

the inner digit, eight or nine under the fourth; limbs with dermal folds, the largest extending from the vent to the fifth toe. Tail much depressed, bordered on each side by a broad, entire, dermal fold with fringed edge. Rostral quadrangular, broader than deep; nostril pierced between the rostral and four scales; 12 upper and 10 lower labials; symphyial triangular; two pairs of chin-shields, the median forming a suture behind the symphyial. Head, back, and limbs covered with small granules, largest on the snout; occiput and back with numerous small, round, smooth tubercles; ventral scales small, cycloid, imbricate, smooth. Tail covered with small granular scales, the muscular portion with transverse rows of small smooth tubercles above, with a series of transverse shields beneath. Grey above, speckled with brown, with quadrangular dark spots disposed in pairs along the back, connected by brownish bands and wavy transverse lines, and confluent into cross-bars on the tail; a dark streak on each side of the head, passing through the eye; pale yellow beneath, speckled with blackish on the sides, the muscular portion of the tail coral-red. "Iris golden brown."

	millim.		millim.
Total length	115	Fore limb	17
Head	16	Hind limb	21
Width of head	9	Tail	56
Body	43		

The single specimen is a female.

9. Notes on a Recent Zoological Expedition on the Lower Amazon. By E. E. AUSTEN, Zoological Department, British Museum.

[Received June 16, 1896.]

In the autumn of last year Mr. Alexander Siemens, of the firm of Messrs. Siemens, Bros. & Co., Limited, of Woolwich, being about to proceed to the Amazon in command of an expedition for the purpose of laying a telegraph-cable from Pará to Manaus, and having been much interested by the perusal of the well-known works of Bates and Wallace on the fauna of this particular region of the South-American continent, thought that the expedition would afford an excellent opportunity of increasing the national collections. Mr. Siemens accordingly made a most public-spirited offer to the Trustees of the British Museum to the effect that, should they desire to avail themselves of the opportunity, he would be pleased to take on board his ship, the cable s.s. 'Faraday,' a member of the Museum staff in order to make collections at the various localities on the river with which telegraphic connection would have to be effected. Needless to say, the Trustees accepted the offer in the spirit in which it was made, and through the

kindness of Sir Wm. Flower I was selected to represent the Museum, the Trustees granting me the necessary leave of absence. Subsequently, in order that the Museum might benefit to the fullest possible extent, Mr. Siemens consented to take a second naturalist in the person of Mr. F. O. Pickard Cambridge, who, by the boundless enthusiasm and untiring energy with which he threw himself into the labour of collecting, more than justified the selection. The 'Faraday,' a vessel of 5000 tons, sailed from Gravesend on Dec. 13, 1895, and reached Pará on Jan. 4, 1896, after calling on the way at St. Vincent, in the Cape Verde Is., where we had a most enjoyable day's collecting on Dec. 26.

Before proceeding to offer a few remarks on some of the more interesting species encountered on the Amazon, the Society will perhaps allow me to give a brief outline of the course of the expedition, in order to explain the localities at which our collections were made and the conditions under which the work was carried out. The 'Faraday' remained at anchor in the Pará River, about two miles below the city, from Jan. 4th until the 10th. We were thus enabled to collect for several days in a clearing in the forest about three-quarters of a mile from our anchorage, besides paying what was unfortunately a very hurried visit to the Pará Museum. This institution, which is devoted to Natural History and Ethnography, is, of course, conducted upon purely faunistic lines, and, although it receives but slender assistance from the State, its zoological collections, under the energetic supervision of the present Director, Dr. E. A. Goeldi, who at the time of our visit had only been in charge for a year and a half, would do credit to any European city. The Museum is surrounded by a small but beautiful botanical garden, in which there are also a number of cages containing live animals.

