but I have been astonished at the want of variety com-

slave, as the latter, at a distance from his master, may turn indolent and refractory. However, the traveller should obtain the advice and aid of some resident Englishman. Mr. Bennett, of Tijuca, the proprietor of the boarding-house there, would be well competent, and I doubt not willing, to render any assistance.

* Communicated by Mr. S. Stevens.

pared with those of the Malayan Island and Peninsula. Whole families and genera are altogether absent, and there is nothing to supply their place. I have found no barbets, no Eurylaimi, no Trogons, no Phyllornes; but, what is still more extraordinary, the great and varied family of thrushes, the Ixodinæ and the Timalias, seem almost entirely absent; the shrikes, too, have disappeared, and of flycatchers I have only seen one small species. To supply this vast void there is not a single new group, the result of which is that in about equal time and with greater exertions I have not been able to obtain more than half the number of species I got in Malacca. Indeed, were it not for the raptorial and aquatic birds I should not have one-third. You hint that in Borneo I neglected Raptores. They are too good to neglect; but there were none. Here in two months I have got fifteen species, many more than all my collections of the two preceding years contain. Of these six are represented by single specimens only; but of the rest I send you thirty fine specimens, and they will, I doubt not, contain something new. Among my rare birds I may mention the two hornbills peculiar to Celebes (*Hydrocissa exarata*, Tem., *Buceros cassidix*, Tem.); the anomalous Scythrops Novæ-Hollandiæ, *Lath.*; the handsome cuckoo, *Phænicophaus callirhynchus*; the *Pica albicollis*, *Vieill.*; and the remarkable Pastor corythaix, *Wag.*, which unites the characters of the starlings with the form and compressed crest of the Calyptomena and Rupicola.

My collection of land shells is at present very scanty; but then I have only been in one locality. It consists of five species of *Helix*, six of *Bulimus*, and one *Cyclostoma*. Of these I hope some will be new. There is a pale purplish *Helix* of the form of *H. glutinosa*, but in most specimens thickly speckled with blackish dots. Besides the common *Bulimus citrinus*, there are two closely allied species, one lightly marbled with brown near the base only, the other all over richly marked in a kind of zigzag pattern. Of both these I send a pretty good series. There are also, I think, three other small species, rather pretty, but very scarce. The *Cyclostoma* appears to be the same as the small, transparent, white one which was scarce at Sarawak.

Now for the insects, which are the most interesting to so many of my friends. They will, I fear, disappoint you, as they have, with a few exceptions, disappointed me. But you must remember the circumstances. Almost all the good insects have been collected during a five weeks' stay at a tolerable place in the interior, during which

time, however, I was so unwell as not to make more than five visits to the forest, to be near which was the especial purpose for which I went there. It was also the very end of the dry season, which I have always found the worst time for insects. Notwithstanding these drawbacks, my collection presents some features of interest. To proceed in order, the Coleoptera shall be first considered. The number of species yet obtained is only 254, some groups being rich, others very poor. My favourite Longicorns were so scarce as hardly to be worth looking for; yet among the few that fell in my way I have a new Agelasta, a fine Astathes, and a very curious insect with dilated thorax in the male, which will form, I think, a new genus, near Temnosternus, *White*. The Geodephaga are proportionately my richest group, as since the rains have commenced I have taken many curious small Carabidæ, among them three species of Casnoniæ. I am rich in Cicindela, having six species, but of Colliuris and Therates only one each. Cicindela Heros, *Fab.* (which I believe is rare) is my largest species. In Boisduval's 'Faune de l'Océanie' it is said to come from the isles of the Pacific. Therates flavilabris, *Fab.*, is also said to inhabit New Ireland, but it is found here, with the var. *T. fasciata*. The habitats given to insects in that work, indeed, from the French voyagers, appear so liable to error that little dependance can be placed upon them. They seem to have been trusted altogether to memory, or perhaps ticketed on the voyage home. For example, to Scarabæus Atlas is this remark, "It is noted as from Vanikoro I., but M. D'Urville is certain that it was taken at Menado in Celebes;" again, to Tmesisternus septempunctatus, "If there is no mistake on the ticket, this species is from Amboina;" Lamia 8-maculata, "It is ticketed as coming from Vanikoro, but I believe it is rather from N. Guinea or Celebes;" and L. Hercules, "It is found in Amboina," while on the plate it is said to be from Celebes. Other examples of a similar kind are to be found; and they lead me to suppose that voyagers and amateur collectors seldom ticket their specimens *at the time of collection*, but trust to memory in a matter in which no memory can be trusted. Even after making a collection at two localities only, and of only a hundred species each, I would defy any one to ticket the whole correctly: how, then, must it be when dozens of places are visited in succession, and the species taken at each vary from perhaps a dozen to a thousand. But we must return to our collections. In Lamellicornes I have been tolerably successful. I have found ten species of Cetoniadæ; a Tæniodera, common, I think; and the other nine all Protætias, a closely allied genus. All except one

are small, and of that one (an inch long) I have only a pair, differing in colour, one black, one dark green, but, as they are marked with red exactly alike, I suppose them to be male and female. Among the smaller ones are some very pretty species and varieties, and of some of these I have a tolerable series. They are very local. All the best I got off one flowering shrub, which I visited daily for a week, when some heavy rains destroyed the remnant of the blossoms; and I never found another equally productive. There is also a curious little brown thing, like a *Trichius*, which eats away roses and orange-blossoms. I have two *Euchloras*, which I think are rare, *E. dichropus*, *Blanch.*, and a large one, very like *E. viridis*, but which seems to agree best with *E. Dusumieri*, *Blanch.* Besides these I have only a lot of obscure *Melolonthidæ*, *Aphodii*, &c., &c. I had quite forgot, however, among the *Carabidæ*, what will perhaps be considered my greatest prize, *Catadromus tenebrioides*; but it is very scarce. I have not found a single *Lucanus*; and the natives to whom I showed figures of them and other large insects, such as *Scarabæus Atlas*, denied their existence in the country; but no dependance is to be placed upon them, as they have not even a distinctive word for "beetle" in their language. In the other groups I have nothing particular, except a few pretty *Rhyncophora* and *Phytophaga*.

