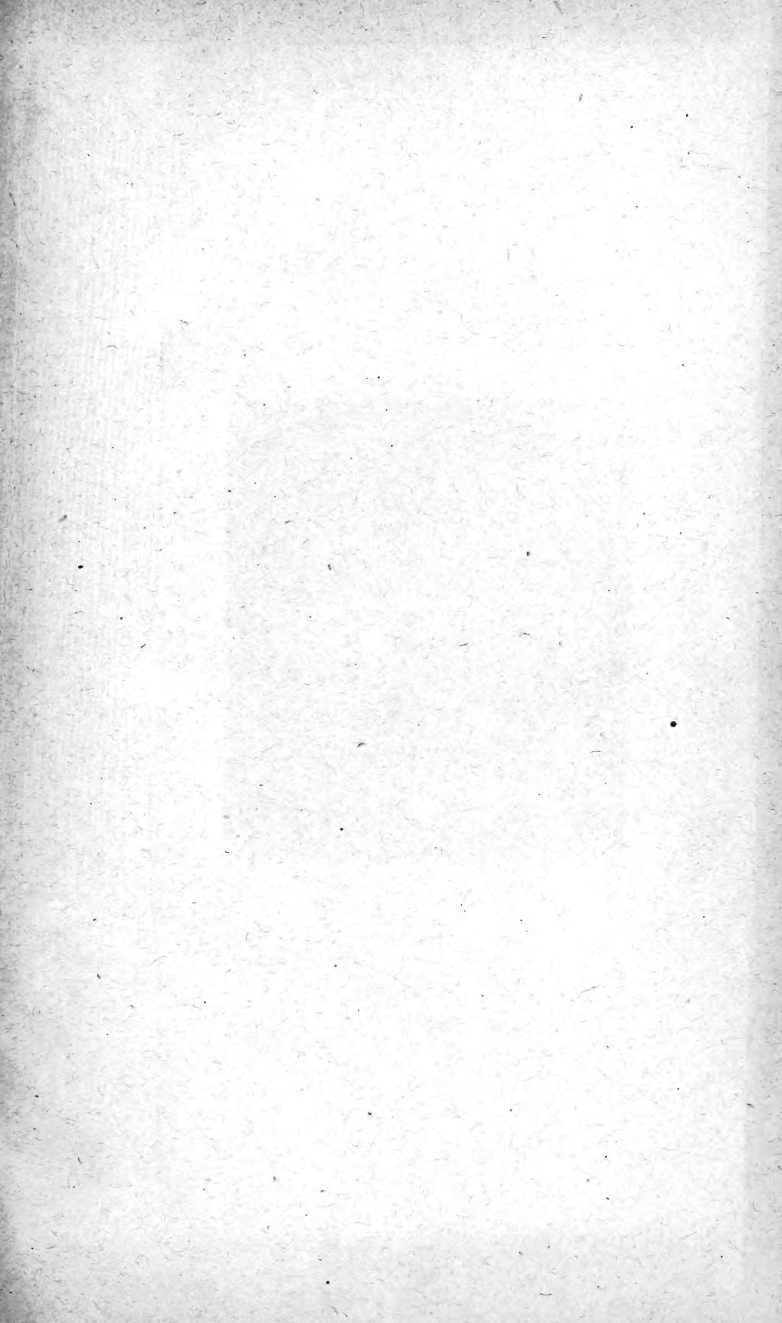
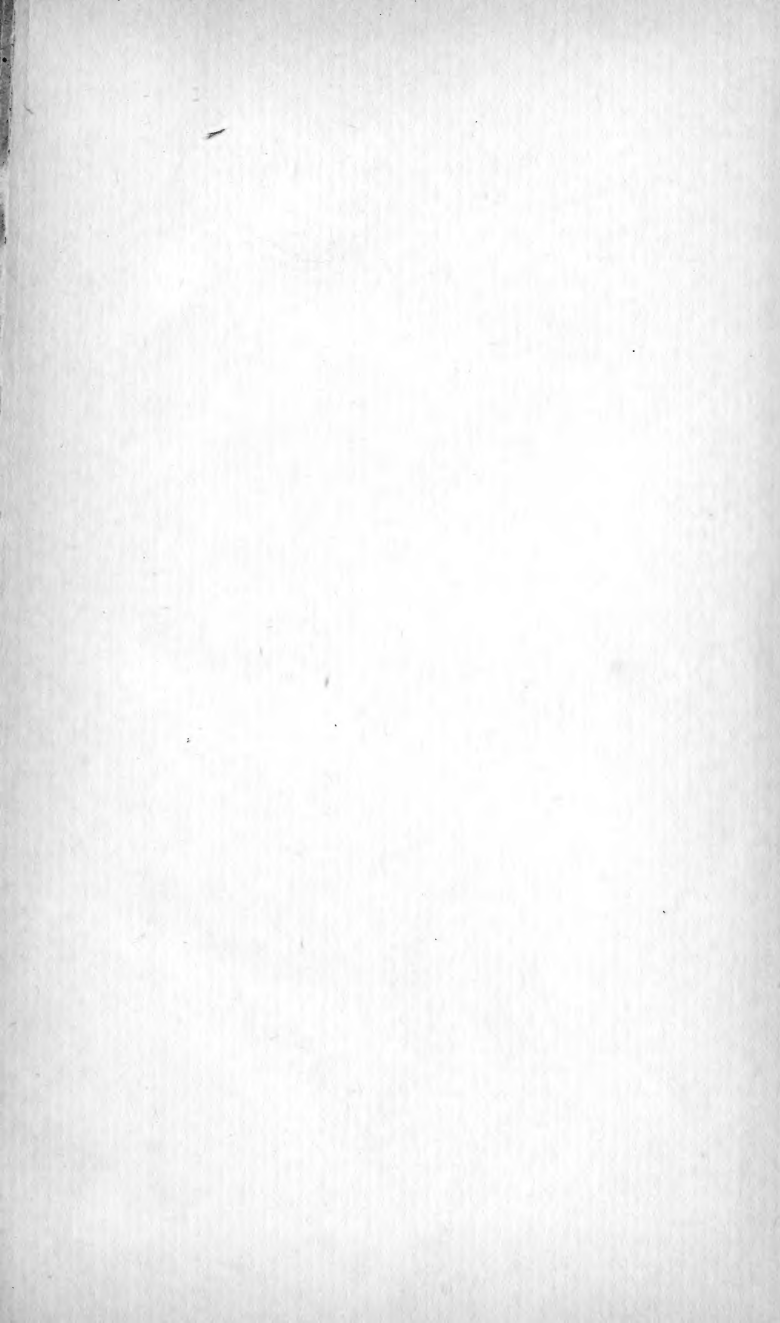


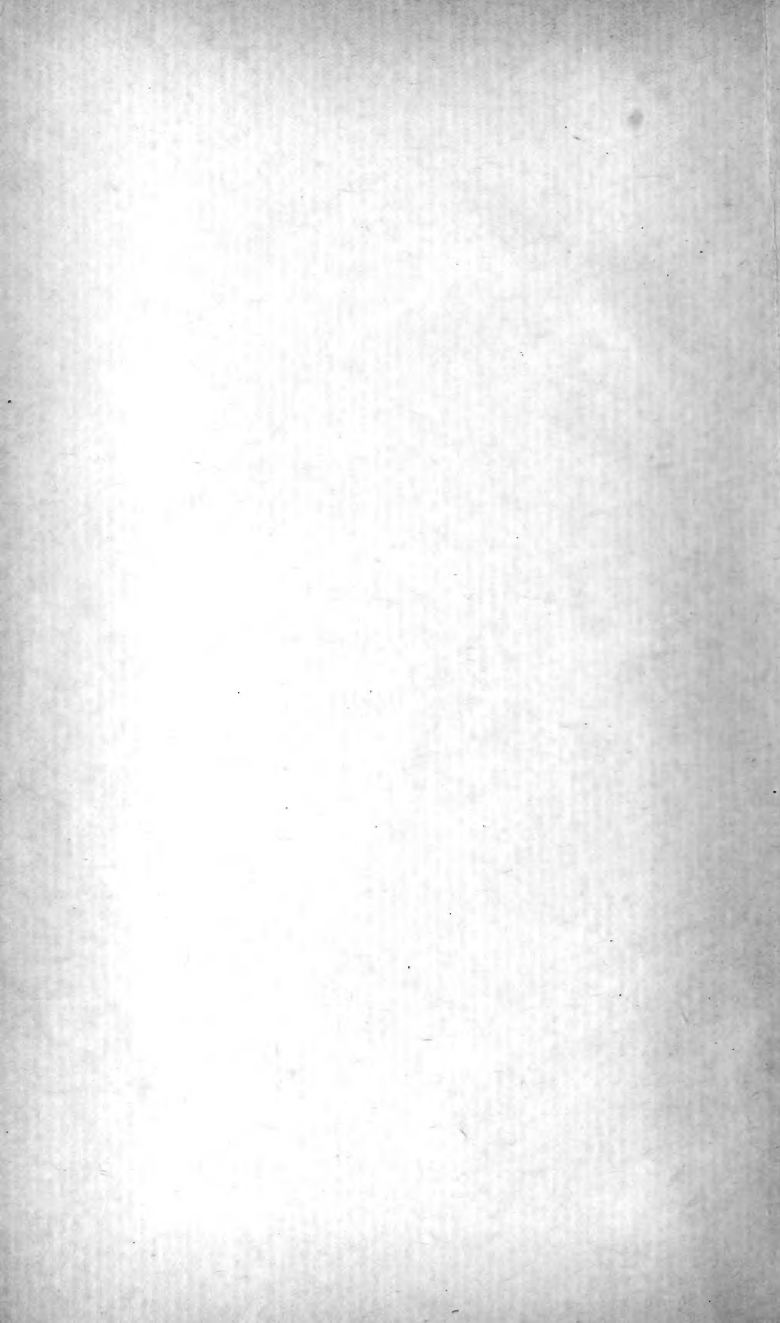
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LEYDEN MUSEUM

FOUNDED BY THE LATE

Prof. H. SCHLEGEL,

CONTINUED BY THE LATE

Dr. F. A. JENTINK.

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**VOL. XXXV.**  
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Vol. XXXV was issued in parts in the following order:

N^o 1. — 15 December 1912, Note I—III.

N^o 2. — 1 July 1913, Note IV—XIII.

N^{os} 3 and 4. — 27 December 1913, Note XIV—XXXII.

CORRECTIONS IN SCIENTIFIC NAMES.

p. 6 line 11 from top: in stead of »*Frigilus*» read »*Phrygilus*».

p. 11 line 19 from top: in stead of »*Thinicorus*» read »*Thinocorus*».

p. 15 line 11 from top: in stead of »*theuco*» read *thenca*».

p. 16 line 2 from top and following pages: in stead of »*Auracaria*»
read »*Araucaria*».

p. 18 line 8 from top: in stead of »*Sylviorthorhynchus desmuri*» read
»*Sylviorthorhynchus desmursi*».

p. 53 line 8 from bottom: in stead of »*cinnamomius*» read »*cinnamomina*».

p. 61 line 16 from bottom: in stead of »Ruis. & Par.» read »Ruiz
et Pav.».

NOTE I.

ACROSS SOUTH AMERICA TO TIERRA DEL FUEGO
AND BACK THROUGH THE SMITH-CHANNEL.

BY

F. E. BLAAUW.

On the first of Febr. 1911 I left Amsterdam on the new steamer "Zeelandia" of the "Hollandsche Lloyd".

The weather was cold and foggy and hoar-frost was everywhere.

After having touched at Dover, Boulogne-sur-Mer, Vigo and La Corunna, we arrived at Lisbon where the beautiful clear weather was quite a relief after the darkness of the northern skies.

We went on land and visited some fine buildings in the town and saw workmen busy repairing the holes that had been made in the roof and front of the Royal Palace which had been shelled from a man-of-war lying in the port by the insurgent republicans.

Towards evening we left the beautiful port under a glorious setting sun and now started to cross the Atlantic to Rio de Janeiro.

The whole crossing was very uneventful. We passed Madeira, the Canary islands, and the Peak of Teneriffe clad in snow showed us all the glories of a setting sun on its white surface.

At about the 20° northern latitude we passed a zone where a kind of *Physalia* was very abundant and on the not very quiet sea the beautiful iridescent floats looking

Notes from the Leyden Museum, Vol. XXXV.

like so many toys made of Venetian glass were seen all day long, not to be seen again during the whole voyage.

On this same day I saw the first flying fishes. They were of large size, at least twice as large as a herring apparently, with fine clear *blue* "wings" and long tails.

They were not numerous and were seen in twos or threes together as they jumped out of the water sideways in front of the vessel where the ship cleft the water.

As we were nearing the equator another kind of flying fish appeared.

They were quite small things which seemed to live in flights of from 10—20 or more individuals. They looked very much like flights of swallows skimming over the water.

The majority had *silvery white* wings whilst a good many had *pale blue* wings and only a very few had them *brick red* (these were a little larger).

As the fishes never left the water exactly where one expected them to come, it was not so very easy to follow the flight of some one fish from the beginning till the end, but I am of opinion that the fish makes a flapping motion with its wings the moment it leaves the water, to keep them extended during the whole of its aerial course only moving them slightly for balance.

They seem to have the power, when about to go to the water again, to continue their flight for another period if something comes which makes them think this desirable.

In this same way they are able to rise in the air if a high wave comes unexpectedly in their way so as to fly over it.

Under all circumstances when the flight has come to an end they drop into the water like a stone getting under at once, and not at first settling on the surface.

This always came as a sort of a surprise as one would — the fishes looking so much like birds — expect them to fall *on* the water first, before disappearing under it; but they never did so, nor probably could.

South of the equator the fishes were not nearly so numerous as north of it in the same latitude.

One day an enormous *Sea Turtle* was seen leisurely swimming on the surface of the sea near the vessel.

Of birds there were none or nearly so.

When crossing the line I saw some pairs of little *sooty black Petrels* with white rumps, and a day earlier I saw a bird which looked very much like a rufous coloured kite, but probably was some kind of *Skua*. It did not come near.

In due time we reached the Brazilian coast and one morning at 3 o'clock (the 22^d day after having left Amsterdam) the entrance of Rio de Janeiro harbour.

The captain had kindly promised to wait with entering the harbour until it was daylight and so at about 5 we enjoyed from the highest accessible part of the vessel the magnificent sight of the entering into the most beautiful port of the world.

After having passed between the most fantastically shaped stony mountains and rocks partly bare and partly overgrown with palmtrees the town itself came into view stretched along the sea with the mountains behind it.

The first birds I saw there were a lot of *Black Vultures* which came flying from the mountains of Petropolis, where they had probably spent the night, to their dayquarters in and around the town.

As the morning advanced a most weirdlooking bird all wings, points and angles, like a floating rag, appeared above the bay and began to fly restlessly backwards and forwards.

This was my first acquaintance with the *Frigate Bird*, and a most extraordinary sight it truly is!

Some *Gulls* were also appearing and some *Dolphins* were playing among the ships.

At last after all the formalities with the Brazilian officials had been completed and we were allowed to land we took a boat and soon afterwards landed in the Brazilian capital, where we were met by a lot of dusky looking people that offered us their services.

After having taken a walk through the principal streets we had some lunch and after that hired an auto that was to show us the more interesting parts of the town

and the harbour and to take us over the more accessible mountains around it including the Tujuca.

In the outskirts of the town I saw a good many *Black Vultures*, probably my friends of the early morning, and on the roads of the parks I saw a number of the diminutive *Passerine Doves* walking daintily in search of food. Also *Sulphury Tyrants* were repeatedly seen in those parts.

During our drive over the forestclad mountains I saw *very* few birds and can only remember a pair of little *Grey Pipit*-looking birds that disappeared in the under-wood. — The beautiful large *blue and purple Morpho-Butterfly* was occasionally seen by me between the trees of the mountainside on which purple blossoms were abundant and an equally large pale *yellow* one was also seen occasionally.

On the whole tour I saw remarkably few birds or insects, but perhaps the Season was to blame for that.

Towards the end of the afternoon we also visited the magnificent *Botanical Garden* and here the birds were more numerous.

New to me were a few *Black Drongo's*, two or three kinds of *Thickbilled Finches* and some *Blue Sugar Birds*.

The little Finches were bathing in a diminutive stream that crossed the grounds and were quite tame.

After a general survey of the Botanical Garden with its magnificent bamboos, palmtrees etc. etc., we had to hurry back to the port in order to get a boat that would take us back to the ship.

On the water we got a tremendous rainstorm, however reached the "Zeelandia" without mishap.

Next morning found us at the entrance of the port of Santos, and as we slowly proceeded on our way between old portugese fortifications and small villages surrounded by palmtrees the town of Santos itself came into view.

As the ship had to take in some cargo there, we went on shore and ascended a hill behind the town on the top of which was a small chapel.

On the way, flying between the flowers of some way-

side cottagegarden I saw repeatedly *Blue Sugar Birds* that however did not come very near.

Coming back I happened to pass the Mercado Central, where some small birds were sold along with vegetables and every other conceivable thing.

Amongst those birds I noticed two beautiful males *Turdus flavipes*, two or three kinds of *Tanagers* and some lovely *blackheaded* or better *blackcrowned* little *Thickbilled Finches*, *Spermophila pileata* Sel., diminutive Finch edition of our *Blackheaded Tit*!

Having regained our ship we proceeded on our way to Monte Video where we only stopped a couple of hours and did not land, and in due time the next morning or better afternoon got to Buenos Ayres.

As is usual in S. America officials take a long time about their business and it was getting dark before they were ready.

Now came a surprise. We had expected either to land *with* our luggage or to remain on board till next morning.

We were however counting without the complications of S. Am. officialism!

They expected us to land *without* our luggage which was to be kept by them in pound till next morning when we would have to get back to have it opened etc.

After some concessions on both sides the thing was settled and next day at twelve we were in our hotel including our luggage.

Buenos Ayres is a fine town and the villa quarters and park are truly wonderful.

During the afternoon I took a carriage to have a general survey of the place and I was greeted by the welcome sight of a pair of *Guira Cuckoo's* that were flying after each other in a villa garden. On the walks in the parks *Columbula picui* was very abundant, but the most conspicuous bird of all was *Furnarius rufus* that every where in parks and gardens was striding busily along the walks.

If disturbed he would fly away protesting angrily with loud calls.

This bird has evidently taken kindly to civilization as it is literally to be seen in every park or garden.

Also very conspicuous by their colouration and loud screams are the *Sulphury Tyrants* which are continually fighting with the Red Ovenbirds.

The *Red Ovenbird* is often seen caged in the bird shops but the poor things generally look very miserable and they have the reputation that they won't live in confinement and are very delicate.

On the race course with its by the bye truly magnificent buildings, were large flocks of *Frigilus fruticeti* running on the ground.

Buenos Ayres has a very fine *Zoological Garden* full of interesting shrubs and trees which aided by the good climate thrive extremely well.

At the time of my visit my sight was gladdened by the presence of a flock of 6 beautiful *Emperor Pinguins*, but on the whole I was rather disappointed by the absence of anything resembling an argentine collection.

Mr. ONELLI, the director, who kindly took me round the Garden said that it was extremely difficult to get argentine beasts and birds and that it was much easier to get other things.

On the wellkept lawns I noticed two beautiful *Blackwinged* or *Andean Geese*. Mr. ONELLI promised to get me a dozen; but he afterwards told me, that he could not get one! South America helas is full of promises which are never kept!

I had a good look round the Garden where a few *White Herons* with full flight were often seen flying from one piece of water to the other, the remains of a large number that had been put out several years ago but had mostly strayed away; and after having taken leave of my kind guide I drove back to the town through avenues planted with the graceful *Casuarina stricta* bordered by woods of *Eucalyptus*-trees.

I only spent a couple of days in Buenos Ayres and took a ticket on the trans-andean-railway to *Mendoza* at the foot of the Andes.

From Buenos Ayres to Mendoza the country is perfectly flat, and the whole journey took about 24 hours.

The summer had been very dry so that the general aspect of the country was very barren and meagre and dead cattle were a usual sight.

As soon as we left the town the *Chimangos* became apparent and were my nearly constant travelling companions ever after.

The railway usually led along the old carriage or wagon track and as I afterwards found out, the *Chimango* is the *bird of the road* living on any refuse that he may get there.

Past Mercedes station we passed a large *Ostrich* farm of *American Rheas* and in the fields several *Vanellus cayennensis* were very busy and very noisy.

The *Burrowing Owl*, *Speotyto cunicularia*, was also seen everywhere generally in pairs perched on the poles that carried the wires between the fields or along the railroad.

In a pool at some distance, we passed a great flock of *White Herons* which completely filled the shallow water.

On a wire fencing the railroad was a beautiful *Milvulus tyrannus* with its long tail and beautiful white and black plumage.

In the afternoon the train passed through an enormous shallow pool in which had assembled thousands of the *S. Amer. Flamingo*, *Phoenicopterus ignipalliatus*.

Amongst them, close near the railway, were half a dozen *Coscoroba Swans*.

It was a wonderful sight and great luck that I could enjoy it, because two months later when I returned by the same road the pool was almost dry and nearly all the birds had gone.

In some parts the pampasgras, *Gynerium argenteum*, was in full bloom and the beautiful plumes shaded from *silvery white* into *wine colour*.

On one occasion as the train stopped to repair some damage I got out and found the whole road overgrown with *Portulacca*.

The *Caracara*, *Polyborus brasiliensis*, was occasionally seen but was never numerous, whilst the *Chimangos* were nearly always there.

Next morning we arrived at *Mendoza* at the bottom of the Andes, not more than four hours late upon the time we ought to be there, which I was told was a great accomplishment of the railway drivers.

In fact only *one* engine had broken down on the way and had to be left behind, but the second one drew us all right. *Mendoza* looked a very dusty place with large vine plantations, and most or perhaps all the houses and walls were made of dry mud.

We left the train with our luggage and proceeded to the *Hôtel* which looked rather comfortable outside but had only one huge room to give accommodation to the three of us.

In the afternoon we made a walk along the mountain side which was completely overgrown with *Cactus-bushes*, some of them carrying beautiful *white flowers*, besides other bushes and plants every one of them thorny to the extreme.

In open spaces I saw some *Picui Doves* looking for seeds and on one or two occasions a diminutive *little Kestrel* hovered over head.

There is a *Public Garden* in *Mendoza* in which there is a small collection of S. Am. animals and birds.

So f. i. there were some splendid *Puma's*, several *Vicuna's*, a number of *Condors*, *Caracaras* and other small birds of prey and several nice *Coscoroba Swans*.

A splendid specimen of *Erythrina crista galli* as large as an apple-tree was flowering profusely near a piece of ornamental water.

The rocky slopes of the Andes are said to be the home of the curious mole-like *Armadillo*, *Chlamyphorus truncatus*.

Next morning we took the train again, which was to take us farther west into the Cordilleras to *Puente del Inca*.

We now came right into the mountains ascending continually.

The country was stony and prickly to the extreme.

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Conspicuous were a number of *Swallows* along the riverbed of the Mendoza.

In a mountain stream between San Ignacio and Dotrerillos I saw 6 specimens of the beautiful *Anas specularis* which I had never seen alive before.

In the same neighbourhood were some *Cayenne Lapwings* conspicuous as usual by the white in their wings when they alighted in their peculiar way with wings high up in the air.

A large *Blackbird*, *Merula fuscata*, was occasionally seen in the bushes and as we halted near a small station in the Uspallata-pass I saw *two young Blackbirds* of this same species in a cage — in colour like our own young Blackbirds.

As we went on and got higher into the mountains the *Cacti* gradually disappeared and *Yellowish green leafless bushes* now took their place.

I did not see many birds now and the little *Red Kestrels* were the most conspicuous ones.

Near Caletón I saw a beautiful male *Merganetta andina* flying over the Mendoza-river and as we neared Puente del Inca I saw two or three times a small beautiful blue grey bird of prey probably *Elanus leucurus*, with white tail.

In *Puente del Inca* we left the train and found there a very comfortable hôtel.

The only drawback was the high altitude which did not very well agree with me.

The landscape was grand and wild beyond description, enormous masses of perfectly barren mountains all around. These mountains showed the most extraordinary colours, purple, green, blue, pink, yellow; it was like a moon landscape, at least I have a feeling that it must be somewhat like it.

Here and there were snowclad mountains, and a few hours before reaching our station we had had a good view of the enormous masses of the *Aconcagua*.

Puente del Inca has its name from the fact that a

mountain-stream runs under the highroad to Chili forming a *natural bridge*.

Our object for alighting at Puente del Inca was that we wished to pass the *Cumbre* on muleback instead of going through the tunnel.

Next morning at 8¼ we bestrode our mules with the intention of riding over the pass to Caracoles on the Chilean side where we were to take the train to Santiago.

Our road, the old high-road or mule-road from the Argentine Republic to Chili led us along the most beautiful wild mountain scenery.

On the way I passed some *Zenaida auriculata* which were looking for food amongst the stones, one *Phrygilus aldunatii* and some other Phrygiles (*grey, redbrown neck and yellow throat*). On the rocks were very conspicuous, as they came quite near, some birds like *magnified Nightingales* almost as large as small Thrushes.

Before ascending the steep slope which was to lead us to the top of the pass we halted at *Las Cuevas*, which is the spot where the train enters the tunnel, to get some lunch and let the mules have a rest.

After this we got on again and ascended the pass along a zigzag road getting beautiful points of view as we got higher and higher and enjoying again a splendid view of the snow-clad masses of the *Aconcagua*.

During the ascent I passed numerous small flocks of the yellow and black Siskin (*Chrys. atrata*) which looked strangely out of place in this perfectly barren region. They perched on the rocks as there were no shrubs nor any vegetation and probably looked for seeds on the ground.

We got to the pass in due time where the two governments of Argentina and Chili have erected a bronze statue of the Christ on the frontier-line between the two countries.

I am told that they could not agree towards which country the Christ would look and so they made the statue look sideways along the frontier line and this rather spoils the effect.

Besides the statue there is a stone-hut in which travellers could find some shelter.

Although it was only the beginning of autumn and no snow on the pass, which is 3900 Meters high, the wind was bitterly cold and this cold and the rarified air made me think a long stay in this place undesirable.

So I turned my back to the Argentine Republic and before me laid the wild glories of the *Chilian Cordilleras* in all the colours of the rainbow.

As I descended I came along several carcasses of *dead mules* and *horses* that had died on the way and got *mummified* in the dry pure atmosphere.

A little lower down a hut was inhabited and in front of it stood erected one of these horse mummies upsaddled and bridled.

This was the equivalent of a painted sign in old Europe and meant that travellers could feed their bridle-horses there.

Not very far from the top of the pass on a flattish sandy bit amongst the stones I flushed three Seedsnipes, *Thinicorus rumicivorus* Erckh., and on the very top I saw a small Bird of Prey which I could not identify.

I also came across a pair of small *brown Birds* with black and rufus stripes on the wings, which were resting on some stones.

After a steep descend we reached Caracoles at about 2 o'clock in the afternoon, being the little station where the train left the tunnel on the Chilian side.

In due time the train arrived carrying our luggage, to our great satisfaction.

The Chilian slope of the Andes is much steeper than the Argentine side and in zigzag lines we slowly wound our way downwards amongst the wild splendor of the mountains. We passed the *Laguna del Portillo*, the *Laguna del Incas*, cristal lakes in purple green or blue surroundings, all without in this season a semblance of vegetation apparently, and proceeding on our way we gradually came into a zone where things began to grow and the *prickly things* were again with us.

At first small and stunted the *Cacti* became more and

more numerous and soon the valleys and whole mountain sides were overgrown with the big candelabre Cacti which were full of bright small scarlet flowers which covered some of the stems entirely.

Along the mountain-streams the vegetation looked almost luxuriant and as we at last came into a civilized zone the *Lombardy Poplar* was a feature of the landscape.

Late in the evening in total darkness we arrived in *Santiago* and found lodgings in the *Hôtel Oddo*, which is kept by a Frenchman and ... by rats! —

The situation of *Santiago* is one of the finest in the world. It lies in a plain between the *Cordilleras* and the *Maritime Andes* so that it is surrounded by the most beautiful Alpine panorama one can imagine.

In the midst of the town at one end of the wide boulevard or "avenida" which transverses it, is a large rock or small stony mountain which has been planted as a public park — the *Santa Lucia*.

Facing the „avenida" gorgeous stairways of cut stone lead up to it, but in other places little winding stairs cut in the rock and overhung by the luxuriant vegetation give a more private access to its heights.

One morning during my stay at *Santiago* I took one of these little roads and at about half way following a stone ballustrade the stairs formed an angle and into that angle a thin stream of water spluttered into a shallow stone-basin, whilst *Eucalypti* and *Cypres-trees* were growing near.

The stone ballustrade was overgrown with scarlet *Geraniums* and some *Fuchsias* formed the underwood.

As I was leaning over the balustrade looking at the flowers I suddenly heard a shrill scream and behold in front of me stood in mid air not three feet away from me an *Oldgold-capped Green Humming-bird*.

It stood in the air for a while then suddenly dropped into the shallow water of the basin and began to splash to its hearts content all the time playing with the gorgeous oldgold coloured feathers of its head.

And as it was washing I heard another scream and a

second Humming-bird stood in the air over the basin. And as the first one saw this it stopped washing, it sprang up into the air and attacked furiously the intruder. And as they were fighting the golden headfeathers were in constant play, whilst yellowish spots near the eye seemed to sparkle for excess of colour.

And whilst they were fighting another Colibri of the same kind appeared and began to splash in the basin and from all sides they were coming, and there was great *warfare* and a great *washing* and sometimes as many as seven were all washing whilst above the basin the little warriors fought their battle to interrupt it by suddenly dropping into the water.

It was all not three feet from my face and it was a sight never to be forgotten and I thought that if I should see nothing else that might interest me in Chili this sight would have been worth coming over land and sea all those weary miles!

And after they had all washed at their hearts content they one by one sprang into the air and disappeared.

But they were not far away yet, but sat in the Eucalypti and the Cypres-trees and dried their feathers, so that all their beauty that had left them, came back to them.

And after this they one by one uttered a sharp shriek and were gone.

I continued my way to the top of the Santa Lucia and admired the view, but not all the glories of the snowclad Andes could efface the delightful sight of the homelife of the *Goldencrowned Humming-bird* (*Eustephanus galeritus* Mol.).

One day after having gone over the *Mercado Central* to look for birds I was rather disappointed as I saw only a few *Zonotrichia pileata*, some *Phrygilus aldunatii*, which is supposed to be larger than the more southern form, *Phr. gayi*, and certainly is lighter in colour, also some *Turdus magellanicus* and some *Bolb. monachus*. I then went on to see what birds were in the nearly dry riverbed which is close by.

I here saw a good number of *Diuca Sparrows* which belong to a much *larger* form than those found in the Argentine Republic.

The *Diuca* takes in Chili the place of our House Sparrow. Whenever during my travels through that country I saw Diucas I was sure to find some settlement or other.

They go about in troops and are quite tame. Amongst them one generally sees a pair or two of *Zonotrichia pil-eata*. These birds although often going with the Diucas keep to themselves. They are rather retiring of disposition and are long gone away before the Diucas think of ever *moving*.

They are dainty little birds to look at, and seem to be ashamed of going about in such vulgar company as the Diucas are. The crown-feathers are erectable and give them a very pretty look.

There is a pretty park or garden in the outskirts of Santiago called the *Quinta Normal*. Besides containing other buildings it boasts of the Natural History Museum. I went over it under the kind guidance of the Curator Señor Qujada.

I am sorry that I can say nothing good about the way this museum is kept as a more neglected lot seldom came to my view!

This is a great pity as there is a very good collection of Chilian birds.

I noted two fine specimens of *Fulica gigantea* of the laguna Huachiri (1870), some specimens of the curious *Hylactes megapodius* Kittl., of *Pteroptochus albicollis* Kittl., etc. etc. The Director Dr. MOORE (a *Chilian* with an English name) told me that they were going to improve things in the Quinta Normal. They had just completed to build him a new house! Let us hope that the museum will have a turn next!

In the same garden there is a small *zoological collection* mostly consisting of tame poultry, I am sorry to say. The trees in the Quinta are very fine.

From Santiago I took the train south to Valdivia.

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Chili is a long plain bordered to the east by the Cordilleras and to the West by the Maritime Andes.

The train runs along this plain having only an occasional embranchment to the east or west.

The train started in the evening so that I did that time not see much of the country before next morning.

At about 7¹/₂ next day I passed a small lake in which some beautiful *White Egrets* were very ornamental. Near the railwaystations *Diucas* were abundant and some *Zonotrichia pileata* were also occasionally seen. In the fields *Mimus theuco*, with their white eyebrow-streak and white marked tails, were casually seen in small families.

After the train had branched off at *Renaico* we went along the river for some time and here I had the good luck to see a *Coypu-Rat* swimming across.

Valdivia has a beautiful situation on the river but the town itself is the most miserable thing one can imagine.

To begin with, a great part of it toward the river was burnt down three years ago and very little had been done yet to rebuild. In fact I understood that the course of the streets that certainly wanted alterations had not been fixed upon yet.

There is no plaster of any kind in most of the streets and in winter in the rainy season the streets get so full of holes and muddy that the oxen actually get drowned there.

The way which leads from the railway-station to the town is made hard in some way by putting *wooden logs* one against the other and as they get rotten and full of holes this is not a very great improvement.

From Valdivia I took a boat to Corral and from this boat I saw several *Turkey Vultures*, *Cathartes aura*, hovering overhead.

The mountains bordering the Valdivia-river are all overgrown with forests which unfortunately are destroyed by indiscriminate burning in a most disgraceful way.

Near Corral I saw several *Black Cormorans*, *Phal. brasiliensis*, some *Terns* and a *Dipper*.

I did not spend many days at Valdivia but having heard that *Auracaria-woods*, which I wanted to visit, were to be found near a place called Purén more to the north, we decided to take train again to a place called *Los Sauces* on the railway.

From the train driving from Valdivia to Renaico I saw a *Pigmy Owl*, *Glaucidium nanum* sitting on the telegraph wire, little troops of *Black Molothrus*, some *Zenaïda Doves* and, flying over the tops of the trees, large *Winecoloured Pigeons*.

Near *Metrenco* I saw for the first time a flock of *Military Starlings* whose brilliant scarlet breasts made quite a glow of colours in the landscape. I also noticed a male of *Peristera cinerea*, a *Caracara* and lots of *Chimangos* along the roads as usual. A *Cathartes aura* was also seen.

At *Los Sauces* we left the train with the intention to spend the night there, but no lodgings being obtainable we decided to hire horses and go on to Purén at once where a hostelry was said to exist.

This arranged and the horses being there after 1½ hour, we rode on into the open country following a wide waggontrack amidst enclosed fields.

On the road the *Chimangos* were as numerous as ever and it was quite remarkable to see how tame they were. They might have been the pigeons around St. Pauls Cathedral in London.

They differed in size in a most striking way. Some were as *large* as a Black Crow whilst other would not exceed a *small* Tame Pigeon in size. One or two *Caracaras* were also seen but these, being often persecuted, were much wilder.

The country around was very barren. On some or most of the fields the crops had been gathered, other tracts of country were supposed to be pastures but were mostly dried out beyond recognition.

Only occasionally in a damp hollow was some green pasture.

Our way led us slowly uphill and we crossed some streams.

Near one of them I saw a largish *black Waterrail* (*Rallus antarcticus*?).

Toward dusk we arrived at Purén and found indeed some place to lie down our heads for the night.

I soon inquired after the *Auracaria woods* or *Pinales* as they call them, but was grievously disappointed to hear after no end of inquiry, that they could not be reached from Purén.

The apparently most sensible advice I could get was that we should return to Los Sauces and from there take train to *Angol* from which last place the Pinales would probably be within riding distance.

We now decided to stop one day at Purén and to make an excursion to the lake Lanalhue. So next morning having got some horses we rode out to this effect.

The way took us over some mountains overgrown with forests. In the trees I saw for the first time in Chili the beautiful flowering Creeper, *Lapageria rosea*.

Its large red bell-like flowers were seen almost everywhere. The flowers are very thick of texture and full of moisture so that they keep fresh a long time after having been picked.

This is their undoing. The settlers gather whole quantities of them and hang them up in their rooms without giving them water. Treated in this cruel way they manage to linger on for several days before they wither. In Chili they delight in illusing things they may be beasts, birds or plants!

After some hours riding over the hills, through helas for a good deal burnt, or much injured woodland, the lake came into view. On the way I often saw the beautiful *Taenioptera pyrope* Kittl. a grey bird of the size of a small thrush, pearl grey with white throat and darker crown. This bird was very inquisitive and would come well forward as we passed. Sometimes it would take a short cut and perch on some bare branch in front of us to see us *pass a second time*.

From Contulmo which lays in a plain about $1\frac{1}{2}$ mile

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distant" from the lake I started on foot to reach it.

The road was bordered by hedges and in them were numbers of *Diucas*, some *Zonotrichia pileata* and a number of *Sycalis arvensis* Kittl.

A little brown bird like a Wren with a long flowing tail crossed the road but I could not get a good view of it as it disappeared in the tangle of bushes and bamboos, probably *Sylviorthorhynchus desmuri*. The lake had a shallow shore covered with pebbles at the place where I reached it, but more to the left steep rocks came near it.

In the water grew large patches of rushes and between it, or in open spaces I saw three large *Podiceps* probably *Podiceps major* and some Coots, probably *Fulica leucoptera*, with yellow shields.

A Turkey Vulture flew overhead whilst some white backed Swallows skimmed over the water.

Some birds like Wheat-ears with rufous backs were on the stones and pebbles of the shore.

After having looked at my birds I went back to Contulmo where we got some lunch and towards evening were back at Purén.

Next morning early we bestrode our horses again to go back to Los Sauces.

About half way there was on the left side a damp green meadow transversed by a small stream against the slope of the Maritime Andes. The road was on an elevation and to the right there were undulating dry fields with a greenish bit in the midst of them.

As I was nearing the top of the hill I noticed two pairs of big Birds that came slowly flying in my direction. The birds were Geese, I did not doubt this one moment but only thinking of the to me familiar flight of the Magellanic Goose I did not at first realize what they were.

They looked much heavier and shorter than the Magellanic Goose and crossing my way alighted into the green field to my left.

Here they were greeted by a number of birds of the same species and now the light falling well on them I saw

they were all *blackwinged* or *Andean Geese* (*Bern. melanoptera*). I could even see some of the birds showing off, puffing themselves up as a tame bird which I had kept many years used to do.

I was not a little pleased to see these Geese in their native haunts and as I stopped I saw them quietly grazing towards me the white and black very conspicuous.

In the museum of Santiago there is a *chick* in down of *Bernicla melanoptera* (Marked Febr. 26th, Cordilleras de Santiago) which is coloured as follows:

White, a black line from the frontal base of the bill over the head the neck and the back over the tail (so that the tail is black).

Black cross line over the wings and a black spot over each thigh.

A black spot over each ear.

A young bird of the year in its first dress is similar to the adults, but the black spots on the wings are not so dark and not so well defined. All the black is more brownish. There is no difference in the colour of the sexes in the adults, but the female seems to be slightly smaller.

To complete the sight some beautiful *Blackfaced Ibisses* (*Theristicus melanops*) now came near. They were most ornamental with their buff and grey plumage and rosy legs, — and also some *Cayenne Plovers* appeared, noisy as usual.

After having let the birds come as near as they would I could stay no longer but went on after my companions and after having again passed innumerable *Chimangos* and perhaps the same *Black Waterrail* we reached after a three hours ride Los Sauces station.

My companions having declared that they gave up the search of the *Auracaria woods* I decided to leave alone the train at *Angol* after having arranged to pick them up again farther on.

Angol station had a hopeful look for me as the courtyard was planted with *Auracarias* which however belonged to a Brazilian species.

Angol which has a cavalry regiment is rather a pretty place as far as Chilian towns go.

A biggish river streams across it and is spanned by a stone bridge which one has to pass before entering the town.

The hôtel I went to, was kept by a Frenchman or better by a man whose father had come from France and who spoke French fluently.

My first question, after having admired the truly magnificent orange trees in the courtyard, was after the *Auracaria* woods.

I had good luck this time!

"You are just coming to the right man", was the smiling answer. "I cut a bit of forest some ten years ago and that was not far from the "*Pinales*" (woods of *Auracaria imbricata*).

"How far away is it"? was my answer.

"Oh you will have to ride at least 5 hours to get there, it will take you a couple of hours to see the woods and it will take another 5 to get back. So it will take you just 12 hours to ride! if you care to do that"!

I was only too glad to hear that the thing could be done. It was Saturday, my host promised me a good horse for the Monday morning at 6 a. m. and a mounted guide to show me the way, and would arrange some food for the day.

So every thing was settled apparently for the best, but on Sunday chancing to speak to a Chilian gentleman who lived in those parts and telling him my plans, I was rather taken aback by the view he took of my expedition.

"Have you an armed escort?" was his first question.

No I certainly had not thought about that and did not have one.

I answered him to this effect and he said quietly "well take the advice of a man of the country and don't go, it might cost you your life. No one lives in those mountains and the only people you may meet will be robbers, I would not go for any thing!"

I did not like to give up my *Pinales* and told him so.

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Later in the day the Chilian and myself happened to meet again at a nursery garden not far from Angol and there my friend talked to the proprietor about my — as he called it — “rash plans”.

I did not get much encouragement here and the proprietor united his advice with my friends to desist from my “rash undertaking”.

As I persisted the last advice was “go to the man in command of the garrison and get an armed escort!”

I promised to think it over and in the meantime we visited the gardens.

Amongst the flowering Fuchsias were several *Humming-birds* of the species I saw at Santiago. — In some bushes was the curious *Wren* and yet *Tit-like Anaeretes parulus* with its curious forward bent crest (the crest is not divided as in Keuleman’s illustration of that bird in Crawshays birds of Tierra del Fuego, but is held together like a small horn), a restless weak-looking little bird, but quite tame.

Near a fountain I saw for the first time the quaint *white eyebrowed Cinclodes (fuscus or patagonicus)* which walked busily in front of me on a garden walk.

In an open meadow were a lot of small birds amongst whom were very conspicuous the beautiful redbacked *Lessonia nigra*.

Near the houses there were some *Diucas*, and a large *brown Wren* with rufous tail slipped through the bushes.

Having come back to Angol I set out to find the commander of the garrison and after some inquiry found him playing cards in his club.

Having told him of my wants through an interpreter I soon found out that I had little to hope from him. He told me that he was very sorry but that horses and men were tired as they had just come back from the manœuvres so that he could not help me.

So there was nothing left to me but to go alone with my guide or not to go at all.

I decided on the first course and next morning at six I *started* on my journey with my ruffian looking guide.

A large revolver carried conspicuously along my side was to take the place of the escort!

The country was perfectly beautiful in the early morning, and as we ascended the mountains after having left the town I got a fine view of the flat country surrounding Angol, the *river* winding through it like a silver thread.

On the big waggon track which we followed we met numberless *waggons drawn* by stout *oxen* who had fetched timber from the mountains.

Towards the top of this first range of Mountains the vegetation gets more and more dense and soon we are in the midst of the forest. The woods consist mostly of beeches with small hard leaves and all sorts of beautiful, partly flowering, shrubs form the underwood. Along the road the beautiful *Lapageria rosea* forms tangles in the small trees or bushes.

We get over one mountain range after the other gradually getting higher.

Along a mountain stream I see a beautiful bird, what looked like a *white headed black and brown longtailed Tit*. In a parasitic redflowering bush which grows on the trees like the mistletoe here, I see constantly the *Goldencrowned Hummingbird*.

In an open space far into the forest I see a *Puma* sneak away at our approach.

At last after having ridden some hours and having met no one my guide points to some distant hills saying „*Pinales*”. And here they were indeed the long looked for *Auracaria*-woods. The trees stood like mighty parasols on the top of the mountain range against the clear sky and the whole of the upper half of those mountains was covered by them.

On we go, mile after mile with those woods in view. We pass some huts where some black looking *halfcaste Indians* are burning charcoal and who take no notice of me. We cross an open space where a small stream is running through and where some *Lapwings* are playing and now have to ascend a steep forest clad hill. The road is an old torrent run dry and the woods on the right and left are one

tangle of bamboos which ascend high into the trees hanging in graceful festoons from one giant tree to the other.

Having passed this wood we get to thin brushwood and after having got a little higher we are against the mountain-range that carries the *Auracarias*.

At first we meet a single tree but gradually they become more and more numerous and the higher we climb, the finer the trees become.

At last when I reach the *top of the range* we are in the midst of the *Auracarias*. Some small shrubs grow at their feet but there are no other trees.

I look at my watch; we have just ridden 5 hours.

The trees must be extremely old, some of them have a girth of ± 10 feet but are not very high. The old trees have branches only at the top forming an enormous parasol. The stems are covered by big black scales like the skin of a crocodile magnified.

The upper part of the stem and the oldest branches are mostly covered by a long *white Lichen* which hangs in clusters downwards. In some, the upperbranches look very stiff and rigid, in others they are longer and softer looking and hang lower down.

In some the stem has formed a side crown about half way to the top.

The trees grow in groups among the rocks and the best ones are on the top of the hills. The whole aspect of the forest is most ancient and extraordinary and if one should meet a Mastodont amongst those weirdlooking trees one would not be surprised!

The trees are either *male* or *female* which is visible by the flowers or cones but there is *no* difference in the shape of the male or female trees.

Some of the female trees carry ripe cones full of seeds. As it was impossible to climb the savageprickly branches my guide threw stones against some of the ripe cones which fell to pieces as soon as they were touched in the same way as the ripe cones of the silver fir do, scattering the seeds and the scales on the ground.

A *Vulture* draws circles overhead.

After having wandered through the forest a couple of hours and having seen that besides on the range I was on, there was another mountain range with *Auracarias* on its upper half to the west, I tell my guide that I want to go home.

The rather unexpected answer is that he has lost his direction!

As I had however taken good care not to loose mine and told him so, he soon got hold of the direction again and we were soon on the track that we had left when we entered the forest.

Another 5 hours ride through all the wild scenery took us home to Angol where we arrived just as the evening was setting in after a 12 hours ride.

The revolver remained unused, except the charcoal-burners not a soul was seen after we left the neighbourhood of Angol and the wonders of the ancient *Auracaria* forest well repaid me for my ride!

Next day I left Angol taking the train to *Ossorno* which is the southern end of the railway. At the place where the train branches off from *Renaico* to *Ossorno* the railway-bank is overgrown with *Gunnera scabra* in all sizes.

This plant as I afterwards found has the power to adapt itself wonderfully to circumstances. In damp warm spots it grows leaves 5—6 feet high and more. In dry exposed places it makes clumps scarcely larger than a *big daisy*.

I arrived in *Ossorno* during the evening, and next morning when I looked out of my window I saw dozens of *black Vultures* sunning themselves on the roofs opposite. The white shafts in their wing feathers looked quite ornamental. As they sat with extended wings they formed a yellowish white spot. *Ossorno* with one a little doubtful exception is the most southern place where I met with *Cathartes atrata* whilst I saw *Cathartes aura* as far south as the *Smith channel* near the straits of *Magellan*.

From *Ossorno* I took a horse to ride to *Puerto Octay*. This is a trip of about 60 KM. and one mostly rides through

forest land. Part of the woods is burnt or much injured by fire, part of it is more or less untouched but every where the vegetation is most luxuriant. Besides the beeches quite a feature in those woods are the enormous *Eucryphia pinnatifolia* trees which at the time of my visit were in full flower carrying berries at the same time. The flowers are like large *white apple blossoms* and make a beautiful show. In many places the waggon road is bordered by enormous masses of European Brambles (*Rubus*) which have run wild. They carry delightfully *sweet fruit* which are also much appreciated by the birds.

So I saw repeatedly small numbers of the beautiful *Phytotoma rara* feeding on the fruit.

Turdus magellanicus was also very numerous whilst *Diucas* were everywhere where houses were near.

In these big woods the *Longbilled Parrakeet*, *Hemicognathus leptorhynchus*, is very numerous. One generally sees them flying about at great height screaming constantly in small flights of from 2 to 10 or more individuals.

They perch in the tops of the tall *Eucryphia* trees, „Urmus“, and it is my impression that they feed on the berries.

Some flocks of *Molothrus* and *Military Starlings* were also seen whilst little flocks of *Chrysomitris barbata* often were in the lower trees bordering the road.

In the bigger trees, *Colaptes pitius* Mol., a grey Woodpecker with white lower back was often seen in small families of about 5 or 6 individuals. These Woodpeckers are always going about in *small parties* at this season of the year and I cannot remember ever having seen a single individual.

In the evening I reached *Puerto Octay* by a beautiful moonlight and had no little difficulty in finding accommodation for the night. However, after having been sent from Pontius to Pilate I at last found a lodging in the house of a German widow who gave me a very nice clean room. Next morning I took a boat to get across the *lake Llanquihué* to *Puerto Varas* where I was to find my companions.

The Llanquihué lake is very large and is surrounded by beautiful mountains.

First among them is the snow clad cone of the *Ossorno vulcano* which very much resembles the renowned *Fugivulcano* of Japan.

On the lake I saw several pairs of *large Grebes* (probably *Podiceps major*), some of them with a pair of full grown young ones which they were feeding with much solicitude.

In good time I arrived at *Puerto Varas* where I found my friends who had not done much good since they left me.

Puerto Varas is even better situated than *Puerto Octay* as the country round it is much prettier and the view of the mountains much better.

Next morning we took ship again to *Ensenada los Volcan* with the object of pushing on to the *Nahuel Huapi* lake on the argentine side of the Cordilleras.

The first thing that strikes one on landing at *Ensenada* is that every thing is lava there.

In fact we are in the neighbourhood there of several mighty vulcanos, the *Ossorno* being the nearest one.

We got mules at this place which we mounted with the object of riding to the *Todos los Santos* lake which we were to cross by steamer to reach *Peulla* where we were to pass the night.

Between the two lakes mentioned the country was most beautiful. On our left was the *Ossorno*. At first the land was flat and was overgrown by young trees. Several *Eucryphias* were in full flower whilst *Fuchsias*, *Escallonias*, *Pernettyas*, *Barbery's* and *Gunneras* formed an undergrowth.

We went on quite straight for a while then turned to the left along a wild mountain stream on our right and slightly began to rise. We first crossed some thin woods then came to an open space where the road crossed an old lavacourse. The lava had run in one mighty slope from the Crater to the valley cutting through everything so that in some places *steep walls* were formed on both sides.