On Jan. 10th we left Pará for the Amazon, paying out cable as we went, and on Jan. 13th reached Breves, a small town in the great island of Marajo, situated near the commencement of the network of narrow channels which connect the Pará River with the Amazon. At Breves we had a day's collecting, considerably troubled by uncertainty as to the hour at which the ship would proceed on her way. On the afternoon of the following day (Jan. 14th) we ran aground on a mudbank at the western end of a channel known as the Paraná de Buyassu, and remained there hard and fast until Jan. 20th, when we were towed off, only to run aground again on the following day in almost the same place, so that we did not get away finally until high-tide on the morning of Jan. 22nd. This delay, however annoying from a cable-laying point of view, was to a naturalist anything but unwelcome, and we turned it to good account. No further mishaps occurred on the upward voyage, and we reached Manaus, our destination, at the mouth of the Rio Negro, about 1000 miles from Pará, on Feb. 8th, after calling on our way at Gurupá, Monte Alegre, Santarem, Obydos, Parintins, and Itacoatiara. At each of these places we had from one to two days' collecting, according to

the time occupied by the cable-operations, with the exception of Santarem, where we remained for four days and a half. We left Manaus on the downward voyage on Feb. 15th, preceded two days earlier by Mr. Pickard Cambridge, who had decided to return to Santarem in order to stay for a fortnight in the forest some nine miles inland from that town, at a cottage which had been most kindly placed at our disposal by Mr. Wallace, an American trader. After due consideration I had decided to remain with the ship, in order to visit other localities near the mouth of the river, and so make the most of our opportunities by dividing our forces. On the downward voyage we ran aground in mid-stream near Monte Alegre, and remained there for four days before getting off. Unfortunately I was suffering at the time from a swollen foot, and being scarcely able to walk I was unable to profit by this delay. After another day's collecting at Gurupá, we reached Macapá on the northern shore on Feb. 24, and I was enabled to collect for a day at a locality which, so far as I am aware, had not been visited before by a European naturalist. Thence, after calling at Chaves, in the island of Marajo, and again at Breves, we returned to somewhere near our old anchorage in the Pará River on March 5th, and the expedition was nearly at an end. Connections, however, still had to be made with a few places in the vicinity of Pará, and, as it was expected that these operations would take at least a fortnight, I resolved to avail myself of an opportunity which occurred on the following day of going to stay for a time at Mosqueiro, a little place seventeen miles below Pará on the same shore, in order to make the utmost of the time that still remained for collecting. I remained here until March 16th, when the 'Faraday' arrived, and I returned in her to our anchorage below Pará. During the second half of my stay at Mosqueiro work was much interfered with by rain. Mr. Pickard-Cambridge, who had already returned from Santarem, now rejoined the ship, and the next few days were occupied mainly in preparations for the homeward voyage. We sailed from Pará at 6 A.M. on March 24th, and reached Gravesend on the morning of April 14th.

On referring to my diary I find that, although we spent rather more than eleven weeks (79 days) on the Amazon and the Pará River, owing to the special conditions of the expedition, the actual number of days on which I was able to collect ashore amounted in the aggregate to only five weeks (35 days). Then, again, in considering results, it must be remembered that in our flying visits to the various localities already mentioned between Pará and Manaus we were often hampered by much uncertainty as to the exact time for which the ship would remain, and by the necessity for returning to the shore at a particular moment in order to catch the launch or boat going off to the ship. On the other hand, the days spent in steaming from place to place, and others on which we were unable to land, were by no means wasted, since the numbers of insects which were attracted by the ship's electric lights at night kept me pretty busily occupied.

Turning now to the harvest of the expedition, I may say at once that the collections we brought home consisted almost entirely of Arthropods. Mr. Pickard-Cambridge naturally devoted himself more particularly to Spiders, since they are his speciality, while I similarly looked after the Insects. But, apart from this, Mammals, with the exception of Bats and Dolphins, were conspicuous by their absence, while, as we had no one to assist us in skinning, it was impossible, in the time at our command, to do very much among the Birds. Reptiles and Amphibians were by no means abundant, and such as were met with prove, with a single exception, to belong to well-known and widely distributed forms. Among the Fishes it might have been possible to do something, but unfortunately a trap which I had brought with me was lost, owing to the breaking of a rope the second time it was put overboard.

MAMMALS.—The Lower Amazon and the adjacent waterways (including the Pará River and the maze of connecting channels) are shut in by dense forests, in which the naturalist unaccompanied by a guide might easily lose his way should he venture far from the narrow paths used by the rubber-gatherers. Around the small towns, however, there are more or less extensive clearings, while at Santarem there is a considerable tract of open country ("campo"). But in the forest itself, in the short time at my disposal, it was never possible to penetrate more than a few hundred yards from the river's brink. The entire absence of Mammals, or even of any traces of Mammals, in the forests near the shore of the river was most striking. I had included in my outfit a large number of traps of various kinds, but never found the slightest opportunity of using them. The shores of the Paraná de Buyassu and the other narrow channels between the Pará River and the Amazon are low, and the forests near the water are consequently exceedingly swampy, which may in some measure account for the absence of Mammals at this particular spot; but once in the Amazon itself the shores are much higher, though in many places, no doubt, still liable to submergence at the height of the rainy season.