It is an ill wind, however, that blows nobody good; and the scarcity of *Coleoptera* will be highly satisfactory to some of my hymenopterist friends, since it led me to pay more attention to their favourite group than I should otherwise have been inclined to do. After the first showers fell, bees and wasps appeared in plenty, and I worked very hard at them. They are notoriously sunshine-loving animals; and for many an hour, when my health ought not to have permitted it, have I stood in the noonday sun, at some flowering shrub where they abounded, armed with net, pliers and bottle, intent upon their capture. On the whole I have made, I consider, a very fine collection for such a very short time (less than two months). I have obtained in all 142 species, but of these 120 (about) are *Aculeata*, and, only about 12 being bees, the great majority are wasps, &c., of which many are very fine, large things, and the greater part seem to me different from any I took in Malacca or Borneo. I have also not neglected the small species, and I doubt not there will be a host of novelties.

The *Diptera*, *Hemiptera*, ants, &c., I have scarcely collected at all, but they promise well for another season.

The Lepidoptera come last, and, though few in species, present a fair amount of novelty. On my very first visit to the forest I took three fine specimens of the magnificent Ornithoptera Remus, or a variety of it, for the female does not agree with Boisduval's very imperfect description of it. This made me think it common, but I have since never taken another, except an imperfect female. The common Ornithoptera here is a variety of Amphrisius, with the upper wings entirely black in both sexes. Of Papilios I have three new species, one near P. Sarpedon, but the band narrow, dark green-blue on a velvety black ground, divided into rounded spots on the upper wings and linear ones on the lower. Of this I have a fine series. Another is close to P. Eurypilus, but quite distinct from all I have seen or that are described, by the abdomen above being pure white, which, with the white anal margin of the lower wings, and the white down which extends broadly over them, give the insect a most beautiful appearance when on the wing, and enabled me to pronounce it a new species the first time I saw it hovering over a muddy hole. It flies very strong, is rare and difficult to capture, and I secured very few specimens. The third is a rather obscurely marked species, near P. Helenus. I have only one specimen. Of Papilio Ascalaphus, Bois., I have taken the male and female. P. Polyphontes is common, but I only obtained two or three good specimens. Of Pieris and Euplœa I have several pretty things, and one or two good Nymphalidæ; but the best part of my collection, and what will perhaps please most, are the Lycænidæ, to which I have paid much attention. I have about 35 species out of 115 butterflies, and of half of these I have got the two sexes. With health, a better season and a better locality, I have no doubt a very fine collection of insects might be made in this part of Celebes, and these I hope to have next dry season, which I have arranged, if all goes well, to spend at Bontyne, situated at the South end of the Peninsula, and close to one of the highest mountains in Celebes.

I must now tell you where I am off to in the mean time. I am going another thousand miles eastward to the Arru Islands, which are within a hundred miles of the coast of New Guinea, and are the most eastern islands of the Archipelago. Many reasons have induced me to go so far now. I must go somewhere to escape the terrific rainy season here. I have all along looked to visiting Arru, as one of the great objects of my journey to the East; and almost all the trade with Arru is from Macassar. I have an opportunity of going in a *proa*, owned and commanded by a Dutchman (Java born), who will take me

and bring me back, and assist me in getting a house, &c., there; and he goes at the very time I want to leave. I have also friends here with whom I can leave all the things I do not want to take with me. All these advantageous circumstances would probably never be combined again; and were I to refuse this opportunity I might never go to Arru at all, which, when you consider it is the nearest place to New Guinea where I can stay on shore and work in perfect safety, would be much to be regretted. What I shall get there it is impossible to say. Being a group of small islands, the immense diversity and richness of the productions of New Guinea will of course be wanting; yet I think I may expect some approach to the strange and beautiful natural productions of that unexplored country. Very few naturalists have visited Arru. One or two of the French discovery-ships have touched at it. M. Payen, of Brussels, was there, but stayed probably only a few days; and I suppose not twenty specimens of its birds and insects are positively known. Here, then, I shall have tolerably new ground, and if I have health I shall work it well. I take three lads with me, two of whom can shoot and skin birds.

A. R. WALLACE.

MR. H. W. BATES.*—Ega, Upper Amazons, May 30, 1856. I received your last of the 7th of January by this month's steamer, as well as the parcel sent at the same time: it was a happy day for me, as I had not received any periodicals or new books since May, 1855; for the last parcel, sent in September, is not yet to hand, and I have no doubt it is detained at Pará. You, in England, in the midst of books and intellectual treasures,—in fact, bored by their profusion,—cannot form any idea of the luxury of receiving, in these savage solitudes, such a parcel.

You say you like my descriptions of the country, &c., and would be glad of accounts of my daily excursions, captures, the natives, &c. There is not so much variety of ground and scenery in this country as you doubtless imagine, and the hunting districts are very much circumscribed. Ega is situated on a point of land formed by the junction of a small tributary with the river Tefé, and is about eight miles distant from the Amazons. The Tefé, at Ega, is six miles broad, without islands: the tributary (which has no name, being simply called the "Igarapé," or creek, from "Igára," canoe, and "pé," path) is a

* Communicated by Mr. F. Bates.