Against these walls grew lots of *stunted Gunneras*, whilst

the bed of the lava itself was almost devoid of vegetation. The only thing that seemed to thrive or be able to live on this comparatively new lava were numberless bushes of *Pernettyas*. The bushes were full of berries in all colours, some were blueish, some were pink, some were nearly black and some were pure white.

Near this place the mountain stream was wilder than ever, rushing between the rocks in a torrential way.

Here a welcome sight awaited me.

On a big piece of rock in the wildest place of the torrent were eight *Merganetta andina*.

Five were males and three were females, easily known by their rufous colour. *

They were sitting very upright much like Cormorans.

When they saw me they jumped right into the seething water and although with their heads towards the fall of the water, managed to stay almost in the same place looking at me all the while. After a time they swam to another rock, jumped upon it, jumped off again into the torrent, dived under to reappear at a small distance, and in the end hid themselves behind some other rocks. They did *not attempt to fly* as I got nearer.

It was almost dark as we reached *Petrohué* on the lake Todos los Santos and before the horses and everything was got into the little steamer it was quite dark, but soon a glorious moon illuminated the landscape. About three hours later we landed at *Peulla* where we found a very comfortable inn kept by Germans.

Next morning I could admire all the beauties of this lake and its mountain scenery round it in brilliant sunshine.

Behind the inn, a little up the mountain was a narrow cut between the rocks, along which a mountain stream came down forming in one spot a lovely waterfall a kind of „Staubbach”.

All the rocks around were overgrown with splendid *Ferns* and *Fuchsias* and as I waited a little, an occasional *Goldencrowned Hummingbird* would suddenly appear

and as suddenly disappear after having searched the Fuchsia flowers.

A beautifull *prickly shrub* or small tree with dark green shining leaves and lovely bright blue berries was quite common here.

Here for the first time I saw a bird which till now had only been a wandering voice.

In the bushes I had often been surprised by a kind of peal of laughter close by me, but had never been able to see the author.

Here the bird was less shy and I saw that the noise came from *Pterotochus rubecula*.

This is a lovely brown bird with redbrown breast about double the size of our Robin.

It is very much shaped like our own brown Wren but also approaches the Robin in shape. It is very common in the woods of Chili but although it is heard so often it is seldom seen.

I followed the little stream as far as I could and was delighted with the lovely wild scenery.

In the lake were numerous *Chilian Pintails* (*Dafila spinicauda*) and two kinds of *Podiceps* and in the ditches a good many *Cinclodes fuscus*.

In a low meadow near the lake were a lot of small birds and the lovely *Lessonia nigra* was again present.

Following the course of the river with its *bamboogrown banks* I came across six specimens of the beautiful *Anas specularis*.

The people of Peulla call them Geese as they are so much larger than the little Pintails.

From Peulla I rode to Casa *Pangui* which was to be our last restingpoint before we crossed the Cordilleras to reach the Nahuel Huapi lake.

The road leads through beautiful woods which grow in the valley along the river. The river is a wild mountain stream which has the inconvenient proclivity to *change its course* and extend very often.

The result is that it takes away road and bridges which have been made at great cost.

The river had just been moving a few days before my visit and the result was that it had to be *forded* repeatedly, and, as the riverbed was full of deep holes, it was not always very pleasant.

Having crossed the river a last time in a place where it filled the whole bottom of the valley we arrived at Casa Pangui where we were to pass the night.

I was greeted there by numerous flocks of the *Long-billed Parrakeets* and in some rubbish near the house I saw a couple of *Zonotrichia pileata* with *very light grey* heads belonging to the form *Zonotrichia canicapilla*.

They were much prettier than the more northern birds I had seen.

Casa Pangui has a beautiful situation. In full view are the glaciers of the *Tronador* and the forest around it is extremely beautiful.

Very much seen there is a small tree with red smooth bark carrying clusters of white flowers like big Myrtles.

I saw several large wine coloured Pigeons in those woods and a small grey Woodpecker (*Picus lignarius* Mol.).

From Casa Pangui we rode over the pass to the other side of the Cordilleras which are not very high there, and embarked in a small steamer to cross the *Laguna Fria* which is a beautiful small lake surrounded by mountains. After having crossed this lake we walked through splendid woods mostly consisting of *Fitzroya patagonica* and other trees resembling *Yews*, and then reached *Puerto Blest* on the *Nahuel Huapi lake*.

We crossed the lake and ascending along a mountain stream reached the little lake of *Los Cantaros* which lying as it does amongst the wildest rocky mountains is a sight never to forget.

Near the lake was the *largest Fitzroya patagonica* which I have seen and a magnificent giant it was.

In the stream I saw a *female Merganetta* which allowed itself to be approached quite near.

From Puerto Blest we returned the same way we had come to Puerto Varas. On repassing the Ossorno my guide

drew my attention to a *cloud* of *smoke* which escaped from one of the flanks of the Volcano and he remarked that this was nearly always to be seen.

In Puerto Varas I resolved to stop a day in order to be able to ride to *Puerto Montt* and so to see something of the surrounding country.

Accordingly next morning being 25th March I hired a horse and rode out in Southern direction following the high road to Puerto Montt. — The road at first led through open country more or less hilly and the road as is usual in Chili was of the worst kind.

In the neighbourhood of Puerto Varas the *Diucas* were very numerous and an occasional pair of *Zonotrichia pileata* of the usual dark form was with them.

The *Chimangos* were also my constant companions along the road.

After about half an hours ride I crossed a stream by a bridge which was of the usual Chilean pattern, namely it consisted of a number of loose stout planks laid on the supporting framework. These were so full of holes that a pair of oxen spanned before a waggon, flatly refused to cross the bridge for fear of getting through.

Near the stream was a small cabin, and a tame *Long-billed Parrakeet* belonging to it, was washing its head in the river.

My horse carefully got over the bad bridge and following the road we passed some enclosed fields. In one of them a flock of some fifty *Blackfaced Ibisses* had alighted. They walked about with the greatest unconcern of my presence looking for grubs or insects, and their buff and grey plumage and rosy coloured legs made a fine show.

I now passed through the remains of some primeval forest which had been burnt down and of which the tree-stumps were still standing. Some of them were of enormous size, some 2 à 3 yards across and as they were partly rotten they supported some of them quite a small garden of flowering *Fuchsias* or *Darwins Barberies* etc.

After about 2½ hours ride I came to a last rise in the

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ground and as I reached the top, the sea lay in front of me and in a deep lovely bay on my right the town of *Puerto Montt*. In front some small islands were visible and in the distant haze was the contour of *Chiloe*.

It was a lovely sight. The town itself is built as nearly all South-American towns, on the square system, and the houses are all built of wood and sheet iron and are mostly one story high.

The streets were wide and dusty and the "trottoirs" were raised and kept by a square wooden beam on which I noticed *horseshoes* fastened in such a way as to form rings, and I afterwards saw that the use of them was to fasten the saddlehorses to them, whilst their masters were about their business.

The inn of Puerto Montt contained a small courtyard in which a *Gull*, a *White Egret* and a *female Ashyheaded Goose* looked very sad and out of place.

Leaving Puerto Montt I went westwards to visit a German settler who owned a property about 1½ hour away. The road led again after I had ascended some higher ground amongst the ghastly looking remains of burnt forest. I had been told to follow the road until I passed two lakes and eventually I reached the first of the two. This would have been a lovely spot from its shape, if everything round it had not been burnt down.

After a while I passed the second lake and shortly after this the road entered a beautiful unharmed forest.

I had been told to look for a gate and after a while the gate appeared and passing through it I entered the forest which still showed all its original beauty.

The road was nothing else than the bed of a stream which after the Chilian fashion of streams had for some reason or other *changed its course*, and was winding through the forest in a most eccentric way.

The ground was rather damp and many of the old trees were covered with *Ferns* and *Lichens*, some were white and hanging down in fringes, others brownish green growing in cushions and patches, *Fuchsias* were very luxuriant and

on many of the trees were bushes of a *parasitic plant* with pale scarlet pipeflowers and oval leaves.

On an old tree hanging sideways were clumps of a kind *Bromelia* with *glorious scarlet centres* (*Bromelia bicolor* Ruiz & Par.).

After having admired these and so many other things I heard the usual mocking laugh of the Brown Robin, *Pteroptochus rubecula*. This bird instead of disappearing after having thus challenged the passer by as his kind usually does, came forward and perched in a conspicuous place on some tangle of dead wood to look at me. In this way I could admire in close proximity his *yellowred breast* and *eyebrows* and big *glittering dark eyes*. I stopped to look at it but it did not mind it in the least.

As I went on a little *brownblack Wren* (*Scytalopus magellanicus*), larger than our own bird but with not quite such an upright tail, crossed the road and disappeared in the jungle.

After a while the wood became thinner and at a curve of the road gave way to *bamboo bushes* with open spaces between them.

Turning to the right the ground rose and on an eminence clad with grass stood the house and farmbuildings, all low constructions of wood and sheet iron.

I opened the gate in a wooden fence, entered it and rode to a door that stood ajar.

After a while somebody came forward and told me that the owner would soon be there and asked me to alight.

This I did, leaving the horse to take care of itself as is usual in those parts. The owner having come now showed me his farm in which I noticed the beautiful growth of the fruittrees and he told me that he had reclaimed all his land, it being a virgin forest all over when he took possession of it.

When he showed me his poultry-yard I asked him if the *Foxes* did not play great havoc, the virgin forest being quite near.

His answer was that he *poisoned* them and upon my

asking him how he did this, he told me to my horror that he did it by spreading *poisoned birds*.

„We sow poisoned grain every spring he added and this kills many thousands of little birds which we use as bait for the foxes!”

I did not fail to predict him insect-pests without number if he continued to act in this manner, but he only laughed saying that he would get no harvest if he did not poison the little birds!

As he found me interested in birds and trees he advised me to return to Puerto Varas by a *cross country road* which did not touch Puerto Montt, but led entirely across country (for a great part his own estate).

I gladly availed myself of his advice and having mounted my horse which was feeding on the rank grasses near the house I departed on my journey. I at first crossed some grass fields and some others from which the harvest had been gathered and then came into a country thickly grown with *Bamboo bushes* with grass-grown land between them and there I met some nice red cattle.

Very soon after having left the house I saw a clump of *enormous trees* which from top till bottom were covered with beautiful large white appleblossomlike flowers. My road led me close to this clump of trees but I could not come at the foot of them, the trunks standing in an impenetrable tangle of bamboos.

They were giant specimens of *Eucryphia pinnatifolia* or *Urmus* trees as they call them in those parts and these trees seem to attain their *greatest size* in *this part of Chili*.

Riding on I descended a slope to cross a river and entered a virgin forest mostly composed of *Urmus* trees although there was a great variety of other trees and shrubs, as is usual in those parts of Chili and which makes these woods so lovely (as was already remarked by Darwin in his „Voyage of the Beagle”).

These woods were full of *longbilled Parrakeets* (*Henicognathus leptorhynchus*) which screamed loudly and were very active flying about in small flocks or perching on

the tops of the giant trees. These birds were probably feeding on the seeds of the *Urmus* trees which are very numerous, and on the countless other seeds and berries as well (the *Urmus* fruit looks like a small olive).

The woods also resounded from the calls of the large grey white backed Woodpecker, *Colaptes pitius* Mol., which as I mentioned before goes about in *small parties*.

Riding through woods in Chili I had often heard a curious *trembling noise* in the thickest parts of the forest, but I had never seen the author although the noise followed one.

This time I was more fortunate and saw that it originated from a beautiful *goldenbrown* and *blackbrown little Creeper-like-bird* with a white underside which apparently lived in the thickest jungle. This bird is *Oxyurus spinicauda* (Gmelin) and is quite a feature in the Chilean forest from the way it has of following the traveller.

In the damp places near streams the *Fuchsia* bushes were very beautiful as well as the finely subdivided *tall Ferns* with black stems. In the *Fuchsias* one could usually see a *goldencrowned Hummingbird*, which appeared suddenly screaming loudly to hover under the flowers.

It would soon disappear but was back as suddenly.

A little farther several trees had bunches of a beautiful scarlet *flowering parasitic* plant with square bluish green leaves.

Of these flowers the *Hummingbirds* were also very fond.

Riding on I came to a tangle of *European Brambles* which had spread there in a dreadful manner and on them quite a flock of *Turdus magellanicus* were feeding on the berries; some flew away as I came near but a good many were quite tame and suffered me to pass without being disturbed.

I also saw, also feeding on the brambles some *Phytoma rara*.

In some places the *Bamboos* grew against the trees to a great height hanging down from the big branches like a creeper.

In some places *Lapageria rosea* was very conspicuous with its wonderful red bell-like flowers.

The beautiful *Tropaeolum speciosum* is also at home in these woods.

As soon as I neared some settlement the *Diucas* and the *Chimangos* were there.

After having left a river, which I had gone along some time, to my left I turned uphill and now passed a cut in the mountain called the "Devils Glen".

In the damp and shelter of this Glen the vegetation was most luxuriant.

All the beautiful evergreens and flowering bushes grew there to perfection, the Fuchsias were enormous and the different species of Ferns most wonderful and splendid also were the tangles of *Gunnera scabra*.

Once having passed the Glen and having gone over the mountain I came to cultivated country and soon saw Puerto Varas on the delightful lake of *Llanquihue*, before me, the snowclad *Ossorno vulcano* and other giants cutting against the clear eveningsky.

I had decided to go north again next day taking the steamer to Puerto Octay from which place I would ride to Ossorno.

An hour before I left next morning I noticed near the inn a tame *Longbilled Parrakeet* which with stunted wings and tail, as is done to every bird those people keep, was sitting in front of a small house. The little bird which was quite tame was offered to me for a couple of pesos as soon as the owner saw I noticed it, and rather foolishly unmindful of all the miles that separated me from home, I could not resist the temptation and bought the bird.

I carried him home in my hand and as no such a thing as a cage was to be got anywhere, I with great difficulty arranged a little box to put him in.

This was just done when I had to go on board of the steamer with all my belongings.

The crossing was uneventful. We passed plenty of large *Grebes*, and in the evening reached Puerto Octay. Horses

having been ordered and the big luggage having been dispatched by oxen cart we turned in and next morning we started on our ride to Ossorno. Now the first difficulty with my "lorito" began. How was he to travel?

I suggested to the péon that he should fasten the box on the packhorse who carried my valise but the man who as a rare exception apparently was fond of birds, was horrified at the idea saying that it would shake the bird far too much and that he was *quite willing to carry* the box in his hand.

This certainly was the best way and I gladly accepted his proposition.

The man was as good as his word and carried the bird the whole 60 Km. in his hand, bringing him to Ossorno all right. We followed the same road as some days ago when we had come, only a pouring rain the whole day made the ride far from pleasant and the road almost unpassable.

We passed large flocks of *Phryg. aldunatii* and of *Long-billed Parrakeets*.

In Ossorno I asked the innkeeper where I could get a second Parrakeet as a companion to my own and the answer was that the only way to get one was to walk through the streets and listen for the screams of a bird of that kind. Then to enter the house and ask if it was for sale. "You are sure to get one", the man said, "they don't care much for birds here and will be glad to part with it."

I followed the advice and after having walked through the streets for some time I heard the screams I was wanting to hear. I went to the door of a bookseller thinking the bird was there, but heard it was in his neighbours house.

There I went, asked to see the bird and in ten minutes later was the happy owner for one peso." It belongs to my child said the woman (a millener) but he don't care about it any longer and I shall be glad to get rid of it!"

So off I carried my prize and took it to the hôtel where I introduced it to the other bird. A great battle followed but fortunately nothing happened and as I had to leave

soon after, I put both birds in the box and took them away with me to the train. The carrying about quieted their tempers and they have been great friends ever after and are I believe a true pair.

In Valdivia I had a better box made for them and as we intended to take a steamer at Corral to go south by sea, we started in that direction next afternoon by river boat, including luggage and „loritos”.

That same evening I took a walk at Corral along the bank of the river where it runs into the Sea. It was 5 o'clock, the sky was clouded and the wind was very cold. I was therefore surprised to see the *Golden-crowned Humming-birds* as active as ever in the *Fuchsia* bushes.

Everywhere along the waters edge were a good many *Cinclodes patagonicus* Gmelin. They were very active and most amusing. When one bird suddenly met another, they would jerk their tails, puff themselves up and bow to each other. They apparently fed on the insects and grubs that the low tide made available amongst the rocks and stones.

The rocks which were partly covered by peat were in some places overgrown by the same *redcentered Bromelia* which I had seen on old rotten tree trunks in the woods near Puerto Montt.

In the course of the morning next day the „Negada” a ship of the german Cosmosline arrived in the port of Corral and we were so fortunate as to get good accomodation there. Whilst the ship was taking in passengers and some cargo I noticed a *Penguin*(*Spheniscus magellanicus*) which was fishing near the ship quite unmindful of the noise.

A little past midday the ship started on the course southward.

As we left the entrance of the Valdivia-river to enter the Pacific we passed a whaling station where a good many *Gulls* were seen, doubtlessly busy with the offal of the whales. At this time we met a lot of *giant Seaweeds* which were floating in the sea. Some of them formed big

tangles and were kept floating by means of swellings as large as a nut, which were filled with air.

The colour of these weeds was brown.

We left the coast of Chili and went south, almost and sometimes quite out of sight of the land.

Two species of Albatros (*Diomedea exulans* and *Diom. melanophrys*) now made their appearance and were almost constantly in sight of the vessel.

Occasionally a *giant Petrel*, *Ossifraga gigantea*, flew round the ship and was very beautiful with its sooty black plumage and ivory-yellow bill.

They are enormous birds on the wing and look as large as the smaller Albatros.

The *spouting of whales* was also seen very often but being hunted relentlessly all the year round, they have become very shy.

On the fourth day *Cape Pigeons*, *Daption capensis* flew around the vessel, and extremely pretty birds they are.

Besides great numbers of *Majaqueus aequinoctialis* several *Thal. furcata* were constantly seen, also other Petrels.

At the beginning of the fourth day I believe, we entered the *straits of Magellan*, and the weather being clear could admire the wonderful scenery. On both sides the coast is visible and forest clad mountains alternate with barren rocks and glaciers which come right down into the sea. On several occasion a *Sea Lion*, *Arctocephalus australis*, was seen swimming not very far from the vessel. It would lift a great part of its body out of the water to survey the vessel and then would swim away with great strength. It was quite a sight to see him go through the water. These animals I am sorry to say are much persecuted in the time that they have young ones and are on land.

Penguins (*Sphen. magellanicus*) were very numerous and were swimming behind each other in long strings.

The *White Breasted Cormoran*, *Phal. albiventer*, was often seen flying over the water and a *black Procellaria* was numerous.

The forest consisted mainly of the *Antarctic Beech* and

there were also big patches of *Fitzroya patagonica*. Some of the rocks were overgrown with mosses of a rufus tinge and which I was told grew to a height of nearly two feet.

After having passed a narrow turning between *Dawson island* on the right and the southern part of *Brunswick peninsula* on the left we passed *Port Famine* on that same peninsula and now got into wider water and in the course of the day, early after noon reached *Punta Arenas*.

During the voyage from Corral I had decided not to go on with the „Negada” to Montevideo but to land at Punta Arenas in order to see something of *Tierra del Fuego*. —

My companions not being inclined to this course we parted at Punta Arenas where I landed alone. —

As the ship was lying in the harbour I noticed some very pretty *small shellfishes* of a *scarlet* colour that were swimming in shoals round the ship. They looked very much like a *Japanese Goldfish* that would be swimming with its *big fins forward*.

So I landed with my belongings on the pier and found a room in the Kosmosh tel which stands in the immediate proximity of the Sea.

The weather was fine but the wind was icy cold.

Next morning I started for a general survey of the town. The town is built against the slope of the hills. The oldest part stands near the sea, the more recent buildings are higher up.

There once was an *enormous forest* round Punta Arenas but fires (three years ago there was a forest-fire that lasted 6 months) have completely destroyed it, so that the town is surrounded now by ghastly looking black tree trunks that stand out despairingly against the sky.

Going about the town and its surrounding country I was struck by the *complete absence* of any *landbird*. The only birds I saw, were in confinement, they were a few caged *Chrysomitris barbata*, one *Frigilus gayi*, three *Bernicla dispar*, two young *Rhea darwini*, one *Theristicus melanops* and a *black Rail*.

There is a convent in the town of roman catholic “padres.”

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One of them, padre Borgatello has succeeded in getting together a very interesting collection of natural history objects, including a fine *local collection of birds and mammals* and objects referring to the now vanishing Indian population.

The padre thought much of the skin of a horse (in date 1899) which was *woolly* like a Guanaco-skin.

There was also a very interesting collection of *photos* showing *natives* and scenery of Tierra del Fuego.

The *Blackfaced Ibis* which I had seen in the town belonged to this gentleman and its destination was to be stuffed for the Museum. On my request he kindly let me have the bird which is now alive and well in my menagerie.

One morning, being the 6th of April, I set out with an old inhabitant of Punta Arenas to visit the site of a *coal-mine* and some *goldwashings* in the mountains.

After having left the town behind us we entered the burnt forest and after a while came to the *Rio de los Minos* the course of which we were to follow. Gradually the vegetation improved and as we left all the black misery caused by the fire behind us we got into some fine woods consisting of *Fagus betuloides* with its hard little serrated leaves. The undergrowth consisted chiefly of *Berberis dulcis* bushes which at this time were full of sweet berries.

There was here not nearly so much variety of vegetation as f. i. near Puerto Montt.

Proceeding on our way we passed the rusting remains of a large *dredging-machine* which had been used for washing gold but had been abandoned as it did not pay.

A little farther on we met a young German settler who was known to my guide and who got a scanty livelihood by washing gold out of the river on his own accord. This man kindly showed me how he got the gold dust out of the stream and told me that in that way, having no expenses, he could earn about four shillings a day.

We now entered a cut in the mountain always following the stream and about two hours walk from Punta Arenas we came to the site where the coalmines are.

Not wishing to explore the mines themselves we passed on and about half an hour later we came to a place where two huts showed us the abode of another pair of gold washers.

There was nobody there and so we took the opportunity of visiting one of the huts of which the door stood open.

My companion who had little belief in the industry of the local workmen suggested that the owners of the huts had gone to Punta Arenas to *drink the gold*, which they had rescued from the river.

The hut was of the poorest description. It contained a sort of a bed more fit for a pig than for a man and some cooking utensils.

A meagre kitten with a white, grey, black, and red coat came up to me and rubbed itself against my legs.

Outside the hut hung the *carcass of a sheep* by way of provisions.

As I was looking at the carcass a *lot of little birds* flew on it and greedily ate of the grease. They were so tame that I could have almost caught them with my hands.

They were all specimens of my old friends *Oxyurus spinicauda* which had followed me so often invisibly and I was not a little surprised to see them so unmindful of me as they are usually only heard but very seldom seen. Probably they were accustomed to feed on the grease of the lamb and not being disturbed by the owner of the hut had got so tame as I found them to be.

This was an excellent opportunity to see the birds close by and I could not but admire the rich goldenyellow and brown stripes of the head. In these birds the underside was silky white and during my visit to S. America I have always seen them like that in a state of nature. As I have however seen a stuffed bird with a *yellow* underside and as the inhabitants call them *Citronbirds* I suppose that in the breedingseason the *white* underparts change into *yellow*.

After having admired the birds and fed the kitten with some of the meat we returned to the riverbed where in some shallows the *golddust* was clearly visible, and followed its course for a little longer.

We then found that it was time to turn homeward and followed the same way we had come by.

On the return we came across some rocks which were entirely formed of *large fossil shells* showing that they, now being in the hills, had once formed *part of the sea bottom* from which they had been *uplifted*. The shells looked mostly like oystershells and I took some home with me.

I now also noticed a *parasitic plant* which grew on the branches of the beeches.

They had a brownish yellowish colour and were leafless little *broomlike bunches*.

In some parts where the berries of *Berberis dulcis* were very abundant; there were a good many *Turdus magellanicus* and an inhabitant of Punto Arenas was busy shooting them.

They call these Thrushes *Sarcales* and say they are very good eating.

Although *Conurus smaragdinus* was said to me to be numerous in those woods — and near Punto Arenas I saw some in confinement — I did not come across a single specimen I am sorry to say.

Walking over the stones in the stream I saw a bird like a *brown Wagtail* which I could not identify.

Having got back to Punta Arenas I set about to get some information for my proposed trip to Tierra del Fuego.

I had been told that there was a steamer every day to *Porvenir* but after more close inquiry the agent of the company said that they were *supposed* to cross every day but that they generally only did so once or twice a week and that a boat would probably go next day.

I was also told, after no end of inquiry, as no one seemed to know anything positive about Tierra del Fuego although it was so near, that the only way to travel there was to get introductions to the officers of the Exploradores Company who lived in the different sheep farms.

The general manager of the Company who lives in P. A. and to whom I went, most kindly gave me introductory

letters to this effect whilst I also got one to the director of the Jente Grande Company.

Armed with these letters I went back to my hôtel and leaving there the bulk of my luggage and my two Parakeets I only took with me a valise and proceeded to the boat which was to start at 3 $\frac{1}{2}$ in the afternoon. The little steamer was of the worst description and looked as if the least bit of bad weather would be its undoing.

At the last moment, as we were about to start, a peon arrived with two saddlehorses wishing to get access to the vessel. The captain, a young English speaking Norseman, refused however to give him time to enter the ship saying it was too late.

„I have just got tickets at the office and so I have a right to get into the ship” was the not unreasonable answer. „Then go back to the office and fight it out there” was the rejoinder and off we went leaving the poor man on the pier!

All about the harbour on every buoy or empty boat, were lots of *white breasted Cormorans*, *Phalacrocorax albiventer* Less., and as we went on I saw lots of *Pinguins*, *Spheniscus magellanicus*, swimming in the sea.

These birds swim in long strings one behind the other and I counted as many as 49 in one string.

They would swim unconcernedly till quite near the vessel. Then they would suddenly take fright and all dive under.

At not much distance they would reappear on the surface, take fright again and dive with a jerk and this would go on until they were far away.

On one occasion as the ship crossed their course and they were quite near, they dived right under the vessel reappearing on the other side.

Their behaviour gave one the impression that they only *saw the ship* or *realized what it was* when they were quite near. They were most entertaining to watch and one saw them nearly during the whole crossing of the strait.

There were also plenty of *Blackbacked Gulls* about and also *Terns*.

When we were apparently about half way between Punta Arenas and Tierra del Fuego I asked the captain at what time we were going to land.

"O Sir we will probably not land at all to night, was the unexpected answer. I cross for the first time and the entrance of Porvenir is very difficult, so that if there is a fog I dare not venture it."

"Where must I spend the night in that case?" was my rejoinder.

"O Sir you will have to spend the night on the sofa in the saloon".

As he said this a cold shudder ran through my back. The "sofa" was the dirtiest bench imaginable and the saloon a low stuffy locality full of stinking halfcasts!

"But — continued the captain — if there is no fog and the moon comes out well, I will venture it".

I heartily did pray that the moon would come out!

The moon *did* come out, when we were in proximity of land and my friend the captain said that he would venture the entering of the harbour.

"I am glad of it for your sake" was the goodnatured remark; "It would not have been comfortable for you to spend the night on the sofa of the saloon!"

I heartily acquiesced to this!

As we came nearer the land there still was no vestige of any habitation or entrance and I began to wonder where Porvenir was.

As we were *quite* near I now saw a side entrance of the sea into the land and into it we steered under a glorious moonshine.

I now saw that the captain had not exaggerated when he said that the entrance was difficult. We had to follow a zigzag course and to double three or four corners and to evade as I was told, numerous sandplates before at the end of a deep bay the lights of *Porvenir* became visible in the distance.

Near the last turn there was a large sandbank and on it was a large flock of *Upland Geese* (*Chloëphaga dispar*) which quietly saw us pass.

A little further a pair of *Steamer Ducks* fluttered away from the vessel.

At last we landed at a pier at a good distance from the lights of the "town".

Of course there was no one to help me with my valize, but the kind captain supplied me with a seaman to carry it for me.

The man (an Englishman) got hold of my valise and ran right away from me into the darkness.

Shouting brought him back to me. "Where are you going my friend" I said, "I believe I told you I wanted to go to the inn". "Well Sir I was never here before" was the answer. "I don't doubt it" I said "but you surely must suspect that the houses are where we see the lights!"

So asking my shrewd friend to follow *me* I steered through the darkness to the town hoping to find the inn called "*Hotel Alleman*".

After a while I succeeded and found the hostess who was a German. She asked if I wanted a first or a second class room and upon my telling her that I wanted her best firstclass room she showed me into a small locality at the end of a long passage which had a bed and a washingstand in it (*nothing* else).

The room looking clean, I said that I was satisfied and asked her to prepare me some dinner which she promised.

Her husband, an Englishman, having come in, in the meantime, I told him that I wanted to go on to *Jente Grande* next day.

"Then you had better telephone" was the unexpected and welcome answer.

"You can do that at a store close by".

So to the store I went and having used the telephone got a most courteous answer with the offer of a saddle horse and the use of a cart, which took goods to his place from the steamer, for my luggage.

I gladly accepted his offer and went back to my inn hoping to get dinner.

In a cleanlooking room was a dressed tabel on which

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even flowers were not missing, but the room was *icy cold* although a big stove stood apparently quite ready to burn but had no fire.

Upon my asking the host to light a fire, he answered that the stove did not give warmth, only *smoke*.

I asked him to try, and in ten minutes volumes of smoke filled the room.

I happened however to know the kind of stove and soon put things right, so that a genial heat replaced the smoke. The host was very much astonished but... fuel is very scarce in some parts of Tierra del Fuego.

I now asked for my dinner but this was not easier to get than the heat and consisted of *one* egg and a slice of meat and a little bread. Nothing else was to be got! say what I would!

So I went to bed rather hungry enjoining my hostess to get me something more next morning.

This she did and next morning after breakfast I enjoyed the beautiful view of the situation of Porvenir (the capital of Chilian Tierra del Fuego).

The settlement lays at the end of the deep bay which looks more or less *like a lake* and is surrounded by raising ground.

Round the bay were large flocks of *Chloëphaga dispar*. In the water were some pairs of *Steamer Ducks*, and several *pairs* of *Anas cristata* were flying about, often coming quite near.

The *male* of these last birds seemed a little *larger* than the female and showed *more white* in the wing.

They were very pretty birds and quite tame.

I afterwards heard that the bay was a sanctuary where no birds were allowed to be shot.

The *Steamer Ducks* of the flying small species in the bay also went in pairs and I may as well tell my opinion and my experience at once of these birds.

It is a subject of controversy amongst ornithologists whether there are *one* or *two species* of *Steamer Ducks*.

It is my opinion that there is *not the slightest doubt*

that there are *two* species. Much about it has been talked and written but the *differences* between the two species have never been properly put on record.

The typical *Tachyeres cinereus*, the Steamer Duck of the Seafarers is a big heavy bird which is quite unable to fly, not only when it is old, but even less so when just full grown. This bird can not even rise above the water but when alarmed gets away by striking *into* the water with its wings so that a great splashing takes place.

They are absolutely *confined to the sea* and I have seen great numbers of them in the Smith channel. In Eden-harbour Indian reach as many as 42 together. These flocks consisted of pairs of old birds with full grown young of the year.

In this species *both* sexes are grey. The male has a pale or pearl-grey head and neck and a bright yellow bill. In the female the grey is duller and the head not strikingly paler than the rest of the body. The bill is also yellow but not quite so clear in colour. In the young birds seen by me in the Smith channel and later on in Melinka near the coast of the most northern island of the Chonos-Archipelago the plumage is in some parts tinged with *brownish* grey, but not enough to hide the grey general aspect. The bill is mixed with dark greenish colour, and the legs are dark.

These birds, evidently birds of the year, as they were under the guidance of a pair of adults, as was very easily seen at Melinka, where they were quite tame, were even heavier or more clumsy-looking than the old birds and could most certainly *not fly*. They are expert divers.

I killed a young male at Eden-harbour and skinned it. The stomach was full of ground crabs or crustaceans. There were enormously powerful muscles over the cranium and very small ones on the breast which carried a very shallow keel.

The *second* or *flying* species is quite a different bird. To begin with, both sexes are much *smaller* than the preceding one and the female is much smaller than the male. The *female* is also coloured quite differently.

The male which is the larger of the two is clear grey with a white breast and clear yellow bill. The tail is elongated and the point carried upright when he swims.

The female is much smaller than the male. The head is brown and the rest of the body of a beautiful *wine* colour with white breast. The bill is *brown*. I saw small flocks of these birds on the seashore near Jente Grande and a good many pairs on the lagoons inland.

I saw these birds *fly* repeatedly high over head; at the sea coast I saw them fly from the lakes inland towards the shore and vice-versa.

I have not seen a single bird of the non-flying species in this part of Tierra del Fuego.

My kind hosts at Jente Grande who most kindly helped me in my researches, were quite convinced of the validity of the two species. So was Mr. Cameron the director of the Jente Grande Company.

The small kind is found a good deal inland, they told me, but the big one is entirely confined to the sea. This quite agrees with my observations.

A female and a young male of the non-flying small species (both from the Falklands) are in the Leyden museum and there is an adult pair of this kind in the Buenos Ayres museum and there are several females in the British museum.

In the lagoons round Jente Grande the birds were very tame and if I rode round a lagoon or stood on the edge of the water the pairs of small Steamer Ducks would come quite near to look at me.

The white speculum in the wing is present in both species.

When alarmed these birds sometimes get over the water without getting quite clear of it. They then rise over the water touching it with the *points* of their wings as they fly away.

This is however a quite different way of progressing from what the *Tach. cinereus* does. It resembles the way a coot sometimes gets away. The *Tach. cinereus* does not

succeed in *rising its heavy body* out of the water but strikes with both wings right *into* it making a great splashing.

Returning to the fine clear day on which I admired the Porvenir bay, I saw some movement on the opposite side in a farmhouse. A small waggon was taken out and a pair of horses were harnessed to it and a little later a white saddle horse was brought forward.

Half an hour later the waggon was seen advancing in my direction and a man was seen mounting the white horse.

This seemed not to be an easy matter as the creature resented this very much.

Once the man on his back he advanced with jerks and starts with his nose right into the air. However after a while both waggon and mounted man were at my door.

My valise was put into the waggon and I mounted the white horse after his former rider had descended.

The waggon was to show me the way so it was all very easy and I followed at some distance.

We first ascended the hills behind Porvenir and then got on some undulating ground grown with short grass and low bushes but quite without trees.

We soon got along a little piece of water where a lot of *Chloëphaga dispar* were running about, feeding on the short grass and letting us pass without being disturbed in the least.

We still mounted higher and now I got a good view of the country most beautiful in its wild loneliness. Undulating country without an end to it, all in short grass with low bushes untill everything was lost in the purple of the horizon!

We pass several lagoons, some are large and intricate in shape with deep bays, *high promontories* and *outstanding islets*. Others are round and have smooth margins like an ornamental lake in a park of old Europe. Sometimes only a part is round like this, whilst in some other part they run on getting irregular in shape and full of corners and bends.

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In one part of a large lagoon we passed, were great numbers of *Coscoroba Swans* who challenged me with their call of "Coscoroba!" when I got near.

In the different museums of South-America which I visited I found only fairly large chicks of *Coscoroba candida* which had lost the markings of the newly hatched chicks. These young birds were yellowish grey. I am therefore very much pleased to be able to figure, through the kindness of the Duchess of Bedford, a newly hatched chick of this species which was bred at Woburn. See pl. I and II.

I have always regarded the so called *Coscoroba Swan* as a gigantic Tree Duck and the character of the head markings found on the chick go far to prove that I was more or less correct in my surmise.

In fact the markings on the chick figured combine the markings of the *Shell Duck* chick with those of the *Tree Duck*.

The headmarkings show a good deal of the characteristics of the Tree-Duck chicks markings, whilst the pattern on the body is almost identical with those found on a chick in down of the *Shell Duck*.

Thousands of *Upland Geese* (*Chl. dispar*) were running everywhere and a good many *Antarctic Ducks* (*Anas cristata*) were on the margin and in the lake.

All the birds were tame and I could get quite near them.

Having admired them for a while I rode on, and having passed over some higher ground I came to another piece of water, probably another arm of the same lagoon and there great numbers of *Blacknecked Swans* greeted my view.

It was a lovely sight. In the water are some little islands and everywhere are *Blacknecked Swans* with only an occasional *Coscoroba* amongst them, so that it seems probable that both species don't mix very much but keep apart. On the little island, as I heard afterwards, the Blackfaced Ibisses breed.

The swans were tame like the *Coscorobas* and I could ride to the margin of the lake without their taking wing.

Having left the Blacknecks I ride on after my guide and

pass flock upon flock of *Upland Geese*, *Chloëphaga dispar*.

This goose is often called the Chilian form of *Chloëphaga magellanica*.

This is rather misleading, than although Tierra del Fuego belongs for the greater part to Chili this goose was not found by me in Chili proper.

I have been over a good part of southern Chili but have not seen a single specimen nor have ever heard of it.

Tierra del Fuego on the contrary it inhabits as a resident in countless numbers and if it was not so much persecuted would probably be still more numerous.

As it is, one sees it almost everywhere and it seems to be attracted by the fine grass which is the result of the grazing of the sheep.

This bird is a resident in Tierra del Fuego but every thing about its history is not known, so f. i. several people there told me that these birds had never been found moulting and the common belief was that they did not moult like other geese.

Now as it is quite certain that *Chloëph. dispar* moults its flight feathers like every other goose (*Anseranas melanoleuca* excepted which moults like a hen and can always fly), it only proves that at that critical time the birds wander away to some unknown part of Tierra del Fuego or to some of the adjacent islands where they can moult in peace and security.

This circumstance is probably the only thing that keeps the species going as they would certainly be exterminated if they moulted in the inhabited country.

Amongst all the flocks of *Chloëphaga dispar* I have only seen *very* few white-breasted birds belonging to the allied *Chl. magellanica* of the Falklands. They had probably lost themselves amongst the flocks of *Chl. dispar* and I have not met any number of *Chl. magellanica* together.

At last after having ridden three hours I see a deep bay formed by the sea and not far from it some yellow painted houses with scarlet roofs.

The bay is the "Jente Grande" bay and the houses are Jente Grande settlement, where I am going to spend a few days.

I am welcomed with the greatest kindness by the director of the Jente Grande Company and at luncheon see the whole houseparty.

In the afternoon 2000 sheep must be shipped.

This is done by driving them in small parties onto a narrow bridge which ends on the vessel. At the place where the bridge reaches the vessel the hurdles which border the bridge are so near each other that only one sheep can pass at the time. In this way it is possible to count the sheep and to put them in the prepared divisions which will hold 6 sheep each.

The difficulty is to get one or more sheep to put foot on the bridge but this achieved the others follow in the proverbial way so that a continuous stream of sheep flows into the ship.

The poor creatures will cross the straits to Rio-Secco to be all slaughtered next morning! Next morning I bestride a horse and under the kind guidance of Mr. Aylwin set out to see as much of the birds around *Jente Grande* as possible.

The first thing in the way of birds I see that day are large flocks of *Ruddy Headed Geese* (*Chloëphaga rubidiceps* Sc.) or „Brent” as they call them there.

The birds are grazing on the grass not a hundred yards away from the house and only take wing when I get *quite* near them to alight a hundred yards further on.

These birds, contrary to the *Upland Geese* (*Chl. dispar*) which are *residents* on Tierre del Fuego, are *summer visitors* to the country. At the time of my visit (beginning of April) they had gathered into flocks previous to their emigrating and would do this probably in a few days.

I was told that *Chl. poliocephala* who is a scarce breeder and summer visitor in the country sometimes associates with the *Ruddy Headed Geese* in these flocks, but I have myself not seen a single specimen of this goose on Fireland.

Proceeding on our ride we came to a large but apparently very shallow lagoon with flat margins (some of the lagoons are sweet and some are salt).

In it I saw 5 *Flamingos* (*Ph. ignipalliatu*s) which my guide told me came to the Jente Grande lagoons in autumn to spend the winter there. They were rather shy and flew away as soon as we came near. Whilst I was standing on the waters-edge to look at the Flamingos a big pair of ducks came flying over my head to land or better to alight into the water with a splash not far from where I stood.

They proved to be a pair of the *Flying Steamer Duck* which I mentioned above. Riding along the waters-edge I observed 5 more pairs of these ducks. As I stood still they all came quite near so that I could well see them. They were all of the same kind, the male light grey, with bright yellow bill and larger, the female wine colour with brown bill and smaller. It was a grand sight!

In the same lagoon stood numbers of *Chl. dispar* in the shallow water, and a good many *Anas cristata* were swimming about. I also saw a specimen of the large *Rednecked Podiceps*, *Podiceps major*.

Leaving the lake we came into some hilly country, and in a small valley where the bushes had attained a little more size were two old *Carancho* nests.

These nests were built of sticks right from the bottom of the bush entirely filling it up and attaining a height of 5—6 feet.

On the ground, sunning themselves were two big *Eared Owls* which looked like two cats and were fairly tame (*Bubo magellanicus* or *Asio accipitrinus*).

In that same neighbourhood a beautiful grey bird of prey, probably *Buteo erythronotus*, with white, black-tipped tail flew over the ground and I also met the *Cinnamon Kestrel*, *Tinnunculus cinnamomius* Sw.

In a tall shrub was a small flock of *Black Starlings* (*Curaeus aterrimus* Kittl.).

The birds were singing lustily in their peculiar busy way.

The *Chimangos* were not very numerous and I only saw a few, which were large birds.

In the afternoon I went out on foot and alone to see something of the seabirds along the Jente Grande bay.

Between the house and the sea are some low meadows with water-holes in them. In the dampest places grew an extraordinary looking *succulent plant* in great masses.

These were of the most vivid *scarlet* and *carmine* colour and grew only to the height of a few inches.

Walking along the shore I came to a projection of stones and pebbles and on these were great numbers of the *White-breasted Cormoran* (*Phalacrocorax albiventer*), also some small *grey blackhooded Gulls with orange yellow bills* (*Larus scorbyi* Traill) and some *Haematopus leucopus* (Less. & Garn.).

Turning round a promontory I came upon a large number of the *Lesser Steamer Duck* of which several *flew* away at my approach.

They were all of the same species.

A solitary pair of *Anas cristatus* was near them.

Next day I was to go to Phillips Bay, where there is a station of the Explataadores Company, and I was to lunch half way at the second farm of the Jente Grande Company.

It was a glorious morning but a driving icy cold wind.

My road at first took me along the eastern shore of Jente Grande bay after which I turned inland amongst lovely scenery.

The country was hilly and wild and grand in its desolation. On a hill on my right a *Guanaco* stands out clear against the sky watching me intently. I had never before appreciated the wild elegant beauty of the *Guanaco*. The rich rufous colour of his coat and the black of his head harmonize to perfection with the ruddy grass of the hills.

After he had looked at me for a while he canters away with a beautiful springy gait.

I ride on and turning back after some time I see him again standing on the top of another hill watching me intently as before.

A little later I see another one. Flocks of *Upland Geese* are everywhere. At about 12 o'clock I see the sea from the top of a hill which I pass, but my road takes me more landwards. I pass a small stream and meet here a flock of a couple of thousand sheep, under the guidance

of two mounted peons and some dogs, which are driven to Philips Bay. A little further I pass another small stream and see a specimen of *Dafila spinicauda* sitting on one of its borders. The bird squats motionless and lets me pass hoping to be unobserved. I don't undeceive it and let it be.

Another turn between some hills and the Jente Grande farm (*Estancia Sarita*) is in front of me and is reached by us in a few minutes.

I alight near the managers house and my horse wet as it is from the exertions of a longish ride is simply fastened to a pole in a driving wind.

I get some lunch in the house and after that am taken to a small stream in a hollow, where ducks usually abound.

I am in luck, the ducks are there and swimming unconcernedly in a small pool, I admire *Mareca chiloënsis*, *Nettion flavirostris*, *Net. versicolor*, *Spatula platalea*, which had not yet been recorded from Tierra del Fuego, and *Dafila spinicauda*.

The only birds to take wing at our approach are *Mareca chiloënsis*, the others are quite tame and take no notice, no more than my own ducks of these species at home.

The manager tells me that the birds are not allowed to be disturbed and are so tame accordingly.

After the ducks a few tame *Indians* who serve as peons are shown to me and I am sorry to hear that these poor creatures don't stand civilised life even in a low stage.

The clothes and the houses give them consumption, the children die first, then the men follow and the women make the end.

At about half past one we mount our horses again to proceed to *Philips Bay*.

The country to the East of *Estancia Sarita* was quite flat at first. In little pools I see more *Nettion versicolor* and *flavirostris* and some *Coots*, and in the grass countless flocks of *Chl. dispar*.

We pass over some beautiful wild hilly country and then in front of us lies a big plain as flat as a billiard-

table with the sea to the north of it and hills to the east. The plain is overgrown with rufous coarse grass which grows in patches and a great many cows and horses are feeding on it.

Riding on, some buildings come into view.

They are those of the *Philips Bay* station of the Explo-tadores Company who hold the greater part of Chilian fireland.

Close to the sea is the largest building, the so called *grasserie* where every year thousands of sheep are slaughtered and converted into tallow.

The manager shows me this ghastly establishment and the only thing which I find at all attractive are the thousands of seabirds that feed on the blood and refuse that has run from the factory into the sea.

The birds are countless *Larus dominicanus*, many *Antarctic Ducks*, *Haematopus leucopus*, and little *Plovers*, and occasional other birds.

After having seen the birds the manager takes me to his house which is situated about three miles away on the slopes of the hills.

On our way we pass again great flocks of *Chloëphaga dispar* and *Chl. rubidiceps*.

The house is beautifully situated in the midst of wild country grand in its monotony.

Next morning I take a walk into the hills and come into a part where some low bushes grow. Here a little bird flutters helplessly in front of me unable to fly. I run after it and catch it.

It is a most beautiful yellow grey and black bird with black glittering eyes. As I catch it it utters a low continuous rattling sound.

It has apparently flown against a telephone wire and hurt its wing. It is a male of *Phrygilus? princestonianus*. This beautiful species is a representative of the *Lapland Bunting* in the southern hemisphere (its shape, its habits, its style of song, its hindtoe with long nail all point to this) and not a *Phrygilus* at all as it is usually called.

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Come back to the house my kind host got me a small cage to put the bird in.

The poor little thing was very thin and feeble and the first thing it did after having drunk was to have a sound sleep. After that it began to feed on canaryseed, and I ultimately succeeded in bringing the little bird home in good health.

During the seapassage later on, this little bird which was quite tame came into full song as the weather got warmer. It is a charming song in style much like the continuous song of the Lapland Bunting and very sweet.

Every morning on the ship it began to sing as soon as the light came.

After my host had helped me with the little bird he told me that he had another surprise for me in the shape of a living specimen of *Attagis malouinus* which had also damaged its wing against a telephonewire near the house. The bird was produced and I now could admire a living example of this curious *grouse like* bird in close proximity. Unfortunately the wing was so much broken and damaged that I could not venture to add this bird to my travelling menagerie and so it was decided to put the poor thing out of its misery.

My host told me that this bird breeds inland in desolate wild country and lays four eggs only.

In the great plain mentioned before, which I passed to go to Philips Bay, are still some *Guanacos*, which live peacefully with the cattle. The animals themselves are not killed but all the young ones that are born are at once killed for the sake of their skins.

Besides, in snowy winters many die of starvation in all the sheep districts.

Before the sheep were so numerous the *Guanacos* could live on the long grass which came out of the snow, but since all the long grass is eaten by the sheep there is nothing for the poor things to live on if the snow lies thick for any length of time.

This and the destroying of the young ones must very

soon make an end to the existence of the Guanaco, and a great shame I call it of the settlers that not some means are adapted for its preservation.

In the afternoon of the second day at Philips Bay I was to leave Tierra del Fuego where I had spent such delightful days and was to take a boat which was to cross the strait to *Rio Secco* on the mainland with a cargo of live sheep.

The boat could not land near Philips Bay station on account of the low water and so I had to drive to the place of its anchorage about 5 or 6 miles away.

The best road to go there was along the sea-shore. I passed again near the place where all the birds were feeding on the blood of the sheep and also could admire a little flock of 9 Guanacos.

In different places on the shore I saw big tangles of the *Giant Seaweed* coloured brown, also other kinds that were green and others that were carmined. Some fine big shells were also seen of which I took some home.

We reached the boat in good time and after having taken leave of my kind host I got into the ship with my luggage and my little bird.

At ten that same night we arrived at Rio Secco on the other side. I passed the night on board and next morning had breakfast at the house of the manager of the Refrigeratores Company who also showed me what became of the sheep that had come over the water with me.

These were all first quality sheep, they were killed and the carcasses frozen to be sent over to England.

About eleven o'clock the manager who had to do in Punta Arenas kindly offered to take me with him and in an hours time, driving continually through the remains of burnt forest, I was back again at the Cosmohôtel in Punta Arenas.

In the hôtel I found my two Longbilled Parrakeets in good health and the luggage which I had left there.

In the afternoon I went to Brown and Blanchard's office to inquire when there would be a boat to take me via the Smith Channel, the Chonos and Chiloë to Coronel.

The agent told me that their new boat the "Chiloë" would probably leave the second day and so I engaged a cabin for that journey.

The "Chiloë" and the "Magallanes" are twin steamers built for Brown and Blanchard about two years ago for the service between Punta Arenas and Valparaiso.

As the object is to put into as many ports as possible on the Smith Channel, the Chonos Archipelago and the isle of Chiloë, this conveyance is not meant for people who are in a hurry, but is just the thing wanted for people who, like me, want to see the country.

The whole journey from Punta Arenas to Coronel in Chili took me about ten days, whilst it would have taken ± 5 with a large steamer which goes outside through the Pacific.

The „Chiloë" was supposed to leave Punta Arenas at two in the afternoon, after at first 10 in the morning had been mentioned, but in reality it was 6 $\frac{1}{2}$ in the evening before we left the harbour. It was Thursday evening before Easter.

Next morning we were just in time to be able to admire again the two *beautiful glaciers* which I had seen coming to Punta Arenas and besides the usual birds I again met a splendid *Ossifraga gigantea* which followed the ship for some time.

It was about one o'clock if I rightly remember when we got to the entrance of the *Smith Channel* which we were to follow untill we got to the *Gulf of Penas* (southern latitude 47 $\frac{1}{2}$).