A fair number of Bats was collected from time to time, most of which flew on board the ship, but in the absence of Mr. Oldfield Thomas they have not yet been examined, so that I am unable to say anything about them.

Freshwater Dolphins (*Inia geoffroyensis* and *Sotalia tucuxi*, or *S. fluviatilis*) were exceedingly common, especially in the neighbourhood of the Paraná de Buyassu and in the *furo*, or narrow channel leading up to Monte Alegre. The former species, which is much larger than the other and generally appears to be about seven feet in length, is either wholly pink or flesh-coloured or else entirely black or black above and pink beneath. I often wondered whether this difference in colour is sexual, as the two kinds are nearly always seen in company; anyhow the point would be well

worth elucidating. The appearance of the pink form as it rises to blow, seen against the pea-soupy background of the waters of the Amazon, is most striking. The *Sotalia* is black on the upper half of the body, which is all that I ever managed to see of it. It is stated by Bates ('The Naturalist on the River Amazons,' 6th ed. p. 75) that the natives call the larger species (*Inia geoffroyensis*) the "Bouto," while they term the smaller one (*Sotalia*) the "Tucuxí." According to one of our Brazilian pilots, Bates has transposed the native names; nevertheless I am inclined to think that the pilot himself must have been wrong, as it is difficult to believe that Bates, writing after eleven years' experience of the Amazon, could have made such a blunder. The pilot in question also stated that the large Dolphins (*Inia*) will attack a man in the water, while the small ones (*Sotalia*) will defend him by making an onslaught on the aggressors. If there is any truth in this statement it may be that the small Dolphin sometimes attacks the larger one, just as, according to Mr. Hudson ('The Naturalist in La Plata'), the Puma attacks the Jaguar whenever he meets him; but personally I never noticed anything of the sort, although I frequently saw the two species in close proximity in the same furo. I may add that Bates ('Naturalist on the Amazons,' 6th ed. p. 296) alludes to the number of fables that are told about the large Amazonian Dolphin, though he considers that "it is probable these did not originate with the Indians, but with the Portuguese colonists." The difference between the two species in their method of rising to the surface to blow is very noticeable and, as it seems to me, is not very clearly stated by Bates (*op. cit.* p. 75). The large black or pink Dolphin (*Inia geoffroyensis*) thrusts itself horizontally along the top of the water, usually showing the crest of its flat head first, and then nearly the entire length of the back, including the low dorsal fin; it then dives gently down head foremost. The small species (*Sotalia*) arches over out of the water, showing the curve of the back and the dorsal fin. Sir Wm. Flower was extremely anxious that I should, if possible, bring home a specimen of *Inia geoffroyensis*, or indeed of any one of the Amazonian Dolphins, and accordingly I made many attempts to shoot one but without success. The fishermen cannot be induced to harpoon them, and eventually we came to the conclusion that the only practicable means of securing a specimen would be to have a couple of big seine nets specially constructed for the purpose and to shoot them across one of the narrow furos, when the Dolphins might easily be captured.

In the creeks running out of the Rio Negro below Manaus I found Manatees (*Manatus* sp. inc.) not uncommon, and on more than one occasion I saw one make a tremendous commotion on the top of the water. In one instance the neck of the animal seemed to appear first, and it then turned "head over heels" as it were, and I distinctly saw the disk-shaped tail strike the water. This liveliness on the part of the Manatee in its natural state is perhaps worth noting, as in captivity it usually appears to be a

sluggish beast; at any rate a small specimen which I saw in the Public Gardens at Pará was particularly so.

BIRDS.—With regard to the Birds we met with I need say but little, as most of them belonged to well-known species. Hoazins (*Opisthocomus cristatus*) were extremely numerous in the bushes fringing the Paraná de Buyassu, and could be seen flapping about, balancing themselves on twigs, and uttering their harsh cries in all directions. In the furo leading to Monte Alegre we also found them abundant, and here they appeared to be in better plumage, if not to belong to a finer race than the Buyassu birds. On the Paraná de Buyassu and in the Monte Alegre furo a beautiful little Heron (*Butorides cyanurus*) was common and was often flushed out of the bushes. I may add that large white Herons, Egrets, and a bird closely resembling *Ardea cinerea* were frequently seen at various points along the shores of the river. Black Cuckoos (*Crotophaga major*) were another species common everywhere; these birds often associate in small flocks of half a dozen or more. At Monte Alegre I obtained a yellowish-brown Woodpecker (*Ceileus ochraceus*) which is possibly of some value, as I find that we have only two other specimens of the species in the Museum collection. The only other bird to which I need refer is a beautiful little Goatsucker, which was one of two that I met with on the Rio Negro, hawking in the air about three miles below Manaus and on the opposite shore to the city. I did not observe this species anywhere else. The specimen, which is unfortunately a young bird, has been referred provisionally by Mr. Ogilvie Grant to *Nyctiprogne leucopygia*; however, it certainly belongs to a much smaller race than the typical form.

REPTILES AND AMPHIBIANS.—I have already stated that among Reptiles and Amphibians, with a single exception (a small Frog), we met with nothing of any special interest. Strange to say we encountered no poisonous Snakes, and although constantly on the look out for the "hideous Sucurujú," as Bates calls the Anaconda (*Eunectes murinus*), we were never so fortunate as to see one, although wherever we enquired about it the natives invariably assured us that it occurred. Of Alligators, too, we only met with two or three small specimens. These creatures, though doubtless common enough, are, on the course followed by the steamers, extremely shy and seldom seen, although on a lagoon near Santarem I believe Mr. Pickard Cambridge observed a number of them.

The little Frog above alluded to (*Prostherapis femoralis*, Blgr.) was captured at Monte Alegre on Jan. 26th, and is the only specimen that has hitherto been obtained in Brazil. The species was described by Mr. Boulenger in 1894 from two specimens from Yurimaguas, on the Rio Huallaga, in Peru, and has until now been represented in the Museum collection only by the types and two other individuals from Ecuador.

FISHES.—Even had our fish-trap not been lost before it had done any service we should have had but little time to devote to fish-collecting. As it was I was unable to make any observations worth noting, since the colour of the water of the Amazon and the Pará River renders it impossible to see anything beneath the surface. However, it may perhaps be mentioned that a species of Cat-fish (*Siluridæ*) is extremely abundant in the Pará River, and appears to afford the chief occupation to the numerous fishing-boats. When landing on the shores of the Pará River or of the lower reaches of the Amazon a small fish, looking something like a Gurnet, is frequently seen leaping along the surface of the water. It appears to represent a Flying-fish in a semi-evolved condition, and is known to the English residents at Pará as the "Uplooker," but, as I was unable to secure a specimen, I cannot say anything as to its affinities.

MOLLUSKS.—The shells of two or three species of *Ampullaria* were common enough in the forests near the river, but most of them were dead and consequently of little value as specimens; we were told that the natives living on the banks use these great Snails as food.

INSECTS.—The total number of Insects of all Orders collected amounted to about 2500, a figure which might have been exceeded considerably had any special attempt been made to secure Butterflies; it was, however, deemed advisable to devote most attention to the more obscure and less popular Orders. The time of year, being at the commencement of the rainy season, was probably not the most favourable one for Insect-collecting, as, with the exception of Dragonflies, Insects were not so abundant as might have been expected. Of the specimens obtained of the various Orders the Diptera form the largest individual total (476); next come the Hymenoptera (415), the Lepidoptera Heterocera (390), and the Coleoptera (280). Allusion has already been made to the number of insects that visited the ship's electric lights at night. Although after dark all the lighted parts of the ship formed more or less happy hunting-grounds, two reflectors, each containing six glow-lamps of 16 candle-power, which hung over the 'Faraday's' stern, were the most productive. These lights were always kept going during cable-laying by night, and when we happened to be anywhere near either shore the number of insects that visited them was most remarkable. Of these nocturnal visitants Moths naturally formed the largest proportion, but, curiously enough, a small species of Horse-fly (*Tabanus*) also came in large numbers, besides certain other smaller Diptera, all of which are usually supposed to be diurnal. When we were at anchor off some of the small towns the 'Faraday's' projector lamp, which gave a beam of light equivalent to that of from 25,000 to 30,000 candles, was occasionally used to astonish the inhabitants, and never failed to attract numbers of insects, especially some of the larger Moths

and Locusts. It was, however, noticed that as we proceeded further up the river the number of insects that visited us by night sensibly diminished. The reason for this I am at a loss to understand; but the same observation was made by Mr. Bernard Piffard, a naturalist who passed up the river about the same time as ourselves on board one of the boats of the Red Cross Line.