The weather was glorious, a brilliant sunshine with a fresh breeze.

As soon as we got into the entrance of the Channel we entered a world, full of the wonders of creation of which no words can give a feeble idea. It is a succession of forest clad hills, snowy mountains, bare rocks and glaciers all most fantastically shaped and set off to perfection by the intricate seapassages.

The channel itself is sometimes narrow so that every bush

and every bird may be seen on its borders, sometimes wide forming like big lakes.

Every now and then side passages or channels opened fresh points of view.

One of the finest *glaciers* was seen on the right shortly after we had entered the Channel.

It was brilliant in blue, white and green and came right down into the sea whilst bare rocks and forest clad hills were on the right and left.

The *Penguins* were very numerous and over one of the hills on the left side numerous Brown Vultures (*Cath. aura*) were circling in the clear sky.

A little farther on I saw the first pair of *Antarctic Geese* standing on the waters edge at the bottom of mighty rocks.

The beautiful white male was like a spot of snow and was seen at a great distance.

The blackish brown female was much less conspicuous and only visible when we came near.

Soon after, a pair of enormous *Patovapores* or *Steamer Ducks* (*Tach. cinereus*) were disturbed by the ship and got away under much splashing showing as clearly as possible that they were quite different from my flying friends of *Tierra del Fuego*.

Numerous specimens of *Larus dominicanus* were often seen and also some *White breasted* Cormorans and a few *Haematopus leucopus*.

On the second day before entering the English narrows we had to wait for the tide and the ship anchored in Eden Harbour, Indian Reach.

As we had to wait a few hours I thought it a good opportunity to get on land and having got a boat I went into it with a German gentleman who travelled in the same steamer as myself.

Armed with a small revolver we got into the boat and had us rowed ashore.

About half way I noticed quite a flock of *Steamer Ducks* all *Tachyeres cinereus*.

I counted them and found there were over forty. They

consisted of adults and young birds of the year as was visible by the colour of the plumage and the bill. The old males were conspicuous by their light grey plumage and brilliant yellow bills. The old females were slightly darker and the young ones had darkish spotted bills and duller plumage tinged brownish. All were enormous and heavy birds and quite unable to fly. My friend shot one of the birds with my revolver and as I afterwards saw, when I got it, it was a young male with greenish spotted bill. The greenish colour was especially marked round the nostrils.

After having got the duck in the boat we went on land and here had occasion to wonder at the strange soil.

It was simply a *mass of peat* which was saturated with water. In some parts there were holes full of moisture.

All over this peat grew mosses, most extraordinary to look at. Some were red, some yellow, but the greater part was greenish or brownish. Besides the mosses there were different kinds of peatloving plants, amongst them masses of *Nertera depressa* with red fruit and ferns.

Also little bushes like evergreen prickly Barberies with bright yellow red flowers, and Fuchsia bushes.

The forest consisted of *Fitzroiya patagonica*, *Desfontainea spinosa* Ruis. & Par. and trees resembling *yews*, also of *evergreen Beeches* (*Fagus betuloides*).

This peculiar soil made it very difficult to travel over it, as one was in danger every moment of falling into one of the deep water holes. Also one could not stand very long in one place as in that case the surface vegetation would begin to give way.

However, I made the most of my time and penetrated inland as far as I could, wondering at all I saw and enjoying the beautiful weather which would not leave me untill we left Melinka after several days.

Time being up we returned to the vessel with the *Steamer Duck* which I afterwards skinned and have now mounted in my house.

Soon after we were returned on board the ship continued its course.

I went as usual to the highest accessible part of the vessel to enjoy the view and this time also to skin my Steamer Duck.

I was not busy very long when my attention was drawn by a small vessel which as it came nearer proved to be a wooden canoe full of *Indians*. These people who stand on a very low stage of civilisation belonged to the tribe of the *Canoe Indians*, so called because they pass their lives in their canoe's, which they make out of a giant tree which they hollow out. They live in these frail embarcation with their wives, their dogs and their very primitive belongings, and are said to have no habitations whatever.

At night they land and form a sort of hut by binding some young trees together, cover these with guanaco or other skins and huddle together in this misirable shelter to do the same thing next evening, probably in quite another place.

Except a sort of loose jacket of some dark material, probably otterskins they were perfectly naked and it made one cold to see them sitting thus exposed to the icy cold wind with nothing to protect their naked skin. Their hair looked black and matted like the skin of a string poodle and they made all sort of frantic movements as they passed near the vessel.

About half an hour later we passed *another canoe* full of these same people and soon after we had passed the *English narrows*; a beautiful *Kingfisher* (*Ceryle stellata* Meyen) flew right over me so that I could well see it. *Antarctic Geese* were also fairly numerous on this second day of our voyage through the channels. They were mostly seen in pairs and always near the waters edge, sometimes on rocks that projected out of the water. These geese are entirely *confined* to the *sea shore* but they are never seen on a sandy beach. They want the rocks and the stones on which a peculiar edible kind of *seaweed* grows which the natives call *lutche* and on which they may be seen feeding when the tide is low. They probably also feed on marine animals which they find in these same places.

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The White Gander is a most beautiful bird and quite a feature in the landscape.

Inhabitants of the country told me that these geese *never* go inland like the upland and other geese and never go in large flocks.

The brilliant weather which I had all the time I steamed through the Smith and other Channels made the whole scenery most glorious to behold and made it also very easy to see and observe the birds. .

Tachyeres cinereus was constantly seen and also little strings of *Spheniscus magellanicus*.

During the course of the second night after we had entered the Smith Channel we got out of the narrow sea-passages and crossed the gulf of *Penas* to enter a deep bay in the morning, behind the Tres Montes peninsula.

To get to *Slight harbour* which was the object, we had to get through another series of narrow passages between beautiful forest clad hills, and it was about eleven in the morning when we reached Slight harbour, where the ship had to bring some building material for a lighthouse which was being erected on the pacific side of the peninsula, but which place could not be reached from the outside so that the material had to be brought to its destination over land which united the Tres Montes point to the mainland about $3\frac{1}{2}$ kilometer away over perfectly flat wooded country.

Slight harbour (Hoppner sound) is the end of a beautiful deep bay and, hearing it would take several hours to unload the cargo, I asked for a boat and had myself rowed ashore.

Not far from the landingplace was a small promontory into the sea formed by loose stones and this place was full of birds. The majority consisted of the White Breasted Cormoran *Phal. albiventer*.

Amongst them was one solitary black one *Phal. brasiliensis*, then there were a good many *Larus dominicanus* and on a conspicuous place like the king of the whole tribe a beautiful solitary male *Antarctic Goose*. Having passed

behind this congregation on foot without disturbing them I came to a sandy part of the narrow beach overgrown with enormous trees and on one of them sat a number of Brown Vultures (*Cathartes aura*).

Some fifty yards further on, also on the overhanging trunk of a dead tree which was beautifully overgrown with mosses and ferns, sat the most beautiful *Caracara* (*Polyb. brasiliensis*) male that I have ever seen. The breast was of a brilliant pearl grey and the black lines beautifully conspicuous.

I at first wondered what all these carrion birds were doing in this one spot, but I soon found out the reason. Not far away an enormous *Sepia* or *Cuttlefish* had stranded and the carrion birds were evidently waiting till decomposition had softened the tough leathery flesh.

I measured this *Cuttlefish* and found that the body measured over three feet in length.

It had a beautiful sharp horny parrot-bill which I cut out and took away with me.

After having gone along the beach for a little while I tried to enter the forest which was mostly composed of fine old beeches mixed with many of the beautiful things, which I had seen more to the north in Chili.

I could not penetrate far however, hardly 50 yards, so full was the forest of rotten tree-trunks some of them overrun with creepers and which made a perfectly impenetrable tangle. On these old trunks grew beautiful *Ferns* and *Mosses* and a good many *Fungi*.

Whilst I was sitting on one of those fallen trunks admiring the surrounding trees and shrubs including *Fuchsias*, two inquisitive birds came up to me coming quite close, now on this side and now on the other, sometimes even passing under my legs. They were a pair of the Red-breasted Robin (*Pteroptochus rubecula*), the bird that generally laughs at the intruder and disappears.

These birds who had perhaps never seen a man were determined to have a good view of so strange a creature and talking to each other in a low voice and jerking

their upstanding tails they made the best of their opportunity. — I had never before seen those birds so near and so had plenty of time to admire their red breasts, black beady eyes and quaint movements.

After a while they disappeared in the tangle and after I had waited a little longer listening to the mysterious whisperings of the virgin forest with all its secrets, I found my way back to the beach and to the boat that was to take me again to the ship.

I found that the ship would pass the night in slight harbour and would leave the following morning.

This came to pass as soon as it was daylight and we again entered the narrow passages between forestclad hills as the day before.

As we circumvened Tres Montes Peninsula and got out towards the Ocean a most wonderful sight awaited me.

The sky was blue and the atmosphere as clear as glass and standing out against the clear blue sky was the most magnificent panorama of *mighty snowmountains* intercepted by glaciers, that man could see.

They extended to the South and were the southern range of the Cordilleras.

In front of these snowmountains were mighty ranges of rocks-forming like an enormous wall that descended into the sea.

Conspicuous amongst the glaciers was the tremendous „*lofty glacier*”, which like a veritable sea of ice descended with one mighty sweep into the Ocean.

The captain of the „Chiloë” who had done this voyage many and many times told me that he had never seen anything like the sight we had to day, as the sky is hardly ever clear for any length of time.

Before getting clear of the bay we passed a small forest-grown island with a sandy beach and here sunning themselves were a number of *Sealions* (*Otaria jubata*) who quietly let us pass.

In the Pacific we were met by numerous *Albatrosses*, a good many Black Petrels, *Majaqueus aequinoctialis* and

many Gulls, and soon also the lovely *Cape Pigeons* (*Daption capense*) were flying around us. On the first day of Easter the spouts of *Whales* were also seen repeatedly, but the animals being hunted all the year round they are very wild and don't come near.

The coast of Tres Montes etc. was remarkable by the fact that nearly every *promontory* that ran out into the sea had a big rock standing in front of it like one of the stones of stonehenge and sometimes a second smaller one standing in front of that one.

In one place there was like an enormous *ruined castle* with archways and windows standing in the sea away from the coast.

We now passed along the western side of the *Chonos Archipelago* and the clear weather always being with us we got a splendid view of the more northern snowmountains.

Conspicuous amongst them all was the extraordinary *Asses Ears* mountain with its snowclad top, surmounted by two sharp points like the ears of an ass.

Then more to the north followed smaller snowmountains, then the enormously massive *Yanteles* and in the end the sharp snowclad pyramid of the *Corcovado*.

It was a sight never to be forgotten.

As we neared the island of *Ascension* which is the most northern island of the *Chonos Archipelago* we came near its rocky coast and here is one of the strongholds of the *Antarctic Goose*. I never saw so many anywhere and was told by the captain that he had always seen them there in such numbers.

They did not form flocks but kept together in small families which were sitting on the rocks along the water.

There were also a couple of *White Herons* and a good many *Phal. albiventer*.

Following the coast we turned to the east and anchored at *Melinka* a small place on *Ascension*.

There we had again the most glorious view of the before mentioned snowmountains and the foreground, formed by

the sea, small forestclad islands and mighty bare rocks as a battlement before those snowmountains, made it all the more beautiful to behold.

I went ashore as soon as I could and being away from the few huts that formed the settlement I came upon small families of *Steamer Ducks* or *Pato Vapores* which were sitting on the stones projecting out of the sea.

They belonged all to the *large nonflying* species and here better than anywhere before, I had the opportunity of studying them as they were quite tame.

There were generally a pair of old birds and some young ones. The old birds were grey — the male the clearest of the two — both birds with yellow bills. The young birds were of a more brownish grey on the sides especially and had darker bills in which the yellow was mixed with olive green; these birds had also dark legs.

The young birds were ever heavier looking than the parents and most certainly did not fly nor attempt to do so.

They all dived with great diligence.

In this same neighbourhood I saw many *Shags* with white underside but black foreneck (*Ph. magellanicus* Gm.) and on some I noticed red fleshy warts round the base of the bill.

A little farther I came upon small families of *Antarctic Geese* (*Kaiks* is the native name there, whilst in the south they call them *kaikénos*) and had good opportunity to study them.

The adult males are snow white with black bill, large glistering black eyes and light citron yellow legs and feet, they look robust strong birds.

The adult female has a yellowish fleshcoloured bill, a yellowish ring round the eyes and pale yellow legs. Their general colour is dark brown and black finely streaked with white; the head is brown. The shoulders, back and tail are white and very conspicuous when the birds fly.

The young birds of the year before they have moulted are more or less similar to the female but the colours are dull, the tail is white with black spots and the bill and legs are blackish.

I think it probable that at the first moult the young male moults all his feathers except the large flightfeathers which are retained untill the second moult.

After this first moult the young male accordingly is entirely white except the black large flightfeathers. Bill and legs have then attained their black and respectively yellow colour.

I saw a few males in this stage and this would quite agree with what happens with other young geese of the genus *Chloëphaga*. These at the first moult, shed all their feathers except the large flightfeathers.

I saw a good many of these geese during my exploration of this coast and found them very tame so that it was so much easier to observe them.

A native of the place who after a while came to me, told me again as I had heard in the south that these *Kaïks* are always along the sea and feed on the seaweed called "lutche".

The friendly native finding me interested in the geese told me that I could buy a young bird which was kept alive in the village, if I liked to do so.

Unmindful of all the difficulties that would fall to my lot if I should attempt to carry it home I bought the bird.

It was very wild and was kept in a small enclosed garden. It proved to be a young male that had not moulted and it was featherlight.

The good woman, who had kept it, told me that it fed on anything, but as she also told me, that I must be sure to take a lot of seaweed (lutche) with me, I was rather sceptical of the truth of the first assertion and I afterwards had the greatest difficulty to induce the bird to eat anything else but lutche.

On the beach were again great masses of *Giant Seaweed* and near the coast in damp places some very fine dark green *leathery Ferns*.

Towards the end of the afternoon I went back to the ship with my goose in an old box half full of seaweed.

On board, the friendly captain offered me an empty

dog-kennel which he had on the bridge, to put it in, and with the help of some wire netting the goose was soon installed.

The sun was setting now and tinged all the snow-mountains with gold and rose colour, and they gradually disappeared in the darkness to be seen by me no more as next day there was a pouring rain!

We stopped about 24 hours at Melinka and then set course to the south eastern coast of *Chiloë*.

This part of *Chiloë* is rocky and there were still some *Antarctic Geese* but I saw no more *Steamer Ducks*.

More to the north the coast becomes mostly sandy and no more *Antarctic Geese* were seen by me, so that the *south coast* seems (at least on the eastern side) to be the most northern limit of their distribution.

The *Steamer Duck* I did not even see on or near the south coast — nor saw it anywhere else afterwards.

A little south of Queilen where I landed on the east coast of *Chiloë* I saw a good many *Black Cormorans*, *Gold-crowned Hummingbirds* on the *Fuchsias*, and along the sea a good many *Cinclodes patagonicus*.

There were here a good many bushes of *Escallonia macrantha* and other flowering shrubs, also the *Climbing Bamboo* and a few *Gunnera scabra*. In the woods were some *Ferns* that formed small *trees* with stems of two to three feet height.

There was a little *grey bird* with long pointed tail, brown back and white eyebrowmarkings.

In the port of *Castro* where we came a day later I saw several *Dolphins*, some *Whitebreasted Cormorans* and a good many *Blackheaded Gulls* (out of colour of course) of which some had beautiful roseate breasts.

We afterwards passed opposite an island east of *Chiloë* opposite *Achao*. Part of the coast looked as if it had fallen away by the water getting under it, leaving a steep incline. This was overgrown with *Gunnera scabra* and as I afterwards found, places like this on the coast of *Chiloë*, were all full of this same plant. There were miles and miles full of it.

On this particular island there were low rocks projecting into the sea and these were full of Pinguins or white breasted Cormorans, or both, I could not quite make out. In the harbour of Achao I saw three *white breasted Cormorans*, a lot of *black headed Gulls* and a few *Haematopus leucopus* also some *Larus dominicanus*.

At *Dalcahie* the ship stopped several hours and I went on land.

The settlement looked most peculiar by the number of *houses* which had been built on *poles over the sea*. — This is done in many places on Chiloë and is done by the inhabitants to escape the payment of a *small duty* which is due to the Chilean government for every house that is built on *land*.

A little inland some land was being ploughed and swarms of *Chimangos* were following the plough for grubs.

Diucas were numerous and a few *Zonotrichia pileata* were near them as usual. I also met a few specimens of the beautiful *Taenioptera pyrope* which I had so often admired more north.

In several places in Chili where I met with this bird, so f. i. at Puerto Octay, I often heard in the evening a clear whistling song.

And as soon as this was heard, voices responded from all sides — making quite a chorus.

I suspect that *Taenioptera pyrope* is the author of these concerts although I am not quite sure. A solitary Black? Vulture was also seen by me at this place.

From Dalcahie we steamed to Puerto Montt and whilst we were lying in the harbour I saw enourmous *Jellyfishes* of at least 2 feet diameter swimming in the clear water.

They had a water milk colour and were fairly active.

There were also a good many *Pinguins* in the bay. On land I saw several *Cathartes aura* and some *Taenioptera pyrope*.

Near *Ancud*, the capital of Chiloë, where we went next there were a good number of *white breasted Cormorans* and a few *black* ones. Also *Pinguins* and *black headed Gulls*.

Ancud is by far the nicest place I saw on Chiloë, and the country immediately near it has a prosperous look.

From Ancud the ship steamed again towards the Ocean and had to get over some extremely strong currents or rapids — which take the water from narrows between Chiloë and the mainland, into the Pacific.

The danger is that the currents take the ship sideways and so succeeds in overturning it.

That this does happen occasionally was proved by the numerous wrecks which we passed.

However all went well and we came into the Pacific all right. On the way I noticed some fine *Brown Cormorans* with yellow bill and white marks on neck and back (*Phal. gaimardi*) which swam in little parties of 5 or 7.

There were also numbers of *Terns*, silvergrey with black cap and red bill, and some *black headed Gulls* of which some were *roseate*.

As we neared Corral we again passed the whaling-station and here were five *Brown Pelicans* (*Pel. molinae*) fishing not far from it.

From Corral we went north to Coronel and on the way I saw occasionally a curious *Diving Petrel* (*Pelecanoides garnoti* or *urinatrix*), probably the first.

These little birds in shape like a little Auk would suddenly appear on the surface of the water close by the ship to disappear as suddenly.

I also saw some small Black Petrels.

There were also some of the larger sooty black *Petrels* and lots of the smaller deep black ones, also a single *Albatross* (*Diomedea melanophrys* or *exulans*) that did not come near.

In the bay of Coronel there was a single *Brown Pelican*.

In *Coronel* I left the "Chiloë" and landed with my birds and my luggage to take train to *Conception* where I was to spend a day.

Conception is a rather well kept town and it boasts of pavement in the greater part of it.

There is a sort of model garden in the outskirts in

which amongst other things of less interest I found two beautiful males of *Anas specularis* or *Pato de las Cordilleras*, as they called them there.

As these birds are as far as I know never imported alive I noted the colour of the soft parts.

The legs are of a beautiful orange yellow, the iris is blackbrown, the bill is bluegrey with elongated square black spot on the top near the forehead, and black nail.

The wing speculum is beautiful beyond description and it is a great pity that we never see these birds alive in Europe!

In the evening I took the train and with my Antarctic Goose, my Longbilled Parrakeets, my Fuegian Finch and my luggage arrived next morning in Santiago.

There I spent a few days, and one evening when walking in the Quinta Normal I was rather surprised at seeing a giant redwood tree (*Taxodium sempervirens*) and some equally lofty trees around it full of large birds which on closer inspection proved to be all *Nightherons*, *Nycticorax obscurus*.

What those birds did in the centre of a large town I cannot understand. When I went to the office to get a railway-ticket to Buenos Ayres I was told that a snowfall in the Andes had stopped the road and that they could not guarantee my getting through.

As the train would only leave in a couple of days they hoped however that the line would be cleared in time.

On the appointed day I heard to my satisfaction that everything was all right "pro tempore" — and I embarked myself and my belongings at five o'clock at night at Santiago station. The train in this late season does not go through at once but one has to spend the night at Los Andes.

As the train was crowded and the accommodation at Los Andes limited it took a lot of talking to get a fairly good room which I had to share with a fellow traveller.

Los Andes is beautifully situated in the mountains and the cold pure mountain air was quite delightful.

Next morning at 10 I believe, we started for good, getting well into the mountains.

The Tree-cacti were in full bloom and gorgeous with their scarlet blossoms which entirely covered the stems.

We mounted higher and higher and left the vegetation behind us and in time found ourselves in the high Mountain scenery which now clad in snow looked quite different from two months ago when hardly any snow was seen. The mountain lakes with their pure water in their white surroundings were most glorious to see and I will not even attempt to give an idea of the glorious combination of the white mountains, the blue sky and the pure air!

Near *Caracoles* where the train enters the tunnel I saw a *Chimango* in the midst of the snow.

At *Los Cuevas* we came out of the tunnel (it takes about 14 minutes to get through it) and here found a car with some tea and bread which we could use whilst the train was busy with different arrangements.

Of course we were late, but we had got through without mishap of snowfalls etc. which was a great thing.

We also got on slowly but surely to Mendoza, where I had to change again into another train with sleeping car, to at last go straight to Buenos Ayres.

I do not tell all I had to go through with the railway officials with my birds, especially the Antarctic Goose. Suffice it to say that I got through and reached Buenos Ayres the following night at 2 o'clock in the morning, but I don't advise anyone to try the same experiment!!

In the Argentine pampas I saw the *Chimango* as usual, also a good many *Caracara* (*Polyb. brasiliensis*) and Burrowing Owls.

In a rough damp place I saw a little Pampas Deer Buck (*Cervus campestris*) which looked at the train — and not far from there also in rough land, where no cattle was, a large *Tinamou*, apparently *Rhynchotus rufescens*, flew away at our approach.

From Buenos Ayres, after I had settled every thing for my return journey which was to take place on the 6th of May, I went for a day to La Plata to see the museum.

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On the way, going there by train I saw a small flock of *Guira piririgua* sitting on a fence in a nearly treeless country.

In the reeds of a swamp were some *redshouldered Starlings* and *Columbula picui* and other doves were seen repeatedly.

In the parks of La Plata the *Red Ovenbird*, *Furnarius rufus*, was very numerous and very conspicuous, his loud voice being heard continually. Also several *Sulphury Tyrants*.

In the *La Plata museum* I visited the wellknown collection of South American fossil animals and of skeletons of the different races of Indians etc, courteously assisted by the director.

Near the museum is a small Zool. Garden, where I saw some fine Sealions (*Arctocephalus australis*), and which is nicely laid out, but not half ready.

In Buenos Ayres next day I visited again the Zoological Garden and the Mercado Central, where I got some pretty birds, and on the 6th of May with all my menagerie I left on board the "Zeelandia" for the returnvoyage.

In Santos I saw a *Sula* with yellow bill (probably *Sula sula*) flying over the bay; and after a crossing of 22 days on the 29th May landed again at Amsterdam well satisfied with my four months trip.

Gooilust, August 1912.



Two weeks old chick of *Coscoroba candida*. Underside and general colour white, markings dark grey; darkest on the head and on the lowerback. Legs and bill fleshcolour.



Frontview of chick of *Coscoroba candida* and photograph of stuffed chick at Woburn Abbey.

From a photograph by the Duchess of Bedford.

NOTE II.

SOME SPECIES OF MOLLUSCS, NEW FOR HOLLAND
OR RARELY FOUND THERE.

BY

Dr. J. H. VERNHOUT.

Some time ago Mr. W. C. van Heurn, student at the Leyden University, presented a very large collection of shells, all of them found by himself in various localities of our country, to the Leyden Museum. Among them I discovered specimens of three species, not recorded as belonging to the Dutch fauna.

1. *Lacuna divaricata* Fabr. A few specimens, collected June 1909 on the coast of Texel. Mr. M. M. Schepman, the well-known conchologist, wrote to me this being only the second time he saw Dutch specimens.

2. *Rissoa membranacea* Ad. Many specimens, collected June 1909 on the coast of Texel. While intending to give in this periodical a list of the shell-bearing molluscs from Holland, represented in the Leyden Museum, I shall delay till then the description of the specimens of this very variable species.

3. *Actaeon tornatilis* L. One specimen, collected at Scheveningen in 1905, and two specimens, collected at the same locality May 1910. There is in the Leyden Museum still another specimen in very bad condition, collected near Loosduinen, a village south of Scheveningen, by Mr. van Breemen in 1898.

Lately Mr. P. P. de Koning, one of the Preparators of our Museum, presented some bivalve shells, collected by

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himself on the Noordwijk-shore. Among them I discovered a very curious specimen, that I could not range under any of the Pelecypoda, known from our coast. The shell was in very good condition, provided with the ligament, with the valves closed, and with rests of the animal within. It proved to be a representative of the genus *Malletia*, of which the Leyden Museum does not possess a single specimen. It agreed very well with the description and figures, given by G. O. Sars in „Bidrag til Kundskaben om Norges arktiske fauna, p. 41, Tab. 19. fig. 3”, from *Malletia obtusa* M. Sars. To be quite certain I asked the Bergens Museum, if it would have the kindness of lending me a specimen of that arctic species for comparison. With great courteousness Mr. Aug. Brinkmann from Bergens Museum presented two specimens of *Malletia obtusa* to the Leyden Museum. They proved that I was right in identifying our specimen with the above named species. Thus *Malletia obtusa* M. Sars must be added to the Dutch fauna.

Leyden Museum, Nov. 4, 1912.

NOTE III.

HELIX ASPERSA MÜLLER IN HOLLAND.

BY

Dr. J. H. VERNHOUT.

In „Nachrichtsblatt der Deutschen Malakozool. Gesellsch. 1910, p. 134” Mr. V. Franz (Helgoland) gives a note on the occurrence of *Helix aspersa* in Holland at Vlissingen. He suggests that the animals have been transported fortuitously to that locality. Now I will not discuss the possibility this having been the case here, in the neighborhood of the harbour, where the snails can have been brought with ships from England or Belgium. But the occurrence of *Helix aspersa* at Vlissingen is not at all curious, as it is considered since many years as belonging to the Dutch fauna. In his list of Dutch molluscs, published in 1858, Mr. Maitland ¹⁾ cites already *Helix aspersa*, and gives various localities in Holland, including also the isle of Walcheren, where Vlissingen is situated. Herklots ²⁾ calls *Helix aspersa* a very common snail in Holland. The Leyden Museum possesses specimens from the neighborhood of Leyden and of the Hague, and from Zeist in the province of Utrecht. It needs not wonder this snail, whose moving forward from the North of France to England and Belgium has been observed, having also transgressed our frontier. Certainly a careful looking for this species will supply more localities in our country.

Leyden Museum, Nov. 7, 1912.

1) R. T. Maitland. Week- en Schelpdieren in Nederland waargenomen, in: Bouwstoffen voor eene Fauna van Nederland, II, p. 86. Leiden, 1858.

2) J. A. Herklots. De Weekdieren en lagere Dieren van Nederland, p. 35. Amsterdam, 1859—1862.

NOTE IV.

ÜBER EINIGE VON EDW. JACOBSON AUF JAVA
GESAMMELTE TRICHOPTEREN.

Zweiter Beitrag

VON

GEORG ULMER,

Hamburg.

(Mit 20 Abbildungen im Text).

Seit ich das letzte Verzeichniss der javanischen Trichopteren gab (Notes Leyden Mus. 32. 1910, pp. 64—66) beschrieb Cornelius Betten („Notes on the Trichoptera in the collection of the Indian Museum.” Records of the Indian Museum. Calcutta, Oct. 1909, pp. 231—242 t. 14—18) unter andern indischen Arten auch eine Art aus Java: *Hydromanicus dilatatus* n. sp. — Unter den von Nathan Banks beschriebenen indischen Arten („Notes on Indian Neuropteroid Insects.” Proc. Ent. Soc. Washing. 13. 1911, pp. 99—106. t. 6) befindet sich keine javanische.

Die folgenden Mitteilungen basieren auf Material, das Herr Edward Jacobson mir neuerdings zur Untersuchung sandte. Ausser neuen Arten und Metamorphose-Stadien (es sei besonders auf die Fangnetzgehäuse ¹⁾ hingewiesen) sind auch weitere Exemplare schon früher bekannter Arten in der Sammlung vorhanden: *Chimarra concolor* Ulm. (Gunung Ungaran, Oktob. und Dez. 1909, Gunung Gedeh, März 1911), *Tinodes flavopunctata* Ulm. (Semarang, Januar, Febr., März, Nov. 1910, Gunung Gedeh, März 1911), *Ecnomus obtusus* Ulm. (♀, Semarang, Oktob. 1910), *Hydro-*

1) Vgl. dazu die w. u. citierte Arbeit von Dr. Docters van Leeuwen.

psyche javanica Ulm. (Gunung Ungaran, Okt. 1910), *Hydromanicus flavoguttatus* Albda (Gunung Ungaran, Sept. 1910, Dez. 1909), *Hydromanicus fasciatus* Ulm. (Semarang, Dez. 1909), *Hydropsychodes lucida* Ulm. (Semarang, Juli 1910, Okt. 1909, Dez. 1910), *Hydropsychodes Kraepelini* Ulm. (Nongkodjadjar, Jan. 1911, Semarang, Okt. 1910), *Hydropsyche annulata* Ulm. (Magelang, Okt. 1909), *Amphipsyche proluta* Mc Lach. (Djocja, Febr. 1911), *Amphipsyche meridiana* Ulm. (Djocja, Febr. 1911), *Polymorphanisus nigricornis* Walk. (Djocja, Febr. 1911), *Setodes brunnea* Ulm. (Semarang, März, Dez. 1910), *Goera conclusa* Ulm. (Gunung Ungaran, Okt. 1910. — Die Exemplare befinden sich teils im Museum zu Leyden, teils in meiner Sammlung. — Von javanischen Material des Leydener Museums sah ich dann noch folgende, ebenfalls von E. Jacobson gesammelte Arten: *Dipseudopsis infuscata* Mc Lach. (Batavia, Januar und Febr. 1908), *Ecnomus obtusus* Ulm. (♀, Batavia, Febr. 1908), *Hydropsyche annulata* Ulm. (♀, Buitenzorg, Januar 1908), *Amphipsyche meridiana* Ulm. (Batavia, Nov. 1907).

I. Imagines.

Fam. RHYACOPHILIDAE.

1. *Agapetus abbreviatus* n. sp.

Von den andern Arten der Gattung durch die gestielte, also kürzere, Gabel 1 (im Vorderflügel) unterschieden.

Kopf gelb, die ganze Dorsalpartie aber dunkel, mit graugelben Haaren; Brust braun, Mesonotum an den Seiten gelb; Hinterleib oben schwärzlich, unter rötlichgrau, mit hellen Segmenträndern. Fühler im basalen Drittel gelblich, an den Enden aller Glieder dunkel, in den übrigen zwei Dritteln schwärzlich; Behaarung überall schwarz. Beine graugelb, Sporne schwarz; Tibie und Tarsen der Mittelbeine (♀) erweitert; Vordertibie ohne Sporne, Spornzahl also abweichend von den übrigen Arten 0, 4, 4, Membran der Flügel schwärzlichgrau; Behaarung der Vorderflügel goldig, gemischt mit dunkelbraun, so dafs auf helleren Grunde

einige dunklere Punkte sichtbar sind; diese letzteren besonders am Ende der Discoidalzelle und in den ersten Apicalzellen, am Pterostigma und am Arculus; Randwimpern lang, schwärzlich. Hinterflügel einfarbig dunkel. Im Vorderflügel (Fig. 1) ist die Gabel 1 gestielt, Gabel 3 und 4 sind sehr kurz, Gabel 2 und 5 sind sitzend. Der Hinterflügel (Fig. 1) ist zugespitzt, sehr schmal, Gabel 2, 3, 5 kurz. — ♀ mit Legeröhre, diese mit Cerci.

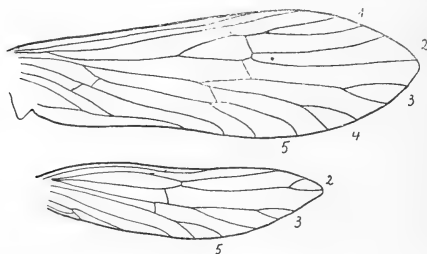


Fig. 1. *Agapetus abbreviatus*.

Körperlänge; 3 mm.; Länge der Vorderflügel: $3\frac{1}{2}$ mm.; Flügelspannung also ca. 7 mm..

Material: 2 ♀, N^o. 1700, Gunung Gede, März 1911, E. Jacobson leg.

Es ist dies dieselbe Art, die ich schon 1910 (Not. Leyden Mus. 32, p. 48) als *Agapetus* sp. nannte. Typ. Exemplare in meiner Sammlung und im Leidener Museum.

Fam. HYDROPTILIDAE.

Paduniella nov. gen.

Diese Gattung gehört zu den höher entwickelten Hydroptiliden, etwa in die Verwandtschaft von *Protoptila* Bks und *Mortoniella* Ulm.; besonders nahe scheint *Padunia* Martyn. zu stehen. Spornzahl 1, 4, 4; Sporne ungleich lang; die Subapicalsporne der Mitteltibie vor, die der Hintertibie hinter der Mitte stehend. Fühler mindestens $\frac{3}{4}$ so lang wie der Vorderflügel, dünn, mit länglichen Gliedern. Maxillar-

taster ♂ ♀ fünfgliedrig, die Glieder cylindrisch, länglich, ungefähr gleich, nur das erste etwas kürzer; Ocellen vorhanden. Dorsalfäche des Kopfes bei ♂ und ♀ nur mit kleinen Wärzchen. Vorderflügel (Fig. 2) lang und schmal,

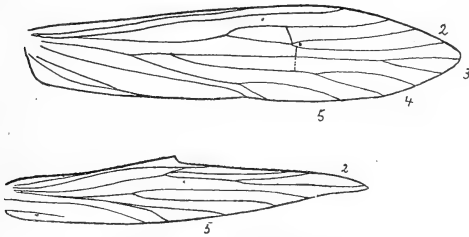


Fig. 2. *Paduniella semarangensis*, ♂.

am Apex stumpfspitzig, der Costalrand gerade, der Postcostalrand am Arculus etwas eingezogen; Gabel 2, 3, 4, 5 vorhanden, Gabel 2 sitzend; Discoidalzelle länglich, geschlossen. Hinterflügel (Fig. 2) sehr schmal und spitz, Costalrand in der Mitte mit scharfem Vorsprung, Gabel 2, 5 vorhanden. — Von *Padunia* Martyn. unterscheidet sich die neue Gattung hauptsächlich durch die Nervatur des Vorderflügels.

2. *Paduniella semarangensis* n. sp.

Kopf braun, Brust hellbraun, Hinterleib oben rötlichbraun, unten heller. Fühler schwärzlichgrau, mit breiten deutlichen gelben Ringeln an den Artikulationen; Taster grau, Beine gelblich, dunkel behaart; Behaarung auf Kopf und Brust graugelb. Membran der Flügel hellgrau; Vorderflügel mit graubrauner, bei gewisser Beleuchtung hellkupferig glänzender Behaarung und Bewimperung; Hinterflügel ähnlich behaart; die Randwimpern des Hinterflügels doppelt so lang wie die Flügelbreite. — Beim ♂ sind die Genitalanhänge (Fig. 3) ziemlich lang; das IX. Tergit bildet eine abgerundet dreieckige breite Platte, die in Lateralansicht (Fig. 3) als Vorsprung über den Appendices

praeanales erscheint; diese sind lang, bandförmig, am Ende abgerundet, bedornt, darunter erscheint ein Paar von S-



Fig. 3. *Paduniella semarangensis*, ♂, lateral.

förmig gebogenen Chitingräten und der cylindrische dicke Penis; die Genitalfüsse sind länger als die Appendices, in der basalen Hälfte dorsalwärts verbreitert, im übrigen eine etwa cylindrische, unter offene Röhre bildend.

Körperlänge: 1,8 mm.; Länge des Vorderflügels: 2,1 mm.; Flügelspannung also etwa 4,5 mm.

Material: 1 ♂, 3 ♀♀, ersteres und 1 ♀ in Alkohol; ♂ N^o. 3129, Semarang, Nov. 1910, die übrigen Semarang, Juli, August 1910, Okt. 1909. (N^o. 3100).

Typen befinden sich im Leidener Museum und in meiner Sammlung.

Fam. PHILOPOTAMIDAE.

Gunungiella nov. gen.

Durch das in beiden Flügeln stark reducierte Geäder von allen andern Gattungen der Familie sofort zu unterscheiden.

Spornzahl 2, 4, 4; Sporne der Vordertibie sehr kurz, die übrigen lang; Innensporne überall länger als Aussensporne; Subapicalsporne der Mitteltibie in deren Mitte, die der Hintertibie am Ende des zweiten Drittels stehend; Hintertibien lang behaart; Mitteltibien des ♀ nicht erweitert; Krallen des ♂ nicht grösser als beim ♀. Fühler kürzer als der Vorderflügel, dünn, die Glieder etwa $1\frac{1}{2}$ mal so lang wie breit. Maxillartaster lang; die beiden ersten Glieder sehr kurz, dicker als die folgenden; das zweite Glied innen mit starren Borsten; drittes Glied ausserordentlich lang (so lang, aber dünner, wie die Vorderschiene), gerade; viertes Glied nur so lang wie das zweite; fünftes Glied so lang wie das dritte, noch dünner, deutlich gegliedert. Labialtaster dünn, lang, die beiden ersten Glieder

gleich, das dritte so lang wie beide zusammen. Flügel dicht behaart. Vorderflügel (Fig. 4) schmal, lang eiförmig, mit geschlossener Discoidalzelle und Gabel 1, 2, 5; der Costalraum ist breit, die additionelle Costalquerader daher lang; sie liegt am Ende des ersten Flügeldrittels; Subcosta geschwungen; Discoidalzelle klein, dreieckig; Medianzelle viel länger, weiter basal reichend, Thyridiumzelle etwas kürzer als Medianzelle; die Basis der additionellen Costalquerader, die Teilung des Radius und die Abzweigung des Cubitus liegen auf gleicher Höhe; die drei ersten

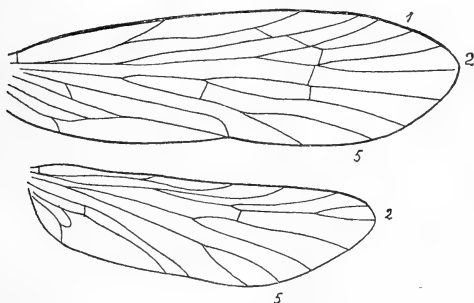


Fig. 4. *Gunungiella reducta* ♂.

Queradern der Anastomose nahe zusammen; Gabel 1 und 2 sitzend; Postcostalrand an der Einmündung der Analadern ausgeschnitten. Hinterflügel (Fig. 4) kürzer und schmaler als der Vorderflügel, mit offener Discoidalzelle und Gabel 2, 5; die Subcosta ist kurz, hinter ihrer Mitte ist sie durch eine kurze Querader mit der Costa verbunden; Radius geschwungen, in der Flügelmitte der ebenfalls gebogenen Subcosta sehr nahe; Sector Radii dem Radius sehr nahe, sein oberer Ast ungeteilt, Gabel 2 lang gestielt, ebenso Gabel 5; die Flügelpunkte sind weder im Vorder- noch im Hinterflügel deutlich erkennbar.

Genitalanhänge des ♂ kurz, Genitalfüsse plattenförmig. ♀ mit langer Legeröhre, diese mit 2 Cerci.

Notes from the Leyden Museum, Vol. XXXV.

3. *Gunungiella reducta* n. sp.

Kopf gelbbraun bis dunkelbraun, die hinteren grossen Kopfwarzen stets gelbbraun; Ocellen dunkel umgrenzt. Brust wie der Kopf gefärbt; Hinterleib dunkler; Behaarung auf Kopf und Brust mehr graubraun. Fühler, Taster und Beine etwas heller als der Kopf; die Mittel- und Hintertarsen dunkler; die Fühler undeutlich hell geringelt. Membran der Flügel graubraun bis braun, Behaarung und Bewimperung schwarzbraun; Adern dunkelbraun; im Vorderflügel die Queradern der Anastomose und der Thyridiumzelle hyalin. Nervatur siehe vorher und Fig. 4! Beim ♂ bilden die Genitalfüsse breite Platten, die an der Ventralseite einander nahe stehen und innen ausgehöhlt sind; die Appendices praeanales sind ziemlich breit, kurz, dreieckig ¹⁾).

Körperlänge: $3\frac{1}{2}$ mm.; Länge des Vorderflügels: $4-4\frac{1}{2}$ mm.; Flügelspannung also etwa $8\frac{1}{2}-9$ mm..

Material: 1 ♂, 2 ♀♀, Gunung Ungaran, Okt. und Dez. 1909.

Typen befinden sich im Leidener Museum und in meiner Sammlung.

*Fam. POLYCENTROPIDAE.**Pseudoneureclipsis* nov. gen.

Die Gattung unterscheidet sich von den bisher bekannten Polycentropiden-Gattungen schon durch das Fehlen von Gabel 5 im Vorderflügel; durch den Mangel der additionellen Costalquerader im Vorderflügel, besonders aber durch die im Hinterflügel vorhandene Gabel 3 zeigt sich die Verwandtschaft mit *Neureclipsis* Mc Lach.

Fühler etwas länger als der Vorderflügel, ziemlich dick.

1) Es ist mir nicht möglich, an dem einzigen ♂ die Genitalanhänge deutlich genug zu erkennen, um eine Figur geben zu können.

Maxillartaster mit 2 sehr kurzen Grundgliedern, drittes und viertes Glied länger, unter sich etwa gleich, fünftes Glied länger als die andern zusammen. Spornzahl 3, 4, 4. Mitteltibie des ♀ schwach erweitert. Flügel (Fig. 5) ziemlich schmal; Vorderflügel am Apex gerundet; Subcosta kurz, Radius lang; Discoidalzelle länglich, Medianzelle doppelt so gross, apical wie basal die Discoidalzelle überragend, Thyridiumzelle so lang wie die Discoidalzelle, etwas

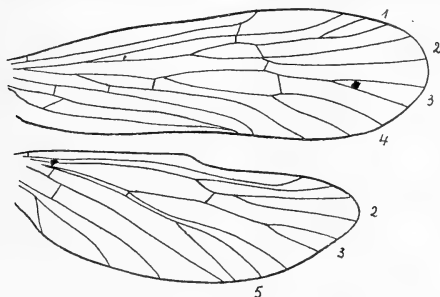


Fig. 5. *Pseudoneureclipsis ramosa*.

schmäler, die Medianzelle nicht erreichend; Gabel 1, 2, 3, 4 vorhanden, Cubitus also ungeteilt; Gabel 2 und 4 sitzend, 1 und 3 lang gestielt, Gabel 4 breit; additionelle Costalquerader fehlend. Im Hinterflügel, der etwas schmaler ist als der Vorderflügel, trägt der Costalrand in seiner Mitte einen deutlichen Vorsprung, die Discoidalzelle ist offen, Gabel 2, 3, 5 vorhanden, gestielt, keine geschlossene Medianzelle; unterer Ast der Media dem Cubitus sehr nahe. Flügel dicht behaart. Beim ♂ sind die grossen Genitalfüsse mit einem langen gebogenen Dorsalast ausgestattet, die Appendices praeanales klein, die Rückenschuppe des X. Segments sehr lang und schmal; ♀ nicht mit Legeröhre.

4. *Pseudoneureclipsis ramosa* n. sp.

Der ganze Körper braun, Kopf und Brust oben dunkelbraun, Hinterleib unten heller braun; Kopf und Brust

dicht mit grauweißen Haaren bedeckt, die auf den grossen hinteren Kopfwarzen besonders lang sind. Fühler gelb, an den Artikulationen undeutlich braun geringelt. Taster und Beine graugelb bis braungelb, die Taster hell behaart. Vorderflügel mit grauer Membran und sehr dichter dunkelbrauner Behaarung, in die vereinzelte goldgelbe Härchen eingestreut sind; Adern dunkelbraun, fein, durch die Behaarung fast verdeckt; Randwimpern tief dunkelbraun. Hinterflügel heller als die Vorderflügel, da die Behaarung sehr viel weniger dicht steht, irisierend, die Adern deutlich. Beim ♂ ist das IX. Tergit in der Mitte des Hinterandes schmal dreieckig vorgezogen (Fig. 6, dorsal, Fig. 7

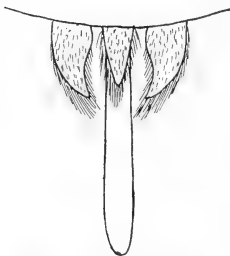


Fig. 6. *Pseudoneureclipsis ramosa*, ♂, dorsal.

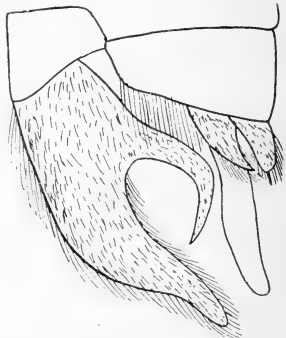


Fig. 7. *Pseudoneureclipsis ramosa*, ♂, lateral.

lateral); die Appendices praeanales sind sehr kurz, dreieckig, ihre Spitze ist nach innen und oben gekrümmt (Fig. 6, 7); die Rückenschuppe des X. Segments (Fig. 6, 7) ist sehr lang und schmal, gerade, am Ende abgerundet, in der Mitte wenig verdickt; der Penis ist dünn, cylindrisch; die Genitalfüsse (Fig. 7) sind mächtig entwickelt; sie ähneln durch ihren Dorsalast den Genitalfüssen der Bernstein-Art *Nyctiophylax hamatus* Ulm. (vgl. Ulmer, Die Trichopteren des baltischen Bernsteins. 1912. p. 146 f. 205); der Hauptteil der Genitalfüsse ist vor der Mitte

am breitesten, verschmälert sich distalwärts allmählich und ist dorsal gebogen; der Dorsalast ist hakenförmig, mit seiner scharfen Spitze nach dem Hauptteil hin gerichtet.

Körperlänge: $3\frac{1}{2}$ —4 mm.; Länge des Vorderflügels: 4—5 mm.; Flügelspannung also etwa $8\frac{1}{2}$ — $9\frac{1}{2}$ mm..

Material: 3 ♂♂, 1 ♀, Semarang, Okt. und Nov. 1909.

Typen befinden sich im Leidener Museum und in meiner Sammlung.

Fam. LEPTOCERIDAE.

5. *Setodes uncinata* n. sp.

Zur Verwandtschaft der *Setodes viridis* Fourc. gehörend.

Kopf weiss, mit weissen Härchen; Brust und Hinterleib bräunlichgelb, auf der Brust weisse Härchen. Fühler gelblich, weiss seidenschimmernd, mit sehr undeutlicher bräunlicher Ringelung an den Artikulationen; Taster weisslich, mit weisser Behaarung. Beine wie die Fühler gefärbt. Vorderflügel sehr lang und schmal, weiss mit eingestreuten zahlreichen gelben Haarpunkten und einem einzigen schwarzen Haarpunkt in der Mitte von Apicalzelle III (Flügelpunkt!); Adern kaum sichtbar; Randwimpern gelblich weiss oder grauweiss, am Arculus reiner weiss. Hinterflügel noch schmaler und spitzer als der Vorderflügel, Costalrand mit deutlichem Vorsprung, Apicalrand unter dem stark vorgezogenen Apex mit Ausbuchtung; weiss, mit weissen Adern und Randwimpern. Im Vorderflügel ist die Discoidalzelle sehr kurz, weit apical gestellt, die 3 Adern der Anastomose von einander entfernt, die zweite am weitesten basal; Apicalzelle IV lang gestielt, so dass die Zelle gegenüber dem Flügelpunkt der Zelle III beginnt; im Hinterflügel ist Gabel 1 sehr klein, über Gabel 5 keine additionelle Apicalader. — Die Appendices praeanales des ♂ (Fig. 8) sind grosse dreieckige Platten; die Rückenschuppe des X. Segments ist stark chitinisirt und in zwei Stücke gespalten; jede Hälfte besteht aus einem kurz hinter der Basis nach unten geknieten Chitinstabe, der einen noch längeren

chitinigen Anhang trägt; der Chitinstab ist bis zur Ursprungsstelle des Anhanges sehr kräftig, dort plötzlich

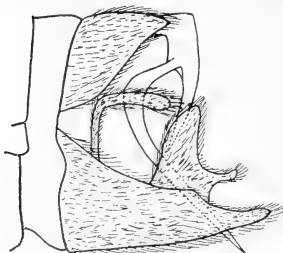


Fig. 8. *Setodes uncinata*, ♂, lateral.

verschmälert, gerade; der Anhang entspringt vor der Mitte des Chitinstabes an seiner oral-lateralen Fläche, ist zuerst oral gerichtet und dann im Bogen schräg nach unten und aboral gerichtet; die beiden Chitinstäbe der Rückenschuppe liegen mit ihren Enden von einander entfernt, während die Spitzen ihrer chitinigen

Anhänge zwischen den Genitalfüßen dicht nebeneinander liegen; die Genitalfüsse sind sehr kräftig; der Hauptteil ist innen ausgehöhlt, an seiner Basis sehr breit, distalwärts etwas verschmälert, das Ende an der Dorsalkante stärker concav und deshalb schmal; vor dem schmaleren Ende trägt der Genitalfuss einen breiten dorsal gerichteten Lappen, der in eine breitere dorsale und eine schmale aborale Zunge ausläuft; an der Basis des Genitalfusses ist an seiner Innenfläche noch ein dünner rechtwinklich gebogener Ast eingelenkt, dessen distale Hälfte aboral gerichtet ist.

Körperlänge: $4\frac{1}{2}$ mm.; Länge des Vorderflügels 5 mm.; Flügelspannung also etwa 11 mm..

Material: 1 ♂, N^o. 3096, Semarang, Juni 1910, befindet sich in meiner Sammlung.

Fam. SERICOSTOMATIDAE.

Dinarthropsis nov. gen.

Am nächsten verwandt mit *Dinarthodes* Ulm., davon unterschieden durch die offene Discoidalzelle im Hinterflügel und durch das kürzere erste Fühlerglied.