Hymenoptera.—As regards this Order my best day's collecting was at Obydos, where on Feb. 2nd I was fortunate in finding a large bush in full flower and covered with specimens of a great variety of species. At each locality visited the most conspicuous and commonest of the large Hymenoptera were various species of *Pepsis*, while the common Wasp of the Lower Amazon and the Pará River was found to be *Polistes canadensis*, Linn. This species abounds everywhere, and numbers of its stalked nests are to be found attached to the rafters in every open shed or similar building; they were particularly noticeable inside a little mortuary chapel in the cemetery at Itacoatiara. Here and there on the Paraná de Buyassu, as well as at Gurupá and other places, a long, white, cylindrical object was observed hanging to the branch of a tree; this was the nest of the Card-making Wasp (*Chartergus chartarius*, Oliv.). The natives are extremely fond of these nests as ornaments for their houses. Some of the Bees met with seemed particularly inquisitive creatures: thus in clearings in the forest *Chrysantheda nitida*, Perty, a small species of a brilliant metallic green, hovers around one, or over any article one may have thrown upon the ground, as if inspired with the utmost curiosity; while, when steaming about in the ship's launch at Buyassu, a large reddish-brown species of *Epicharis* hummed round us in sweeping curves, and by its actions led us to mistake it for a Horse-fly (*Tubanus*). Among the various species of Ants the well-known Saübas, or Leaf-carrying Ants (*Atta* spp.), were by far the most noticeable, and were abundant in the more open places everywhere. When collecting in a clearing one frequently came upon a narrow moving column of small green leaves, or rather segments of leaves, crossing one's path and meandering away in either direction as far as the eye could trace it among the herbage, the insects themselves often being entirely concealed by their burdens.

Diptera were by no means so abundant as I had hoped, and the majority of the species met with were not very striking. The comparative scarcity of species of this Order must have been due to the season of the year, as I failed to come across numbers of fine species taken by Bates at the very localities we visited. Unfortunately none of Bates's Diptera in the collection of the British Museum are labelled with the date of capture. I am happy to say that I secured a fair series of specimens, representing a number of species, of the much-abused but rarely-collected Mosquito (*Culex*). Although in the forest Mosquitoes always made their presence felt, the only place where I found them really troublesome was Macapá; here they literally swarmed round me in clouds, and collecting quickly became a source of pain and grief.

With the exception of one or two species of *Eristalis*¹ and *Volucella obesa*, F., scarcely any Hover-flies (Syrphidæ) were seen. *Volucella obesa*, a brilliant metallic-green species, which also has bright green eyes when alive, is very widely distributed throughout the Neotropical Region. Like the Bee (*Chrysantheda nitida*), which it closely resembles when on the wing, this fly is the victim of an overpowering curiosity, and remains poised in the air in front of one in a way that is perfectly irritating. It seems to be an exceedingly stupid fly, and when caught in the net its movements at once become dull and sluggish. I found it very common everywhere. In houses and on board ship the Common House-fly of Europe (*Musca domestica*, L.) was unpleasantly numerous; indeed I have never met with it in such swarms as on the dinner-table of a house about two miles from Pará. The species seems to be now universally distributed, and has doubtless been carried by ships all over the civilized world. Several species of *Calobata*, a narrow-bodied, long-legged fly belonging to the family Micropezidæ, occur in the forest at the water's edge, and were quite the characteristic Diptera at the Paraná de Buyassu. I shall have occasion to revert to the genus directly in speaking of Mimicry.

Of the *Butterflies* I can say but little, since, as I have already indicated, not much attention was paid to them. Many of the specimens taken were tattered and worn, a fact which seemed to afford further proof that the best collecting season was already over when we arrived. Several magnificent species of *Morpho* were seen flapping majestically along forest-paths or over clearings, but proved themselves singularly difficult to catch. I may add that at Santarem at the end of January the beautiful *Callithea sapphira*, Hübn., was quite common.