Spornzahl 2, 4, 4 (♂, ♀); Basalglied der Fühler bei ♂

Notes from the Leyden Museum, Vol. XXXV.

und ♀ etwa gleichlang, kürzer als der Mittelschenkel; beim ♀ normal, lang behaart, beim ♂ dicker, nahe der Basis mit 2 nach innen gerichteten starken Zähnen, die erst nach Entfernung von Haarschüppchen und längeren Borsten dorsal gut sichtbar sind; die folgenden Fühlerglieder sind an der Basis inner schmaler als am Apex, die Fühler sind dadurch deutlich gesägt. Maxillartaster des ♂ (Fig. 9) dreigliedrig, aus dünnen Gliedern bestehend, dicht mit z. T. verdickten Haaren und langen Borsten besetzt; die Maxillartaster sind dem Gesichte angelegt; das erste Glied ist das längste, nach aussen gebogen, das zweite das kürzeste, gerade, das dritte ist nach vorn und unten gerichtet, so dass es also vom Gesichte absteht; von unten sieht man meist nur das erste, bandförmige Glied, dessen lange aufgerichtete Behaarung alles andere verdeckt ¹⁾. Labialtaster zart, bei ♂ und ♀ gleich, die Glieder an Länge allmählich zunehmend. Maxillartaster des ♀ normal, das erste Glied am kürzesten, das zweite dem vierten gleich, das dritte länger als das zweite, das fünfte am längsten. Flügel (Fig. 10, 11) ziemlich breit, dicht behaart, beim ♂ auch beschuppt, am Apex schief abgestutzt-gerundet; Hinterflügel schmaler als der Vorderflügel. Vorderflügel in beiden Geschlechtern (Fig. 10, 11) mit etwas geschwungener Subcosta, geradem Radius und langer Discoidalzelle; Hinterflügel mit offener Discoidalzelle, beim ♂ (Fig. 10) mit Gabel 1, beim ♀ (Fig. 11) mit Gabel 1, 2, 5; alle Gabeln gestielt. Vorderflügel des ♂ (Fig. 10) mit Gabel 1, 2, 5; die anale Partie des Flügels (zwischen der sehr langen



Fig. 9. *Dinarthropsis picea*,
♂, lateral.

1) Die Figur 9 ist nach Material gezeichnet, das in Kalilauge gekocht wurde.

Thyridiumzelle und der in die Basis von Gabel 5 mündenden langen Analader) mit einer Schuppenfurche; von der

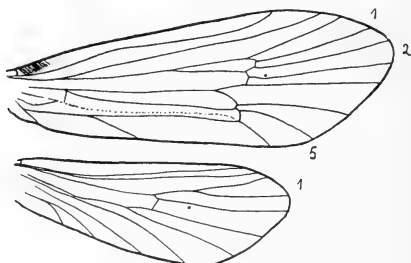


Fig. 10. *Dinarthropsis picea*, ♂.

langen Analader zweigt eine schiefe kurze Ader zum Postcostalrand ab; eine kurze Haartasche an der Flügelbasis

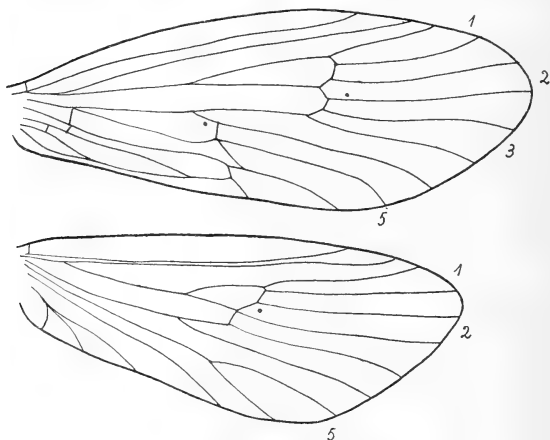


Fig. 11. *Dinarthropsis picea*, ♀.

im Costalraume. Vorderflügel des ♀ (Fig. 11) mit Gabel 1, 2, 3, 5; hinter Gabel 5 noch eine eckige, von den Analadern gebildete Zelle; Thyridiumzelle vor dem Apex

Notes from the Leyden Museum, Vol. XXXV.

am breitesten, beiderseits zugespitzt; Cubitalraum hinter der Mitte verengt, am Apex eckig erweitert; in beiden Geschlechtern sind sämtliche Apicalzellen des Vorderflügels sitzend. — Genitalfüsse des ♂ lang, ohne Endast, aber mit Basalast, X. Tergit zweiteilig, Penis mit 2 Chitingräten.

6. *Dinarthropsis picea* n. sp.

Kopf und Brust oben dunkelbraun, unten heller braun; Hinterleib oben grauschwarz bis schwarz, unten dunkelgrau; Behaarung auf Kopf und Brust schwarz, dicht. Das erste Fühlerglied schwarz, mit graugelben Borsten und schwarzen verdickten Haaren, die auf den Zähnen besonders lang und dicht stehen; die übrigen Fühlerglieder braunschwarz, gelb geringelt; die gelbe Ringelung ist an der Unterfläche der männlichen Fühler viel breiter als an der Oberfläche. Maxillartaster des ♂ aussen gelb, mit graugelben Borsten, innen dunkel; Maxillartaster des ♀ angedunkelt, mit dunkler Behaarung; Labialtaster bei ♂ und ♀ gelb. Beine graugelb oder braungelb, die Schienen und Tarsen geschwärzt, die Tarsen an den Artikulationen schmal gelb. Flügel schwarzbraun, mit dunkelgraubrauner, irisierender Membran, dicht schwarz behaart (beim ♂ auch beschuppt, besonders auf den Vorderflügeln); Adern (etwas verdeckt im Vorderflügel) und Randwimpern schwarzbraun. — Beim ♂ ist das X. Tergit in zwei laterale Abschnitte getrennt; jeder Abschnitt ist am Ende gabelförmig in zwei kurze Äste geteilt (Fig. 12,

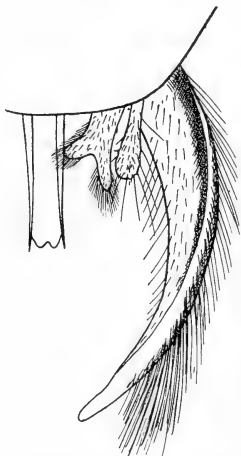


Fig. 12. *Dinarthropsis picea*,
♂, dorsal.

dorsal) und beborstet; lateral (Fig. 13) sieht man nur den äusseren Ast; der Penis ist cylindrisch, am Ende (dorsal, Fig. 12) ausgerandet und wird von zwei schwach lateral gebogenen Chitingräten begleitet (Fig. 12, 13); die Genitalfüsse sind sehr lang, weit vorgestreckt, nach innen (Fig. 12) und unten (Fig. 13) gebogen, stark beborstet, an der Basis mit schwach keulenförmigem kurzen, beborsteten Innenast, der dorsal gerichtet ist (Fig. 12, 13);

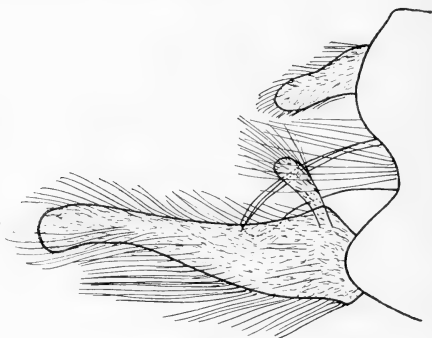


Fig. 13. *Dinarthropsis picea*, ♂, lateral.

dorsal (Fig. 12) erscheint das Ende der Genitalfüsse schmal, lateral (Fig. 13) breit abgerundet, vor dem Ende verschmälert; die Genitalfüsse sind innen ausgehöhlt (Fig. 12).

Körperlänge: 6 mm.; Länge des Vorderflügels: $8\frac{1}{2}$ —9 mm.; Flügelspannung also etwa 18—19 mm..

Material: 2 ♂♂, 2 ♀♀, Nos. 3079, 3080, 3085, 3086, Nongkodjadjar, Januar 1911.

Typen befinden sich im Leidener Museum und in meiner Sammlung.

7. *Acrunoecia brevior* n. sp.

Die Art stimmt zwar nicht mit allen Merkmalen der *Acrunoecia parvula* Mc Lach. überein, aber es scheint mir doch besser, den Gattungsbegriff etwas zu erweitern als

Notes from the Leyden Museum, Vol. XXXV.

immer und immer für jede neue Lepidostomatinen-Art auch eine neue Gattung aufzustellen. Ich gebe zunächst die abweichenden Merkmale: Fühler etwas kürzer als der Vorderflügel, das erste Glied cylindrisch, ohne Fortsätze, beim ♂ kaum so lang wie die Vorderschienen, beim ♀ etwas länger als diese, in beiden Geschlechtern mit abstehenden Haaren; Rest des Fühlers schwach gesägt. Maxillartaster zweigliedrig, das zweite Glied sehr kurz, beide

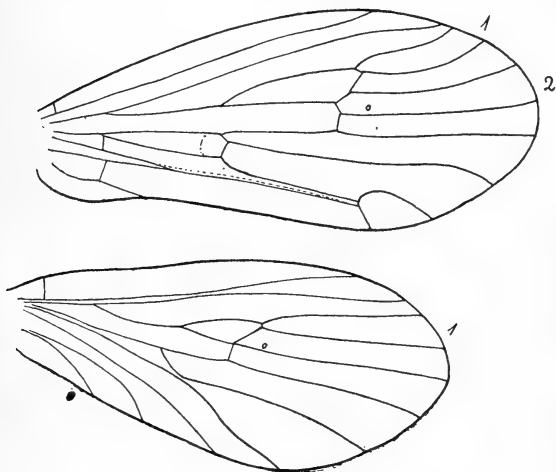


Fig. 14. *Acrunoecia brevior*, ♂.

mit langen Borsten besetzt. Flügel (Fig. 14, 15) viel breiter und kürzer, mit breiterer Discoidalzelle, die im Vorderflügel länger ist als ihr Stiel; Thyridiumzelle ebenfalls breit; am Ende der Thyridiumzelle eine rundliche „nackte Zelle“; Gabel 5 im Hinterflügel des ♀ gross.

Kopf und Brust oben dunkelbraun, mit braunen Haaren; Unterfläche des Körpers hellbraun bis rötlich; Oberfläche des Hinterleibes schwärzlich. Fühler gelb, an den verdickten Glieder-Enden dunkler geringelt, erstes Glied gelbbraun oder graubraun, mit braunen Haaren. Maxillartaster

des ♂ graubraun, mit schwärzlichen Borsten, des ♀ ebenfalls graubraun mit braunen Härchen; Labialtaster gelb-

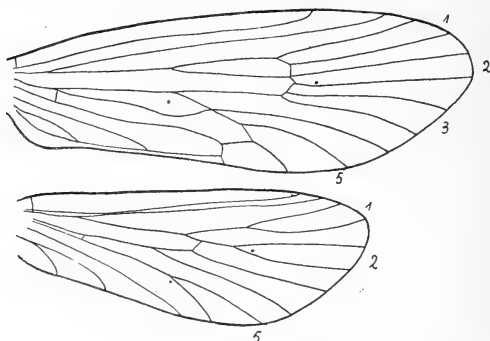


Fig. 15. *Acrunoecia brevior*, ♀.

braun. Beine dunkelgelb oder graugelb, Hüften dunkler. Flügel mit graubrauner Membran, dunkel, irisierend; Vor-

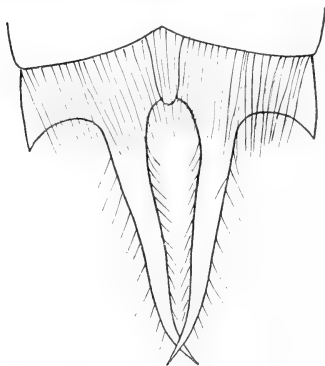


Fig. 16. *Acrunoecia brevior*, ♂, dorsal.

derflügel des ♂ dicht mit bräunlichen (gelbbraunen) Schüppchen besetzt, die des ♀ gelbbraun behaart; Hinterflügel des ♂ weniger beschuppt als der Vorderflügel, der des ♀ behaart. Adern dunkelbraun, beim ♂ nicht so deutlich wie beim ♀ (das auf den Flügeln wohl abgerieben ist); Furche im Vorderflügel des ♂ mit langen postcostalwärts

gelegten Haaren. — Beim ♂ sind die Genitalanhänge dunkelgelb; das IX. Tergit ist in der Mitte des Hinterandes schmal dreieckig vorgezogen (Fig. 16, 17); die

Rückenschuppe des X. Segments ist in zwei starke, lange, spitze Chitinstäbe gespalten, deren Enden sich kreuzen

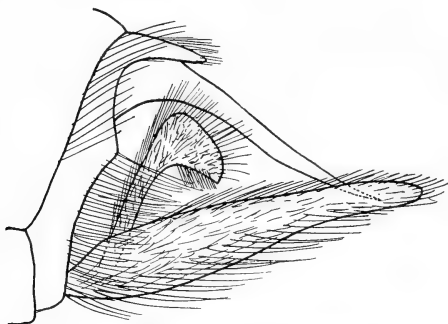


Fig. 17. *Acrunoecia brevior*, ♂, lateral.

(Fig. 17, lateral, Fig. 16, dorsal); die Genitalfüsse sind kräftig, zweigliedrig; lateral (Fig. 17) erscheinen sie etwa stumpf lanzettförmig und zeigen dann ihren grossen inneren Basalast; dieser ist schmal, trägt aber an seinem Ende eine breite, stumpf dreieckige, aboral gerichtete Erweiterung mit langen Borsten; ventral (Fig. 18) sieht man die Grenze zwischen den zwei Gliedern der Genitalfüsse deutlich; das Basalglied ist viel breiter als das Endglied und seine distale Innenecke ist deutlich in einen lang behaarten Vorsprung ausgezogen; das Endglied ist schmal, vor dem schief abgestutzten Ende einen starken inneren Vorsprung tragend; in dieser Ansicht sind die Genitalfüsse also geweihförmig (mit 3 Sprossen); schmale stäbchenförmige Basalanhänge sind bei dieser Art ganz ähnlich wie bei

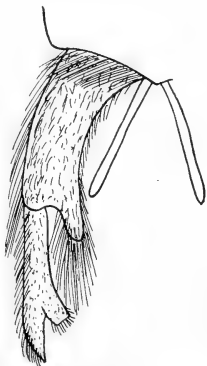


Fig. 18. *Acrunoecia brevior*, ♂, ventral.

Crunoeciella Sjoestedti Ulm. vorhanden (vgl. Ulmer, in Deutsche Zentralafrika-Expedition. IV. 1912. p. 114, f. 42).

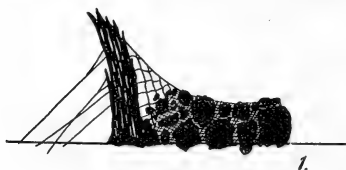
Körperlänge: $5\frac{1}{2}$ mm.; Länge des Vorderflügels: 8 mm.; Flügelspannung also etwa 17 mm.

Typ. Material, 1 ♂, 1 ♀, Nos. 3067, 3139, Nongkodjadjar, Januar 1911, befindet sich in meiner Sammlung.

II. Larven und Puppen.

Fam. HYDROPSYCHIDAE.

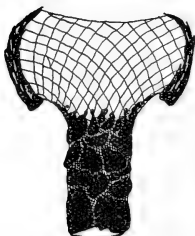
Unter Nos. 1438 und 1439 sandte Herr Jacobson mir



1.



2.



3.

Fig. 19. Fangnetz von *Hydropsyche* sp.

seiner Arbeit „Biologische Studien über netzspinnende

einige interessante Larvengehäuse, die er Dez. 1909 in dem Flussbette des Kali Pangus (im Gunung Ungaran) entdeckte. Wenn

man die Fig. 19¹⁾ betrachtet, so wird man sofort an die Fangnetzgehäuse

aus Brasilien (Fr. Müller 1881), Nord-

Amerika (Clarke 1882, Howard 1886, Sharp 1895), China

(Field 1887) und Dänemark (E. Petersen 1908, Ussing

1909, Wesenberg-Lund 1911) erinnert, über die We-

senberg-Lund in

1) Diese 3 Figuren entstammen der Arbeit von Dr. Docters van Leeuwen „Uit het oerwoud van Java. Over een kokerjufferlarve, die een fuikje maakt.“ (De levende Natuur. XV. 1. Januar 1911. pp. 334—338. Amsterdam); Herrn Jacobson verdanke ich diese Schrift und das Cliché.

Trichopterenlarven" (Internat. Revue ges. Hydrobiol. Hydrogr., Biolog. Suppl. III. Serie 1911. pp. 1—64, t. 1—6) kürzlich zusammenfassend berichtete. Die javanischen Fangnetzgehäuse bestehen wie alle die genannten aus zwei Teilen, dem eigentlichen Aufenthaltsorte der Larve und dem Fangnetze; das eigentliche Gehäuse ist röhrenförmig, an der Unterfläche, wo es dem Substrate aufliegt, flach, aus Steinchen, Rindenstückchen und andern Pflanzenteilen erbaut; das Fangnetz ist zwischen zwei bogenförmigen Stützen aus länglichen Pflanzenteilen (Stengelchen, Wurzelstückchen etc.) ausgespannt; das Netz verengert sich nach dem Wohnraume hin trichterförmig und besteht aus sehr starken Gespinstfäden, die viereckige Maschen bilden. Alle Gehäuse befanden sich unter dem Wasserspiegel, meist auf grösseren Steinen, nur einmal fand Herr Jacobson drei Gehäuse, die auf den Blättern eines mit seinem Ende ins Wasser tauchenden Zweiges angebracht waren; diese letzteren 3 Gehäuse sind ganz und gar aus Pflanzenteilen hergestellt, gleichen in der Form aber völlig den auf Steinen erbauten. Alle Gehäuse waren mit ihrer Mündung gegen den Strom gerichtet; das fließende Wasser strömt also in den weit offenen Trichter hinein und wird durch die Maschen des Netzes filtriert; was sich an Genießbarem fängt, wird von der in der Röhre lauernden Larve verzehrt. Das Fangnetz ist so dauerhaft gewebt, dass es auch nach dem Trocknen noch völlig seine Gestalt, bewahrt, wie das an meinen Exemplaren zu erkennen ist; an diesen sieht man auch noch die kräftigen Halteseile, welche die bogenförmigen Stützen des Fangnetzes mit der Unterlage verbinden und so ein etwa durch die Gewalt der Strömung mögliches Umklappen des Netzes verhindern (Fig. 19, N^{os}. 1, 2). Als Erbauer der Fangnetzgehäuse erhielt ich sub N^o. 1448 2 Larven, eine grössere und eine kleinere, die sich nicht von unseren europäischen *Hydropsyche*-Larven unterscheiden; sie gehören höchstwahrscheinlich auch zu dieser Gattung (oder zu dem nahe verwandten *Hydromanicus*), was um so sicherer scheint, als ja gerade von *Hydropsyche*-Arten ganz ähnliche Fang-

netze bekannt geworden sind (vgl. vorher!); die Unterfamilie *Macronematinae* kann nicht in Betracht kommen.

Einer besonderen Erwähnung wert ist ein Fanggehäuse, das in einem breiten Spalt eines Steines angebracht ist; es hat dieselbe Form wie die vorher beschriebenen, entbehrt aber völlig der eingewebten Stützen für das Netzwerk; vielmehr sind die Fäden von einer Seite des Spaltes zur anderen hinübergespannt und durch die Spaltwände, die etwa senkrecht auf einander stehen, gestützt; der Wohnraum der Larve besteht teils aus vegetabilischen Stoffen, teils aber aus kleinen Gesteinstrümmern. Drei dazu gehörige Larven enthielt ich als N^o. 1760. (Nongkodjadjar, Januar 1911). Auch sie entsprechen völlig unsern einheimischen *Hydropsyche*-Larven; merkwürdig jedoch ist, dass das dunkle Haarbüschel am Ende des Klauengliedes der Nachschieber (Fig. 20 a) zu einem einheitlichen schwarzen, etwas geschwungenen Stäbchen verklebt ist; erst durch Kochen mit Kalilauge löst sich dies Stäbchen

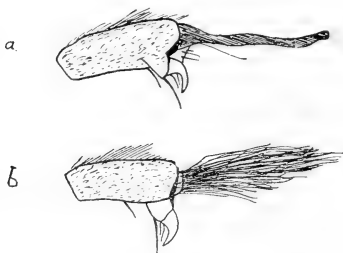


Fig. 20. *Hydropsyche* sp.

in seine Bestandteile, jene zahlreichen Haare (Fig. 20 b), auf. Vorläufig ist nicht festzustellen, ob bei diesen Larven die Haarbüschel rein zufällig verklebt sind oder ob vielleicht diese Verklebung und Ausbil-

dung eines langen spornartigen Hornes eine biologische Bedeutung hat. Unter weiteren 6 *Hydropsyche*-Larven (N^o. 1447, Gunung Ungaran, Dez. 1909) sehe ich noch eine mit gleicher Eigentümlichkeit, während die übrigen 5 normale Haarbüschel aufweisen. Herr Jacobson schreibt mir über diese 6 Larven (N^o. 1447), dass sie sich zahlreich auf dem Boden des Baches unter den Steinen aufhielten, ganz ohne Gehäuse. — Eine männliche, aber noch nicht

ausgefärbte Puppe von *Hydropsyche* liegt noch vor unter N^o. 2106 (Nongkodjadjar, Januar 1911) und unter N^o. 1444 ein leeres Steingehäuse einer Hydropsychidenpuppe (wahrscheinlich auch *Hydropsyche*) vom Gunung Ungaran, Dez. 1909.

Fam. LEPTOCERIDAE.

Eine Larve, eine Puppe und drei Gehäuse sammelte E. Jacobson im Dez. 1909 im Kali Pangus, Gunung Ungaran (N^o. 1442). Die Puppe, die 5 mm. lang und sehr robust gebaut ist, wird besonders durch die beiden schwarzbraunen, langen dornartig spitzen, an der Dorsalfäche des Hinterleibsendes inserierten, schwach ventral gebogenen, dicht nebeneinander liegenden Analstäbchen charakterisiert. Das Gehäuse ist fast 7 mm. lang, fast 3 mm. breit am Vorderende, aus Sandkörnchen gebaut, mit größeren Sandkörnchen beklebt, so dass die Röhre rauh erscheint; das Hinterende bedeutend schmaler, die Dorsalfäche gewölbt, die Ventralfläche flach, im ganzen etwas gekrümmt; das Gehäuse erinnert in seiner Bauart an *Leptocerus annulicornis* Steph.; das Vorderende des Gehäuses ist durch eine Membran mit centralem runden Loch, das Hinterende durch eine Membran mit breitelliptischen Loch verschlossen, das dorsal liegt. Die Larve (Länge 5½ mm.) hatte sich schon zur Verpuppung vorbereitet, ihr Gehäuse schon geschlossen und war in der Verwandlung begriffen; so sieht man schon die Analstäbchen der künftigen Puppe durch die Haut hindurch; die Beine sind schwarz, der Kopf ist braun, das Pronotum hellbraun; merkwürdig ist, dass die gewöhnlichen lateralen Nachschieber fehlen; das Hinterleibsende ist vielmehr in zwei starke konische Zipfel¹⁾ gespalten; diese sind am Ende schwarz, stark chitiniert, nach innen in kurze Haken umgebogen und dort mit einigen starken Borsten besetzt. Es ist mir von keiner Larve Ähnliches bekannt.

1) In diese Zipfel ragen die vorher genannten Chitinstäbe der Puppe hinein.

Zu welcher Art das Material gehört, ist nicht festzustellen; vielleicht könnte es sich um *Setodes brunnea* Ulm. handeln; doch sah ich noch keine Imago dieser Art vom Gunung Ungaran.

Fam. SERICOSTOMATIDAE.

Subfam. *Lepidostomatinae* (gen. spec.).

Zahlreiche, meist jugendliche Larven (N^o. 3128) vom Gunung Ungaran, die E. Jacobson im Sept. 1910 sammelte, lassen nur die Subfamilie erkennen, nicht aber Gattung und Art; ihre Organisation bietet nichts Besonderes. Die Gehäuse bilden gerade Röhren, die anfangs konisch-cylindrisch aus Sandkörnern, später aus braunen Pflanzenstoffen vierseitig gebaut werden, wie das auch für andere Arten der Subfam. zutrifft.

Subfam. *Goerinae*.

Goera conclusa Ulm.

Im Oktober 1910 fanden Edw. Jacobson und Dr. van Leeuwen am Gunung Ungaran 2 ♀ ♀ (N^{os}. 3070, resp. 1941) von *Goera conclusa* Ulm.; im Dez. 1909 hatte ersterer dort schon Goerinen-Larven im Kali Pangus, einem Gebirgsbach, dessen Bett mit Geröll bedeckt ist, aufgefunden; und gleichzeitig mit der weiblichen Imago erbeutete Dr. van Leeuwen auch einige Goerinen-Puppen (N^o. 1941). Ohne Zweifel gehören diese Jugendstadien wirklich der genannten Art an. — Larven, Puppen und Gehäuse ähneln so sehr denen der europäischen *Goera pilosa* Fabr., dass eine eingehende Beschreibung unnötig ist. Die vorliegenden Larven sind etwa 9^{mm}. lang; der Kopf ist dunkelbraun, nach hinten etwas heller; Pronotum von gelber Grundfarbe, nur in der hinteren Hälfte durch zahlreiche dunkelgraubraune Punkte dunkel erscheinend; Schildchen des Mesonotum (2 Paare) ebenfalls von gelber Grundfarbe, die aber durch die zahlreichen dunklen, z. T. verwaschenen

Punkte fast gänzlich verdeckt ist; die hintere Partie des seitlichen Schildchens schwarz gesäumt; die 3 Paar kleinen Schildchen des Metanotum ganz dunkel; Seitenlinie des Hinterleibs auf dem III. Segment beginnend und auf dem VIII. allmählich verschwindend. — Die Puppe (♀) ist etwa 8 mm. lang; nach einer leeren Puppenhaut, die ich als mikroskopisches Präparat bearbeitete, lässt sich feststellen, dass die Analstäbchen an der Innenseite ihres umgebogenen Endes eine Reihe von kleinen Stacheln (etwa 6) aufweisen, die am Ende selbst am dichtesten stehen. — Die Gehäuse sind ca. 7—8 mm. lang, etwa 4—6 mm. breit; die der inneren Sandröhre seitlich angefügten Steinchen, durch welche das Gehäuse geflügelt erscheint, sind also nicht gross und entsprechen denen unserer *Silo*-Arten.

Hamburg, 6. August 1912.

NOTE V.

EPHEMERIDEN AUS JAVA, GESAMMELT VON
EDW. JACOBSON

VON

GEORG ULMER,
Hamburg.

(Mit 17 Figuren im Text).

Aus Java waren bisher 8 Arten bekannt, nämlich *Palingenia javanica* Etn., *Palingenia tenera* Etn., *Rhoënanthus speciosus* Etn., *Thalerospkyrus determinatus* Walk. (alle durch Eaton, Rev. Monogr. Ephemeridae, genannt), *Compso-neuria spectabilis* Etn., *Caenis nigropunctata* Klap., *Pseudocloëon Kraepelini* Klap. und *Cloëon virens* Klap. (von Klapálek, Mitt. Naturh. Mus. Hamburg. 22. 1905, aufgeführt).

Die Sammlung Jacobson, die teils in meinem Besitz, teils in dem des Museums zu Leyden ist, fügt weitere 9 Arten, darunter 5 neue, hinzu. Wertvoll sind (ausser der Bereicherung der Liste) auch vor allem die biologischen Beobachtungen, die Herr Jacobson mir freundlichst mitteilte und die weiter unten wiedergegeben werden. — Das Material ist, wenn nicht anders angegeben, in Spiritus konserviert.

*Fam. POLYMITARCIDAE.*1. *Polymitarcys indicus* Pict.

Von dieser Art ist nur die Subimago (getrocknet) bekannt; auch ich habe nur diese Form (fast alle in Alkohol).

Notes from the Leyden Museum, Vol. XXXV.

Im allgemeinen stimmt die Färbung mit der Beschreibung überein, die Schwanzborsten sind aber nicht ockergelb, sondern weisslich; mittlere Schwanzborste kürzer als die seitlichen. Fig. 1 gibt die Analpartie eines Vorderflügels.

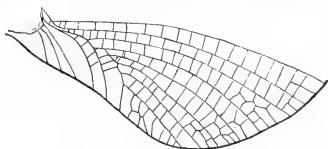


Fig. 1. Polymitarceys indicus Pict.

Körperlänge: 14 mm.; Länge des Vorderflügels: 15 mm.; Länge der seitlichen Schwanzborsten: 15—16 mm.; der mittleren: 10 mm.

Material: 8 Subimagines (♀♀), Semarang, April 1910, N^o. 3138; Juni 1910, N^o. 1679; Juli 1910, N^o. 1851; Sept. 1910, N^o. 2186. (in Alkohol); 1 ♀, Semarang, Juli 1910, N^o. 3124 (trocken).

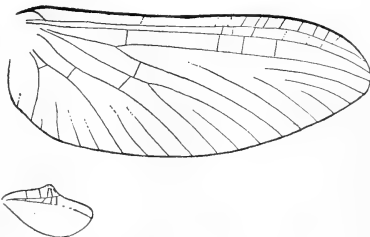
Fam. LEPTOPHLEBIIDAE.

2. *Thraulius marginatus* n. sp.

Die Art, die bei flüchtiger Betrachtung (von Alkohol-Material) etwa einem *Cloëon marginale* Hag. (♀) ähnlich sieht, unterscheidet sich von den bisher

bekannten Arten der Gattung *Thraulius* besonders durch

die geringe Entwicklung der Queradern im Vorderflügel (Fig. 2) und die schwache Ausbildung der hinter

Fig. 2. *Thraulius marginatus* n. sp.

dem Radius gelegenen Adern im Hinterflügel (Fig. 2 und 3); *Cl. marginale* ist im ganzen viel heller gefärbt.

♂: Kopf und Brust braunschwarz; Hinterleib gelb, doch wird die helle Grundfarbe auf der Dorsalfäche durch ausgedehnte schwärzliche Fleckenzeichnung stark verdeckt;

Hinterrandsaum aller Segmente schwärzlich; Schwanzborsten (3) an der Basis (etwa die 10 ersten Glieder) graugelb mit schmaler schwarzer Ringelung, die folgenden Glieder

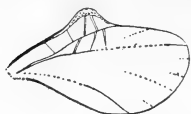


Fig. 3. *Thraulius marginatus* n. sp.

gelb, der Rest (etwa die Hälfte der Borsten) weisslich, ungeringelt. Vorderflügel hyalin, sehr schwach bräunlich, Costal- und Subcostalraum dunkelbraun bis schwarzbraun, die basale Hälfte des ersteren heller. Hinterflügel hyalin; Adern des Vorderflügels und

vom Hinterflügel die Costa und Subcosta dunkelbraun. Im Vorderflügel (Fig. 2) findet sich im Costalraum nur eine undeutliche Querader vor der Bulla, hinter derselben zwei undeutliche und 7 bis 8 deutliche; der Subcostalraum zeigt in der apicalen Region drei deutliche und drei undeutliche Queradern; der Radialraum hat 4 Queradern, und im übrigen sind nur noch 4 weitere Queradern vorhanden, je eine in den Zwischenräumen vom Subradialraum an; die Zwischenraumadern zwischen den Ästen des Sector

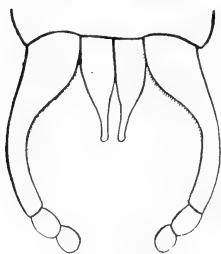


Fig. 4. *Thraulius marginatus* n. sp.

radii und der Media, wie in den folgenden Zwischenräumen sind unverbunden; Media gegabelt, Cubitus ungegabelt. Der Hinterflügel (Fig. 2 und 3) hat nur die Costa und Subcosta gut ausgebildet, der Radius ist in seiner Mitte schon undeutlich und ebenso auch die einzige Analader; undeutliche (4) Längsadern finden sich am Rande angedeutet zwischen Radius und Analader; der Costalraum

enthält 4, der Subcostalraum drei starke Queradern; sonst sind keine vorhanden. Vorderbeine dunkelbraun, nur die Tarsen hellgelb, Mittel- und Hinterbeine hellgelb, die Schenkel in ihrer distalen Hälfte oder wenigstens am Apex dunkelbraun. Die Genitalanhänge (Fig. 4) sind dunkelgrau-braun; die beiden letzten Glieder der Genitalfüsse sind sehr kurz, das letzte am kürzesten, stumpf abgerundet; das erste

Glied ist lang, gebogen; Penishälften vor dem etwas knopfartig abgesetzten Ende an der Aussenkante schwach eingekerbt.

Körperlänge 5 mm; Länge des Vorderflügels: 4—4½ mm.; Länge der Schwanzborsten: 10½ mm.

Material: 4 ♂♂, Mula (Gunung Sewu), Febr. 1911, N^o. 2199; ferner 2 ♂♂, Semarang, im Leidener Museum und in meiner Sammlung.

3. *Thraululus exiguus* Etn.

Material: 1 ♂, Semarang, in meiner Sammlung.

Das Tierchen stimmt gut mit Eatons Beschreibung und Abbildung (Rev. Monogr. p. 108, t. 13, f. 20*².) überein; die Type konnte im Museum zu Leyden nicht aufgefunden werden.

Fam. CAENIDAE.

4. *Tricorythus Jacobsoni* n. sp.

♂: Kopf und Pronotum schwärzlich, Mesonotum gelbbraun, die Mitte und die Nähte dunkler, Metanotum und die ganze Unterfläche der Brust gelbbraunlich; Abdomen hellgrau, mit breiten schwärzlichen Hinterrandsäumen auf dem Rücken der Segmente, Seitenlinie ebenfalls schwärzlich. Schwanzborsten (3) hellgrau, an den Artikulationen schwärzlich geringelt; von jedem dunklen Artikulationsring, der an den basalen Segmenten nicht völlig geschlossen ist, gehen zwei feine schwärzliche Seitenstreifen distalwärts; die beiden letzten Drittel der Schwanzborsten zeigen Ringelung und Seitenstreifen weniger deutlich, sie sind auf dem basalen Teile jedes Segments im ganzen dunkler als auf dem apicalen Teile; Schwanzborsten etwa 3 mal so lang wie der Körper. Beine dunkelgrau, mit noch dunkleren Schenkeln. Flügel matt, dunkelgrau, im Costalraume schwärzlichgrau, mit schwärzlichgrauen Adern; der Costalraum (Fig. 5) hat nur undeutliche Adern; die Nervatur entspricht in der Hauptsache völlig dem von Eaton (Monogr.

t. 15, f. 25) abgebildeten Flügel der „malayischen Art“

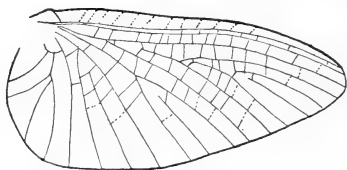


Fig. 5. *Tricorythus Jacobsoni* n. sp.

(*Tricorythus* sp. Eaton). Die Genitalfüsse des ♂ schwärzlichgrau, an der Basis ziemlich breit, anscheinend zweigliedrig; das Abdominalende in einem Zapfen ausgezogen (Fig. 6, Blick auf das Genitalsegment von unten her).

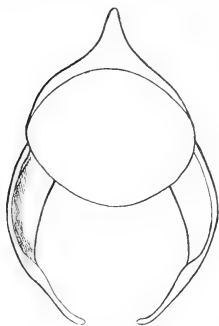


Fig. 6. *Tricorythus Jacobsoni* n. sp.

Körperlänge: fast 5 mm.; Länge des Flügels: fast 6 mm.; Länge der Schwanzborsten: 14—15 mm.

Typ. Material, 1 ♂, Wonosobo, Mai 1909, befindet sich in meiner Sammlung.

N.B. Wahrscheinlich gehören ein grösseres ♂ und auch 2 weibliche Subimagines desselben Fundortes auch hierher; das ♂ zeigt die Genitalfüsse deutlich schmaler, zweigliedrig, den zapfenartigen Fortsatz viel länger und schlanker. — Auch einige, nur „Jacobson leg.“ bezeichnete Subimagines gehören hierher. Diese Exemplare befinden sich im Leidener Museum.

5. *Caenis nigropunctata* Klap.

Material: Mehrere ♀♀ (meist mit Eiern) und 1 ♂: Wonosobo, Mai 1909, N^o. 1198; Semarang, N^o. 1540, 1541, Febr. 1910; Semarang, N^o. 3136, Aug. 1910.

Über die Laich-Ablage und die Eier von *Caenis* teilte mir Herr Jacobson folgende interessante Einzelheiten mit:

Notes from the Leyden Museum, Vol. XXXV.

„Bei den reifen ♀♀ ist das Abdomen ganz mit Eiern gefüllt. Schon die Berührung mit der geringsten Spur von Wasser ¹⁾ veranlasst die ♀♀, die Eier abzulegen und zwar alle zugleich; die Eier werden dann in einem Klumpen plötzlich herausgedrückt. Auch wenn man die Tierchen in einem trockenen Glasbehälter verwahrt, treten die Eier nach etwa einer Viertelstunde aus; mechanische Eingriffe bewirken dasselbe; trennt man einem ♀ mit einem scharfen Messer den Kopf vom Rumpfe, so werden in demselben Augenblicke die Eier hervorgeschnellt. Als ich eines Abends bei der Lampe unter dem Mikroskop Infusorien untersuchte, flog zufällig eines dieser Ephemeriden-♀ auf den Objectträger und erschien im Sehfelde. Bei Berührung des Wassertropfens traten die Eier mit einem Ruck aus dem Abdomen hervor und zerstreuten sich im Wassertropfen. Die Eier waren von etwas länglicher Form, und an beiden Polen waren Ringe aufgelegt (vgl. Fig. 7a). Zu meinem

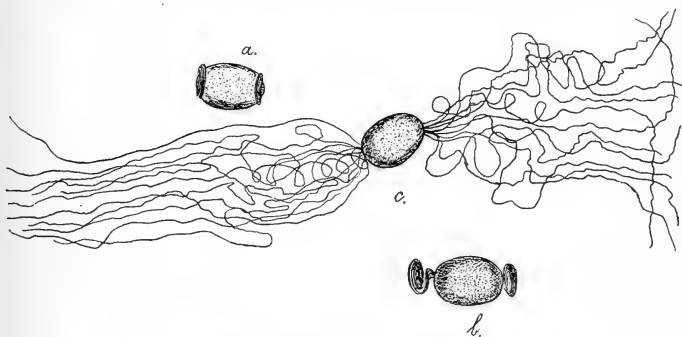


Fig. 7. *Caenis nigropunctata* Klap.

grossen Erstaunen lösten diese Ringe sich nach einigen Minuten von den Polen los und wickelten sich spiralgig zu einem ungemein feinen Faden von grosser Länge ab. Nach völliger Abwicklung trug also jedes Ei an beiden Polen

1) Die Eiablage tritt schon ein, wenn sich in dem Glasbehälter, in dem man die Tiere hält, etwas Wasserdampf kondensiert hat.

einen langen dünnen Faden. Die Fäden der einzelnen Eier verwickeln sich leicht mit einander und bilden dann ein unentwirrbares Ganzes. Werden die Eier nicht in Wasser, sondern sofort in Alkohol gebracht, so wickeln sich die Ringe nicht ab. Ich glaube unter dem Mikroskop gesehen zu haben, dass jeder Pol eines Eies nicht nur einen einzigen Faden trägt, sondern eine ganze Anzahl. Die langen Fäden schlingen sich (wahrscheinlich) um Wasserpflanzen oder andere Gegenstände im Wasser und verhindern so das Wegschwemmen der Eier." Soweit Herr Jacobson.

Schon 1896 hat Richard Heymons (Grundzüge der Entwicklung und des Körperbaues von Odonaten und Ephemeriden. — Anhang z. d. Abhandl. Kön. Preuss. Akad. Wiss. Berlin, 1896, p. 6) die Haftfäden der *Caenis*-Eier beschrieben: „Von der Peripherie der einzelnen Eier, an deren Oberfläche eine regelmässige durch sechseckige Felderchen bedingte Skulptur sichtbar ist, gehen zahlreiche feine Fädchen aus, die das Ei umspinnen, sich mit den Fädchen benachbarter Eier mannigfach durchkreuzen und durchflechten und schliesslich mit einer feinen knopfartigen Verdickung frei endigen. Die von einem Weibchen abgelegten Eier bleiben auf diese Weise alle mit einander in Zusammenhang: in einer geradezu unentwirrbaren Masse zahlloser weisslicher Fäden, die eine ziemlich derbe Consistenz besitzen, sind die kleinen dunkelbraunen Eier eingebettet."

Das Material, das Herr Jacobson mir sandte (N^o. 1198, Imagines und Eier, letztere z. T. gleich in Alkohol gesetzt, z. T. erst in Wasser und danach in Alkohol übertragen; Wonosobo, Mai 1909, N^o. 1540, Imago mit Eiern, deren Fangfäden durch Liegen im Wasser abgerollt sind; Semarang, Febr. 1910, N^o. 1541, Imagines mit Eiern, gleich in Alkohol übertragen; Semarang, Febr. 1910) zeigt in dem Eiklumpen ein solches Gewirr von Fäden, dass es mir unmöglich ist, ihre Länge und Zahl (für das einzelne Ei) festzustellen. Soviel sehe ich aber sicher, dass die Fadenbündel nur an den beiden Polen entspringen ¹⁾. Wie es

1) Wenigstens bei dieser Art aus Java.

scheint, wickelt sich das Fadenbündel zunächst als ein einziger Strang ab und löst sich erst später in zahlreiche Einzelfäden auf (Fig. 7b, c). Die Beobachtung von Haftfäden an Ephemeriden-Eiern steht insofern nicht vereinzelt da, als schon 1868 Grenacher in der Ztschr. f. wiss. Zool. XVIII. p. 95, t. 5 (Beiträge zur Kenntnis des Eies der Ephemeriden) aus dem Main bei Würzburg Eier mit ankerartigen Gebilden bekannt gab (die nach Pictet's Werk zur Gattung „*Ephemera* s. str.” gehörten). Von diesen ankerartigen Gebilden besaß jedes Ei 8 bis 12 Stück und jedes Organ bestand aus 8 bis 10 unmessbar feinen Fäden, die eine Schnur von 4 bis 6 facher Länge des Eies bildeten und gemeinsam mit einer Kugel endigten. Auch für diese Haftorgane wird als „Zweck” bezeichnet, „die Eier dem Einfluss der Strömung zu entziehen.” Palmén (Über paarige Ausführungsgänge der Geschlechtsorgane bei Insekten. Helsingfors 1884. p. 66), der die gleichen Eier wie Grenacher untersuchte, bestätigte dessen Befund, und bestimmte die fragliche Art als *Potamanthus luteus* L. Grenacher (l. c.) und besonders auch Palmén (l. c. pp. 65, 66) berichtigten ferner die Angabe Leuckarts (Über die Mikropyle und den feineren Bau der Schalenhaut bei den Insekteneiern. Müllers Arch. f. Anat. und Physiol. 1855, pp. 201—203), der bei zwei *Caenis*-Arten, bei *Polymitaercys virgo* und *Heptagenia venosa* halbkugelförmige oder mützenartige Aufsätze resp. eine Menge lockerer Stränge auffand und diese Gebilde für beisammenliegende Samenfäden ansah. Es handelt sich (nach Palmén) vielmehr bei allen diesen um Chorionanhänge, die schon im Eirohre entstehen. Auch Burmeister (Handbuch der Entomologie I. 1832, p. 199) gibt schon an, dass bei *Ephemera marginata* (*Leptophlebia marginata* L.) „die Eierchen durch zarte Fäden von Ei zu Ei verbunden sind.”

Unter N^o. 1441 befinden sich in der Coll. Jacobson einige Nymphen von *Caenis nigropunctata* Klap. (Semarang Febr. 1910); sie sind 2 Tage alt und ähneln, abgesehen von den noch nicht entwickelten Flügeln und Kiemen, den Nymphen von *Caenis halterata* und *C. lactuosa*, die Eaton (Rev. Monogr. Ephem. t. 42) abbildete.

*Fam. BAETIDAE.*6. *Baetis javanicus* n. sp.

♂ (in Spiritus): Brust dunkelbraun, die laterale und hintere Partie wie 3 sehr schmale Längslinien der mittleren Partie auf dem Mesonotum gelblich; Unterfläche des Mesothorax mehr rötlich; Abdominalsegmente I bis IV farblos, mit dunklen (schwärzlichen) Hinter- und Seitenrändern; auf Segment II ist die dunkle Färbung sehr weit nach vorn ausgebreitet; Segment V—VII weinrot, mit schwärzlichen Hinter- und Seitenrändern; Segment VIII und IX glänzend schwarz, Segment X hellgelb; Unterfläche des Abdomen ganz ähnlich wie die Oberfläche gefärbt, doch sind die Ränder von Segment I bis IV nicht dunkel (höchstens rötlich), auf Segment II fehlt die schwärzliche Makel; Segment VIII zeigt auf dem schwarzen Grunde eine sehr auffällige gelbweisse Längslinie und Segment IX einen dreieckigen gelbweissen Fleck am Vorderrande. Vorderbeine mit dunkelgraubraunen Schenkeln, schwärzlichen Schienen und grauschwarzen Tarsen; Mittel- und Hinterbeine mit graugelben Schenkeln, schwärzlichen Schienen und graubraunen Tarsen; Schenkel der Mittel- und Hinterbeine in der Mitte und am Apex rotbraun. Schwanzborsten fehlend. Flügel s. w. u.!

♀ (trocken): Körper im ganzen dunkler; Mesonotum pechbraun; die rötliche Grundfarbe der Abdominaltergite ist durch schwarze Färbung fast gänzlich verdeckt; die Ventralfläche des Abdomen rötlichgrau. Schwanzborsten an der Basis schwärzlich, in der Mitte dunkelbraun und nach dem Ende hin gelbbraun. Vorderflügel hyalin, fast farblos (ganz schwach bräunlich), der Costalraum im apicalen Drittel und der Subcostalraum in seiner ganzen Ausdehnung dunkelgraubraun; Adern dunkelbraun. Hinterflügel farblos, hyalin. Im Vorderflügel (Fig. 8) sind die Queradern des Costalraums zahlreich, manchmal gegabelt, manchmal dick (gleichsam aus zwei dicht zusammenliegenden

Adern gebildet. Hinterflügel (Fig. 9) mit nur zwei Längsadern, ganz ohne Queradern.

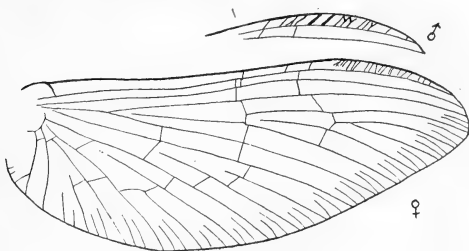


Fig. 8. *Baetis javanicus* n. sp.

Körperlänge: 9 (♂), $6\frac{1}{2}$ (♀) mm.; Länge des Vorderflügels: 9 (♂), 8 (♀) mm.; Länge der Schwanzborsten (♀): ca 19 mm.

Material: 1 ♂ (in Spiritus); Gunung Gedeh, März 1911, N^o. 2174; 2 ♀♀ (trocken) Gunung Ungaran, October 1910, N^{os}. 3121, 3122; ferner noch 2 Subimagines (♀♀), davon 1 grösser, von gleichem Fundort wie obiges ♂ und auch in Spiritus. Typ. Exemplare befinden sich im Leidener Museum und in meiner Sammlung.



Fig. 9. *Baetis javanicus* n. sp.

Zur Gattung *Baetis* gehören auch 3 Nymphen (N^{os}. 1220, 1451, Gunung Ungaran, Dez. 1909); möglicherweise sind sie die Jugendstadien des *B. javanicus* n. sp.; sie ähneln gänzlich denen des *B. rhodani* Pict. (vgl. Eaton, Rev. Monogr. t. 44).

7. *Pseudocloëon Kraepelini* Klap.

Material: 1 ♀, Gunung Ungaran, Dez. 1909.

8. *Pseudocloëon obscurum* n. sp.

Von der vorigen Art, deren Typen ich gesehen habe, unterscheidet sich diese sofort durch die bräunliche Flügelfärbung.

Kopf und Brust etwas dunkler (oben bis dunkelgraubraun) als bei *Cl. Kraepelini*; die dunklen Striche jederseits über dem Stigma vom ersten bis siebenten Abdominalsegment

deutlich, auf den folgenden auch noch erkennbar ¹⁾. Flügel durchsichtig, gebräunt, mit braunen Adern. Im Costalfelde vor dem Apex (Fig. 10) 7—9 Queradern, die meist ganz sind und regelmässig verlaufen; seltener sind einige der Queradern abgekürzt (die Subcosta nicht erreichend). Die Genitalfüsse des ♂ (Fig. 11, ventral) sind denen der ge-

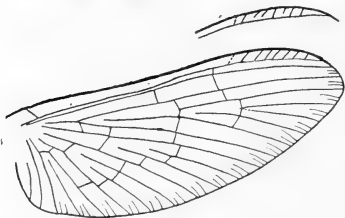


Fig. 10. *Pseudocloëon obscurum* n. sp.



Fig. 11. *Pseudocloëon obscurum* n. sp.

nannten Art sehr ähnlich, doch ist das vierte Glied an das dritte angesetzt, eiförmig, nicht in einer löffelförmigen Vertiefung sitzend.

Körperlänge: $5\frac{1}{2}$ — $6\frac{1}{2}$ mm.; Länge des Flügels: 6 mm.; Flügelspannung also etwa $13\frac{1}{2}$ mm.

Material: 9 ♂♂, 1 ♀, Wonosobo, April 1909.

9. *Cloëon virens* Klap.

Das bisher nicht bekannte ♂ dieser Art fand Jacobson in mehreren Exemplaren. Kopf und Brust sind viel dunkler als beim ♀, oben dunkelgraubraun bis schwarzbraun, unten braun; Hinterleibsende und Basis ebenfalls bräunlich bis braun, während der Hinterleib im übrigen fast farblos ist. Schwanzborsten weisslich, gar nicht oder nur schwach dunkel geringelt an den Artikulationen. Schwanzborsten des ♀ dagegen stets mit deutlicher schwärzlicher Ringelung. Meine Alkohol-Exemplare ²⁾ zeigen nur ganz selten die

1) Ich glaube, dass bei frischem oder Alkohol-Material des *Ps. Kraepelini* diese Striche sich ebenfalls auf den ersten Segmenten finden werden, und nicht nur auf den mittleren.

2) Lebende Exemplare der Art haben nach Jacobsons Mitteilung den ganzen Körper hell grasgrün, auf Abdomen und Thorax gelblichgrün; Flügelrand gelblichgrün.

gräuliche Färbung des Costalfeldes, sie ist durch die Flüssigkeit vernichtet. Die Zahl der Costalqueradern vor dem Apex ist nicht immer (auch bei ♀ nicht) 3, sondern oft nur 2. Zwischen den Genitalfüßen ist (wie bei *Cl. dipterum* und *Cl. marginale*) der kurze zugespitzte Fortsatz ventral sichtbar.

Die Art ähnelt dem *Cl. marginale* noch bedeutend mehr als dem *Cl. bimaculatum*.

Material: Zahlreiche ♂♂, ♀♀ und Subimagines mit folgenden Fundnotizen: Gunung Ungaran, Dez. 1909; Semarang, Sept. 1909; Semarang, Nov. 1909 (N^o. 1353); Semarang, Dez. 1909; Semarang, Januar 1910 (N^o. 1465); Semarang, Febr. 1910 (N^o. 1514); Semarang, März 1910 (N^{os}. 1313, 1542, 1550, 2135, 3137); Wonosobo, Mai 1909; Batavia, März 1908 (N^o. 102).

Die Art hat, wie Herr Jacobson mir schrieb, die Gewohnheit, beim Sitzen an der Zimmerwand mit dem Abdomen langsam hin- und herzuwedeln.

10. *Cloëon bimaculatum* Etn.

Material: Zahlreiche ♀♀ (aber kein ♂) mit folgenden Fundnotizen: Gunung Ungaran, Juni 1910 (N^o. 1874); Semarang, Juni 1909; Semarang, Sept. 1909; Semarang, Nov. 1909; Semarang, Dez. 1909; Semarang, Januar 1910; Semarang, Febr. 1910; Batavia, Febr. 1908 (N^o. 262); Wonosobo, Mai 1909.



Fig. 12. *Cloëon bimaculatum* Etn.

Diese Art hält während des Sitzens den Körper stark gekrümmt, so dass Kopf und Abdomen aufwärts gerichtet sind; die Flügel sind dabei eng zusammengelegt. Ein Bild dieser Stellung gibt die Fig. 12 (nach einer Zeichnung des javanischen Zeichners Soeparno). *Cl. bimaculatum* ist als vivipar zu bezeichnen. Herr Jacobson schrieb mir darüber: „Wenn die Eier ins Wasser abgelegt werden, enthalten sie bereits völlig reife Embryonen. Ungefähr

1½ Minute nach der Eiablage sieht man unter dem Mikroskope, wie die Kauwerkzeuge des Embryos sich zu bewegen und die Säfte im Leibe zu cirkulieren anfangen; eine halbe Minute später dehnt der Embryo sich aus, zerreisst die ungemein dünne durchsichtige Eischale und schwimmt sofort lebhaft umher." Herr Jacobson sandte mir (Nº. 1216, Semarang, Sept. 1909) noch Eier von *Cl. bimaculatum*, die er aus dem Abdomen eines ♀ herausgepresst hatte; „sie waren noch nicht ganz reif; nach längerem Liegen im Wasser hatten einige der Larven die Eihülle gesprengt, doch waren sie nicht sehr lebhaft," schreibt er dazu.

Unter Nº. 1215 (Semarang, Sept. 1909) erhielt ich von Herrn Jacobson ein ♀ mit den eben ausgeschlüpften Jungen. Diese unterscheiden sich nicht von den Nymphen des I. Stadiums, die Lubbock als *Cloëon dimidiatum* (= *Cloëon rufulum* Müll. nach Eaton) beschrieb und zeichnete (Trans. Linn. Soc. XXIV. 1863, p. 66, t. 17, f. 1). — Ich möchte hier die Litteratur über vivipare Ephemeriden zusammenstellen:

1. v. Siebold, Fernere Beobachtungen über die Spermatozoen der wirbellosen Tiere. Müllers Arch. f. Anat. Physiol. Berlin 1837. p. 425. Anmerkung.

2. Calori, Sulla generazione vivipara della Chloë diptera L. Nuovi Annali delle Scienze natur. (3). IX. Bologna 1848. pp. 38—53, t. II, III (übersetzt von Joly, Bullet. Soc. d'Etud. Sc. Nat. Nimes. 5^e ann. Nº. 8. t. II. III. 1877).

3. Joly, Bullet. Soc. d'Etud. Sc. d'Angers. 1876. (Separ. p. 42) note D.

4. Eaton, Rev. Monogr. rec. Ephemeridae or Mayflies. 1883 (—1888), p. 11.

5. Palmén, Über paarige Ausführungsgänge der Geschlechtsorgane bei Insekten. Helsingfors 1884. p. 32.

6. Causard, Sur un Éphémère vivipare. C. R. Ac. Sci. CXXIII, 1896, pp. 705—708 (übersetzt in Ann. Mag. Nat. Hist. (6). XVIII. pp. 480—482; referiert in Zool. Centrbltt. IV. p. 251, dsogl. in American Naturalist 31. 1897. Nº. 362).

7. Heymons, Über den Nachweis der Viviparität bei den Eintagsfliegen. Zool. Anz. 20. 1897. pp. 205—206.

Notes from the Leyden Museum, Vol. XXXV.

8. Harvey, The Entomologist. XLIII. 567. 1902. pp. 224—226.

9. Bernhard, Über die vivipare Ephemeride Cloëon dipterum. Biol. Centrbltt. 27. 1907. pp. 467—479.

N.B. R. Heymons bemerkt (l. c. p. 206), Cloëon „pflanz sich, wenigstens hier in Berlin, sicher auch durch abgelegte Eier fort.“

Ich hatte Mitte August 1912 in Hamburg Gelegenheit, selber die Eiablage und Entwicklung von *Cl. dipterum* zu beobachten. Ein ♀ sass spät abends am Zimmerfenster; ich griff es mit zwei Fingern an den Flügeln und nach etwa einer Minute quollen die dunklen Eier in einem wurstförmigen Klümpchen aus dem Hinterleibe hervor. In einer Glasschale mit Wasser zeigte sich unter dem Mikroskop (bei einigen Eiern sofort, bei anderen erst nach ein bis drei Minuten) Leben; zuerst wurden die langen Fühler frei und bald danach streckte sich der ganze Körper, die zwei Schwanzfäden schlugen sich nach hinten, einen Augenblick noch zappelten die Beine, und dann schon begann das Schwimmen.

11. *Cloëon marginale* Hag.

Material: Mehrere ♀♀ (aber kein ♂) mit folgenden Fundnotizen: Gunung Ungaran, Dez. 1909; Semarang, Febr. 1910; Semarang.

Die *Cloëon*-Arten wurden meist im Hause gefangen; sie setzen sich, so schrieb Herr Jacobson mir, gern an die (hier fast stets) weiss getünchten Zimmerwände; oft bleibt dasselbe Tier an einem Orte unbeweglich mehrere Tage sitzen.

Fam. SIPHLURIDÆ.

12. *Chirotonetes grandis* n. sp.

Die Gattung wurde für das indische Gebiet schon von Eaton (Rev. Monogr. p. 204) als auf Sumatra vorkommend angegeben, doch ist die Art weder beschrieben noch benannt. *Chirotonetes* ist verbreitet in Japan, Amerika und Europa.

Die neue Art ist beträchtlich grösser als die bekannten. Ich habe nur ♂♂ hier, alle in Alkohol.

Notes from the Leyden Museum, Vol. XXXV.

Notum pechschwarz, an den Seiten rotbraun; Abdomen rot, die postsegmentalen Ränder aller Tergite und die der ersten fünf Sternite pechschwarz; die folgenden Sternite etwas heller, an den postsegmentalen Rändern hellrosa; Vorderbeine pechschwarz, nur die Schenkel wie das Abdomen gefärbt; die übrigen Beine strohgelb. Schwanzborsten an der Basis wie das Abdomen gefärbt, in der Mitte dunkelrotbraun, am Apex mehr dunkelgelbbraun, doch ohne scharfe Grenzen in der Abtönung; manchmal sind aber die Borsten auch ganz dunkelrotbraun, oder die gelbbraune (dann recht dunkle) Färbung ist weiter ausgebreitet. Genitalfüße dunkelgelb, an der Aussenseite der letzten Glieder dunkler. Flügel glasartig durchsichtig; mit deut-

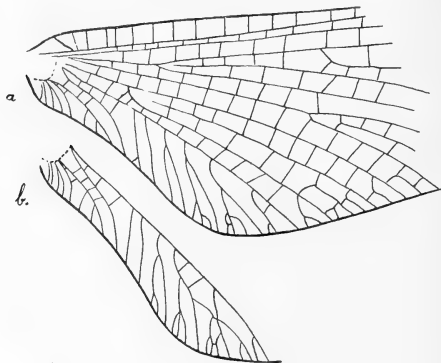


Fig. 13. *Chirotonetes grandis* n. sp.

licher pechbrauner Nervatur; Vorderflügel in der apicalen Hälfte angeraucht, an der Basis mit graubrauner Makel und in der apicalen Partie des Costal- und Subcostalraumes (etwa von der dritten Costalquerader hinter der Bulla bis fast zum Apex) mit einem dunkelgraubraunen Streifen. Wie Fig. 13 zeigt, ist die Nervatur der Analregion des Vorderflügels ganz ähnlich wie bei *Chirotonetes ignotus* (vgl. Eaton, Rev. Mongr. t. 19. f. 33 b); die erste Analader sendet zunächst 2 parallele ungegabelte Zweige zum Rande,

Notes from the Leyden Museum, Vol. XXXV.

dahinter 3 gegabelte (*Chirotonetes mancus* Eaton, t. 19. f. 33a) hat nur 2 gegabelte Zweige dort); in Einzelheiten der Verästelung zeigt aber selbst ein und dasselbe Indivi-

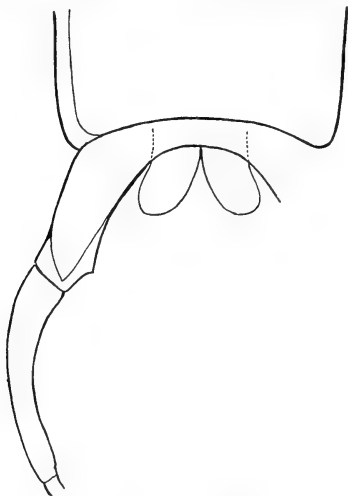


Fig. 14. *Chirotonetes grandis* n. sp.

duum Verschiedenheiten (Fig. 13a, b). Die Genitalanhänge ähneln sehr denen von *Ch. ignotus*; das Basalglied der Genitalfüsse zeigt am Apex einen nach unten gerichteten zahnartigen Vorsprung, der besonders lateral sichtbar ist (Fig. 14, ventral).

Körperlänge: 17—18 mm.; Länge des Vorderflügels: 17 mm.; Länge der Schwanzborsten: 45 mm.

Material: 7 ♂ ♂, Nongkodjadjar, Jan. 1911, Nos. 3132, 3133, 3134.

N.B. Diese Art weicht von den übrigen Arten der Gattung insofern ab, als das Verhältniss der Tibie zum Tarsus des Hinterbeines ein anderes ist; die Hintertibie ist hier viel länger als gewöhnlich. Typ. Exemplare befinden sich im Leidener Museum und in meiner Sammlung.

Notes from the Leyden Museum, Vol. XXXV.

Fam. ECDYURIDAE.

13. *Thalerosphyrus determinatus* Walk.

♂ : Die gelbe Grundfarbe des Körpers ist auf der Dorsal-



Fig. 16. *Thalerosphyrus determinatus*
Walk.

fläche durch zahlreiche schwarzbraune Makeln unterbrochen, auf dem Kopfe und der Brust fast ganz verdrängt durch schwarzbraune Färbung; auf den Brusttergiten ist nur ein mittlerer längsstreifen noch hell, die (grössere) Seitenpartie ist dunkel; die Abdominaltergite (Fig. 16) sind mit folgenden schwarzbraunen Makeln geziert; Hinter- und Seitenränder aller Segmente dunkel; Segm. I ungefleckt; Segm. II mit kleiner, den Hinterrand nicht erreichender, medianer Makel; Segm. III mit grosser etwa sanduhrförmiger Median- und kleinerer etwa viereckiger Lateralmakel jederseits, die dem Oralrand näher ist als dem Analrand; Segm. IV mit grosser, analwärts dreieckig verschmälterter Median- und langer schmaler, medianwärts gebogener Lateralmakel, die von dem Hinterrandstreifen ausgeht; Segm. V mit 2 (nicht ganz gleich geformten) kleinen Medianmakeln neben einander, die an dem Vorderrand des Segments entspringen; Segm. VI mit ähnlicher Zeichnung wie Segm. IV, doch ist die Medianmakel durch hellere Färbung in der

Mittellinie in zwei neben einander liegende Abschnitte geteilt; Segm. VII mit grosser zungenförmiger Medianmakel, die den Hinterrand nicht erreicht, und mit kleiner, von der Vorderecke entspringender Lateralmakel, die medianwärts gerichtet ist; Segm. VIII mit sehr kleiner Medianmakel am Vorderrand und einer Lateralmakel, die der von Segm. VII sehr ähnlich ist; Segm. IX im ganzen etwas angedunkelt; Segm. X mit einer nicht so dunklen, drei-

eckigen, kurzen Medianmakel und einer Lateralmakel, die etwas kürzer und stumpfer ist und der Medianmakel sehr nahe steht. Die Unterfläche des Körpers ist ganz gelblich. Die Schwanzborsten sind an der Basis (etwa $\frac{1}{5}$ der Länge) gelbbraun, schmal dunkler geringelt, im übrigen dunkelpechbraun. Beine grau- oder braungelblich, die Schenkel (in der Mitte und am Ende) dunkel gebändert; auch das Ende der Tibie und der Tarsen dunkler. Flügel hyalin, mit gelbbraunlichem Tone; Adern braunschwarz; Vorderflügel im Costal- und Subcostalraume braun, die Costa in ihrer basalen Hälfte gelb. Nervatur siehe Eatons Figur 40 auf T. 22. — Die Genitalanhänge des ♂ (Fig. 17, ventral) sind dunkelbraun; das letzte Glied der Genitalfüsse ist fast so lang wie das vorletzte, also nicht knopfförmig winzig, wie Eaton (t. 22. f. 40) es zeichnet.

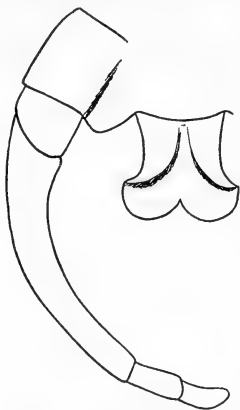


Fig. 17. *Thalerosphyrus determinatus* Walk.

Körperlänge: 9mm.; Länge des Vorderflügels: 10mm.
Länge der Schwanzborsten: etwa 40mm.

Material: 1 ♂, Gunung Ungaran, Okt. 1909.

♀: Färbung im ganzen heller als beim ♂, Abdomen auf der Dorsalfläche mit mehr rötlichem Tone; die Seitenränder der Tergite I, II, VIII, IX, X, überhaupt nicht, die der übrigen Tergite nur vom Hinterrand bis zur (oder etwas über die) Mitte schwärzlich; die Seitenrandsäume und auf den letzten 3 Tergiten auch die Hinterrandsäume schmal; die dunkle (schwarzbraune bis dunkelrotbraune) Fleckenzeichnung besteht auf den Segmenten III bis VII aus einer Median- und einer Lateralmakel jederseits, die auf Segment III, IV, VI den Hinterrand erreichen, auf Segment V und VII aber kürzer sind. Die Schwanzborsten

rötlichgelb, schmal rötlich geringelt. Beine heller als beim ♂, die Schenkel nicht gebändert, Vorder- und Hinterchenkel nur am Ende dunkler. Flügel hyalin, farblos, Vorderflügel nur in der apicalen Hälfte des Costal- und Subcostalraumes schwach gebräunt.

Körperlänge: 11^{mm.}; Länge des Vorderflügels: 13^{mm.}; Schwanzborsten nicht ganz erhalten.

Material: 1 ♀, Wonosobo, Mai 1909.

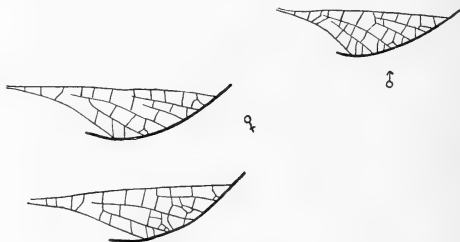


Fig. 15. *Thalerosphyrus determinatus* Walk.

N.B. In beiden Geschlechtern (Fig. 15) ist der Zwischenraum zwischen der vierten Randader des Analraumes I und der Analader 2 schmaler als in Eatons Figur des Vorderflügels (t. 22. f. 40) und enthält 3—5 Queradern, keine sie verbindende Längsader.

Mit Sicherheit ist anzunehmen, dass einige Nymphen (Gunung Ungaran, Dez. 1909) dieser Art angehören. Sie entsprechen so völlig den von Eaton abgebildeten Nymphen des *Ecdyurus fluminum* Pict. (Rev. Monogr. t. 62, f. 1, 4—23), dass ich keine Unterschiede im Bau der Organe finde.

14. *Compson euria spectabilis* Etn.

Material: 1 ♀, Tuntang, N^o. 3123, Okt. 1910 (trocken conserviert); 1 ♀, Buitenzorg, März 1908 (in Alkohol).

Hamburg, 7. September 1912.

NOTE VI.

ON A COLLECTION OF JAVANESE MANTIDÆ
AND PHASMIDÆ (ORTHOPTERA).

BY

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OF

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The collection on which the present report is based was submitted to me for study by Mr. Edward Jacobson of The Hague, Holland. To prevent needless repetition the collector's name has been omitted from the tabulations of the specimens, it being understood that all of the material was secured by Mr. Jacobson, while from the same reason only the exactly localities are given, all being on the island of Java.

The first set of the material remains in the collection of the Academy of Natural Sciences of Philadelphia, the remainder being returned to Mr. Jacobson, whom we wish to thank for the opportunity to study the collection.

Family Mantidae.

Subfamily Amorphoscelinae.

Amorphoscelis pellucida Westwood.

Samarang. October, 1910. One male.

Westwood's description ¹⁾ is very brief and by no means

1) Rev. Ins. Fam. Mant., p. 28.

as explicit as could be desired. While the present specimen shows no characters at variance with his description, comparison with several African species of the genus clearly demonstrates that only comparative value should be given to certain characters briefly mentioned by him, viz-the median tubercles of the occiput and the oval form and deplanate character of the pronotum. The median occipital tubercles are only slightly more raised "bosses" than similar structures in the other species, while the "oval" form of the pronotum is merely a sweeping characterization of the general form of the same. The proportions and color pattern of our specimen are exactly as described.

This species is now known from Adelaide, Australia, Ceylon, Singapore and the present locality.

Subfamily Orthoderinae.

Theopompa servillei (Haan).

Nongkodjadjar. January, 1911. One adult female, one immature male.

This species was described from Lewibonger, Java and is also known from Malacca and Lower Siam.

Subfamily Mantinae.

Iridopteryx reticulata (Haan).

Batavia. December, 1908. One male.

Samarang. February, June, July, August and October, 1909 & 1910. Five males, two females.

Srondol, Samarang. August, 1909. One male.

The above series shows some little variation in size, while the medio-longitudinal blackish-brown line on the pronotum is variable in intensity, although evident in all of the individuals.

Originally described from Krawang, Java, this species has also been recorded from Tenasserim, Cambodia, Sumatra, Bah Soemboe, Sumatra and Java (without definite locality).

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Gonypeta punctata (Haan).

Batavia. December, 1908. One male.

Srondol, Samarang. August, 1909. One male.

These specimens show there is some variation in the point at which the ramus of the humeral vein of the tegmina diverges, also in the general coloration. The Srondol specimen is perfectly typical in color when compared with Haan's figure, while the Batavia individual is much darker, being generally suffused with drab and having the dark markings on the limbs decidedly indicated. The latter specimen is also slightly smaller than the Srondol individual.

The species was described from Java, and is only known from that island and Sumatra. Saussure has recorded it from Ceylon, but as already shown by the author¹⁾ the insect from that island is doubtless different. The present material clearly belongs to Haan's species.

Tropidomantis tenera (Stål).

Samarang. June, 1909 & 1910. Two males.

This species has been recorded from Singapore, Banka, Java and Sarawak, Borneo.

Statilia nemoralis (Saussure).

Samarang. April, 1909. One female.

This specimen is smaller than the original measurements in all of its proportions except tegminal length. However, another female individual from Gunung Sugi, Sumatra²⁾, in the collection of the Academy of Natural Sciences of Philadelphia, which represents the same species, fully agrees with Saussure's measurements in every respect, while neither show any structural or color characters which would separate them from *nemoralis*.

1) Bull. Amer. Mus. Nat. Hist., XXVI, p. 180.

2) This specimen was recorded by the author (Proc. Acad. Nat. Sci. Phila., 1903, p. 704) as *Statilia maculata*.

This form was previously known from the Philippines and the "East Indies".

Statilia maculata (Thunberg & Lundahl).

Samarang. March, April, June, September & December, 1909 & 1910. Four males, one female.

This species has been recorded from Java by several authors.

Tenodera superstitiosa (Fabricius).

Samarang. July, August & September, 1909. Two males, one female.

Paratenodera aridifolia (Stoll).

Samarang. August, 1909. Three males.

Hierodula coarctata (Saussure).

Nongkodjadjar. January, 1911. One female.

This specimen fully agrees with the description of the species, which was first recorded from Bengal, but differs in having the cream-white tegminal stigma subovate instead of trigonal. The measurements are as follows:

Length of body,	57.	mm.
Length of pronotum,	16.8	"
Greatest width of pronotum,	8.	"
Length of tegmen,	39.5	"
Greatest width of tegmen,	12.	"
Length of cephalic femur,	15.2	"

The specimen figured by Westwood ¹⁾ as this species is apparently different, as the cephalic coxae are strongly dentato-lobate in *coarctata*, instead of minutely spined as there shown.

Hierodula hybrida (Burmeister)?

Srondol, Samarang. August, 1909. One immature male.

1) Rev. Ins. Fam. Mant., pl. IV, fig. 1.

This specimen, although but half grown, when compared with an adult male of this species from Batavia, Java, determined by Saussure, shows no characters of difference except those of immaturity.

Rhombodera basalis (Haan).

Nongkodjadjar. January, 1911. One male, two adult females, one immature female.

All of these except one adult female are preserved in alcohol and have lost their original coloration.

This species was described from Krawang, Java.

Mr. Jacobson in writing about this species says: "These Mantidae have a kind of pouch or membrane of a claret-color between the segments of the under side of the abdomen. If attacked or frightened (by lizards, other animals or men) the Mantis takes a semi-erect position, so that the underside of the abdomen is visible from the front and the highly-colored membrane is protruded and made clearly visible".

Rhombodera flava (Haan).

Samarang. July, September & October, 1909. Three males.

Haan's name appears to be the first clearly applicable to this peculiarly Javanese species. Kirby considers Serville's *extensicollis* the first name for the form, but that was based on a species with an oval expansion to the pronotum, probably the same as *laticollis* Burm. Haan's description is very brief, but it contains nothing at variance with the present material. Giebel's *macropsis* has been properly synonymized as it was clearly based on material of the present species.

Mantis religiosa Linnæus.

Samarang. August & October, 1909. Two males.

These specimens fully agree in size with a male from Sheikh Husein, Gallaland, Africa, and are appreciably larger than the majority of seven males from Switzerland

and France. In structure and color the Javanese specimens are identical with the European and African material. One of the present individuals has the black proximal spot on the internal face of the cephalic coxæ solid, while the other has the same ocellate with yellow (*M. sancta* type).

Nanomantis albella (Burmeister).

Samarang. November, 1909. One male.

This species has been recorded from localities extending from Sumatra to the Philippines, having been originally described from Java.

Subfamily Creobotrinae.

Acromantis oligoneura (Haan).

Batavia. June, 1908 & September, 1909. One male, one female.

Samarang. August, 1909. One male.

This species is widely distributed in the Sundan region.

Theopropus elegans (Westwood).

Gunung Ungaran. December, 1909. One immature female.

Although not adult this specimen is sufficiently developed to be specifically identifiable.

The records of the species are from Tenasserim, Java and Borneo.

Family Phasmidae.

Subfamily Phyllinae.

Phyllium geryon Gray.

Nongkodjadjar. January, 1911. One male, one female.

These specimens are perfectly typical of the species which has been recorded from the Philippines, Borneo and Java.

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Subfamily Clitumninae.

Clitumnus ablutus Brunner.

Samarang. July, 1909. Two males, two adult males, one immature female.

This species was described from Ceylon ¹⁾ but the present material fully agrees with the original description based on the male sex, except for some color features noted below. Superficially that sex bears a considerable resemblance to *Cuniculina nematodes* (Haan), a Javanese species, but from the latter *ablutus* may be distinguished by the elongate and unarmed head, shorter antennae and the much smaller general size. One of the present males agrees almost exactly with the original measurements of the species, while the other is very slightly larger.

The general color of the males is hazel brown washed with sea-green on the sides of the meso-and metathorax, while the femora vary from vinaceous-rufous to vinaceous-cinnamon, the tibiae very pale oil-greenish, the median and caudal pair obsoletely banded with brownish, the antennae clay-color, darker distad.

In Brunner's key to the species of *Clitumnus* the female runs to *C. siamensis*, which is a species almost twice the size of *ablutus*. The nearest ally to the present species of which both sexes are known is *serrulatus* Brunner, a Malayan species found in Java and included in the present collection, the male of which is smaller, less slender, with subobliterate granules on the pronotum and base of the mesonotum, while the female has the cephalic femora serrulate dorsad and ventrad and the general proportions different.

The two adult females before us measure as follows:

	June, 1910. August, 1909.	
Length of body,	66. mm.	66.5 mm.
Length of mesonotum,	15.7 "	15.2 "
Length of metanotum (with median segment),	10.2 "	10.5 "

1) Die Insekt. Fam. Phasm., p. 191.

June, 1910, August, 1909.

Length of median segment,	2. mm.	2. mm.
Length of cephalic femur,	24. "	23.5 "
Length of median femur,	17.8 "	17.5 "
Length of caudal femur,	21. "	20.8 "

The general color of the females varies from vandyke brown to wood brown, with traces of imperfect annulations on the femora.

Clitumnus serrulatus Brunner.

Nongkodjadjar. January, 1911. Four males (in alcohol).

This species, which is compared above with the preceding one, has been recorded from Java, Penang and Borneo.

Cuniculina verecunda Brunner.

Nongkodjadjar. January, 1911. One female (in alcohol).

When compared with the description of the species this specimen agrees in proportions and structure, but shows some differences in spination. The cephalic femora bear 5—7 serrulations dorsad and 0—3 ventrad, the median femora have the dorsal margin with 0—4 serrulations and 1—3 on the ventral margins, aside from the median dentation, while the caudal femora have dorsad 1 (cephalad)—4 (caudad) serrulations and ventrad a single proximal one on the cephalic margin. The cephalic lobes are not symmetrical and when taken in conjunction with the variability in number of the femoral serrulations prove that the form is not stable in these characters, Brunner¹⁾ having already commented upon the variability in form of the head appendages, which are sometimes spiniform.

The original describer noted the resemblance of this species to *Clitumnus serrulatus* and suggested that it might be but a variety of the latter quite variable form. The fact that the two were taken at the same locality, and as Mr. Jacobson's notes inform us on the same plants, together with the absence of any important differential cha-

1) Die Insekt. Fam. Phasm., p. 203.

racters to separate the two, aside from the variable cephalic lobes and femoral serrulations, leads us to consider this view very probable.

Subfamily Phibalisominæ.

Ernodes jacobsoni n. sp.

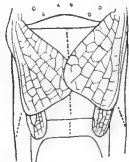
Type: ♀; Nongkodjadjar, Java. January, 1911. (E. Jacobson.) [Acad. Nat. Sci. Phila., no. 5209].

Allied to *E. antennatus* Redtenbacher from Singalang, Sumatra and *E. telesphorus* Westwood from West Australia, but differing from *antennatus* in the larger triangular tegmina, in the acute non-excised operculum, in the broader cerci and in the different proportions of the femora, while from *telesphorus* it is separated by its smaller size, more thickly granulate mesonotum, shorter, trigonal tegmina, more rudimentary wings, unspined lateral margins of the femora and more elongate subgenital operculum.

Size medium; form elongate; surface of head, thoracic segments and abdomen more or less regularly granulate. Head subcylindrical, slightly depressed, not exceeding the pronotum in width; occiput with a distinct medio-longitudinal impressed sulcus which severs the occipital margin; eyes ovate in form, not prominent; antennæ filiform, nearly twice the length of the cephalic femora. Pronotum subequal to the head in length and width; cephalic margin angulato-emarginate with a slight rounded median projection, caudal margin subtruncate; cruciform impression decided, the transverse sulcus slightly before the middle; granulations of the disk on the caudal two-thirds crudely arranged in four longitudinal lines. Mesonotum slightly less than four times the length of the pronotum, subequal in width for the greater part of its length, slightly expanding in caudal section; a very fine medio-longitudinal carination present on the entire length of the mesonotum, the granulations of both the mesonotum and mesosternum very numerous and of two grades, the larger ones being arranged more or less regularly in longitudinal lines. Metanotum (including the median segment) very slightly less than

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half the length of the mesonotum, the width subequal to that of the broadest portion of the mesonotum; median segment slightly longer than the remaining portion of the metanotum very sparsely tuberculate. Tegmina reaching but a short distance caudad of the middle of the metanotum, trigonal in form, the greatest width (distal) equal to about two-thirds of the tegminal length, distal margin subtruncate, the angles broadly rounded, tubercle not distinctly indicated. Wings narrow, elongate, reaching slightly caudad of the caudal margin of the metanotum, the apex very broadly rounded. Abdomen nearly three-fifths the length of the entire body, tapering, very faintly carinate dorsad, sparsely granulate, the same more or less linear in disposition; anal segment hardly longer than the ninth dorsal abdominal segment, sud-quadrate in general form when seen from dorsum, the caudal margin arcuato-emarginate; cerci very slightly surpassing the lateral angles of the anal segment, depressed, broad, sub-lanceolate, the tips blunt; supra-anal plate very short, subtrigonal; subgenital operculum reaching to the caudal margin of the anal segment, compressed, boat-shaped, with a prominent medio-longitudinal keel, apical margin acute-angulate, the immediate angle sub-spiniform. Cephalic femora very slightly longer than the mesonotum, compressed, with the proximal flexure pronounced, the



Ernodes jacobsoni
n. sp.

Dorsal view of
tegmina and wings
of type ($\times 4$).

dorsal margin sub-lamellate distad of the flexure, all of the margins unspined; cephalic tibiae very slightly shorter than the femora. Median femora about two-thirds of the length of the mesonotum, margins unarmed aside from the blunt dentiform tubercle at the distal extremity of the ventro-median carina; tibiae nearly subequal to the femora in length. Caudal femora reaching to the middle of the third abdominal segment, aside from the more slender form similar in structure and armament to the median femora; tibiae subequal to the femora in length; metatarsus of the caudal limbs two-thirds of the entire tarsal length.

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General color (from specimen dried from alcohol) clove brown, the tubercles broccoli brown; eyes wood brown crossed by a longitudinal line of bistre; limbs blotched and incompletely annulate with bistre on a dirty russet ground. Tegmina and wings marked along the humeral trunk with tawny-olive.

MEASUREMENTS.

Length of body,	84.5 mm.
Length of pronotum,	4.5 "
Length of mesonotum,	18.5 "
Length of metanotum (including median segment),	8.6 "
Length of median segment,	5. "
Length of cephalic femur,	19.6 "
Length of median femur,	12.5 "
Length of caudal femur,	17.8 "
Length of tegmen,	3.4 "

In addition to the types we have examined two paratypic males (in alcohol). We take great pleasure in dedicating this species to Mr. Edward Jacobson of The Hague, Holland, who collected the type and who kindly placed the collection in my hands for study.

The type is in the collection of the Academy of Nat. Sciences of Philadelphia; the para-types are in the Leyden Museum.

Subfamily Necrosinae.

Sipyloidea dolorosa Redtenbacher.

Nusa Kambangan. March, 1911. One male.

This specimen fully agrees with the description of the species, originally recorded from East Java and the Key Islands, except for the caudal femora being 17 instead of 14 millimeters long and the anal segment subarcuato-emarginate, instead of triangularly emarginate as originally described.

December, 1912.

NOTE VII.

ON THE VARIETIES OF *ACTIAS MAENAS*, Doubl'd.

BY

R. VAN EECKE.

(With four plates and one text-figure).

A very beautiful and by no means common species of *Saturnidae* of the tropical region is *Actias maenas*. In the year 1847 Doubleday has bestowed this name upon a female and a year later a male has been named *Actias leto* by the same author (*Annals of Nat. Hist.* vol. 19, pag. 95; *Transactions Entom. Soc. London*, vol. 5, pag. li). Doubleday's female type originates from Silhet, the male from India Orientalis (very indefinite!). It was unknown to Doubleday and also to Walker, that *maenas* and *leto* belong to the same species, the latter giving in the List of spec. of the British Mus. (pag. 1263) a diagnosis of a male *Tropaea maenas*. After Rothschild's publication it is unquestionable that the species ought to be named „*maenas*” and that „*leto*” is a mere synonym.

In the East-Indies the females, which differ very much from the males, seem to be decidedly more numerous than the males. This we understand from the rearing experiments by the late Dr. H. W. van der Weele and from those in the Zoological Gardens at Amsterdam. The Leyden Museum possesses also twice more females than males. The same may be the case in British-India. On the other hand on Celebes the males of a variety seem to be more numerous than the females (*Deutsche Entomologische Zeitschrift „Iris”*, Jahrg. 1909, pag. 24).

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The females are not so variegated as the males, which latter I may divide into two groups: one where greenish yellow is the prime-colour and one with red-brown as prime-colour. Between these principal groups is a third one, which shows us the transitional form. Mr. Fruhstorfer has given to this variation from Celebes the name „*latona*”. Its coloration resembles that of *Argema (Actias) ignescens* Moore from the Andaman-islands (Sonthonnax), and Mr. G. Weymer utters the opinion, that *latona* and *ignescens* will be synonym. The dark specimens are all from Celebes, the other ones from Java and Sumatra. Between the female, described by Doubleday and figured by Westwood (Cab. Oriental Entomology, plate 22) and those of Java and Sumatra is some difference; the males also are not quite identical, so that I believe, there are four local varieties of *Actias maenas*.

1. *Actias maenas*, Doubleday (type, British-India).
2. *Actias maenas*, Var. *saja*, n. v. (Java and Sumatra).
3. *Actias maenas*, Var. *latona*, Fruhst. i. l. (Celebes).
4. *Actias maenas*, Var. *isis*, Sonth. (Celebes).

When the evolution-theory is true, we have in this species a very fine proof of the transition from dark brown into greenish yellow. The form *latona*, which Sonthonnax and Weymer had united with *isis*, shows us a very interesting colour-transition. The females are more advanced in colour development than the males.

Here follows the description of these varieties.

Actias maenas, Doubleday.

♂. Hab. Sikkim. Exp. alar. 156 mM.

Anterior wing exp.: 72—75 mM.; the apex acute. The anteriormargin straight, slightly bent towards the apex; outermargin feebly undulated, slightly bent inside to media 1; innermargin 38—43 mM. Prime-colour greenish yellow; costa grayish brown; the base beyond the origin of the first nervule pale brown; a brown patch near the apex and a larger one on the outermargin near the distal angle; an indistinct pale brown, angular, transverse line beyond

the middle, nearer to the lunule. Inside the top of the cell is a black line, outside an orange one, forming together a lunule on the crossvein. Below the forewing is pale yellow and has three brown spots, one on the apex, which is very dark, one ocellus under the lunule and a large one near the distal angle.

Posterior wing: expanse 145 mM., triangular, the anal angle produced into a long tail; tail 103 mM.. Prime-colour greenish yellow; tail and outermargin pale brown; flag yellow. Parallel with the outermargin a narrow angular line, and in the centre, just on the top of the cell, an ocellus with a partially black outline. Near the base a pale brown band.

The underside is paler and has about the same pattern as the upperside. Frons yellow; prothorax grayish brown, passing into red-brown; meso- and metathorax and the abdomen on the upperside greenish yellow, on the underside yellowish white; the stigmata are bordered with gray; femora yellowish white; tibiae and tarsi grayish brown.

♀. Doubleday's description of the female of *Actias maenas* is also good for the specimens from the East-Indies. The Leyden Museum possesses 8 examples. The females of the four variations of males are very little variegated. But there is a figure in the Cabinet of Orient. Entom. (plate 22), which shows us a very interesting form. This moth differs very much from all the specimens, which I have at my disposal. Size, shape, pattern and, last not least, the two blue-gray minute lines on the prothorax are quite different! Westwood writes: "The accompanying figure of this very fine insect is copied from a spec. kindly communicated for representation by W. W. Saunders, Esq., F.L.S., which differs in some respects from Mr. Doubleday's description of the spec., recently published". Locality? I fear, the picture is not well done, so that I will pass over it.

Actias maenas, Var. *saja*, n. v.

♂. Hab. Solok (Sumatra) and Preanger (Java). Exp. alar. 167 mM.

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Anterior wing exp.: 80 mM.; apex acute. The anterior margin straight, slightly bent towards the apex; outermargin hardly undulated, slightly bent inside to media 1; innermargin 40 mM. Prime-colour greenish yellow; costa gray and brown; a pale brown band near the base, which is yellow; a brown patch near the apex; starting from this spot to another large one on the outermargin near the distal angle, a waving, narrow at the beginning, pale red-brown line. Parallel with this striga is another distinct, angular, narrow one, between the lunule and the distal patch. The end of the cell is marked by a large crescent-shaped lunule, dark internally and on the outline. Below, the forewing is very pale yellow coloured; of a basal band there is nothing to see; the patch near the apex is very dark brown; the waved line to the brown patch near the distal angle is distinctly traced. The lunule is replaced by an ocellus.

Posterior wing: exp. 160 mM.; tail 113 mM. long and 3 mM. broad, enlarged before the apex. Prime-colour greenish yellow; tail and outermargin dark red-brown. Parallel with the outermargin a narrow angular striga; near the base an irregular brown little band, which diffuses to the tail. On the cell an ocellus. On the underside the hindwing is paler coloured and has the same pattern as the upperside, the brown near the base however is wrinkled into a dark brown line. Frons yellow; prothorax brown; meso- and metathorax and the abdomen greenish yellow on the upperside and pale yellow on the underside. Stigmata bordered with gray; femora yellowish white; tibiae and tarsi grayish brown.

This variety resembles very much the type of Doubleday.

♀. The female of var. *saja* has the following measures: exp. alar. 180 mM.; exp. forewing 85 mM.; exp. hindwing 160 mM.; tail 100 mM.; innermargin of the forewing 50 mM.; the tail is broad 6 mM. The foremargin firstly straight, then rounded towards the apex; outermargin little bent inside till media 1, undulated; distal angle rounded towards the innermargin. The general colour is

pale greenish yellow; the costa, except at the apex, ferruginous gray to the outside; outermargin from radius 2 till cubita 2 faintly rufescent. Near the base a transverse narrow band of the same colour, and beyond the middle a hardly visible undulated streak. The large lunule on the top of the cell is half (inside the cell) black and half citrine with a red-brown outline. The lunule in the females is not so strongly bent into the base as in the males. Posterior wing of the same colour as the anterior, outermargin of the wing and of the tail red-brown; in the middle the tail is sparsely sprinkled with grayish red-brown. On the top of the cell is an ocellus with a frontal piece of the outline black. The tail is very wrinkled at the extremity.

Below: in the anterior wings the basal striga is absent, the lunule is changed into an ocellus and the undulated line is more distinct, as it also is on the posterior wings. The colour is paler.

Frons yellow; prothorax grayish red-brown, passing into red-brown; meso- and metathorax greenish yellow; the abdomen pale yellow. Femora yellow; tibiae and tarsi grayish red-brown.

The Leyden Museum also possesses two females with the following measures: exp. alar. 139 mM.; exp. anterior wing 67 mM.; innermargin 35 mM.; exp. posterior wing 112 mM.; tail 67 mM.

The third variety has been named by Mr. Fruhstorfer:

Actias maenas, Var. *latona* Fruhst. i. l.

Fruhstorfer has separated this variation from the following, which has been described by Sonthonnax in: *Essai de classification des lépidoptères producteurs de soie*, Vol. 2, pag. 14. G. Weymer writes in: *Deutsche Ent. Zeitschrift „Iris“*, Jahrg. 1909, pag. 25, the following: „Die Mehrzahl der Exemplare hat grössere goldgelbe Flecke vor und hinter dem Halbmondfleck der Vorderflügel bezw. dem Augenflek der Hinterflügel, sowie mehrere gelbe Schattierungen in der Nähe der Wurzel und vor der Spitze

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der Vorderflügel und auch eine äussere zackige gelbe Querbinde über beide Flügel. Diese Färbung kommt der *Argema* (*Actias*) *ignescens*, Moore von den Andamanen sehr nahe, welche Sonthonnax loc. cit. Taf. 4 Fig. 1 nach einem Exemplar des britischen Museums abbildet und pag. 14 ebenfalls beschreibt". The specimen in the collection of Messrs. Piepers and Snellen, corresponds with this description. For clearness' sake I will repeat, that the prime-colour is red-brown; that there are yellow spots above and beneath the lunule, which is half black and half red; that there is beyond the middle a distinct yellow flexuous streak, also on the anterior wing, which has a red ocellus with a dark outline. Below, the colour is greenish yellow with grayish brown undulated clouds near the outermargin. The lunule is replaced by a dark ocellus. The stigmata are not bordered with gray! The rest is like in the other males.

The female of this variety will probably be like that of the following:

Actias maenas, Var. *isis*, Sonth.

The female is very rare; it is not represented in our Museum. *Latona* and *isis* seem to be localized on the island of Celebes. The male in our collection corresponds with the description given by Sonthonnax of a specimen in the collection of Staudinger.

♀. The prime-colour is red-brown; in the cell of the forewing a small yellow spot at the basal angle and a ditto larger one near to the top; above the lunule, which is like in *latona*, a larger yellow spot is present. Except a trace of a flexuous yellow streak, there are some little yellow spots on the anterior- and posterior-wings. The underside is citrine with grayish red-brown near the outermargin. On the stigmata is a gray zigzag streak.

As to the female, I translate the description of G. Weymer, who possesses one specimen from Celebes.

♀. It is as large as *A. maenas*, has the same greenish yellow prime-colour and similar pattern, but the outer-

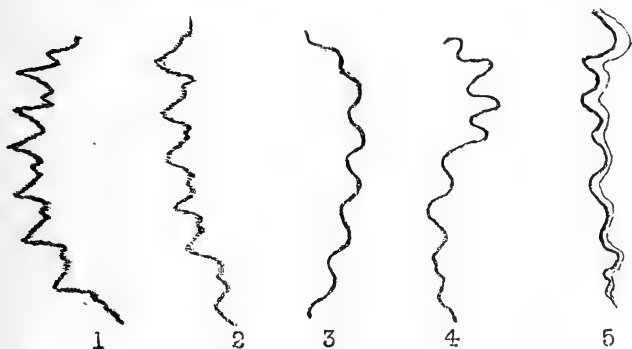
margin of the forewing is bent inward on rib 5—7, so that the apex on rib 8 is more protruding. The top of the lunule is more pulled down to the base, the distinct brown band near the base starts straightly from $\frac{2}{5}$ of the foremargin to $\frac{2}{5}$ of the innermargin, the brown flexuous streak behind the lunule does not lie in the middle between the latter and the outermargin, but nearer to the lunule, so that the distance between streak and outermargin is twice that between streak and lunule. Before the apex in the anterior margin is a long spot; before the innerangle in cells 1b, 2 and 3 are three little round violet spots. Outermargin violet-brown.

On the posterior margin the distinct brown basal band is in the middle between base and ocellus and starts to the dark violet-brown tail. The outer, brown, flexuous transverse streak is indistinct near the ocellus and joins the basal band. The undulated violet-brown margin becomes distally broader and joins also the dark tail. Tail 7 mM.; $\frac{2}{3}$ is violet-brown, much darker than that of *maenas*, the flag is pale yellow with violet-brown on a part of the margin. Ocellus identical with that of *maenas*.

Below the prime-colour is paler, bands near the base absent, lunule replaced by an ocellus, which is not so large as that on the posterior-wing. The two ocelli on the underside are coloured like those of the hindwing on the upperside, but a little paler. The flexuous streak on the wings is nearer to the outermargin than that of the upperside. The outermargin is covered with a grayish red dust, more intensively on the anterior-wings than on the posterior-ones. The tail is wrinkled at the extremity; it is grayish red, except the last little part.

Finally I will say, that there must have been a fifth variation, according to the four degrees of transition from red-brown to yellow, which was entirely dark red-brown with four figures on the tops of the cells. The variety *isis* is the eldest one, that is to say, these moths have retained longer their original colour. The females are very highly developed; the males show us several degrees of

colour transition. It is also my opinion, that the lunules and the ocelli are the focus of the colour-development. From these centres the yellow begins to practice usury on the red-brown and follows a natural line of division. This line is in this genus the flexuous transverse streak, parallel with the outermargin. So it is important, how the streak is running. Here follow five sketches of this streak in the described varieties.



1. Streak on forewing of *A. maenas* ♀, fig. by Westwood.
2. Streak on forewing of *A. maenas*, Doubl. ♀ and of *A. maenas*, Var. *saja* ♀.
3. Streak on the underside of Var. *saja* ♀.
4. Streak on the forewing of *A. maenas*, Doubl. ♂ and of *A. maenas*, Var. *saja* ♂.
5. Streak on forewing of Var. *latona*, Fruhst. ♂ and of *isis*, Sonth. ♂.

I finish suggesting that naturalists will pay more attention to this *Saturnid*, which will be a very good object for rearing experiments. It is a pity that it is so difficult to have these moths brought over.

Leyden Museum, Jan. 8, 1913.

NOTE VIII.

ON SOME LAND SHELLS FROM NEW GUINEA AND
NEIGHBOURING ISLANDS, WITH DESCRIPTIONS
OF TWO NEW SPECIES AND A NEW VARIETY

BY

Dr. J. H. VERNHOUT.

(With Plate 7).

The shells, mentioned in the following communication, have come in the possession of the Leyden Museum at various times. Some of them have been acquired long ago, and were labelled with false names; other ones have been presented quite recently to the Museum. Most shells represent already known species; but having previously been recorded from other localities, their habitat might be of some interest. Mr. G. K. Gude has had the kindness of identifying those shells, for which I had no specimens or good figures at my disposal for comparison.

CHLORITIS LANSBERGEANA Dohrn.

Helix landsbergeana, Dohrn, 1879, Nachrichtsbl. D. Malak. Ges. XI, p. 69. System. Conch. Cab. 2 ed. Band I, Abt. 12⁴, p. 598, T. 175, f. 1—3.

Hab. — Fak-Fak, west Dutch New Guinea.

Mr. Palmer van den Broek.

As far as I know only one specimen of this beautiful shell is mentioned in literature, viz. the specimen in the collection of the late Dr. Dohrn at Stettin. Its exact habitat was unknown, Dohrn writing about it: „habitare dicitur in insula Celebes? an potius in Nova Guinea?”

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Recently the Leyden Museum received a collection of mostly marine shells from Mr. C. L. J. Palmer van den Broek, collected by himself at Fak-Fak, on the west coast of Dutch New Guinea. Among them were a few landshells, two of which were agreeing in every respect with Dohrn's description and figures of *Chloritis landsbergeana*. I agree with Dohrn ¹⁾, Tapparone Canefri ²⁾, Pilsbry ³⁾ and Gude ⁴⁾ in giving this species its systematic position in the genus ⁵⁾ *Chloritis*, near *C. circumdata* Fér., *C. maforensis* Tapp. Can. and *C. pervicina* Smith. P. and F. Sarasin ⁶⁾, in placing it in the genus *Planispira*, are obviously misled by the superficial resemblance of this shell with *P. zodiacus* Fér., and by its supposed occurring in Celebes.

CHLORITIS MAFORENSIS Tapp. Can. Pl. 7, f. 1a, 1b.

Helix maforensis, Tapparone Canefri, 1886, Ann. Mus. Civ. Genova, XXIV, p. 139, T. I, f. 1—3.

Hab. — Waigeoe, island west of New Guinea. Mr. Bernstein.
Misool, island west of New Guinea. Mr. Hoedt.
Morotai?, island north-east of Halmahera.

Mr. Bernstein.

This species and the nearly allied *C. circumdata* Fér. (f. 2a, 2b) can easily be distinguished by the shape of the aperture, and by the last whorl much more descending in front and the greater obliquity of the aperture in the latter species (Pl. 7, f. 1a, 2a). The other differences between the two species, mentioned by Tapparone Canefri, viz. larger and thicker shell, different colouring of the bands, and larger and deeper umbilicus, do not prove to stand the test (Pl. 7, f. 1b, 2b).

Largest specimen, diam. maj. 31,5; min. 26,5; alt. 13 m.M.

Smallest specimen, diam. maj. 26; min. 21,5; alt. 11 m.M.

1) Dohrn, l. c.

2) Tapparone Canefri, Ann. Mus. Civ. Genova, XXIV (1886), p. 142.

3) Pilsbry, Man. of Conch. 2nd series, vol. IX, p. 119.

4) Gude, Proc. Mal. Soc. VII (1906), p. 111.

5) The two first quoted authors call it still a "section" of the genus *Helix*.

6) P. and F. Sarasin, Landmollusken von Celebes (1899), p. 197.

There is another very small specimen in the Leyden Museum, which having the margin of the peristome already reflected, I do not consider as a young one (Pl. 7, f. 5). It could be Pilsbry's var. *micromphalus* ¹⁾, was is not having a rather large umbilicus. It is labelled only "Molucca's".

Diam. maj. 20; min. 16; alt. 9 m.M.

C. maforensis has been recorded from Mafor ²⁾, island in the Geelvinkbay, New Guinea, and the variety from the Aroe islands ¹⁾.