The majority of the *Moths* that visited the ship's lights were of small size, and our series when worked out will no doubt be found to include many new species. To a different category belongs the beautiful green-striped *Urania leilus*, L., which, although exceedingly common, I cannot refrain from mentioning. This species is diurnal in habits, and on our arrival at Pará a specimen came drifting over the ship almost as soon as the anchors were let go. Its appearance caused immense excitement, but we soon found that the moths kept crossing the river singly or in couples throughout the day. If my memory serves me they all flew from the direction of the Ilha das Onças towards the opposite shore, that is from north to south. These moths were also our constant companions when the ship was in the "Narrows" between the Pará River and the Amazon.

Coleoptera.—One, at any rate, of the Beetles collected is of interest. This is a male of the curious little scarlet-and-black Longicorn *Erythroplatys corallifer*, White, which I took at Obydos on Feb. 2nd. The species is at present represented in the Museum collection only by the type, which is a female.

¹ *Eristalis vinetorum*, Fabr., *E. agrorum*, Fabr., and *E. lateralis*, Walk.

For some reason we did not meet with a single specimen of the well-known "fire-flies" belonging to the genus *Pyrophorus*, either on the Pará River or the Amazon itself, although I believe they were found by Mr. Pickard Cambridge in the forest near Santarem. Fire-flies of the family Lampyridæ, however, of which our common English Glow-worm (*Lampyrus noctiluca*, L.) is a well-known example, visited the ship in numbers by night as we proceeded up the river. They were especially conspicuous in the Monte Alegre furo on the night of Feb. 17, flashing out like sparks against the dark background of trees, and scintillating at intervals as they occasionally floated over our launch. Most of the species collected belong to the genus *Aspidosoma*, including among others *A. maculatum*, Deg., and *A. hesperum*, L. In the campo at Santarem on Jan. 29 we took a handsome species of Dung-Beetle (*Phanæus mimas*, L.), the passage of some cattle along the sandy road affording us an opportunity of observing the wonderful rapidity with which these beetles appear on the scene and bury themselves within a few minutes of the requisite attraction being provided for them.

The only other insects to which I need now refer are the Dragonflies (*Neuroptera Odonata*). As might naturally be expected in such a land of waters this Order was perhaps more in evidence than any other, and was particularly well represented in individuals, although the actual number of species met with was not very great. Though some of the species, again, were exceedingly beautiful in colour when alive, in size they in no way surpassed our British forms. The remarkable ease with which a Dragonfly, even when coming straight towards his would-be captor, contrives to elude the net is well known; for some reason I invariably found the rarer species the most difficult to catch; the common ones gave little trouble. I frequently had the opportunity of observing how a Dragonfly drinks; hovering motionless a foot or two above the water he suddenly makes a sharp dart forwards at it, striking it with his mouth and the underside of the thorax, and at once withdrawing to his previous position; the process is repeated several times.

Mimicry.—Three cases of apparently genuine mimicry among Insects, which came under my notice, seem worthy of mention. The first, which has probably not been recorded before, is that of a small Clearwing Moth (fam. Sesiidæ), which is an almost exact replica of a Wasp (*Polybia phthisica*, F.), of which I obtained several specimens at Manaos and the Paraná de Buyassu. In size and general coloration the two insects are the same, and the pattern of orange and black stripes on the thorax of the Wasp is copied so closely by the Moth that at a little distance it would puzzle even an entomologist to distinguish the two species. Unfortunately, I only obtained a single specimen of the Clearwing; it is not represented in the Museum collection, and is very probably new.

The second case of apparent mimicry, to which I would draw attention, is that of the Dipterous genus *Calobata*, alluded to above.

As has already been mentioned, the flies belonging to this genus have narrow bodies and long legs, while in many species the front tarsi are white. A medium-sized reddish *Calobata* (possibly new), which I found at the Paraná de Buyassu, when at rest on a leaf looks exactly like an Ichneumon of the genus *Cryptus*, holding its fore legs in the air and waving them about just as an Ichneumon waves its antennæ. The front tarsi of this species of *Calobata* are white, and since all the species of *Cryptus* have white-banded antennæ the resemblance is greatly increased. But as Ichneumons are not armed with stings, while, on the other hand, they attack larvæ and not perfect insects, it is difficult to see what benefit the fly can obtain unless the species of *Cryptus* are distasteful to birds.