CHLORITIS PERVICINA Smith, Pl. 7, f. 3a, 3b.

Chloritis pervicina, Smith, 1897, Ann. Mag. Nat. Hist. (6) XX, p. 441, Pl. IX, f. 8—10.

Hab. — Misool.

Mr. Hoedt.

The single specimen is smaller than the type, and agrees in size with Mr. Gude's specimen. The peristome is a little damaged.

Diam. maj. 26,5; min. 22,5; alt. 12,5 m.M.

This species was hitherto only recorded from the mainland of New Guinea, viz. Kapaur ³⁾, on the south-west coast, and Hamatawarea near Fak-Fak ⁴⁾, on the west coast.

CHLORITIS HOEDTI n. sp. Pl. 7, f. 4a, 4b, 4c, 4d.

Shell discoidal inflated, deeply umbilicated, rather thin, yellowish with small chestnut bands. Epidermis covered with short, dark hairs, regularly arranged, more distant one from another than in *C. pervicina*, the apical whorl only being lacking them. Spire concave. Whorls 5½ convex, the last large, its latter half descending in front to the middle of the penultimate whorl. Aperture lunate, oblique, whitish inside. Peristome white, all around expanded, the

1) Pilsbry, Man. of Conch. 2nd series, vol. VI, p. 247.

2) Tapparone Canefri, l. c.

3) Smith, l. c.

4) Gude, Proc. Mal. Soc. IX, p. 81.

columellar and basal margin strongly reflexed, the former covering part of the umbilicus.

Diam. maj. 26; min. 21,5; alt. 12,5 m.M.

Hab. — Misool.

Mr. Hoedt.

Type in the Leyden Museum.

At first I was inclined to consider this shell to be *C. pervicina* Smith.

Mr. Gude, who had the kindness to compare it with the type in the British Museum, wrote to me it being a new species.

I wish to dedicate it to the memory of Mr. Hoedt, who was travelling and collecting for the Leyden Museum in the Molucca's and the Papuan islands during the years 1862—1867.

PAPUINA GUDEI n. sp. Pl. 7, f. 6a, 6b, 6c, 7.

Shell conoid, umbilicated, rather solid. Whorls 6 convex, tumid, obliquely striated, the last rounded or slightly flattened at the base, encircled with a chestnut band, slightly descending in front, base clearly striated, almost ribbed radiately. Aperture whitish-violet or nacre-coloured within, the band of the last whorl shining through, oblique. Peristome white, rather broadly expanded and reflexed, upper and basal margin nearly parallel, columellar margin partly covering the umbilicus.

Diam. maj. 35,5; min. 28,5; alt. 27,5 m.M.

Hab. — Fak-Fak.

Mr. Palmer van den Broek.

Type in the Leyden Museum, co-type in Mr. Gude's collection.

One specimen of this new species I found among the shells collected by Mr. Palmer van den Broek. Mr. Gude had the courteousness to send me for comparison a shell from his own collection, still unnamed, agreeing in nearly all characters with my specimen, and to allow me to describe it. This specimen was received from a dealer, and collected in New Guinea. The only difference is the base

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being a trifle more rounded in the co-type, and the colour being much darker. The type is yellowish all over. The co-type has the two last whorls dark chestnut, which becomes gradually paler on the preceding whorls; from the peripheral band downward the base is pale chestnut, while the umbilicus is surrounded by a broad olivaceous zone; the peristome has a whitish band on its outer side, reaching from the umbilicus to the suture, where it continues as a subsutural band along the two last whorls. In the type this band is indicated only indistinctly.

This species seems to be related to *P. pseudolabium* Pfr., but the spire is higher, the whorls are more tumid, and, judging after the only specimen of *P. pseudolabium* at my disposal, the peristome is thicker and more reflexed in *P. gudei*.

I have much pleasure in dedicating this species to Mr. G. K. Gude.

PAPUINA PSEUDOLABIUM Pfr. Pl. 7, f. 8.

Helix labium, Pfeiffer (non Fér.), 1848, Mon. Hel. viv. I, p. 325, Syst. Conch. Cab. 2 ed. Band I, Abt. 12¹, p. 354, T. 55, f. 3, 4.

Helix pseudolabium, Pfeiffer, 1868, Mon. Hel. viv. V, p. 336.
Hab.—New Guinea, probably north-west coast of Geelvinkbay.
Utrecht Missionary-Society.

As far as I know this species is not yet recorded from New Guinea. The shell of this specimen is yellowish-white, the apex purplish-corneous, the peripheral band pale brown, small, the peristome pale rosy.

Diam. maj. 37; min. 29; alt. 24,5 m.M.

Other localities: The Philippines.

PAPUINA KAPAURENSIS Smith.

Papuina kapaurensis, Smith, 1897, Ann. Mag. Nat. Hist. (6) XX, p. 412, Pl. IX, f. 11, 12.

Hab.—Sekroë, west coast of Dutch New Guinea. Mr. Schädler.

This specimen is smaller than the type and than Mr. Gude's

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specimen; the peripheral band is rather broad; the sub-sutural white line is very clear in the last whorl.

Diam. maj. 36; min. 28; alt. 24,5 m.M.

Other localities: Kapaur ¹⁾, Hamatawarea ²⁾.

PAPUINA STRABO Braz. Pl. 7, f. 9a, 9b.

Helix strabo, Braz., 1868, Proc. Linn. Soc. N. S. Wales I, p. 106, 126. Pilsbry, Man. of Conch. 2nd series, vol. VII, p. 60, Pl. 2, f. 22, 23.

Hab. — Sattelberg, German New Guinea. Dr. E. Nymann.

The specimen is larger than the type, and smaller than Mr. Pilsbry's specimen. The colour of the shell is lilac-purplish at the apex, passing through lilac to yellowish-lilac at the end of the last whorl. On the two last whorls there are visible three or four indistinct lilac bands, broken in spots at the end of the last whorl. The peristome is dark brown.

Diam. maj. 25,5; min. 20,5; alt. 15 m.M.

There is still much difference of opinion on the specific value of *P. strabo* and the closely allied *P. tayloriana* Ad. et Rve, *yulensis* Braz., *katauensis* Tapp. Can. and *roseolabiata* Smith, Hedley ³⁾ seeming inclined to consider all of them varieties of *P. tayloriana*, Pilsbry ⁴⁾ regarding *P. yulensis* synonymous with *tayloriana*, *P. katauensis* and *roseolabiata* with *strabo*. Mr. Gude writes me he himself being inclined to consider them all distinct.

Other localities: Katau river ⁵⁾, Mount Maneao ⁶⁾, both of them British New Guinea.

P. tayloriana is recorded from various localities in British New Guinea, Constantinhafen (German New Guinea), Takar (Dutch New Guinea) and Zamna (New Guinea (ubi?)).

1) Smith, l. c.

2) Gude, Proc. Mal. Soc. IX, p. 83.

3) Hedley, Proc. Linn. Soc. N. S. Wales, XVI, p. 691.

4) Pilsbry, Man. of Conch. 2nd series, vol. IX, p. 142.

5) Brazier, l. c.

6) Hedley, Proc. Linn. Soc. N. S. Wales, XIX.

P. yulensis from Yule island and south coast of British New Guinea.

P. katauensis from south coast of British New Guinea.

P. roseolabiata from Ferguson island, d'Entrecasteaux Group.

PAPUINA LENTA Pfr., var. PSEUDEUCHROES n. var.

Pl. 7, f. 10.

Helix lenta, Pfeiffer, 1854, Malakoz. Blätter, I, p. 57. Syst. Conch. Cab. 2 ed. Band I, Abt. 12¹, T. 40, f. 5.

In shape this specimen bears resemblance to *P. lenta*, but it is differently coloured, much like *P. euchroes* Pfr., according to the figure, given by Reeve, Conch. Icon. vol. VII, f. 1346. There is, clearest to be seen on the last whorl, a dark chestnut peripheral band, on both sides surrounded by a small white zone. Between this band and the suture there are an upper whitish and a lower brown zone, the former becoming smaller in the penultimate whorl, and disappearing in the apical whorls. The base has the same brown colour as the lower zone, and is chestnut round the umbilicus. The peristome is lead-coloured, with dark brown margins.

Diam. maj. 33; min. 25,5; alt. 40 m.M.

Hab. — Fak-Fak.

Mr. Palmer van den Broek.

The specimens, described by Mr. Gude ¹⁾, having also a larger size and a relatively higher spire than Pfeiffer's *P. lenta*, are likely very much related to this variety.

Other localities of *P. lenta*: Molucca's ²⁾, Hamatawarea ¹⁾.

1) Gude, Proc. Mal. Soc. IX, p. 81.

2) Pfeiffer, Mon. Hel. viv. IV, p. 257.

NOTE IX.

A NEW GENUS AND APPARENTLY NEW SPECIES
OF RHYNCHOPHOROUS COLEOPTERA,

DESCRIBED BY

C. RITSEMA Cz.

In the following lines a very interesting new genus of the group Rhynchophoridae will be established. A single male specimen, from the Upper Mahakam (Borneo), has been found in a small collection of natural history objects, presented to the Leyden Museum in December of last year by Mr. Kampmeinert. The species is dedicated to the donor.

The nearest ally of this new genus, for which I propose the name *Mahakamia*, is *Macrocheirus* Schönh. The characters by which the two genera are differentiated in the male sex (the female sex of my insect is as yet unknown) are very conspicuous, as will be seen from the following table.

<i>Macrocheirus</i> ♂.	<i>Mahakamia</i> ♂.
Body-shape compact.	Body-shape slender, wedge-shaped.
Anterior femora waved.	Anterior femora straight.
Anterior tibiae irregularly curved, fringed with long hairs at the under margin of the apical half.	Anterior tibiae regularly faintly curved, not fringed but provided all along their underside with rows of minute tubercles, separated by a narrow well-defined furrow.
Intermediate femora not notched at the end.	Intermediate femora with a regularly rounded notch at the end.
Penultimate joint of the tarsi broad, subcircular.	Penultimate joint of the tarsi not broader than the preceding one.

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Pygidium declivous, not elongate.	Pygidium horizontally stretched, narrow and elongate, its tip reaching far beyond the anal fissure.
Antennal club transverse.	Antennal club very strongly transverse.
Elytra conjointly emarginate at the end.	Elytra conjointly truncate at the end.

Mahakamia kampmeinerti, nov. spec. ♂.

Length: rostrum 17 mm., thorax 14 mm., elytra (from base of scutellum to tip of suture) 16 mm., pygidium 11 mm.; breadth at the shoulders 15,5 mm., at the apex of the elytra 10 mm. — Smooth; elytra, upperside of pygidium and the small lateral portions of the last three abdominal segments visible from above covered with a yellowish gray sericeous pile. — Fulvous. Rostrum at the sides, beneath and at the apex black; head black beneath and with a black spot behind the upper half of the eyes; antennae black, the truncation of the widened last joint silvery. Prothorax: the constricted front portion (neck) and four longitudinal bands on the pronotum black; the innermost pair of these bands joins the neck but not the black basal margin, the outermost pair on the contrary joins the basal margin but not the neck; the inner margins of the innermost bands are straight and parallel, their outer margins oblique till near the base where they join the inner margins obliquely; the inner margins of the outermost bands are straight and oblique (parallel with the outer margins of the innermost bands), their outer margins regularly convex. — Elytra: the upturned basal margin, the shoulders and the striae black, the black of the striae invading more or less the interspaces, especially laterally. Pygidium black, with a fulvous vitta along the middle. — Body beneath fulvous, all the sutures, as well as the apical margin of the ventral segments, and the pygidium black. Anterior legs: coxae black, spotted with fulvous; femora black at the inside, fulvous at the outside;

tibiae fulvous, upper margin black; tarsi black. Intermediate and posterior legs: coxae fulvous, more or less spotted with black; femora and tibiae black above and beneath, fulvous at the sides; tarsi black.

The regularly curved rostrum is sparsely but distinctly punctured, the basal half very faintly rugose, the upper-side of the apical half with two rows of longitudinal tubercles ending at a short distance from the apex; between these rows a narrow keel, outside from the rows a keel which touches the apex and forms the lateral margin of the upperside; the sides of the rostrum bear another keel which joins the lateral margin just before the implantation of the mandibles; the under surface, which is almost impunctate, shows two impressed lateral lines and a raised mesial one. The head is sparsely and very minutely punctured, impunctate between the eyes, the interocular pit very distinct.

Prothorax sub-hexagonal, about the middle as broad as at the base, above sub-opaque, of a leathery appearance, large shallow more or less confluent punctures being intermixed with small deeper ones. Base not deeply bisinuate, basal margin turned upwards, broader and flattened along the middle-lobe. The scutellum elongate lanceolate, the uncovered portion glossy and impunctate.

Elytra narrowing in straight lines, conjointly truncate at the end, the outer angle broadly rounded, the sutural angle not toothed; deeply emarginate at the base, the basal margin upturned, beginning (though faintly) between the first and second stria and extending till beyond the shoulders. Five sharply impressed striae on each elytron, the three innermost the longest, the fourth and fifth uniting at some distance from the apex; outwards from the fifth stria four other striae are indicated by a row of minute punctures and by the black colour. The interspaces are sparsely covered with minute punctures. In the fifth stria only, punctures are distinctly visible.

Pygidium very elongate triangular, horizontally stretched, slightly curved upwards at the tip, slightly raised along

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the middle, the margins thickened; very distinctly but not densely punctured above, the punctures along the sides larger than those along the middle; beneath flattened, the flattened portion spattle-shaped and covered at the base and along the sides with distinct punctures; the sides of the pygidium likewise punctured.

Body beneath glossy; prosternum in the middle densely covered with shallow punctures, on the sides (especially at the base) the punctuation agrees more with that of the pronotum; sides of meso- and metasternum distantly covered with large shallow punctures, intermixed with very minute ones; along the middle the punctuation is exceedingly minute and agrees pretty well with that of the abdomen; the apical margin of the last ventral segment is faintly bisinuate, the margin of the flattened middle portion is slightly rounded and preceded by deeply impressed punctures.

Anterior legs very elongate (femora 28 mm., tibiae 32 mm.), the femora straight, their underside rough, rasplike, it being covered with small warts or tubercles; the tibiae regularly faintly curved, their underside provided all along their length with rows of minute tubercles, separated by a narrow well-defined furrow. Intermediate femora straight, their underside beyond the base rugose and with a deep rounded notch just before the knee-joint; intermediate tibiae shorter than the femora, slightly widened out at the underside at some distance from the base, the underside with two lines of very short rufous setae, these lines slightly diverging towards the base and separated by a narrow keel. Posterior femora straight, somewhat shorter than the intermediate ones; the tibiae as long as the femora, their underside just like that of the intermediate tibiae. The penultimate joint of all the tarsi not widened, subequal to the second joint.

Hab. Upper-Mahakam (Borneo). — The described male specimen has been offered to the Leyden Museum by Mr. Kampmeiner.

No doubt Drury's *Curculio longipes* ¹⁾ (*Macrocheirus Druryi* Guér.) from the island of Johanna, one of the Comoro islands, belongs to the genus *Mahakamia*. The figure given by Drury *l. c.* shows very clearly most of its characters, even that of the not widened penultimate tarsal joint.

The following key may be useful to determine the genera of this group of Curculionidae.

- a. Elytra distinctly narrowing backward.
- b. Anterior coxae rather widely separated.
- c. Joints of the funiculus slender, its second joint much longer than the first. Rostrum curved. Scutellum elongate lanceolate. Metasternum strongly convex. Anterior legs in the ♂ very elongate.
- * Elytra conjointly emarginate at the end. — ♂. Anterior femora and tibiae more or less waved, the latter fringed with long hairs at the undermargin of their apical half. Intermediate femora not notched at the end. Penultimate joint of the tarsi broad, subcircular. Pygidium declivous, not elongate.

MACROCHEIRUS Schönh.

- ** Elytra conjointly truncate at the end. — ♂. Anterior femora straight, anterior tibiae regularly faintly curved, not fringed but provided all along their underside with rows of minute tubercles separated by a narrow well-defined furrow. Intermediate femora with a regularly rounded notch at the end. Penultimate joint of the tarsi not broader than the preceding one. Pygidium horizontally stretched, narrow and elongate.
- cc. Joints of the funiculus not or but little longer than broad, its first and second joint about equal in length to each other. Rostrum straight. Scutellum acutely triangular with concave sides. Metasternum not strongly convex. — ♂. Anterior tibiae fringed with long hairs all along their undermargin.

MAHAKAMIA, n. g.

1) Drury, Illustr. of Nat. Hist. Vol. II (1773), p. 61; pl. 33, fig. 3.

- † Elytra with a strong sutural spine at the end. — ♂.
Anterior legs very elongate, their femora strongly curved near the base. The ventral segments simple.

ROELOFSIA Rits.

- †† Elytra with a very minute sutural spine. — ♂.
Anterior legs but slightly elongate, their femora straight or nearly so. The centre of the first, second and last ventral segment provided with shallow opaque impressions which bear short erect bristles.

CYRTOTRACHELUS Schönh.

- bb.* Anterior coxae approximate. OTIDOGNATHUS Lacord.
aa. Elytra nearly parallel, conjointly truncate (hardly emarginate) at the end. PROTOCERIUS Schönh.

Leyden Museum, February 1913.

NOTE X.

ON TWO FORMS OF AMPHIDROMUS
SEMIFRENATUS, MARTS.

BY

Dr. J. H. VERNHOUT.

(With 3 textfigures).

There are in the Leyden Museum two specimens of an *Amphidromus*, that I was not able to identify with any

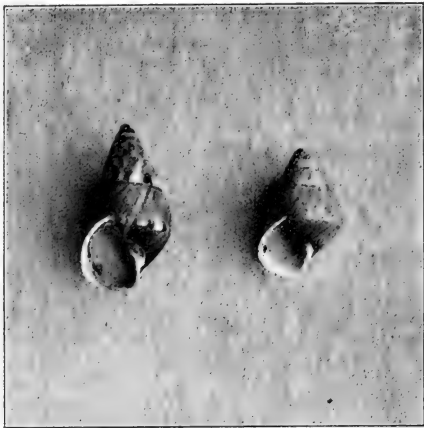


Fig. 1.

Fig. 3.

species represented in our collection. In my opinion they had characters of both *A. porcellaneus* Mouss. and *A. sumatranus* Marts., and also of *A. adamsi* Rve, which latter species has notoriously numerous forms. To be quite sure I asked the advice of Mr. Hugh C. Fulton, who had the kindness of comparing the Leyden Museum specimens with specimens in his own collection. Mr. Fulton wrote to me that the larger specimen agrees with specimens of his own,

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which he decided were a variety of *A. semifrenatus* Marts., while he possessed also specimens as carinate as the smaller one, which may possibly belong also to this species. Thinking it might be of some interest to conchologists, the more so while there are not existing in literature, as far as I know, figures of *A. semifrenatus*, I am giving here figures of both specimens.

The larger one (figs. 1 en 2), Leyden Museum *Amphidromus* 57a, is collected at Tapatoean, Atjeh, northwest-coast of Sumatra, and presented to the Museum by Mr. H. E. Wempe. The shell is greyish brown, darkest on the latter half of the last whorl. A small dark chestnut zone surrounds the closed umbilicus. The last whorl and the latter half of the penultimate whorl are encircled by a small peripheral band, composed of alternating white and chestnut blots, resembling that existing in *A. sumatranus*. The former half of the penultimate whorl and the preceding one are wholly covered with irregular alternating, larger white and narrower chestnut stripes; in the middle is to be seen very indistinctly a small band in the groundcolour of the shell.

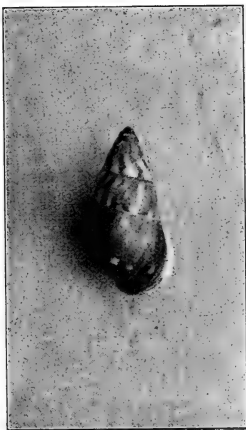


Fig. 2.

The apex is blackish; the first whorls are corneous.

The smaller specimen (fig. 3), Leyden Museum *Amphidromus* 57b, is yellowish, carinate at the last whorl; its apex is blackish. This specimen was collected at Poeloe Weh, a small island northwest of Sumatra, by Dr. P. Buitendijk, who enriched the collections of the Leyden Museum already with many valuable specimens from nearly all classes of animals.

Leyden Museum, March 1, 1913.

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NOTE XI.

A NEW AFRICAN HELOTA-SPECIES

DESCRIBED BY

C. RITSEMA Cz.

Helota Ferranti, n. sp. ♂.

Allied to *H. guineensis* and *Sjöstedti*. Recognizable by having four black spots in the fulvous basal half of the elytra (two on each elytron), which spots are by two and two united posteriorly by an infuscation of the 4th interspace.

Length 14,5 mm. — Elongate, depressed, shining; fulvous, the head with mandibles (the throat excepted), a broad streak along the middle of the pronotum (anteriorly as broad as the neck), the basal and lateral edges of the pronotum, the scutellum, and the basal edge and larger (apical) half of the elytra black, the latter with a faint bronze hue; the fulvous basal portion of the elytra shows four black spots, two on each elytron: the larger, foremost one between the 3rd and 4th striae, the smaller hindmost one between the 5th and 6th striae, both united posteriorly by an infuscation of the 4th interspace, the hindmost one moreover united with the black apical half at the 6th stria; the space between these black spots and the black apical half is occupied by an almost inconspicuously swollen yellow spot of a somewhat trapezoidal shape, extending over the 4th, 5th and 6th interspaces and deeply entering into the black of the apical half; the fulvous colour of the basal half is slightly prolonged backward along the lateral margin. The antennae are reddish fulvous, with the excep-

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tion of the club which is black. The legs are fulvous, with the trochanters, the apical third of the femora and the basal and apical fourth of the tibiae black; the tarsi are dark pitchy, the basal half of the clawjoint fulvous.

Head strongly produced in front of the eyes, slightly raised along the middle and here sparingly covered with large ovate punctures; the punctuation between the raised portion and the eyes very dense, on the narrowed front portion very minute.

Prothorax slightly broader at the base than long, slightly narrowing in faintly curved lines towards the front margin; the anterior angles slightly prominent, rounded; the base bisinuate, the lateral angles acute, the middle lobe rounded; the upper surface somewhat uneven, owing to some punctate impressions, very irregularly covered with large ovate punctures, leaving some spaces free of them. The scutellum is transverse, glossy and impunctate.

Elytra parallel-sided, rounded at the apices, dehiscent at the suture, the posterior margin faintly sinuated, shallowly notched between the suture and the 3rd interspace; each elytron with ten rows of small punctures which become larger towards the base and sides; the interspaces impunctate, the 1st, 3rd, 5th, 7th and 9th more or less distinctly raised towards the apex, the two latter from one third behind the base; the 7th is the most distinct one, and the 3rd and 9th extend to the apical margin.

Under surface: the triangular middle-portion of the head rather remotely covered with very distinct punctures, the lateral portions are very densely punctured; the sterna show some large punctures laterally and the elytral epipleurae some minute punctures along the inner margin of the basal fourth. Legs impunctate; anterior tibiae slightly curved, their apical half fringed with fulvous hairs at the inner margin; the posterior tibiae densely fringed at the underside of their apical fourth with fulvous hairs which increase in length towards the tip of the tibia. Ventral segments with a minute hair-bearing puncture on both sides of the middle; the basal segment in the middle with

a small tuft of fulvous hairs; the apical segment broadly truncate posteriorly, the lateral angles rounded; a large shallow impression, which has a triangular spot of a short fulvous pubescence in front of the truncation, along the middle of the segment.

Hab. Stanleyfalls: Belgian Congo (R. F. Kohl). — I have named this species, of which I have a single male-specimen before me, which belongs to the collection of the Leyden Museum, after Mr. Victor Ferrant, the able Conservator of the State Museum of Natural History at Luxemburg.

Leyden Museum, June 7, 1913.

NOTE XII.

DESCRIPTION OF A NEW AFRICAN SPECIES OF
THE MELOLONTHID GENUS APOGONIA

BY

C. RITSEMA Cz.

Apogonia purpurascens, n. sp. ♀.

Closely allied to *A. sulcata* Kolbe ¹⁾, but at once distinguished by its strong metallic colour (*sulcata* is deep black), more robust shape and only slightly emarginate front margin of the clypeus (in *sulcata* the clypeus is deeply emarginate in both sexes).

Length 11 mm. — Above glabrous, very shining, bright metallic purplish with metallic green tinges; beneath the metallic hue is less distinct, especially on the prosternum and sides of metasternum; the legs black, the tarsi dark pitchy with rufous hairs; the punctures on the under surface of the body and on the legs with a minute decumbent white hair. Antennae, palpi and claws dark rufous.

The clypeus is very distinctly and rather densely punctured, broadly but not deeply emarginate anteriorly, the sides are convergent in faintly convex lines, angular outwards from the eyes, the lateral front angles subangular and narrowly turned upwards. The face is punctured about in the same way as the clypeus, if not somewhat finer towards the vertex; the suture between the face and the clypeus is obsolete in the middle.

The prothorax is regularly convex, covered with a fine

1) Entom. Nachrichten, Jahrg. XXV (1899), p. 46.

but distinct punctuation which is less dense than that on the face and finest in the middle; the sides (viewed laterally) are regularly rounded, finely marginated, the front angles flattened, acute and prominent. The scutellum triangular, with a few exceedingly fine punctures.

The elytra much convex, with ten punctate sulci which become deeper towards the sides; the interspaces convex, alternately narrow and nearly impunctate (1, 3, 5, 7), and broader and distinctly though sparsely punctured (2, 4, 6); the 2nd interspace is about twice as broad as the 3rd on the basal half of the elytra, equal in breadth at the apex.

The propygidium and pygidium are very rugosely and confluent punctate, the latter with a smooth keel in the centre. The sides of the metasternum are very shallowly punctured, those of the abdomen very coarsely; the middle of the metasternum is apparently impunctate, that of the abdomen sparsely covered with very distinct punctures.

The anterior tibiae are bidentate; the tarsi are slender.

Hab. Congo. — The described female-specimen is in the collection of the Leyden Museum.

Leyden Museum, June 1913.

NOTE XIII.

ON TWO REMARKABLE SPECIES OF
APHRODITIDAE OF THE SIBOGA-EXPEDITION

BY

Dr. R. HORST.

(With 2 textfigures).

I. *Lepidasthenia sibogae*, n. sp.

At Station 282, off the North East point of Timor, at a depth of 27—54 M., a single Polynoid-worm was kept, that is characterized not only by the singular shape of its elytra, but also by the abnormal manner of their attachment. For the elytra have not the usual appearance of flat, scale-like organs, that are attached at their under side, but they are represented by small oval buds, not quite so high as broad and fixed at their median side to a long elytrophore; there are 26 pairs of them, as in other *Lepidasthenia*-species situated on segment 2, 4, 5, 7, 9—23, 26, 29—65. They are quite smooth and without any appendages. About the internal structure of these organs ¹⁾ I have observed, that like in other elytra there is an epidermis-layer of polygonal cells, ending at their base in fine fibres, forming a dense network in the centre of the organ; the presence of a nerve could not be stated

1) My colleague Dr. H. W. de Graaf was kind enough as to make some transverse and longitudinal sections.

with certainty, but they contain a great number of dark, yellowish, glandular(?) cells. The dorsal cirri are also very short and do not exceed the elytra much in length except at the anterior segments. The parapodia are very slender; in the posterior region they are (with the bristles)

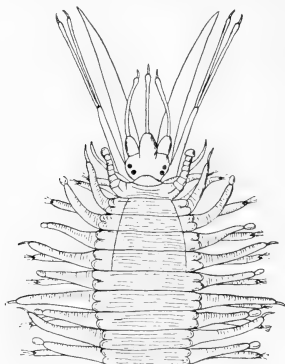


Fig. 1.

as long as the breadth of the body, in the anterior part they measure two thirds of it. The notopodial fascicle is absent and only represented by the acicula; the neuropodial bristles are faintly curved in their distal part and show a short subterminal dilatation with a small number of transverse spinous rows. The inferior setae of this fascicle have a simple undivided apex; however some of the superior ones have a

bifurcated tip, the main point of which is elongated in a long, slender, acute limb, whereas the other limb measures about a third of it.

In my opinion the situation of the elytra in this species affords a new argument in favour of the morphological similarity of the elytron and the dorsal cirrus, for in *Lepidasthenia sibogae* the tubercula dorsalia (elytron-tubercles) are not only totally absent, but the elytra are fixed at the extremity of long elytraphores, quite agreeing in their situation and appearance with the cirrophores.

It is well known that Darboux ¹⁾, in his elaborate memoir on the Aphroditidae, contests anew the homology of the elytron and dorsal cirrus like in the days of Audouin and Milne-Edwards, almost a century ago, and his compatriot Gravier appears to agree with him; for he

1) Recherches sur les Aphroditidae: Bulletin scientifique de la France et de la Belgique, t. XXXIII, 1900.

writes in his description of *Iphione muricata* ¹⁾: „au dessus de son (cirre dorsal) insertion, il existe un grand lobe foliacé, frangé; c'est le tubercule dorsal, ici particulièrement développé, homologue de l'élytrophore des segments élytrigères.”

Darboux pleads for the homology of the elyrophore and dorsal tubercle, chiefly on account of the more median situation of both organs, for he argues: „deux organes homologues sont deux organes qui ont les mêmes connexions.” Now I think that this is only a part of the truth, while the homology of two organs depends on their agreement of anatomical characters (i. e. structure, form, position and connection), as well as on the similarity of origin. Now, Hans Duncker ²⁾ in his detailed researches on the morphology of the Aphroditidae, based upon the rich collections of the Museum of Göttingen, clearly demonstrates, that there exists a great difference between the anatomical structure of the dorsal tubercle and the elyrophore, while the first named organ not only has the muscular layer much less developed, but it totally lacks the nerve. On the contrary the elyrophore and the cirrophore quite agree, not only in the development of the muscular layer but also in the presence of a nerve. And with regard to the origin of both organs, Darboux rightly quotes Häcker's sentence ³⁾: „auch die Anlage der Cirren und Elytren hat anfangs die Form von Knospen. In einem älteren Stadium sehen wir dann die Rückencirren und Elytren als längliche, lappenförmige Gebilde, in einer der Segmentzahl entsprechende Anzahl vorhanden. Noch vor Erreichung des Nectochaeta-stadiums erhalten die sämtlichen Fussstummelanhänge eine mehr flaschenförmige Gestalt. Die genetische Homologie der Elytren

1) Annélides polychètes de la Mer rouge: Nouv. Arch. du Muséum d'Hist. nat. (sér. 4) t. III, 1901, p. 229.

2) Über die Homologie von Cirrus und Elytron bei den Aphroditiden: Zeitschr. f. wissensch. Zoologie, Bd. LXXXI, 1906, p. 191.

3) Die spätere Entwicklung der Polynoë-Larve: Zool. Jahrbücher, Abth. f. Anatomie und Ontogenie, Bd. VIII, 1894, p. 253.

und Cirren ist noch deutlich zu erkennen, insofern an den vierten Elytrenpaar die Endzapfen noch genau die Beschaffenheit der entsprechenden Gebilde der Cirrenanlagen besitzen."

However, Darboux thinks that Häcker's opinion about the homology of both organs only should be based upon „similitude de forme", whereas the german author afterwards should have stated several important histological differences between elytron and cirrus. Now, the only important point of difference that I could find mentioned in Häcker's paper, is „flaschenförmigen Drüsen" making their appearance in the ventral as well as in the dorsal cirri. But Häcker demonstrated, that in the Nectochaetastade all the appendages show a short basal part and a bottle-shaped or scale-like distal part, that in all of them there enters a muscle and a nerve, the branches of which run to the terminal sense-organs. Also the phenomenon, that in some *Lepidasthenia*-species the elytron and the dorsal cirrus take any other's place, in my opinion pleads for the homology of both organs; Ehlers ¹⁾ f. i. found, that in a specimen of *Lepidasthenia irregularis* nine succeeding segments of the posterior body-region at the right side possessed elytra, whereas at the left side there were six elytra and three dorsal cirri; also in *Lepidasth. Digueti* ²⁾ Grav. and *commensalis* Webst. similar phenomena have been observed. As the Siboga-collection also contains some individuals of the rare *Gastrolepidia clavigera* Schm., I could corroborate Duncker's suggestion, that its ventral lamellae have nothing to do with elytra and that they represent only a lamellar enlargement of the epidermis; in this species there are no dorsal tubercles and the cirriphores are situated nearly in the same line with the elytophores.

II. *Eulepis malayana*, n. sp.

Station 204; Buton-strait, depth 75—94 M.; Station 260, off Great Key island, depth 90 M.

1) Die Polychaeten des Magellan. u. Chilen. Strandes, 1901, p. 55.

2) Bulletin du Muséum d'Hist. Nat. t. XI, 1905, p. 177.

Though already five species of the genus *Eulepis* (*E. hamifera* Gr., *Wyvillei* McInt., *challengeriae* McInt., *fimbriata* Treadw., *splendida* Treadw.) have been described, yet there still reigns a good deal of uncertainty about its real characters; therefore I was very glad to meet among the Siboga-collection with a couple of specimens of this rather rare genus. Unfortunately the largest specimen is in an indifferent state of preservation; it measures 20 mm. in length and has 37 segments. The other one has a length of only 15 mm., with 34 somites. The head is rounded, without eyes; the paired antennae arise as two pointed, wedge-shaped processes, lying closely to each other, from under the front of the head. The conical tentacle, arising from the middle of the dorsum of the head, scarcely reaches with its tip half the length of the antennae;

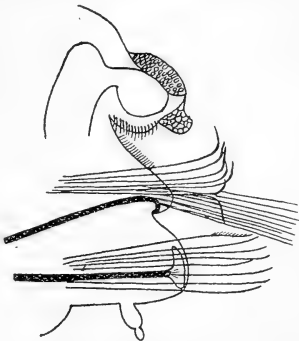


Fig. 2.

the tentacle as well as the antennae bear a dark spot on the middle of the dorsal side. The palps are conical, smooth, nearly twice as long as the antennae and not extending much beyond the tentacular cirri. There are 12 pairs of elytra, whitish, semitranslucent, with a notch in the external margin; the anterior five ones are rounded quadrangular, the other ones are elongated, extending over more than one segment. The small specimen possesses only 11 pairs of elytra and, probably, it is not full-grown. The last elytron even extends over seven segments and therefore covers a great part of the posterior body-region. The elytra are situated on segment 2, 4, 5, 7, 9—21, and 24, as mentioned by Treadwell¹⁾; the posterior elytron therefore

1) The Polychaetous Annelids of Porto Rico: Bull. of the U. St. Fish Commission, Vol. XX, Part 2, 1902, p. 181.

is not attached to the 23rd segment, like in the Polynoidae, because it is separated from the foregoing by two branchiac-bearing segments. The long elyptrophores as well as the branchial processes are inserted quite next to the median dorsal line. The dorsal appendages of the segments without elytra more resemble the branchial processes of a Sigalionid than a cirrus, for they show a row of cilia at their ventral side, whereas also one or more groups of cilia are situated opposite on the dorsum of the notopodium. However it differs from a Sigalion-branchia therein that it consists of a broad basal portion and a narrower, cirrus-like distal part, separated from each other by a septum. In the segments, situated more posteriorly, this cirrus-like part becomes larger and longer. The basal part contains a peritoneal cavity, in which an intestinal coecum enters and also some eggs are visible; its wall, agreeing with Dunccker's description¹⁾, shows a thin layer of longitudinal muscles and an epidermis-layer, that is very thick at the ventral side of the branchia. At the dorsal side a comb-like ridge is situated, consisting of numerous cells with coarsely-granular contents, presumably of a glandular nature. The distal part consists of large polygonal cells. The third segment has a short, conical dorsal cirrus and at first shows in its notopodium the stout brown bristles, with the tip bent at a right angle towards the shaft, characteristic for this genus; beneath them is a fascicle of slender, capillary bristles, finely serrated along the edge. The neuropodium contains a fascicle of stout yellow setae, winged along both edges and with a fine capillary tip; only the superior of them is shorter and pectinated beneath the tip. This comb consists of about a dozen of large teeth, decreasing distally in length, and of a great number of small ones. This pectinated bristle was first observed by McIntosh in *E. Wyvillei* and *E. challengeriae*²⁾, but overlooked

1) loc. cit. p. 315, Textfigures 31 and 32.

2) Annelida Polychaeta: Challenger Reports, Zoology, Vol. XII, 1885, p. 131.

by Grube¹⁾ in *E. hamifera* (as I presume), as well as by Treadwell in *E. splendida* and *E. fimbriata*, for Augener afterwards stated its presence in *E. splendida*²⁾. I suppose, that this remarkable bristle has a different shape in the different species of *Eulepis*. In both parts of the parapodium the distal end of the acicula has a particular shape; in the notopodium it is bent like a hook and in the neuropodium it is enlarged to a transverse lamella, like the head of a hammer. Presumably this represents the „auffallendes braunes breites etwas mondähnliches Plättchen“, mentioned by Grube on page 53. The ventral cirrus consists of an enlarged, lamellar basal portion and a clavate terminal appendage. The small worm of Station 204 has a long unpaired anal cirrus, extending over five segments.

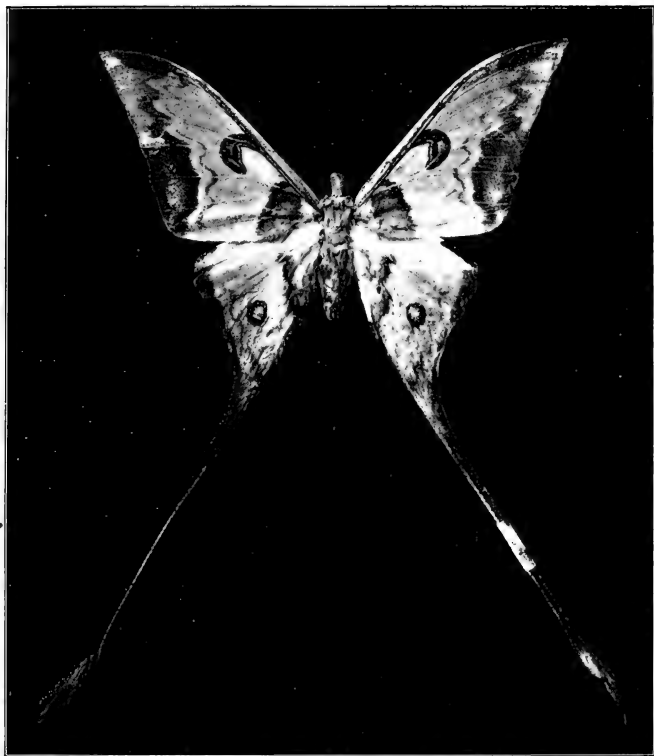
Of the five described *Eulepis*-species four are found in West-Indian waters and *E. hamifera* only was dredged in the neighbourhood of the Malay Archipelago (Philippines). Unfortunately Grube had but a single specimen at his disposal and therefore his observations appear to be somewhat incomplete. However I think that the Siboga-species cannot be identified with it; for according to Grube, *E. hamifera* has the surface of the scales densely covered with short papillae, whereas there occur long ones along their exterior and posterior border. The anterior eleven pairs of elytra are situated on segment 2, 4, 5, 7, 9—21; segments 22—27 bear lamellar organs, somewhat resembling elytra, whereas in the posterior body-region all segments are provided with scales. Whether the appendages, occurring on the segments without elytra, are real cirri, remains somewhat dubious; they consist of a large, lamellar, basal portion and a short distal part, but Grube could not recognize the presence of cilia and does not know if they have branchial function. With

1) *Annulata Semperiana*: Mém. del' Acad. Imp. d. Sc. de St.-Petersbourg (S. 7) t. XXV, 1878, p. 52.

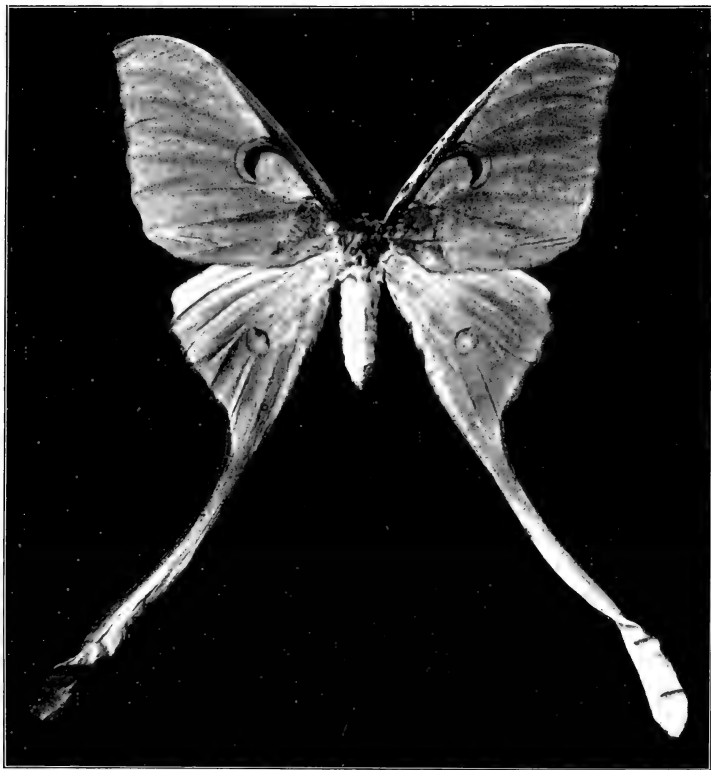
2) *Westindische Polychaeten*: Bull. of the Museum of Comp. Zoology at Harvard College in Cambridge, Vol. 43, 1904—08, p. 128.

regard to the number of real elytra I think that only twelve pairs were present; for Grube mentions, that also in *E. hamifera* the twelfth pair of scales are the longest, like in the Siboga-species and in the species described by Treadwell. McIntosh believes, that his *E. Wyvillei* should have fifteen pairs of scales, but as several of the scales were wanting, this could be a mistake; of *E. challengeriae* only an anterior fragment of the body was at his disposal. Therefore I presume, that the genus *Eulepis* is characterized by the presence of 12 pairs of elytra, the posterior of which is the longest and covers a great part of the body.

Leyden Museum, June 1913.



♂. *Actias maenas*, Doubl. Var. *saja*, v. Eecke. ($\frac{9}{16}$ nat. size).
Solok (Sumatra).



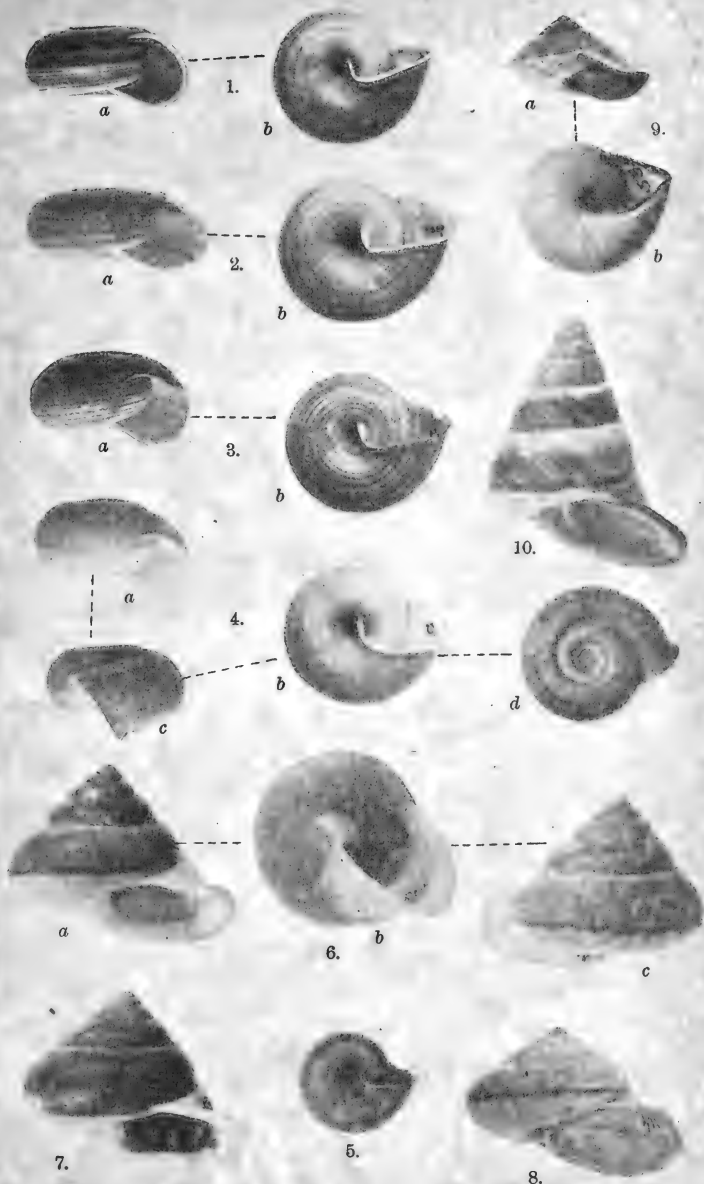
♀. *Actias maenas*, Doubl. Var. *saja*, v. Eecke. ($\frac{10}{17}$ nat. size).
Tjintjiroean (Java).

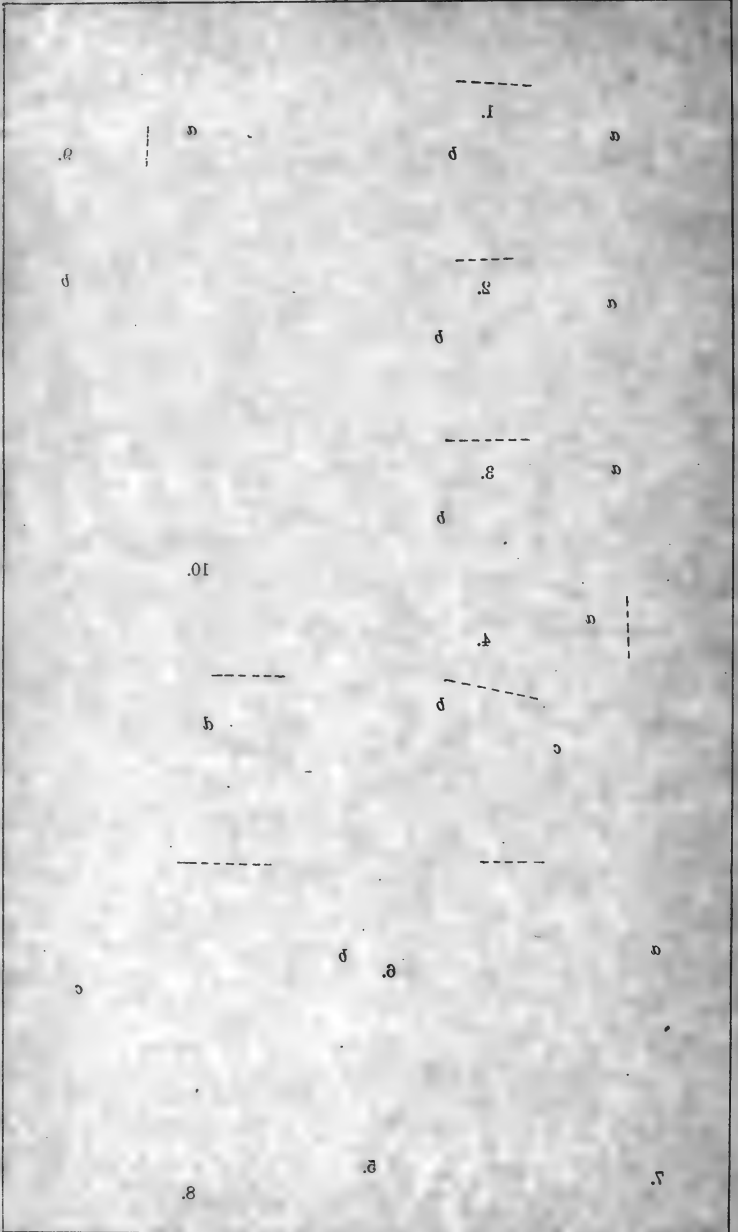


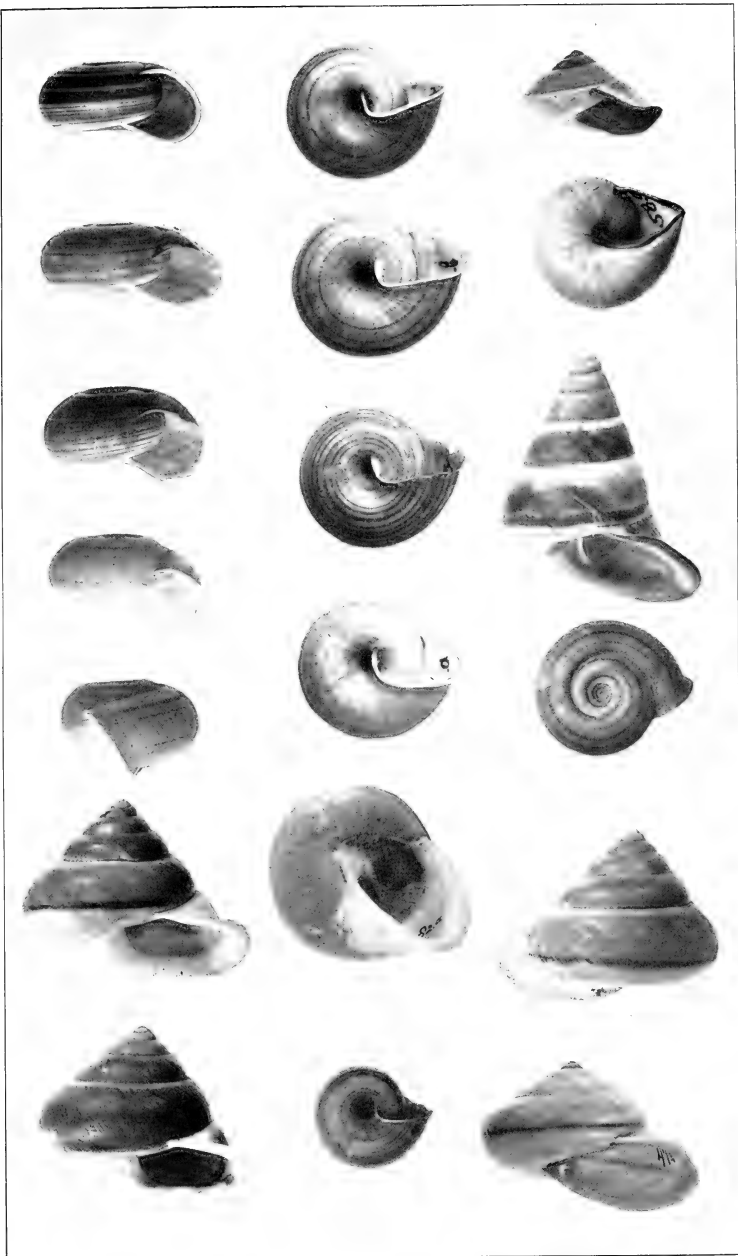
♂. *Actias maenas*, Doubl. Var. *latona*, Fruhst. ($\frac{3}{7}$ nat. size).
Celebes.



♂. *Actias maenas*, Doubl. Var. *isis*, Sonth. ($\pm \frac{5}{6}$ nat. size),
Celebes.







NOTE XIV.

A NEW MYODITES FROM LIBERIA

(COLEOPTERA: RHIPIDORIDAE)

DESCRIBED BY

C. RITSEMA Cz.*Myodites fasciatipennis*, nov. spec.

Length 5 mm. — Black; the plumose antennae pale fulvous, the tip of the flabellae slightly infusate; the legs pale fulvous, the extreme tip of the femora and tibiae and the basal third of the posterior femora infusate; the elytra dark pitchy brown, narrowly margined with pale fulvous and provided with an ill-defined fulvous band (narrowest in the middle) beyond the base; wings hyaline, with a pale fulvous band before the apex, the nervules pale yellowish, the costa and those in the fulvous band darker.

Head and thorax opaque, owing to the very dense punctation, and covered with a short grey pubescence; the vertex conically elevated, the pronotum with three small smooth spots forming a triangle with its top directed towards the front margin of the thorax, the anterior spot impressed and somewhat larger than the basal ones; a trace of a mesial line is present at the base of the pronotum; the scutellum is glossy and impunctate, and provided with a central fovea. The elytra are subshining, strongly punctured, the shoulders glossy and impunctate; their inner margin is very faintly concave, their outer margin strongly and regularly curved, their tip obliquely rounded towards

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the suture. The abdomen densely punctured, the margins of the segments glossy and impunctate. The legs strongly punctured, especially the posterior pair; the intermediate tarsi are the longest; the basal joint of the posterior tarsi is compressed, broadest about the middle of the length, which is due to the much convex upper side.

HAB. Robertsport (Liberia). — The described specimen has been captured by Mr. Jackson Demery. It is in the Leyden Museum.

Leyden Museum, July 1913.

NOTE XV.

THE CORRECT STATUS OF ELAPS COLLARIS
SCHLEGEL

BY

JOSEPH C. THOMPSON,

Surgeon, U. S. Navy.

In 1908 Dr. F. A. JENTINK, Director of the Natural History Museum at Leyden (Holland) and Dr. TH. W. VAN LIDTH DE JEUDE graciously extended the courtesy of allowing me to study for a few weeks in the Herpetological Department of the Leyden Museum.

The type specimens of *Elaps collaris* which were described by SCHLEGEL in 1837 were examined. This species was correctly placed by its author in the genus *Elaps*. It belongs to the group that is characterized by Mr. BOULENGER as having the "symphysial in contact with the anterior chin-shields". It is allied to *E. narduccii* JAN, which it resembles in having the sixth supralabial in contact with the parietal and in the colour pattern of the body. It is specifically distinct in the following details: The parietal shield is shorter, being less than the inter-orbital space; the nuchal band is sharply defined, and cannot be mistaken for the light band over the head, that is so common a mark in the genus; the gastrosteges are less numerous, the records are from two hundred twenty-eight to two hundred twenty-nine, whereas the range in *narduccii* is from two hundred forty to three hundred fifteen.

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The change in the third volume of our text-book "The Catalogue of the Snakes in the British Museum" that will result from this is as follows: The description of *Hemibungarus collaris* on page 393 will be regarded as transferred to page 433 and inserted after that of *Elaps narduccii* JAN.

One of the Type Specimens.

N^o. 1443. Leyden Museum. (Ancien Cabinet, Manille).

Locality unknown. Male; total length 442, tail 26 mm.

Squamation. Scales in 15 continuous rows; those on the anterior portion of the body are acute angled in the dorsal rows and truncate in the lateral rows; posteriorly the tendency for all the scales is to be acute angled except those in the first and second rows, which continue to be truncate. Ventrals 228. Anal divided. Subcaudals 21 pairs, the terminal scute short and rounded. Four gular shields in the median line between the posterior genecials and the first ventral. Rostral broader than long (2.4 mm. by 1.4 mm.). Internasals broader than long (1.5 mm. by 1.3 mm.); entering into the formation of the upper rim of the nostril. Præfrontals longer than broad (2.1 mm. by 1.9 mm.). Frontal small (2.7 mm. by 1.7 mm.); lateral edges nearly parallel; terminating behind in a trifle less than a right angle. Parietals (4.6 mm. by 3.5 mm.) not in contact with the inferior postocular; laterally in contact with the sixth supralabial; posteriorly in contact with a large occipital shield and with the first scale in the median and the first scale in each of the seventh rows. Nasal divided, the anterior the larger. Præocular (1.5 mm.) in contact with the third supralabial. Postoculars two, the inferior the smaller. Anterior temporal absent; posterior behind the sixth labial and in contact with the parietal and the seventh supralabial. Seven supralabials, the third and fourth entering the eye; the sixth the largest, its suture with the parietal on a level with the center of the pupil. Mental longer than broad, in contact with the anterior chin-shields. Seven infralabials, the first pair not touching behind the mental. Anterior chin-shields longer than the

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posterior, (3 mm., 2.6 mm.); anterior in contact with the first to the fourth labial, posterior with the fourth labial only.

Coloration. Time and the preservative have altered the original colours to a seal brown above and a muddy cream below. The tip of the snout brown, involving the rostral and internasal shields. A light band crosses the snout covering the first and second supralabials, the two nasals, and the anterior one third of the præfrontal shields. The top and sides of the head are brown; involving the frontal, the posterior two thirds of the præfrontals, the supraoculars, the parietals, the azygos shield behind the parietal mutual suture, the præoculars, the postoculars, the posterior temporal, the third, fourth, fifth, sixth, and the anterior superior angle of the seventh supralabial shields. A light nuchal band, covering the adjacent halves of two scales in the median row, and three scales on the side of the neck; below the posterior margin of this collar is in line with the anterior margin of the first ventral shield. The lower surface of the head is light; on either side of the lower lip there is a dark spot covering the third, fourth, and fifth infralabial shields. The body above is a uniform seal brown, becoming a trifle darker posteriorly. Below there are forty-three light spots, these cover as a rule three to four gastrosteges. These spots extend on the sides of the body as a triangular mark, covering usually two scales in the first row and one scale in the second row; occasionally these lateral extensions are larger and cover three scales in the first row, two in the second row, and one in the third row. These spots are separated from each other by from one to two dark ventrals; spots number sixteen to twenty and thirty-six to forty-three are confluent. Tail cream coloured; a saddle mark seven scales long above and crossing the eighth pair of urosteges below; behind this another spot five scales long and four scales wide; the last spot covers four dorsal scales and the upper half of the conical terminal scale.

Anatomy. The nostril is situated above the suture between the first and second supralabial. The eye is

directed upwards and outwards, the diameter (0.9 mm.) being one half its distance (1.8 mm.) from the mouth; the center of the eye is above the suture between the fourth and fifth supralabial. The left maxillary bone bears a single fang (1.6 mm. long), the base of which is at the suture between the second and third supralabial shields. There are no small teeth on the maxillary bone in addition to the fangs. Head 12 mm. long, 6.8 mm. broad, snout 4 mm., interorbital space 4 mm. wide.

One of the Type Specimens.

N^o. 1444. Leyden Museum. (Ancien Cabinet).

Locality unknown. Total length 399, tail 24 mm.

Squamation. Scales in 15 rows; ventrals 229; anal divided; subcaudals 21 pairs, the terminal scute blunt. Præocular one; postoculars two; anterior temporal absent; supralabials seven, the third and fourth entering the eye, the sixth broadly in contact with the parietal shield.

Coloration. On the abdomen there are thirty-five light spots. Tail light with a saddle mark and a dark tip.

Anatomy. Maxillary bone without small teeth. Head 11 mm. long, 6.1 mm. wide; snout 3.6 mm.; diameter of eye 0.8 mm., its distance from the mouth 1.8 mm.

Type Specimen of *Elaps gastrodelus* DUMÉRIL et BIBRON.

N^o. 3930. Mus. d'Hist. Nat. Paris. Locality unknown.

Female; total length 336, tail 22 mm.

Squamation. Scales in 15 rows; ventrals 228; anal divided; subcaudals 22 pairs, terminal scute blunt. Rostral broader than long, visible from above, suture between the internasals one half as long as that between the præfrontals; frontal nearly one and one half times as long as broad, a trifle shorter than the parietal; nasal divided; præocular one; postoculars two; temporals, on the right side an anterior and a posterior (1—1), the anterior in contact with the postoculars and supralabials V—VI, on the left side the anterior temporal is fused with supralabial

VI, formula (0—1); supralabials seven, the third and fourth entering the eye; infralabials seven, first pair not touching behind the mental; anterior geneials larger than the posterior, in contact with four infralabials.

Coloration. Abdomen with forty-one transverse light spots, covering two to two and one half ventrals, these continue on the sides so as to cover one scale in the first row; these spots are separated by from three to three and one half ventrals. Tail with traces of two dark cross bands.

Anatomy. Diameter of the eye 0.8 mm., distance from the mouth 1.5 mm. Maxillary bone extending forwards beyond the palatine; no small maxillary teeth. Postfrontal bone absent.

Notes. The jar containing this specimen bore a printed label giving the locality as the "Antilles", and the collector as M. KERONDREN. In the Catalogue of the Collection the original entry reads "*Elaps collaris* SCHLEGEL" and the locality "Manille". This was in the handwriting of a copyist in the time of DUMÉRIL. Later the "*collaris* SCHLEGEL" was crossed through, and "*gastrodelus* D. & B." written above them. The "Manille" was written over by "Antilles". This alteration in the records was in the handwriting of M. BRACONNIER.

In this species the anterior temporal is normally absent. Occasionally it is present as in this specimen, and in the one figured by JAN in Icon. Gen. 43, pl. II, fig. 2.

U. S. F. S. Albatross,
Sausalito, California,
May 30th, 1913.

NOTE XVI.

APOGONIA BURMANICA, N. SP.

DESCRIBED BY

C. RITSEMA Cz.

Length 13 mm., breadth at the shoulders 7 mm. — Black; head, thorax and abdomen with a faint coppery hue, scutellum and elytra with a faint metallic green hue mixed with coppery; antennae pale fulvous, the palpi slightly darker. Head and thorax lustreless, elytra and abdomen subshining. — Clypeus densely punctured, broadly rounded, front margin turned upwards; separated from the face by a shining impunctate streak. Face strongly and deeply punctured, the punctures a trifle larger than those on the pronotum. — Pronotum exceedingly densely and regularly punctured, the narrow interspaces between the punctures forming irregular longitudinal and oblique fine ridges; the anterior lateral angles flattened, rather acutely protruding, shining, with a few punctures and upturned outer edge. Scutellum deeply punctured, the extreme base and the apex smooth. — Elytra strongly though not very densely punctured, with the 1st and 2nd costa very distinct, owing to the impressed bordering lines which are marked with very closely set punctures; these costae are impunctate and the 1st one is a trifle broader than the 2nd. The 3rd or humeral costa is rather indistinct and narrower; the space between it and the three lateral rows of punctures is punctured like the rest of the elytra. The sutural interstices bear a row of small punctures which doubles beyond the middle of the elytra. — The propygidium is rugosely punctured, the pygidium very coarsely and with a smooth longitudinal line at the base. — The sides of the metasternum are punctured about in the same way as the pronotum, the middle portion however is remotely punctured. The punctures on the ventral segments are large and not close together. — The anterior tibiae are tridentate, the upper tooth rather obliterate.

Hab. Burma: Theinzeik (P. Loizeau). — The described specimen belongs to Mr. René Oberthür.

Leyden Museum, August 1913.

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NOTE XVII.

FAUNA SIMALURENSIS.
COLEOPTERA, FAM. LUCANIDAE

BY

C. RITSEMA Cz.

Only four representatives of the family Lucanidae, belonging to three species, have been sent over from the island of Simalur (west of North Sumatra) by Mr. Edw. Jacobson, one of which is new to science.

1. *Odontolabis latipennis* Hope, Cat. Lucan. 1845, p. 17. —

Leuthner, Trans. Zool. Soc. London, XI, 1885, p. 471.

Two females of a pitchy black colour, both from Sinabang, one (the smallest) captured in February, the other in April 1913.

The smallest specimen (n^o. 1271), which measures 35 mm., has two impressions on the face between the front margin of the eyes; the space between these impressions is slightly raised and less densely punctured than the surrounding parts of the face.

The larger specimen (n^o. 2142) measures 46 mm. in length.

This species is also known from Malacca, Prince of Wales' Island, Sumatra, Banka, Borneo, and, according to Junk's „Coleopterorum Catalogus", also from Nias.

2. *Cyclommatus simalurensis*, nov. spec. ♂.

One male (forma major) from Sinabang, April 1913 (n^o. 2141).

Length from the tip of the clypeus to the apex of the elytra 26 mm., that of the mandibles, measured on the

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outside, 15 mm.; breadth at the shoulders 9 mm. — Dark bronze, variegated with brown on the upper side of the head, mandibles and prothorax and on the legs; the elytra pale fulvous, narrowly infuscated along the suture, the outer margin greenish black, the epipleurae and a narrow marginal streak beyond the shoulders bronze coloured. The brown and the fulvous coloured parts have a slight metallic green hue. The teeth and the outside of the mandibles, and the scape of the antennae are black; the palpi, the flagellum of the antennae and the tarsi dark rufous brown.

The brown colour occupies on the mandibles: a median streak all along their length, less distinct however towards the apex; on the head: the projected clypeus, and on the vertex a wide V-shaped figure of which the angle touches the front-margin of the prothorax; on the pronotum: a broad central longitudinal band; on the legs: the upper side of the femora.

Very minute white scales are present on the base of the mandibles, on the sides of the head, in the punctures on the pronotum, on the scutellum, and on the base and the bronze coloured lateral portion of the elytra, and moreover on the entire under surface (the elytral epipleurae included), but with the exception of the mandibles; on the legs similar scales are present on the bronze coloured portions; the under surface of the tibiae is covered with a short bright rufous pubescence, that on the under surface of the tarsi is paler and longer.

The mandibles are strongly and regularly curved downwards; on the outside they are faintly waved, slightly curved, more strongly so towards the apex; their inner margin armed at a short distance before the middle with an acute triangular tooth, the space between this tooth and the obliquely truncate ante-apical one shows some irregular crenatures and that between the ante-apical tooth and the tip of the mandible is provided with four rather acutely pointed teeth. The outer upper margin of the mandibles is raised from beyond the median tooth till

beyond the ante-apical one, and at the base of the mandibles this margin is strongly compressed so as to form a sharp keel. The mandibles are opaque on the basal half and become shining towards the apex; in the opaque portion distinct punctures are spread.

The upper side of the head bears a strongly curved sharply raised keel, beginning opposite to the basal keel of the mandibles; it is narrowly interrupted on the middle of the head; another much less distinct keel originates in the lateral front angles of the head; outside from this keel the head is rugose and opaque, the rest of the head is sub-shining, having an exceedingly fine sculpture and a few indistinct punctures. The middle of the front margin of the head forms a broad projection which is truncated anteriorly in a straight line which is tridentate; the median tooth is erected and conical, the lateral ones are minute.

The sides of the prothorax are angular a little before the middle, the angle forming a distinct tooth; the front margin is accompanied on both sides of the middle by a curved impression; a very faint impression runs along the middle of the disk. The middle of the disk is very shining, sparsely covered with distinct punctures; the bronze coloured lateral portions are opaque in consequence of a very dense sculpture. The bronze coloured scutellum is broader than long and rather densely covered with scale-bearing punctures.

The elytra are very shining, very finely, not densely, punctured; the punctures across the base somewhat larger, the shoulder-streak opaque.

The under surface of the head and the sterna opaque, sprinkled with small whitish scales; the abdomen and legs finely punctured, each puncture bearing a small whitish scale. The intercoxal part of the prosternum is slightly prolonged backward.

The anterior tibiae are straight, slightly elongate and provided on the outside, a little beyond the middle, with a trace of a spine.

3. *Aegus ogivus* H. Deyr. Ann. Soc. ent. Belge, IX (1865), p. 33.

One female, captured at Lasikin in April 1913 (n^o. 2143).

This species is also known from Malacca, Sumatra and Borneo.

The above-quoted specimens are in the collection of the Leyden Museum.

Leyden Museum, July 1913.

NOTE XVIII.

A NEW GENUS, A NEW SPECIES
OF ANTHEREA, AND SOME GEOGRAPHICAL RACES
OF THE GENUS CRICULA (SATURNIDAE) FROM
THE INDO-MALAYAN REGION

BY

J. HENRY WATSON.

(With plate 8).

Cricula drepanoides (Moore), P. Z. S. 1865, p. 817. This must be separated from *Cricula* (Walk.), Cat. Het. B. M. 1855, to which genus it appears to have little in common. The only reason for its being there is a slight resemblance to *C. trifenestrata* (Helf.) but for which I propose the name

Solus, nov. gen.

Cells of fore and hind-wing open, there being no discal veins. No trace of veins in the cell ¹). A branch given off from the subcostal just at the curve, and continued to the apex. Thorax and abdomen weak and frail. Hind-margin of the fore-wing straight, making a right angle with the outer margin. Hind-wing longer than in *Cricula* being twice the length of the body.

The fenestrae of *Solus* are not so completely hyaline as of *Cricula* and the appearance of these and the frail body

1) These are the disappearing veins (see Grote, Proc. South London Entom. Socy. 1897, The British Day Butterflies, Fig. 1) and are distinctly though faintly found in *Cricula* proper. In *Rhodina* they have commenced to atrophy; in *Solus* they have disappeared altogether with the discals, so completely as to leave no trace of ever having been there.

call to mind the West African genus *Eudemonia*; but *Solus*, which is a native of Bhutan, is isolated from any other oriental genus that I am acquainted with. If we relied only on neurulation it would fall into the *Attacinae* proper.

I am indebted to Mr. Rothschild for the specimen which I possess of this insect, which is known only from the male, and is very rare in collections.

Cricula trifenestrata (Helf.) *bornea*, nov. subsp.

Fore-wing in both sexes the least falcate of any form of *trifenestrata* (Helfer 1847), which species is known from Burmah, India, Ceylon, Andamans, Java and Sumatra. The dark line of the fore-wing curved behind towards the base of the wing, and more broad. The costal fenestra of the male almost obsolete; that of the female less, and the central one almost absent.

Male and female, pale yellow buff (perhaps a little bleached).

Hab. Busan, Borneo, July 10th 1895.

Types in coll. Watson.

Received in exchange from J. C. Moulton, Esq., Sarawak.

C. trifenestrata javana, nov. subsp.

Like *andamana* (Jord.) a large race.

The Java *trifenestrata* may be separated from the Andaman race by the more falcate apex of the fore-wing of both sexes, and the female being more rufous and without an additional fenestra in the cell of the fore-wing, which female *andamana* and also *Cricula Andrei* (Jord.) usually have, and for this race I propose the name *javana*.

Types in coll. Watson.

A series of both sexes from Malang, Eastern Java.

C. Andrei elaezia (Jord.), Nov. Zool. XVI, 1909, p. 303.

The type male is in the Tring Museum, from Preanger, Java, ex coll. van de Poll.

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Female: tawny yellow above; fore-wing with a dark brown line from apex to middle of hind-margin, wider in the middle and suffused towards outer margin, thus the outer half of the fore-wing is darker than costal half. Hind-wing with the subbasal line brown and post-discal line more serrated and bolder than Burmese or Cachar *Andrei*. Both wings below clear brown, darker on the marginal half. Smaller than typical *Andrei*.

Two females. Preanger, Java occ. 1888, in the Leyden Museum in coll. Piepers:

One, the type, in coll. Museum Leyden, N^o. 2799. Length of fore-wing 40 mm.

The other, co-type, in coll. Watson, which I was kindly allowed to retain.

There are several males in the Leyden Museum which exhibit little variation from the type male of this geographical form in Tring Museum. These and the two specimens below have the appearance of having been bred.

C. Andrei ab. *afenestra*, nov. ab.

Wings uniformly coloured above and below except for the central line of the fore-wing, and the basal and serrated line on the hind-wing. No clear glassy areas (fenestrae), these being indicated by the merest point of dark scales near the costa of fore-wing, which, strange to say, indicates the spot on typical male *Andrei* which is the first to be suppressed.

Two females, one larger (length of fore-wing 43 mm.) and paler than the other; the *Andrei elaezia* females being intermediate in colour between these two aberrations.

Hab. Preanger, Java occ. 1888.

Type female in the Leyden Museum in coll. Piepers, N^o. 6800.

Co-type in coll. Watson.

The forms of *C. Andrei* from the Indo-Malayan Islands appear unknown, but I am informed that there are two kinds of *Cricula*-larvae in the Andamans and I hope to

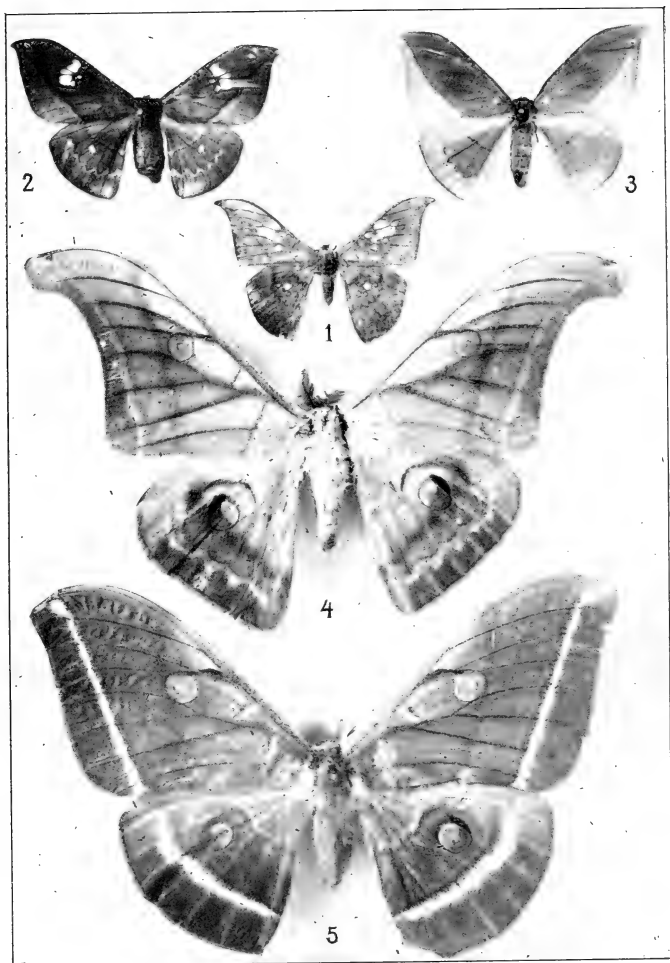
have them from this district, and Mr. van Eecke is endeavouring to obtain larvae of *C. Andrei elaezia* from Java which I shall be most glad to see.

Antherea imperator, nov. sp.

Male. Near to *Helperi* (Moore) but considerably larger. Antennae light brown. Fore-wing apex as in *andamana* (Moore) and *Frithi* (Moore) being narrowly falcate, but in this species truncate not rounded. Costa pinkish grey, fore and hind-wings above pale pinkish brown, the cell and just beyond along the costa paler and pinker than the rest. Veins of fore-wing usually outlined in dark brown. A short brown subbasal line at right angles to the costa edged internally with pink; a very faint brown band just indicated, crossing from costa beyond the cell to the middle of hind-margin; a faint submarginal line commencing at the apical spot and continued to the hind-margin. The hinder angle of the wing being much produced. Ocellus not vitreous; inner half of ring pink, outer yellow with yellow streak across. The outer margins of both wings are outlined in brown; the fringes being the same shade as wings. Hind-wing triangular; both anal angle and outer margins long and straight; the costal rounded, the veins much less strongly outlined. A brown line extending from anal margin, then running broader round the outside of ocellus and continued as a wavy line to near anal angle. Another line outwardly parallel and contiguous to this one from the anal angle to near the outer angle. Ocellus as fore-wing but having the upper margin with a black spindle shaped mark. Below the wings are darker than above, outer half beyond the cell paler; a suffused subbasal brown band, another from hind-margin to the ocellus, and a narrow marginal line with paler spots without.

Female. Wings orange yellow with all veins of fore-wing outlined in dark brown, base of cell of fore-wing pink with brown line crossing it. A black line running from costa to ocellus. A strong dark brown line edged

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INDO-MALAYAN SATURNIDAE.

outwardly with silver pink commencing near apex where it is much broader and running almost parallel with the outer to the hind-margin, and continued across the hind-wing ending at anal margin. A fainter line runs from mid-anal margin and arches partly round the ocellus. Fore-wing ocellus has small central vitreous yellow edged spot surrounded by a pinkish area which is again margined outwardly by black and inwardly by silvery pink. A pink line runs from costa to this ocellus below the black. Hind-wing ocellus has a less vitreous and is edged outwardly with black ending above in a black oval spot; the inner half of ocellus being pink the outer yellow. Below the wings are yellowish buff with a distinct sub-marginal internervular row of triangular black spots which are edged outwardly with white.

Hab. Malabar Mt., 1700 M., West Java, Oct. 1909/Jany. 1910. Dr. H. W. v. d. Weele.

Types in coll. Museum Leyden. A series of both sexes.

Co-types in coll. Watson.

There is a single male of a smaller geographical race of this species in the Tring Museum from Sarawak, Borneo, from Mr. J. C. Moulton, and it may occur in adjacent islands also.

Manchester, August 1913.

EXPLANATION OF PLATE 8.

- Fig. 1. *Solus drepanoides* (Moore). Nov. gen. Male.
 „ 2. *Cricula Andrei elaezia* (Jord.). Female.
 „ 3. „ „ ab. *afenestra* (Wats.). Nov. ab. Male.
 „ 4. *Antherea imperator* (Wats.). Nov. sp. Male.
 „ 5. „ „ „ . Female.
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NOTE XIX.

ON MALAYAN SPECIES OF THE GENUS
PSAMMOLYCE

BY

Dr. R. HORST.

Worms belonging to the genus *Psammolyce*, that are characterized by having their elytra and the median part of their back covered with papillae, adapted for the retention of small particles of the bottom upon which they are living, hitherto were not observed in the Malay Archipelago. Yet the Siboga-expedition had the good luck to collect a number of them (though often in fragments), that certainly represent three species. However it is no easy task to recognize the characters, offering a trustworthy criterion for the distinction of the species. With regard to the elytra f. i. Willey says: „they are not safe objects for comparison, since they vary from segment to segment”¹⁾; however Potts rightly stated, that certain features of the elytra as a whole are certainly characteristic for a group of species²⁾. In *Psammolyce arenosa*³⁾ and its allies f. i. the elytra are provided with two lobes at their median corner and another lobe at the posterior margin, whereas in an other group of species [*Ps. fijiensis*⁴⁾, *-occidentalis*⁴⁾]

1) Ceylon Pearl-oyster-fisheries report: Polychaeta, p. 257.

2) The Percy Sladen Trust expedition: Polychaeta of the Indian Ocean, p. 346.

3) De St. Joseph, Annélides de St. Jean de Luz: Ann. Sc. nat. Zoologie (S. 9) t. III, 1906, pl. I, fig. 23.

4) Mc Intosh, Challenger Annelida, pl. XXII, figs. 4 and 5.

and -*malayana*] the first pair of elytra are strongly elongated, giving to the head a snout-like appearance. Moreover the structure of the neuropodial setae affords good material for the discrimination of the species, as f. i. *Ps. flava* ¹⁾ is easily recognized by this single character, and also the appearance of the dorsal cirrus of the third segment may be different in some of the species. Unfortunately the earlier naturalists have not always described these different characters with sufficient conciseness.

Psammolyce zeylanica Willey.

Siboga-expedition, Stat. 43, anchorage of Pulu Sarassa (Postillon-islands); Stat. 49a, Sapeh-strait; Stat. 133, anchorage off Lirung, Salibabu-island; Stat. 313, anchorage east of Dangar besar, Saleh-bay; Stat. Ambon, reef; Stat. Banda.

At the above-named Stations individuals of a *Psammolyce*-species were met with, that belong to the group of *Ps. arenosa* D. Ch. and in many regards agree with Willey's description of *Ps. zeylanica*, though some slight differences could be stated. The largest specimen (of Stat. Ambon) measures about 100 mm. in length and its greatest breadth (with bristles) amounts to 12 mm. The ventral side of the body usually is hairy, though not more conspicuously in the vicinity of the mouth, as f. i. is to be seen in *Ps. malayana* (see later on); even in the specimens of Stat. Banda the anterior region of the venter shows so few fili-form papillae, except at the base of the parapodia, that in this point they more resemble *Ps. rigida* Gr. (Willey, loc. cit. p. 256).

Examined with high power the venter appears to be coated with long, pointed, somewhat spinous processes, that are dilated at the base, whereas small globular tubercles are situated between them. The first pair of elytra is elongated, rounded triangular, with the internal border

1) Kinberg, Annulata, Kgl. Svenska Freg. Eugenies resa, pl. IX, fig. 44.

nearly straight; posteriorly the elytra become notched and lobed, especially at the median side. Usually two lobes occur at the internal corner and a large tubercle at the posterior margin. Their anterior border is smooth, but along the entire posterior margin long filiform papillae are situated; on the external border they are separated in groups, whereas short, cup-shaped papillae occur in the intervals between them. The scar of insertion is elongated, elliptical. The dorsum between the elytra is beset with rather long filiform papillae, arising from the tip of a short common stem, like in *Ps. arenosa* (St. Joseph, loc. cit. pl. 2, fig. 26). The tentacle of the head has a terminal joint, at the most one and a half as long as its basal part, and a trifle shorter than the tentacular-cirri, whereas, according to Willey, it should measure thrice its length. In the second segment the neuropodial fascicle consists of compound setae with plumose shaft and slender, elongated appendix, with filiform curved apex as figured by Willey (loc. cit. fig. 36); however the figure does not show that they are clearly serrated along the inner border. The third segment has a dorsal cirrus with a curved terminal joint, somewhat shorter than its peduncle. In a normal parapodium the central group of ventral bristles have a stout, short appendix, usually not bifurcated, and a squamous shaft with semilunar cusp below the apex (Willey, loc. cit. pl. II, fig. 43); sometimes however the cusp is absent or faintly developed and then the setae more resemble those of *Ps. rigida*¹⁾. The inferior setae of the fascicle are more slender, with an elongated, bifurcated appendix.

1) In his „Neuseeländische Anneliden“ (p. 13) Ehlers suggests that Grube under the name of *Ps. rigida* has united two closely allied species or two varieties of one species, the one an occidental form (belonging to the Red Sea), the other one with a more oriental distribution (Philippines and New Zealand). Therefore the name of *Ps. rigida* ought to be maintained for the erythraean form, whereas for the other one should stand the name of *Ps. (Pelogenia) antipoda*, proposed by Schmarda; unfortunately Ehlers himself gives no detailed description of the bristles of the last named species.

Psammolyce flava Kinberg ¹⁾.

Siboga-expedition, Stat. 5, anchorage of Djangkar (Java), at a depth of 330 M. A single incomplete specimen, measuring about 50 mm. in length, with 90 segments.

Though *Ps. flava*, according to Kinberg, at first was found in the Atlantic near Rio Janeiro, I do not hesitate to identify the Siboga-specimen with that species, on account of the characteristic shape of its neuropodial setae ²⁾. For the appendix of those bristles somewhat resembles the bill of a grallatory bird, being long, acuminate, faintly bent, with a median fissure till about the middle of its length; they quite agree with the description and figures of Kinberg, only some transverse ridges of the shaft in the neighbourhood of its distal extremity are overlooked by him. The joint between the shaft and the appendix is not always very obvious; even in some of the setae it is totally wanting and then both are melted together. The appendix in the superior, the inferior and the median bristles of this fascicle does not show such differences in length as in other species of the genus. The neuropodium of the second segment possesses setae of the same kind, but they are more slender and the spinous rows of the shaft are more strongly developed; moreover this neuropodium bears at its distal extremity, besides the usual filiform papillae, a long cylindrical appendage, with a club-shaped end. With regard to the prostomium I found in the Siboga-specimen the palpi not so long as figured by Kinberg; they hardly extend beyond the distal extremity of the setae of the buccal segment. The tentacle is absent. Kinberg mentions two large eyes at the base of this organ; he says, they are „parum conspicui”, but I could not detect them.

1) loc. cit. p. 3, pl. IX, figs. 44, A—H.

2) Also in other zoological groups examples of such a wide geographical distribution are to be found; Hoek f. i. mentions, that *Pocillasma carinatum* and *Scalpellum acutum* are dredged in the Malay Archipelago as well as in the Atlantic (The Cirripedia of the Siboga-expedition, pp. XIII and XIV).

In the anterior segments the ventral side of the body as well as the middle of the dorsum are smooth, without papillae and accordingly the coating with grains of sand also is nearly absent. Also the elytra are not so densely covered as usually and their boundaries are more conspicuous, therefore the worm has a less compact appearance and a looser structure, like most of the deep-sea worms. In the remaining part of the body the venter is densely covered with papillae, all of the same length, giving it a verrucous appearance. In the anterior segments the elytra have the anterior border concave and smooth, whereas the remaining margin is beset with rather long filiform papillae, that also are found on their upper surface. In the segments that are situated more posteriorly, the anterior border of the elytra is straighter, whereas their median part is lobe-like elongated and a great number of papillae are found on the external part of their surface.

Ps. Kinbergi Hans., also found in the neighbourhood of Rio Janeiro, that I myself had the opportunity to examine, is quite an other species, allied to *Ps. arenosa* as to the appearance of the bristles, of the dorsal cirrus of the third segment etc.; unfortunately the figures given by Hansen are not very accurate.

Psammolyce malayana, n. sp.

Siboga-expedition, Stat. 81, Pulu Sebangkatan, Borneo-bank; Stat. 133, anchorage off Lirung, Salibabu-island; Stat. 153, N. W. off Waigeu-island; Stat. 204, Buton-strait; Stat. 313, Saleh-bay, Sumbawa.

This worm belongs to those *Psammolyce*-species (like *Ps. fijiensis* and *Ps. occidentalis*), that have the anterior extremity of the body snout-like elongated, on account of the extraordinary length of the first pair of elytra. The species appears to be very brittle, for only the anterior portion of the body of the various specimens is preserved; perhaps the posterior body-region is buried into the bottom of the sea. The entire dorsum is covered with coarse grains

of sand, with the shells of Foraminifera, with spicules of Aleyonaria and Sponges, with pieces of the shells of Echinoidea and Molluses. The ventral side of the body is hairy, on account of the presence of long, slender papillae, especially in the vicinity of the mouth, that is almost entirely hidden by them. The venter as well as the bristles are of an ochreous hue. The first pair of elytra have an elongated, elliptical shape, with a concave, wing-like lobe at the anterior part of their median border; besides along this lobe, the whole margin is beset with filiform papillae. The right elytron somewhat overlaps the left one, but they diverge with their anterior part, which makes the tentacle and the bristles of the buccal segment visible. The other scales are semi-circular, with a straight anterior border and a conical lobe at their internal angle; their posterior margin is beset with filiform papillae, that are the longest at the external side, where they are separated in 3 or 4 groups by small cup-shaped papillae. The cephalic lobe bears on its dorsal side a pair of distinct black eyes, almost hidden under the nuchal fold and another pair of larger ones beneath it. The tentacle has a distal part, about twice as long as the basal one; its tip is swollen and extends about till the extremity of the bristles of the first segment and the tentacular cirri. The basal part is furnished on each side with a small semilunar wing. The palps are slender, smooth, tapering distally and extending nearly as far as the bristles of the second segment. The neuropodium of the second segment has a club-shaped prolongation; its bristles are articulated, with a very slender process with curved tip. The dorsal cirrus of the third segment has a short basal part and a long whip-shaped terminal portion, that reaches as far as the palp. In the neuropodium of the succeeding feet the central bristles of the fascicle are furnished with a rather long, not stout, bifurcated terminal process; their shaft bears in its distal portion a number of faint transverse ridges. The superior bristles of this fascicle, that bear a more slender appendix, have the shaft furnished with obvious transverse

ridges, whereas these are very faintly developed in the slender inferior bristles.

Though undoubtedly closely allied to *Ps. fijiensis*, the Siboga-specimens could not be identified with it on account of the swollen tip of the tentacle and the tentacular cirri, of the whip-shaped terminal appendix of the dorsal cirrus of the third segment and the different structure of the bristles, the shaft of which in some of them is furnished with prominent, transverse ridges.

Leyden Museum, September 1913.

NOTE XX.

FAUNA SIMALURENSIS.
LEPIDOPTERA RHOPALOCERA,
FAM. PAPILIONIDAE.

BY

R. VAN EECKE.

(With 7 textfigures and plate 9).

Amongst a very large number of insects from the island Simalur, west of North Sumatra, received from Mr. Edw. Jacobson and collected by himself, the Papilionidae were represented by eight species, which are common and largely distributed. Two of them were each represented by a specimen, which proved to be a new variety from that remarkable island. Comparing this material with that of the islands Nias and Sumatra, it seems to me that the fauna of these islands will differ the more and more from that of Sumatra, or that there is a strive after conformity.

The following is an enumeration of the species received for the collection of the Leyden Museum.

1. *Leptocircus meges* Zinck. nov. var. *squamosus*. ♀. N^o. 4001.

Hab. Pulu Babi (an islet very near to Simalur).

It should have been of interest to me to know either we had to do with a new species or with a new variety, but with a single female specimen this question could not be decided, and among the Leptocircinae in the collection of our Museum (not less than 67 specimens), there was no one agreeing with the female from Pulu Babi, though the following localities were represented by one or more specimens: West-Java, Sumatra, Nias, Malacca, Assam, Philippines, Celebes, Biliton and Borneo.

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According to the external morphological characteristics, viz. the pattern, size, colour, the density of the squamae on the fore-wings and the size of the fenestrae, I could divide this material into six groups.

On Western Java seem to live two species; on Sumatra also two; on Nias two; on Celebes one; on Biliton one and on Borneo one.

As to the catalogue of Kirby (pag. 568), that of the British Museum (pag. 86), Dr. K. Jordan in „Die Grossschmetterlinge der Erde“ von Seitz (pag. 108) and the „Genera Insectorum“ of Wytsman (*Leptocircinae*), the number of species or varieties is not exactly known. Kirby accepts one species (*Lept. curius* Fabr.) followed by five varieties (*virescens* Butl., *ennius* Feld., *Wilsonii* Reak, *decius* Feld. and *meges* Zinck.). In the catalogue of the British Museum we find three species (*curius*, *meges* and *corion* G. R. Gray). Last not least Wytsman likes to accept in this genus six species „par la constitution des ailes antérieures.“! Dr. Jordan is right, describing two species: *curius* Fabr. and *meges* Zinck.

It is well known that the claw of *Leptocircus curius* is bifid, that of *Lept. meges* simple. This characteristic, together with the presence or absence of smell-hairs in the males, is important enough to call it specific, but as I liked to have some more certainty, I have made a preparate of the male genitalia of both species. Moreover there must be a criterium for the other forms of *Leptocircus* and I have prepared also the male genitalia of *Lept. ennius* Feld. (from Celebes) and of the variety of Nias, *Lept. libelluloides* Fruhst.

The results of these researches were, that *curius* and *meges* are very easy to distinguish by the harpae and by the penis. The annulus has an oral processus, which also differs in the two species. The figures on the next page will explain the differences more clearly.

Lept. ennius, which I thought to be also a real species, is a variety of *meges* Zinck., only found on Celebes; *Lept. libelluloides* is a local variety of *Lept. curius* from the

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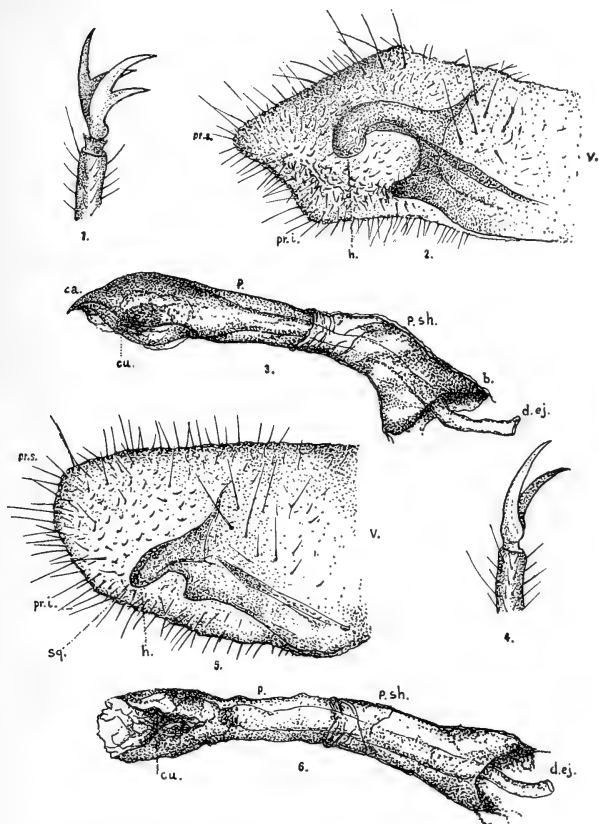


Fig. 1. Bifid claw of *Lept. curius* Fabr.

" 2. The inside of the right-handed valva of *Lept. curius* Fabr.; pr. s. = processus superior; pr. i. = processus inferior; h. = harpe.

" 3. Penis of *curius*; p. = penis-end; p. sh. = penis-sheath; b. = base; d. ej. = ductus ejaculatorius; ca. = carina; cu. = cuneus.

" 4. Simple claw of *Lept. meges* Zinck.

" 5. The inside of the right-handed valva of *meges*; sq. = squamae.

" 6. Penis of *meges*.

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island Nias. All the *Leptocircinae* are to be divided into two real species: *curius* Fabr. and *meges* Zinck., which are easy to recognize by the claws. The form of the Philippines is likewise a variety of *meges* and not a species (*corion* Gray).

Description of two varieties.

Leptocircus curius Fabr. var. *libelluloides* Fruhst.

Hab. Nias.

Exp. alar. 25 mM. Anterior-wing exp.: 17 mM.; apex little rounded. The anterior-margin slightly bent towards the apex; outer-margin slightly bent inside to media 3; inner-margin 9 mM. In the typical *curius* these measurements are generally larger. The colour is the same as in *curius*, but the pattern differs by the yellowish-white line, which is more bent towards the base and narrower near the costa, and by the six little fenestrae, of which the last one is a stip. Near the apex the black margin is broader than in *curius*. The nerves in the fenestrae of the fore-wings are also more thickly covered with squamae.

Posterior-wing length: 35 mM., wrinkled and with a long tail (21 mM.); the pattern is not so clear as in *curius*.

The underside is more yellowish white, the most in the females. The rest of the body is quite the same and so it is not easy to separate these butterflies at a glance.

In the collection of the Leyden Museum are five males and three females, which latter differ from the males on the first sight by the rounded fore-wings.

It is very remarkable, that in this genus the males are more numerous than the females. Among our 67 specimens only 9 are females.

Leptocircus meges Zinck. nov. var. *squamosus*.

Hab. Pulu Babi (near Simalur).

Exp. alar. 36 mM. — The difference between this specimen and the other ones is so clearly visible, that the plate is sufficient to recognize this form. It is remarkable, that the black coloured squamae have nearly shut the fenestrae,

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of which four are well visible. The colour is of a fine, very dark, violet-brown, only variegated by the white of the narrow lines near the bases of the wings and by the red-brown colour of the tail. Moreover the white colour of the margin of the posterior-wing is pure and not greenish or yellowish.

I hope, Mr. Jacobson may have the good fortune to capture also a male specimen of this fine variety, which will give me the opportunity to examine the male copulatory-apparatus. It is a pity that our collection is so poor in female-specimens, so I could not cut off the three or four apical abdominal segments for systematic researches.

Finally I give here a list of the species and varieties of the genus *Leptocircus* with their geographical distribution.

Leptocircus curius Fabr.

Fabr. Ent. Syst. III. I. p. 28. 81.

Java, Sumatra, Assam, Siam, North-east China.

a. Var. *libelluloides* Fruhst.

Deuts. Ent. Zeits. 1890.

Nias.

b. Var. *Walkeri* Moore.

Lepid. Indica, V, p. 137 (1902).

South-east China, Tonkin, Hainan.

Leptocircus meges Zinck.

Zincken, Nov. Acta Acad. Nat. Cur. 15. p. 161.

Java, Sumatra, Simalur, Malacca, Biliton, Borneo, Celebes, Philippines, India till China.

a. Var. *ennius* Feld.

Reise Nov. Lep. I. p. 2. t. 21. b.

Celebes.

b. Var. *decius* Feld. (= *Wilsonii* Reak).

Wien. Ent. Mon. 6. p. 284. n. 37.

Philippines.

c. Var. *squamosus* v. Eecke.

Pulu Babi.

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The varieties *virescens* Butler (Cat. Fabr. p. 259) and *niasicus* Jord. (Seitz, II, 2, p. 108) are not known to me. The var. *niasicus* will resemble the most the new variety *squamosus* by the density of the squamae on the fore-wings.

2. *Papilio Agamemnon* Linn. ♀. N^o. 4002.

Hab. Sinabang (Simalur).

3. *Papilio eurypylus* Linn., nov. var. *Heurni*. ♂. N^o. 4003.

Hab. Sinabang (Simalur).

The size, pattern and further habitus is that of *P. evemon*

Boisd., but the colour is darker and the series of white spots is narrower. The principal characteristic of this variety is to be found on the underside of the posterior-wing, where the white spot in the cell is much invaded by pure black. One specimen from the island Nias shows the same modification though to a lower degree.



Fig. 7. Posterior-wing of *P. Heurni*, underside.

■ black and black-brown.

▨ red.

□ silvery white.

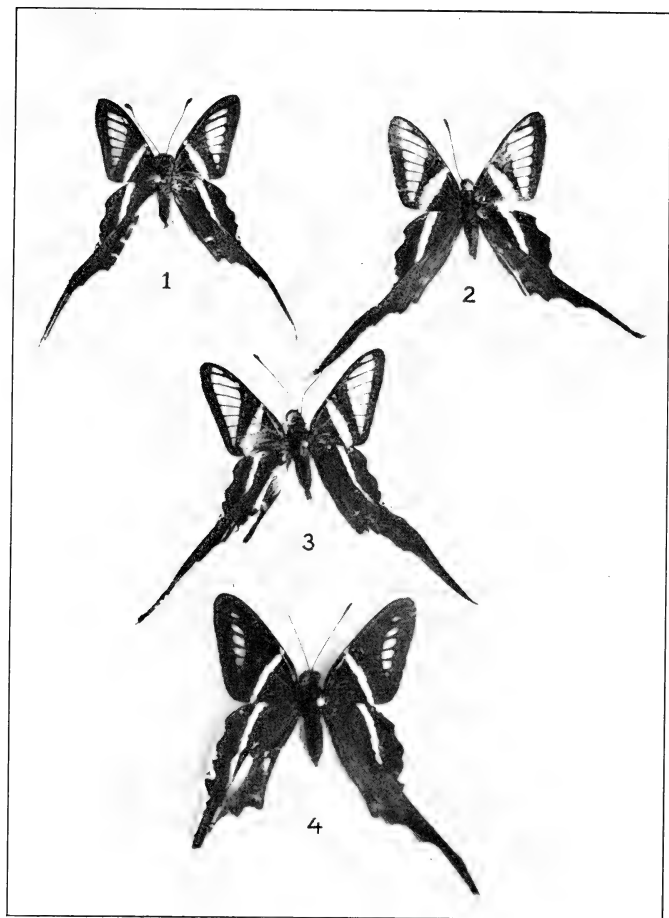
I have named this variety in honour of Mr. van Heurn, the zealous travelling companion of Mr. Jacobson.

4. *Papilio memnon* Linn. 3 ♂. Nos 4336—4338.

Hab. Sinabang, Mata-n-amuren, Udjung Laukè (Simalur).

These three male specimens are to be recognized from all the other *memmons* in our collection, by the hind-wings, these being covered with blue squamae as far as the cells. Only near the outer-margin are blue-black conical spots between the nerves.

I have not bestowed a name upon this presumed variety, *P. memnon* being so much variegated. Moreover some transitional forms exist.



LEPTOCIRCINAE.



5. *Papilio Pammon* Linn. 10 ♀, 7 ♂. Nos 4004—4017,
4331, 146 and 147.
Hab. Sinabang and Lasikin (Simalur).
Nos 146 & 147 were captured in copulation.
6. *Papilio aristolochiae* Fabr. ♀, ♂. Nos 475 and 476.
Hab. Lasikin (Simalur).
Captured in copulation.
7. *Papilio Neptunus* Guér. 2 ♀, 4 ♂. Nos 4018, 4019,
4332—4335.
Hab. Sinabang, Sibigo (Simalur).
8. *Pompeoptera Amphrysius* Cram. ♂. N^o. 4020.
Hab. Tandjung Rabang (Simalur).
Leyden Museum, October 1913.
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EXPLANATION OF PLATE 9.

1. *Leptocircus curius* Fabr. var. *libelluloides* Fruhst. ♂. Nias.
2. *Leptocircus curius* Fabr. var. *libelluloides* Fruhst. ♀. Nias.
3. *Leptocircus curius* Fabr. ♂. Sumatra.
4. *Leptocircus meges* Zinck. var. *squamosus* v. E. ♀. Pulu Babi.
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NOTE XXI.

APOGONIA BASIVENTRIS, N. SP.

DESCRIBED BY

C. RITSEMA Cz.

Very closely allied to and much resembling *A. ventralis* Moser¹⁾ from Tonkin and of the same length (9.5—10 mm.) but proportionately broader and less parallel. Both species have the base of the abdomen (the two basal ventral segments) and the apex of the elytra dull black, the anterior tibiae tridentate and the sides of the abdomen not sharply margined.