The third instance of protective resemblance belongs to a different category. Among other Dragonflies, *Zenithoptera americana*, L., a small dark-winged Libellulid, was not uncommon. At Gurupá, on Feb. 22, I noticed that these insects have a habit of settling on the tips of dead twigs from five to ten feet from the ground, and drooping their wings downwards and forwards, so that they look exactly like bunches of dead leaves. Three or four individuals are usually seen on adjacent twigs, and they will remain motionless in this way for several minutes. I am informed by my friend Colonel Bingham, F.Z.S., that he has observed similar habits in the case of certain species of Dragonflies in India.

Since my time was fully occupied with the Insects, I cannot say much about the remaining Classes of Arthropods; nor is it necessary that I should do so, since these groups (Spiders, Scorpions, Myriopods, and *Peripatus*) were the special care of Mr. Pickard Cambridge, the results of whose study of the large Hairy Spiders (fam. Theraphosidæ) are to be communicated to the Society to-night. These particular Spiders, the monsters of their class, were more or less common at most of the localities visited by us, and Mr. Pickard Cambridge's exertions were rewarded by the acquisition of a large series of specimens, including, I believe, representatives of a number of new species. On landing for the first time on the shores of the Pará River after a slight detour rendered necessary by the presence of a dead bullock, attended by the inevitable Urubú Vulture (*Cathartes atratus*), the first object that met our delighted gaze was one of these Spiders on the stem of a palm-tree. The common species in the vicinity of Pará was *Avicularia avicularia*, L., of which a specimen was found in almost every palm-stump in a clearing to which we paid several visits. These great spiders rarely leave their retreat during the day, but seem fond of sitting at the mouths of their holes, with the tips of their legs projecting from beneath a protecting layer of thick web. They are very timid, and almost invariably dart back into their holes when approached. In the case of the individuals living in the palm-stumps, however, a lighted match dropped into the hole was found to be an excellent means of effecting an immediate capture. Other species live in leaves, or in bag-webs beneath loose pieces of bark on tree trunks, while in the campo at Santarem a new species of *Tapinauchenius*

was found to be very common in holes in the sandy ground. A number of these nests were dug up bodily and brought home in biscuit-boxes by Mr. Pickard Cambridge, and when duly mounted it is hoped that they will prove interesting exhibits in the Museum galleries. Scorpions were by no means common, although by dint of much searching Mr. Pickard Cambridge managed to secure specimens of several species. A number of the somewhat Crab-like Phrynidæ (Pedipalpi) were obtained, and in the campo at Santarem I was fortunate enough to dislodge a whole family of *Tarantula santarensis*, Pocock, both young and adults, from an ant-hillock. On thrusting a stick down the holes in the nest the ants swarmed out in large numbers, accompanied by these strange guests, among which was a large yellow Cockroach (*Blabera* sp.), more usually met with in houses. Centipedes were neither very large nor particularly common, but a rich harvest of Millipedes was secured, and Mr. Pickard Cambridge also obtained several specimens of *Peripatus*.

FRESHWATER SPONGES.—In the branches of bushes and low trees lining the western shore of the Rio Negro below Manaus two species of freshwater Sponges (*Tubeella reticulata*, Bowerb., and *Parmula batesii*, Bowerb.) were very common, forming spiny masses resembling suspended Hedgehogs. At the time of our visit the water had scarcely begun to rise, and these Sponges were consequently hanging high and dry from five to fifteen feet above the surface. In the case of *Parmula batesii* the sponge network was full of blackish seed-like gemmules. Since our return attempts have been made to induce some of these to develop by immersion in water at various temperatures, but as yet unfortunately without success.

I cannot conclude without a few words of grateful thanks: in the first place to Mr. Alexander Siemens, whose never-failing kindness to my colleague and myself while on board his ship will always be a pleasant memory to both of us, and who, in the midst of the numberless cares and anxieties of an important commercial undertaking, did everything in his power to make our part of the expedition a success; in the second place to Sir William Flower for selecting me to represent the Museum; and, lastly, to the Trustees of the British Museum for granting me the necessary leave of absence, which enabled me, if only for a brief space, to cease from being what Mr. Wallace has called a "laboratory naturalist," and to get a glimpse of the appearance and habits of birds, and beasts, and insects while they are yet living creatures and before they become museum specimens.



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