The new species is distinguished from *ventralis*: 1° by the broader and less parallel shape of the body; 2° by the punctuation of the pronotum, the punctures being somewhat larger and slightly more distant from one another; 3° by the space between the humeral costa and the first of the two lateral interstices, which space is broader behind the shoulders than it is in *ventralis*; 4° by the more conspicuous very minute erect white setae, visible with the aid of a strong lens, in the punctures on the elytra of *basiventris*, which setae are almost imperceptible in *ventralis*.

Apogonia basiventris comes from Theinzeik in Burma (R. F. Loizeau) and is represented in the collection of Mr. René Oberthür and in the Leyden Museum.

OBS. After the name *Apogonia Moseri* was proposed by me²⁾ in behalf of *A. lobata* Kolbe (non Ritsema), Mr. von Dalla Torre³⁾ bestowed the name *meruana* upon this African species. The name *Moseri* ought to be maintained, being for several months earlier in date of publication (resp. April and December 1912).

Leyden Museum, October 1913.

1) Deutsch. Ent. Zeitschr. 1913, p. 422.

2) Notes Leyd. Mus. Vol. 34 (1912), p. 128, footnote.

3) W. Junk's Coleopterorum Catalogus, Melolonthinae, p. 140.

NOTE XXII.

FAUNA SIMALURENSIS.
LEPIDOPTERA RHOPALOCERA,
FAM. PIERIDAE.

BY

R. VAN EECKE.

(With 2 textfigures).

The Leyden Museum of Natural History received a small number of Pieridae from the islands Pulu Babi and Simalur, collected by Mr. Edw. Jacobson. Mentioning eight species only, I call attention to the importance of this small collection, because two species proved to be new and three other ones were represented by most interesting varieties. Especially the islet Pulu Babi seems to possess a remarkable fauna, deviating from that of the neighbouring islands. Pulu Babi is a coral-islet, totally overgrown with a dense, by people little visited forest.

The following is an enumeration of the species received, with description of the novelties.

1. *Leptosia xiphia* Fabr. nov. var. *micropunctata*. ♂ & ♀.
Nos 4316 and 4317.

Hab. Pulu Babi.

Exp. alar. of the male 34 mM., that of the female 40 mM. The colour and external morphological structure is quite like that of *L. chlorographa* Hübn., but the pattern is different. The apical black spot is very localised round the apex of the anterior wing and rectangular; the subapical

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spot is vanished in the female and hardly visible in the male; in both sexes the spot is very small. The subspecies *malayana* Fruhst. will resemble the most the described variety of Pulu Babi.

2. *Saletara panda* Godt. var. *Schönbergi* Semp. ♂. No. 4318.

Hab. Sinabang (Simalur).

The first *panda Schönbergi* is described from the island Nias and is looked upon as a local variety from that island. In our collections are several specimens from Nias.

Saletara panda Godt. nov. var. *substriata*. ♀. No 4319.

Hab. Pulu Babi.

Exp. alar. 50 mM. The external morphological characteristics are those of *S. panda* Godt., but the pattern is quite different. The pattern of a real *panda* is dispersed into a brown stripe along the costa, a dusty brown spot near the base of the anterior wing and some other ones near the apex and outer-margin. So the inner-outline of the pattern is not distinctly drawn. On the hind-wings no black margin is visible, only some brown scales near the outer-margin represent the band of the female *panda*. On the underside of the wings no pattern is to be seen.

The female specimen I received, is damaged, but the left side is in a good state.

It is also possible that we have to do with a colour aberration, as I have seen only one specimen.

3. *Appias inanis*, nov. spec. ♂. No. 4315.

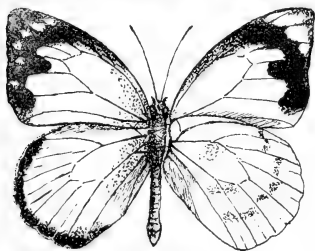
Hab. Pulu Babi.

Exp. alar. 47 mM. The habitus is that of *A. leptis* Feld. from Java; the pattern resembles that of Fruhstorfer's subspecies *vadus* from Lombok, yet there are characteristics which I think to be specific. It is a pity that again only one specimen has been collected.

As far as I could see with a loupe without cutting off the genitalia, the external form is different, the valvae being more rectangular. The two bushes of hairs are planted

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in more ventrally. These differences are pointing out a probable modification of the copulatory-apparatus. The posterior wings are larger than those of *leptis* and last not least the black pattern is quite different. On the upper-side of the anterior wing the apical black spot is smaller and interrupted by six distinct white spots between the nerves. The textfigure will show the pattern more distinctly.



Appias inanis, n. sp. ♂.

On the upperside the posterior wings possess a black margin, which is interrupted by very small white lines. On the underside the sub-apical black band is narrower and more strongly curved inwards than in *leptis*. The posterior wings bear a pattern like that of *A. lucasi* Wall.,

but the prime-colour is not brownish, but pale-yellow, and the zig-zag line near the outer-margin is more vanished. Also the pale-brown spots near the base are not distinct.

This species ought to be inserted between *A. lucasi* Wall. and *A. leptis* Feld., both from Java.

4. *Huphina vaga*, nov. spec. 1 ♂ & 2 ♀. Nos 4320—4322.
Hab. Pulu Babi.

Exp. alar. 60 mM. At first sight one should think to have to do with a real *H. aspasia* Stoll. The posterior wings are orange-yellow, bordered with black, which colour is also present on the nervules near the outer-margin. On the upperside of the anterior wings we find the same pattern as in *aspasia*, but between the nervules the grayish white spots are more confused into stripes. Here the pattern resembles more that of *H. bathseba* Snell. The anterior wings possess on the underside once more the pattern of *aspasia*, only the white colour is dispersed. On the posterior wings the pattern of the outer-margin is half that of *aspasia*,

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half that of *H. selma* Weym., with more black squamae on the nervature.

The body is quite that of *H. aspasia* Stoll. So it was first doubtful to me, whether we had to do with a variety of *aspasia* or with a new species. The two female specimens however have decided my views, because they are quite different from those of *aspasia*.

The size of the females is that of the male. The anterior wings are more rounded with, on the upper- and under-side, the pattern of the males with more brownish-black on the nervules. The orange colour of the posterior wings is nearly covered by, on the nervules more dense grayish-brown, squamae. So this pattern resembles the most that of *H. naomi* Wall. var. *aga* Fruhst.

This species ought to be placed between *H. aspasia* Stoll and *H. timnatha* Hew. near *H. bathseba* Snell.

This new species is of great importance to the geographical distribution of the *aspasia*-like butterflies. The real *aspasia* is known from the Philippines, Moluccas and from Waigeu. On Java *aspasia* is replaced by *H. judith* F.; on Bali, Lombok, Flores, Sumbawa and Sumba we find *H. naomi* Wall. Mr. Snellen described a species from the Kangean-islands, *H. bathseba*, which is smaller than *vaga*, but resembles this species the most. *H. timnatha* Hew. is the species from Celebes. From the island Nias we know *H. selma* Weym., which resembles *H. judith* F.

Later on I will publish figures of these remarkable varieties of Pulu Babi.

5. *Catopsilia crocale* Cr. ♀. No. 4323.

Hab. Lasikin (Simalur).

Catopsilia crocale Cr. var. *alcmeone* S. v. V. 4 ♂.
Nos 4324—4327.

Hab. Sinabang (Simalur).

6. *Catopsilia chryseis* Drur. ♂. No. 4732.

Hab. Labuan Badjan (Simalur).

7. *Gandaca harina* Horsf. ♂. No. 4309.

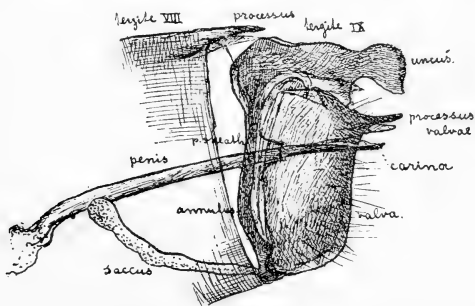
Hab. Sinabang (Simalur).

Gandaca harina Horsf. nov. var. *gilva*. 5 ♂. Nos 4310—4314.

Hab. Pulu Babi.

Exp. alar. 40 mM. The habitus is that of *harina*; the colour is yellow, without any pattern. On the apex are some brown squamae, being the last remnants of the characteristic apical and marginal black spot.

It is possible, that this form is an example of season dimorphism, but I do not think it in this matter. The islet Pulu Babi is totally overgrown with a very dense forest; according to the letters of Mr. Jacobson it was very rainy also in the east monsoon; the butterfly is captured in April. The differences of climate will be not important on these islands. Fruhstorfer knows a subspecies of Lombok, *austro-sundana*, in which the black margin is absent in the east monsoon (Seitz, Faun. Indo-austr. p. 173).



Copulatory organ of the ♂ of *Gandaca harina* Horsf., nov. var. *gilva*.

Of one of the five males I have prepared the copulatory-apparatus and also that of the real *harina* of Java. In consequence of these researches I may write with certainty that *gilva* is a variety. The subspecies *samanga* Fruhst., *mindanaensis* Moore, *assamica* Moore, *elis* Fruhst. and *aigina* Fruhst. are, I think, also varieties of *harina*.

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The females of this species, which are very badly represented in our collections, are always paler and often nearly white, with a black margin on the posterior wings or traces of it.

Two specimens from the Natuna-islands, males, likewise possess a small apical black margin. One specimen from Ceram, collected by Ludeking, shows a trace of the apical black margin.

The figure represents the male copulatory-organ of *G. gilva*.

8. *Terias hecabe* Linn. 5 ♂ & 2 ♀. Nos 4304—4308, 4339 and 4340.

Hab. Simalur, Pulu Babi and La Laut Besar.

Leyden Museum, November 1913.

NOTE XXIII.

FAUNA SIMALURENSIS.
COLEOPTERA, FAM. LUCANIDAE ¹⁾
(Supplement)

BY

C. RITSEMA Cz.

In two recently arrived consignments of Natural History objects from Simalur and neighbouring islets, brought together by Mr. Edw. Jacobson who since has left this locality, were 3 female Lucanidae belonging to different species and found on the island Simalur. They are:

1'. *Odontolabis gracilis* Kaup, in v. Harold's Coleopterologische Hefte, IV (1868), p. 77. — Leuthner, Trans. Zool. Soc. London, XI (1885), p. 438.

One female (n°. 3981) from Sinabang, May 1913.

This species was hitherto only known from the island Nias.

1''. *Odontolabis Castelnaudi* Parry, Trans. Ent. Soc. London, (3) II (1870), pp. 14 and 74. — Leuthner, Trans. Zool. Soc. London, XI (1885), p. 466.

One female (n°. 4341), measuring 50 mm. in length, from Sibigo, August 1913.

Moreover known from Sumatra and, as a local race, from Borneo (cf. Leuthner l. c. p. 467).

1'''. *Metopodontus occipitalis* Hope, Cat. Lucan. 1845, p. 13.

One female (n°. 4342) from Sinabang, August 1913, in which the punctures on the elytra are visibly larger than in the female specimens from other localities. Moreover

1) Notes Leyd. Mus. Vol. XXXV (1913), p. 177.

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the black colour shows, especially on the underside, a much larger extension than in the other females in our collection.

I think that later on several local races will be accepted in this species, which seems to be widely distributed: Philippine islands, Celebes, Taliaboe (Xoella archipelago), Borneo, Java, Sumatra, Nias and Simalur.

The following 6 species of Lucanidae are as yet known to inhabit the island Simalur. The specimens are in the Leyden Museum.

1. *Odontolabis latipennis* Hope. 2 ♀♀ (nos 1271 and 2142).
2. " *gracilis* Kaup. 1 ♀ (n°. 3981).
3. " *Castelnaudi* Parry. 1 ♀ (n°. 4341).
4. *Metopodontus occipitalis* Hope. 1 ♀ (n°. 4342).
5. *Cyclommatus simalurensis*, n. sp. 1 ♂ (n°. 2141). See ante p. 177.
6. *Aegus ogivus* H. Deyr. 1 ♀ (n°. 2143).

Leyden Museum, October 1913.

NOTE XXIV.

BIRD-MARKING IN THE NETHERLANDS.

III.

RECOVERY OF MARKED BIRDS

BY

Dr. E. D. VAN OORT.

In the following lines I have enumerated the recoveries of our marked birds, of which notice was given to me since my last paper on bird-marking in vol. XXXIV of this periodical. I have to tender my best thanks to all co-operators, to them who helped us in ringing birds, and especially to them in foreign countries, who sent us informations about capture of our ring-birds.

***Platalca leucorodia* L.**

Ring n^o 291, marked 1 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot on Corvo, one of the Azores, 12 September 1912. Reporter Mr. James Mackay, Netherlands' Vice-Consul at Flores, Azores.

— 311, marked 1 June 1912 at Callantsoog as a nestling by Mr. A. Kos; shot on the island of Monte Farinha in the Rio de Aveiro, mouth of the Vouga, Portugal, in the be-

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ginning of October 1912. Reporters Mr. C. Mortensen at Viborg, to whom the news mentioned in "O Seculo" was sent, and Dr. B. Ayres at Coimbra, who received the ringed leg.

- 334, marked 1 June 1912 at Callantsoog as a nestling by Mr. A. Kos; shot on the island of Texel, province Noord-Holland, 15 August 1912. Reporter Mr. R. van Eecke, Leiden, who received the bird and the ring from a shooter at Texel.

Anas boschas L.

- 370, marked 28 July 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; caught in the decoy at Renesse near Ellemeet 7 September 1913. Reporter Mr. A. Man in 't Veld, Ellemeet.
- 384, marked 28 July 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Oosterland, province Zeeland, 27 September 1913. Reporter Mr. R. Baron Snouckaert van Schauburg, Doorn.
- 417, marked 13 August 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Messel near Darmstadt in Hessen, Germany, 10 July 1913. Reporter Mr. G. Hickler, Darmstadt.
- 433, marked 28 July 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Kerkwerf near Ellemeet 18 July 1913. Reporter Mr. F. van der Bout, Zonnemaire.
- 4004, marked 13 August 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot on the Oosterschelde near Zierikzee, province Zeeland, 18 October 1913. Reporter Mr. F. van Buggenhoudt, editor of "Chasse et Pêche", Brussels.

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- 4016, marked 15 September 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Duivendijke near Ellemeet 12 July 1913. Reporter Mr. H. J. van Adrichem Boogaert, Brouwershaven.
- 4046, marked 10 September 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot 5 October 1912 at Poortvliet on the island of Tholen, province Zeeland. Reporter Mr. H. Speyer, Tholen.
- 4096, marked in December 1911 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; found dead 28 March 1913 in the dunes of Callantsoog, province Noord-Holland. Reporter Mr. A. Kos, Callantsoog.
- 10001, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; found dead in the beginning of May 1913 at Mårtensboda, Lovånger, at the Bothnian Gulf, Sweden. Reporter Mr. A. Johanson, Mårtensboda.
- 10006, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; caught in a decoy at Sassenheim, province Zuid-Holland, 4 February 1913. Reporter Mr. G. H. Sijthoff, Leiden.
- 10007, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Kristdala in Småland, Sweden, 3 October 1912. Reporter Mr. D. Rosén, Kristdala.
- 10025, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Alavieska, Osterbotten, Finland, 2 August 1913. Reporter Prof. J. A. Palmen, Helsingfors.
- 10046, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man

- in 't Veld; shot at Zonnemaire near Ellemeet 15 July 1913. Reporter Mr. F. van der Bout, Zonnemaire.
- 10048, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot at Steenwijk, province Overijssel, 29 July 1913. Reporter Mr. C. Kamp, Steenwijk.
- 10050, marked in the beginning of April 1912 at Ellemeet, province Zeeland, by Mr. A. Man in 't Veld; shot in the Bissrupfjord, Denmark, 6 December 1912. Reporter Mr. A. H. Larsen, Karrebak.
- 10505, marked 27 June 1912 on the island of Texel, province Noord-Holland, as a young bird by Mr. J. Reuvers; shot on the island of Texel in November 1912. Reporter Mr. Th. Reuvers, Texel.

***Nettion crecca* (L.).**

- 12706, marked 4 October 1912 on the island of Schiermonnikoog, province Friesland, by Mr. D. Woltman; shot at Carentan, Manche, Northwestern France. Reporter Mr. Th. Salmon, Carentan.

***Mareca penelope* (L.).**

- 18118, marked 26 June 1913 at Ulrum, province Groningen, as an adult bird by Mr. H. D. Louwes; shot at Kollum, province Friesland, 28 August 1913. Reporter Mr. H. Stegeman, Kollum.

***Haematopus ostralegus* L.**

- 811, marked 10 June 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Daalder; shot at Aveiro, Portugal, in the last of October 1912. Reporter Mr. W. C.

Tait, Oporto, who read the news in "O Seculo" of October 31st 1912.

***Vanellus vanellus* (L.).**

- 15342, marked 15 June 1913 at Egmond-Binnen, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot in the Bay of the Authie, Pas-de-Calais, Northwestern France. Reporter Mr. G. Villette. Berck-Plage.

***Recurvirostra avosetta* L.**

- 5615, marked 20 June 1913 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; found dead on Texel 8 October 1913. Reporter Mr. J. Reuvers, Texel.
- 5638, marked 28 June 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; shot at Villa-Franca near Lisbon, Portugal, 15 November 1912. Reporter Mr. H. Ellerson, Lisbon.

***Larus argentatus* Brünnich.**

- 7139, marked 25 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; found dead at IJmuiden, province Noord-Holland, 3 October 1912. Reporter Mr. J. van Bilderbeek, IJmuiden.
- 7154, marked 25 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot at den Helder, province Noord-Holland, 23 October 1912. Reporter Dr. H. C. Delsman, den Helder.
- 7155, marked 25 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot at Malo-les-Bains, département Nord, North France. Reporter Mr. Charles Goutier, Malo-les-Bains.

- 7160, marked 25 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot at Sangatte, Pas-de-Calais, North France, 18 November 1912. Reporter Mrs. de St.-Juste, Sangatte.
- 7161, marked 25 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot at Cayeux-sur-Mer, Somme, North France, in the beginning of November 1912. Reporter Mr. E. Bouquet, Cayeux-sur-Mer.
- 10427, marked 25 July 1912 at Callantsoog, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot at den Helder, province Noord-Holland, in December 1912. Reporter Mr. J. Mooy, den Helder.
- 10441, marked 23 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot at Oostduinkerke, Belgium, in the last of January 1913. Reporter Mr. H. Sarrazijn, Oostduinkerke.

***Larus ridibundus* L.**

- 788, marked 25 June 1911 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Pombalinho, Portugal, 4 January 1913. Reporter Mr. W. C. Tait, Oporto.
- 2226, marked 2 July 1911 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at St.-Julião near Lisbon, Portugal, 9 December 1912. Reporters Mr. A. Bivar de Sousa, Lisbon, and Mr. W. C. Tait, Oporto.
- 2229, marked 2 July 1911 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Portimão, South Portugal, in the beginning of December 1912. This fact

- was communicated to me by a gentleman in Lisbon, who did not undersign his letter.
- 10946, marked 19 June 1912 at Callantsoog, province Noord-Holland, as a nestling by Mr. A. Kos; shot at Aldea galega near Lisbon, Portugal, in the last of December 1912. Reporter Mr. W. C. Tait, Oporto, who read the news in "O Seculo" of December 27th 1912.
 - 11002, marked 17 June 1912 at Kerkwerf, province Zeeland, as a nestling by Dr. E. D. van Oort; shot at Dodewaard, province Gelderland, in the last of September 1912. Reporter Mr. H. Sipman, Nijmegen.
 - 11045, marked 17 June 1912 at Kerkwerf, province Zeeland, as a nestling by Dr. E. D. van Oort; shot at Trouville-sur-Mer, Calvados, Northwestern France, 30 August 1912. Reporter Mr. Hurel Gaston, Trouville-sur-Mer.
 - 11104, marked 17 June 1912 at Kerkwerf, province Zeeland, as a nestling by Dr. E. D. van Oort; shot near Bremen, Germany, 13 April 1913. Reporter Mr. A. Lilss, Bremen.
 - 12995, marked 17 June 1912 at Kerkwerf, province Zeeland, as a nestling by Dr. E. D. van Oort; shot at Lagos, South Portugal, in the beginning of December 1912. Reporter Mr. W. C. Tait, Oporto.
 - 13027, marked 7 July 1912 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of the Canche River near Étaple, Pas-de-Calais, North France, 13 November 1912. Reporter Mr. C. Médeville, Hesdin.
 - 13073, marked 7 July 1912 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Mogador, Morocco, North Africa, in the second half of March 1913. Reporters the Vice-Consul of the Nether-

lands at Mogador, and Prof. Dr. J. Thienemann at Rositten, who received the information from the editor of the "Deutsche Marokko-Zeitung", who read the fact in the "Reveil du Maroc".

- 13184, marked 7 July 1912 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Barreiro, South of Lisbon, Portugal, in the beginning of December 1912. Reporters Mr. Th. E. Quistorp, Lisbon, and Mr. A. Bivar de Sousa, Lisbon.
- 13196, marked 7 July 1912 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Rio de Aveiro, mouth of the Vouga, Portugal, in the beginning of December 1912. Reporter Dr. B. Ayres, Coimbra.
- 13828, marked 29 June 1913 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of Bourgneuf, Loire inférieure, France, 4 October 1913. Reporter Mr. E. Maxence, Paris.
- 17209, marked 28 June 1913 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Ouistreham at the mouth of the Orne, Calvados, Northwestern France, 5 August 1913. Reporter Prof. Brasil, Caen.
- 17233, marked 28 June 1913 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of the Somme, Northwestern France, 8 September 1913. Reporter Mr. G. le Duchat d'Aubigny, Wimereux.
- 17274, marked 28 June 1913 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot on the River Canche, Pas-de-Calais, Northwestern France, 31 August 1913. Reporter Mr. R. Verdier, Le Touquet-Paris-Plage.

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***Sterna cantlaca* Gmelin.**

- 1524, marked 18 June 1911 at Kerkwerve, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at Coutainville, Manche, Northwestern France, 4 September 1913. Reporter Mr. H. Vigot, Coutainville.
- 1556, marked 25 June 1911 at Kerkwerve, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of the Somme, Northwestern France, 10 July 1913. Reporter Mr. G. le Duchat d'Aubigny, Wimereux.
- 4756, marked 17 June 1912 at Kerkwerve, province Zeeland, as a nestling by Dr. E. D. van Oort; shot at Cacuaco, Quifangondo, Angola, Southwestern Africa, 9 November 1912. Reporter the editor of the newspaper "Independente", published at Loanda, and also Mr. A. Bivar de Sousa, Lisbon, and Mr. W. C. Tait, Oporto.
- 5177, marked 17 June 1912 at Kerkwerve, province Zeeland, as a nestling by Dr. E. D. van Oort; shot at Mossamedes, Angola, Southwestern Africa, between 20 and 27 October 1912. Reporter the Governor of Mossamedes.
- 6443, marked 29 June 1913 at Kerkwerve, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot at sea near Ouistreham, Calvados, Northwestern France, 28 August 1913. Reporter Prof. Brasil, Caen.
- 6446, marked 29 June 1913 at Kerkwerve, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot on the River Arguenon near Le Guildo, Bretagne, Northwestern France, 25 August 1913. Reporter Mr. Léon Bonnaffé, Le Guildo.
- 6479, marked 29 June 1913, at Kerkwerve, province Zeeland, as a nestling by Mr. A. Man

- in 't Veld; shot at Oporto, Portugal, 26 October 1913. Reporter Mr. J. A. Erhard, Oporto.
- 6852, marked 29 June 1913 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of the Somme, Northwestern France, 27 July 1913. Reporter Mr. G. le Duchat d'Aubigny, Wimereux.
- 6858, marked 29 June 1913 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot near the island of Texel, province Noord-Holland, 17 July 1913. Reporter Mr. J. Mooy, den Helder.
- 6878, marked 29 June 1913 at Kerkwerf, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot near the island of Texel, province Noord-Holland, 17 July 1913. Reporter Mr. J. Mooy, den Helder.

***Sterna fluviatilis* Naumann.**

- 1838, marked 25 June 1911 at Ellemeet, province Zeeland, as a nestling by Mr. A. Man in 't Veld; shot in the Bay of the Somme, Northwestern France, 12 August 1913. Reporter Mr. G. le Duchat d'Aubigny, Wimereux.
- 11677, marked 26 June 1912 at Hoek van Holland, province Zuid-Holland, as a nestling by Mr. G. J. van Oordt; caught at Tossens, Jadebay in Oldenburg, Germany, in the beginning of October 1912. Reporter Mr. A. Ammermann, Oldenburg.
- 12194, marked 8 July 1913 on the island of Voorne, province Zuid-Holland, as a nestling by Mr. Th. Baron Collot d'Escury; shot in the Bay of the Somme at Le Hourdel, Northwestern France, 16 August 1913. Reporter Mr. J. Haury, Le Hourdel.
- 12245, marked 17 June 1912 at Kerkwerf, province Zeeland, as a nestling by Dr. E. D.

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- van Oort; shot in the Bay of the Somme, Northwestern France, 12 July 1913. Reporter Mr. G. le Duchat d'Aubigny, Wimereux.
- 16009, marked 21 June 1913 at Oosterend on the island of Texel, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot near the island of Texel 17 July 1913.
- 16029, marked 22 June 1913 on the island of Texel, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; found dead on the coast of Texel in the second week of July 1913. Reporter Mr. Ph. de Jonge, Texel.
- 16038, marked 22 June 1913 on the island of Texel, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; caught at Anna-Paulowna, province Noord-Holland, 22 July 1913. Reporter Mr. D. Romar, Anna-Paulowna.
- 16053, marked 22 June 1913 on the island of Texel, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot near Texel 6 July 1913. Reporter Mr. J. Mooy, den Helder.
- 16061, marked 22 June 1913 on the island of Texel, province Noord-Holland, as a nestling by Dr. J. J. Blanksma; shot near Texel 6 July 1913. Reporter Mr. J. Mooy, den Helder.
- 16212, marked 28 July 1913 at Hoek van Holland, province Zuid-Holland, as a nestling by Mr. G. J. van Oordt; shot in the Bay of the Somme near Cayeux-sur-Mer, Northwestern France, 25 August 1913. Reporter Mr. V. Mairesse, Cayeux-sur-Mer.

***Asio accipitrina* (Pallas).**

- 7126, marked 7 June 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. R. van Eecke; found dead at Nieuwkoop, province Zuid-Holland, 12 April 1913. Reporter Mr. P. de Graaf, Nieuwkoop.

***Hirundo rustica* L.**

- 7869, marked 1 June 1912 at Adorp, province Groningen, as an old bird by Mr. F. J. Bisschop; caught and released at Adorp 28 May 1913. Reporter Mr. J. Clevering, Adorp.
- 9605, marked 11 September 1912 at Sluis, province Zeeland, as an old bird by Mr. J. C. Stern; caught in the same stable at Sluis in the second half of April 1913. Reporter Mr. J. C. Stern, Sluis.
- 14653, marked 15 June 1913 at Bentelo near Delden, province Overijssel, as a nestling by Mr. G. H. Leurink; found dead at Tanger, Morocco, North Africa, 1 October 1913. Reporter the Commandant Toulat, Tanger.

***Turdus merula* L.**

- 3638, marked 7 November 1912 at Roosendaal, province Noord-Brabant, as an adult female by Mr. S. van Hasselt; found dead at Roosendaal 13 January 1913. Reporter Mr. H. L. van Hal, Roosendaal.

***Turdus musicus* L.**

- 1212, marked 10 May 1912 at 's-Graveland, province Noord-Holland, as a nestling by Mr. A. J. Blaauw; caught at Duffel near Antwerp, Belgium, 26 September 1912. Reporter Mr. G. van der Linden-Sels, Duffel.
- 2329, marked 7 May 1912 at Vogelenzang, province Noord-Holland, as a nestling by Mr. H. A. Lorentz; shot at Wirquin near Lumbrès, Pas-de-Calais, North France, 23 February 1913. Reporter Mr. D. Autiquet, Wirquin.
- 3506, marked 22 May 1912 at Lutkemeerpolder near Sloten, province Noord-Holland, as a

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nestling by Mr. F. W. Ackerman; shot at Overveen near Haarlem, province Noord-Holland, 11 June 1913. Reporter Mr. F. Hin, Haarlem.

- 15026, marked 17 June 1913 at Vogelenzang, province Noord-Holland, as a nestling by Mrs. D. van Stolk-Lorentz; shot at Aubigné, Ille-et-Vilaine, Northwestern France. Reporter Mr. le Goaster, Aubigné.

***Phoenicurus phoenicurus* (L.).**

- 7564, marked 14 June 1912 at Ede, province Gelderland, as breeding female by Mr. J. L. F. de Meyere; caught and released at Ede in the same garden, where the bird was breeding again, 28 May 1913. Reporter Mr. J. L. F. de Meyere, Ede.

***Parus major* L.**

- 1411, marked 9 November 1911 at Ede, province Gelderland, by Mr. J. L. F. de Meyere; caught and released 1, 3 and 4 December 1911, 30 and 31 January 1912, 2 May 1912, 3 August 1912, 2 January 1913 and 8 May 1913; in 1912 as well as in 1913 the bird was breeding at the same place. Reporter Mr. J. L. F. de Meyere, Ede.
- 8803, marked 25 May 1913 at Assen, province Drente, as a nestling by Mr. H. Westra; caught at Assen 14 October 1913. Reporter Mr. H. Salvingh, Assen.

***Parus coeruleus* L.**

- 7324, marked 5 March 1912 at Arnhem, province Gelderland, as an adult bird by Mr. C. Dasse Hesselink; flown dead against a window at Arnhem 23 March 1913. Reporter Mr. van Harpen Kuyper, Arnhem.

***Parus communis longirostris* Kleinschmidt.**

- 1415, marked 10 November 1911 at Ede, province Gelderland, by Mr. J. L. F. de Meyere; found dead at Ede 13 March 1913. Reporter Mr. J. L. F. de Meyere, Ede.
- 7590, marked 16 November 1912 at Ede, province Gelderland, by Mr. J. L. F. de Meyere; caught and released 4 December 1912, 29 March 1913 and 8 May 1913 in the same garden at Ede, where the bird was breeding in May 1913. Reporter Mr. J. L. F. de Meyere, Ede.

***Sturnus vulgaris* L.**

- 6764, marked 23 May 1912 at Hengelo, province Overijssel, as a nestling by Mr. G. H. Leurink; caught at Etretat, Seine inférieure, Northwestern France, 20 October 1912. Reporter Mr. E. Barrey, Etretat.
- 13585, marked 19 May 1913 at Stolwijkersluis near Gouda, province Zuid-Holland, as a nestling by Mr. G. J. Schilt; shot at Dussen, province Noord-Brabant, 23 June 1913. Reporter Mr. R. C. van Honsewijk, Dussen.
- 15212, marked 23 May 1913 at Nieuwolda, province Groningen, as a nestling by Mr. D. Dijkstra; caught at Heyst, Belgium, 10 October 1913. Reporter Mr. L. Du Bois, Heyst.

***Fringilla montifringilla* L.**

- 9723, marked 30 October 1912 at Boxtel, province Noord-Brabant, by Mr. E. van Rijekevorsel van Kessel; caught at Groesbeek, province Gelderland, 8 January 1913. Reporter Mr. J. P. M. Soer, Groesbeek.

***Cannabina cannabina* (L.).**

- 8418, marked 18 June 1912 on the island of Texel,
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- province Noord-Holland, as a nestling by Mr. J. Reuvers; found dead on Texel 15 March 1913. Reporters Mr. A. Burdet, Overveen, and Mssrs. J. Drijver and J. Reuvers, Texel.
- 8856, marked 24 June 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; caught at Lophem near Brugge, Belgium, 22 October 1912. Reporter E. Tant, Louvain.
- 9102, marked 17 July 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; caught at Harderwijk, province Gelderland, in March 1913. Reporter the editor of the "Harderwijker Courant".
- 9407, marked 17 August 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; caught at Vierhouten near Nunspeet, province Gelderland, in the beginning of April 1913. Reporter Mr. J. Vlagsma, Vierhouten.
- 9414, marked 14 August 1912 on the island of Texel, province Noord-Holland, as a nestling by Mr. J. Reuvers; caught at Hamborn-Marxloh near the Dutch frontier, Germany, in March 1913. Reporter Mr. J. Weber, Hamborn-Marxloh.

Leyden Museum, 15 November 1913.

NOTE XXV.

DESCRIPTION OF THE MALE SEX OF
HELOTA ATTENUATA RITS.

BY

C. RITSEMA Cz.

Helota attenuata belongs, together with *Dureli*, *Moutoni* and *Helleri*, to the group of *Helota rotundata* (see my „Synopsis” in Notes Leyd. Mus. Vol. XIII, p. 227). It is easily recognizable among these species by the coarse punctuation on the pronotum and by the reddish testaceous colour of the elytral epipleurae.

When I described the species, the female sex only was known to me (Notes Leyd. Mus. Vol. XVI, p. 112), but later on Mr. René Oberthür received also the male sex from the environs of Kurseong (R. F. Bretaudeau) and from Maria Basti and Padong in British Bhotan (R. F. Durel).

The male is somewhat narrower in shape than the female, but the punctuation quite agrees and the apices of the elytra are likewise almost conjointly rounded. The anterior tibiae are much curved and their inner lower margin is deeply and regularly notched about the middle; between the notch and the apex the tibia is broader and the margin of the dilated portion is regularly convex. The intermediate and posterior tibiae are slightly waved, visibly thickened in their greater apical half and covered beneath with a soft almost colourless pilosity. The apical ventral segment is broadly truncate posteriorly and provided in front of the truncation with a bald, finely punctured, very shallow impression; the lateral angles of the truncation are dark coloured and slightly raised.

In Mr. Oberthür's collection and in the Leyden Museum.

Leyden Museum, October 1913.

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NOTE XXVI.

MECOPTERA AND PLANIPENNIA
COLLECTED IN JAVA BY EDWARD JACOBSON.

BY

ESBEN PETERSEN.

(With 6 textfigures).

MECOPTERA.

Of this order a fine series was brought together, including several interesting species, one of which is new to science. All the species belong to the family Panorpidae and to the two genera *Leptopanorpa* Mac Lachlan and *Neopanorpa* Weele. These two genera may be distinguished from the other genera of the family by the following characters: Wings elongate, very narrow at the base and gradually broadened towards the apex. The anal veins very short. In the forewing the 1st runs into the hind margin before the origin of the radial sector. The 3rd very short. Between 1st and 2nd anal vein in the forewing only one cross vein. In the forewing subcosta joins costa in the pterostigmatal region. In the male the hind margin of 3rd tergite is produced into a slender, cylindrical prolongation, which covers an elevation upon 4th tergite.

Leptopanorpa may be known by the long and very slender abdomen in the male. The abdomen is much longer than the wings, 2nd abdominal segment ¹⁾ almost as long

1) When MAC LACHLAN (Trans. Ent. Soc. Lond. Vol. II, 1875, p. 188) states that the 1st abdominal segment in *Leptopanorpa* is very long, contrary to what takes place in all other genera of the Panorpidae, this statement is due to a misunderstanding. I saw the type specimen (♂) of *L. ritsemae* in the

as broad, 3rd as long as broad and the following much longer than broad; 7th and 8th exceedingly long and slender, 9th more or less pedunculate.

In *Neopanorpa* the abdomen of the male is not longer than the wings. The 5th abdominal segment as long as broad; 6th and following ones longer than broad; the length of 7th and 8th a usual one; 9th never pedunculate.

The determination of Malayan species of *Panorpidae* is a very difficult matter, because in the greater number of species the wing-markings only are of little value, and the constant and good characters found in the genitaliae of the male, are scarcely visible in dried specimens. The markings are very liable to vary, and a long series, f. inst. of *Neopanorpa angustipennis*, from different localities gives a good idea of the fact; therefore I think it may be a useless work to describe Malayan species from the female sex upon the wing-markings only, where they do not differ very much from species known before. In the European and Asiatic species the genital parts in the male offer very good specific characters. In the Malayan species, however, the lower appendages (genitalvalves of v. d. Weele) are very stoutly built, thickened and somewhat swollen; they are almost similar in the different species, and in dried specimens they are more or less shrivelled. Unfortunately they also completely cover the penis-sheaths (titillators). The upper appendage (prolongation of 9th tergite) is also very similar in the different species, long and with rounded tip.

Fam. PANORPIDAE.

Neopanorpa Weele.

Typus: *N. angustipennis* Westw.

Neopanorpa Weele, Notes Leyd. Mus. XXXI, pag. 4 (1909).

Museum of Leyden, July 1912, and later on Conservator R. VAN EECHE, Leyden, kindly has examined the type specimen and made a sketch of its abdomen for me, so I am sure that the genus does not differ from the other *Panorpid*-genera in this respect.

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Campodotecnum Enderlein, Zool. Anz. Bd. 35, pag. 391 (1910).

Neopanorpa angustipennis Westw.

Panorpa angustipennis Westwood, Trans. Ent. Soc. Lond. IV, pag. 187 (1846).

2 ♂♂, 3 ♀♀ Nongkodjadar, January 1911; 1 ♂, 2 ♀♀ Goenoeng Oengaran, Sept. 1910; 1 ♀ Goenoeng Gedeh, March 1911.

Neopanorpa hyalinata, nov. spec.

Head shining black; rostrum reddish brown with yellowish lateral margins and with yellowish brown apex; maxillary palpi yellowish brown, tip of apical joint dark brown. Antennae blackish; the basal joints somewhat brownish. Thorax and abdomen dorsally shining metallic greenish black. Sides of thorax brown. The venter of 2nd to 5th abdominal segment yellowish brown to dark brown; venter of the terminal segments shining metallic greenish black. Legs brownish yellow; tip of tibiae and tarsal joints dark brown. Claws serrated. Hind margin of third abdominal tergite in the male produced into a somewhat raised prolongation, the basal half of which is flattened and broadly triangular, the apical half sub-cylindrical. The tip of the prolongation rests upon a transversely placed, keel-shaped elevation on the basal third of fourth segment. Sixth seg-

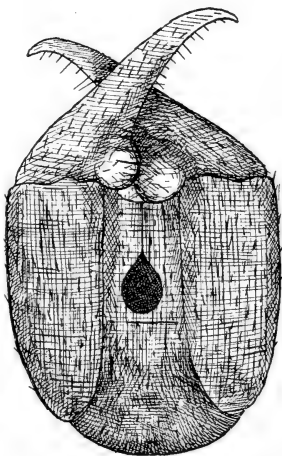


Fig. 1. *Neopanorpa hyalinata*, n.sp. ♂. Forceps seen from below; tips of lower appendages cut off.

ment as long as fourth and fifth together, cylindrical, narrowed towards the apex. Seventh and eighth of the same length, each of them a little shorter than sixth, conical; eighth obliquely truncated at the apex above. Ninth segment broadly ovate. Upper appendage long with rounded apex. Tips of forceps dark brown. Wings hyaline with conspicuous, dark sooty brown pterostigma and with a faint indication of a sooty brown shadow at the tip of the wings. Below the inner end of the pterostigma is found a minute, dark, sooty brown spot, connected with the pterostigma (not in the forewings of the female). In the disc of the wings are found two small chitinous dots as in all Panorpids.

Length: ♂, body 12 mm; forewing 13 mm; hindwing 11 mm.

Length: ♀, body 11 mm; forewing 13,5 mm; hindwing 12,5 mm.

1 ♂, 1 ♀ Nongkodjadar, January 1911.

The male type is in my collection, the female type in the Museum of Leyden.

Leptopanorpa Mac Lachl.

Typus: *L. ritsemae* Mac Lachl. (Japan).

Leptopanorpa Mac Lachlan, Trans. Ent. Soc. Lond. p. 187 (1875).

Himanturella Enderlein, Zool. Anz. Bd. 35 p. 392 (1910).

Neopanorpa Enderlein (nec Weele), Notes Leyd. Mus. Vol. XXXIV, p. 237 (1912).

Leptopanorpa longicauda Weele.

Leptopanorpa longicauda Weele, Notes Leyd. Mus. Vol. XXXI, p. 11 (1909).

1 ♂ Goenoeng Gedeh, March 1911.

Leptopanorpa jacobsoni Weele.

Panorpa jacobsoni Weele, Notes Leyd. Mus. Vol. XXXI, p. 10 (1909).

2 ♂♂ Goenoeng Oengaran, Sept. 1910.

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Leptopanorpa javanica Westw.

Panorpa javanica Westwood, Trans. Ent. Soc. Lond. Vol. IV, p. 186 (1846).

4 ♂♂, 1 ♀ Noesa Kambangang, March 1911.

Leptopanorpa pi Weele.

Panorpa pi Weele, Notes Leyd. Mus. Vol. XXXI pag. 8 (1909).

1 ♂ Goenoeng Oengaran, Sept. 1910; 3 ♂, 1 ♀ Nongkodjadar, January 1911.

PLANIPENNIA.

Fam. MYRMELEONIDAE.

In „Notes from the Leyden Museum”, Vol. XXXI, p. 25, 1909, VAN DER WEELE founded a new genus, *Pseudoformicaleo*, and remarked that it was nearly related to *Formicaleon*. But with regard to the nervation of the wings it must be placed nearest to *Creagriss*, as the two branches of cubitus in the forewing are running parallel.

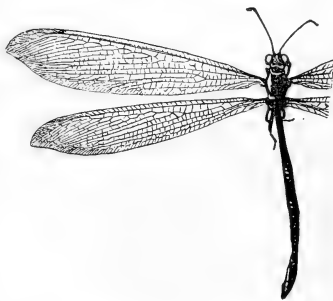


Fig. 2. *Pseudoformicaleo jacobsoni* Weele.

Pseudoformicaleo jacobsoni Weele.

v. D. WEELE, Notes Leyd. Mus. Vol. XXXI p. 25, pl. II, fig. 8, 1909.

Two specimens from Semarang, Aug. and Oct. 1909.

Formicaleon audax Walk.

WALKER, Cat. Neur. Ins. Brit. Mus. p. 338 (1853).

One specimen from Batavia, Sept. 1908, and two specimens from Semarang, Aug. 1909 and Dec. 1910.

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Myrmeleon frontalis Burm.

BURMEISTER, Handb. Ent. II, p. 993 (1839).

JACOBSON, Tijdschr. Ent. p. 73 (1912).

Of this species was present a long series from Batavia and Semarang, and one specimen from Moela (Goenoeng Sewoe) Febr. 1911.

Fam. ASCALAPHIDAE.

Helicomitus dicax Walk.

WALKER, Cat. Neur. Ins. Brit. Mus. p. 423 (1853).

One specimen, ♀, from Batavia, October 1908.

Hybris javana Burm.

BURMEISTER, Handb. Ent. II, p. 1001 (1839).

One male, Semarang, April 1910, and one female, Semarang, October 1909.

Fam. OSMYLIDAE.

Osmylus inquinatus Mac Lachl.

MAC LACHLAN, Ent. Monthl. Mag. VI, p. 200 (1870).

One specimen from Oengaran, Sept. 1910. As far as I know, it is the first record of this species from Java.

Fam. CHRYSOPIDAE.

Chrysopa javanica, nov. spec.

Head and palpi yellowish. Clypeus with a strong reddish tinge. Eyes prominent, dark lead-coloured. Basal joint of antennae stout, sub-cylindrical, yellowish with a blackish brown, oblong spot at the tip of the exterior side; second joint globular, yellowish; the other antennal joints narrower, pale greyish brown. The antennae as long as the wings or longer. Prothorax almost as long as broad, much narrower than the head with the eyes, yellow and with a broad reddish stripe along the lateral margins; front

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angles truncated. Meso- and metathorax with a yellowish median streak, greenish at the sides. Abdomen discoloured. Legs yellowish. The upperside of the hind femora brownish. The claws brown and with a broad dent at the base. Wings hyaline, elongate, somewhat pointed at the tip. The longitudinal nervures greenish. In the forewing several of the cross veins in the costal area, in the area between radius and the radial sector, between the radial sector and media, and between media and first branch of cubitus are blackish brown in their middle part. Also the basal cross veins between the two branches of cubitus and the gradate cross veins blackish brown. The upper branch of some of the furcated marginal veins at the tip of the wing blackish brown at the base. Base of radial sector, first cross vein between radial sector and media, and divisory veinlet blackish brown. The divisory veinlet ends a little beyond the cross vein. Six cross veins in the costal area before the radial sector. Ten cross veins between radius and the radial sector; six between the radial sector and media. Five branches from the radial sector are running directly to the hind- and apical margin. Gradate veins in forewing $5/6$, in hindwing $3/4$. Hindwing elongate and acute at the tip. All the nervures greenish yellow, with exception of a few cross veins in the costal area and three or four of those between radius and the radial sector, which are brownish in their middle. All the veins greenish haired.

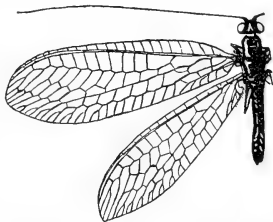


Fig 3. *Chrysopa javanica*, n. sp. ♀.

Length of forewing 13 mm; hindwing 11 mm.

One specimen, ♀, from Goenoeng Oengaran, June 1910; in my collection.

At first sight the species has some likeness to *Chrysopa ruficeps* Mac Lachl., but its smaller size, the dark spotted basal joint of antennae and the dark cross veins make it

easily recognizable. In the forewing of *Chr. ruficeps* 8—9 branches from the radial sector run directly to the margin.

Chrysopa adnixa, nov. spec.

Head and palpi yellowish. Vertex somewhat elevated and flattened. A reddish spot below the eyes. Antennae at least as long as the wings, yellowish at base and becoming a little darker towards the apex, basal joint swollen and with a dark reddish streak on its exterior side. Thorax and abdomen with a broad yellowish median streak and



Fig. 4. *Chrysopa adnixa*, n. sp.

with greenish side margins. Thorax below and on the sides yellowish. Prothorax almost as long as broad, with rounded front angles. Legs greenish yellow; claws darker. Wings hyaline with greenish longitudinal nervures. In the forewing nearly all the cross veins more or less dark brown; likewise the base of the

marginal forks. The gradate veins strongly coloured. Base of radial sector and of some of its branches blackish brown. Series of gradate veins in the forewing not parallel, 6/7 in forewing and also in hindwing.

Length of forewing 14 mm; hindwing 13 mm.

Two specimens, Nongkodjadar, January 1911. Type in my collection, cotype in the Museum of Leyden.

Chrysopa frequens, nov. spec.

Head yellowish; vertex raised and flattened. Palpi yellowish; the terminal joint of maxillary palpi with a broad, blackish brown band; the terminal one of the labial palpi with a narrower band. Below each eye an oblong, blackish brown spot. Antennae as long as the wings, yellowish at the base and becoming a little darker towards the apex.

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Basal joint stout, with a blackish brown spot at the tip on the exterior side. Thorax and abdomen yellowish green. Prothorax broader than long and with rounded front angles; a broad and deep transverse furrow in its apical third. Legs yellowish; claws brown and with a broad basal tooth. Wings hyaline with greenish longitudinal nervures. All the cross veins in the fore wing, the costal ones and some of the basal ones in the hindwing brown to blackish brown. Series of gradate veins parallel; the inner row more or less incomplete; 4-6/6 in the forewing; 3-4/5-6 in the hindwing.

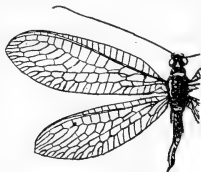


Fig. 5. *Chrysopa frequens*, n.sp.

Length of forewing 11—12 mm; hindwing 10—11 mm.

1 specimen Oct. 1909, 2 specimens Nov. 1909, 1 specimen Dec. 1909, 1 specimen Oct. 1910, 1 specimen Nov. 1910 and 1 specimen Dec. 1910; all from Semarang. Type in my collection, cotypes in the Museum of Leyden.

Chrysopa jacobsoni Weele.

v. D. WEELE, Notes Leyd. Mus. XXXI, p. 65, pl. 4, fig. 26 (1909).

JACOBSON, Tijdschr. Ent. p. 100 (1912).

This species was described by v. D. WEELE from 5 specimens reared from egg, November 1907, in Batavia by EDW. JACOBSON. With great interest I looked for the species amongst the material before me, but I only saw two freshly emerged specimens. Several specimens that agreed well with the two in every respect with exception of a strongly indicated, reddish brown streak on the exterior side of the two basal joints of antennae, troubled me very much. In the description of the species v. D. WEELE lays stress on the unspotted basal joint of antennae; but at last I came to the conclusion that all the specimens belonged to one species, viz. *Chr. jacobsoni*. I think that the five specimens from which the species was described, have been killed before

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they got their full colour, and therefore the streak on the basal joints of antennae has been absent just as in the two specimens before me. Below I give a description of the species.

Head yellowish green, somewhat flattened on the vertex. The third and fourth of the maxillary palpi more or less blackish; the fifth quite black with exception of the pale tip. The terminal joint of labial palpi with a broad, dark band. Below the basal joint of antennae a laying y-shaped, reddish brown marking; below the eyes and along the genae an oblique and sometimes abrupted streak, reddish brown or blackish brown coloured. Antennae at least as long as the wings, yellowish at the base and becoming blackish brown towards the apex. The basal joint stout; the second joint globular; both joints with a narrow, reddish brown streak along their exterior side. Thorax with a

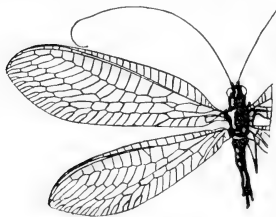


Fig. 6. *Chrysopa jacobsoni* Weelo.

yellowish median band and greenish side margins. Prothorax about twice as broad as long; a transverse furrow in its apical third; a median furrow from the transverse furrow to the hind margin. Legs greenish yellow; the claws brownish and with a broad base. Wings hyaline with greenish longitudinal

nervures. Sometimes a few of the basal cross veins in the costal area are blackish brown at their ends. The two first cross veins between the radial sector and media, the two basal ones between media and cubitus, and the two between the cubital branches sometimes blackish brown. All the other cross veins greenish. Series of gradate veins parallel. 4-8/6-8 in forewing, 3-6/5-7 in hindwing.

Length of forewing 12—14 mm; hindwing 11—12 mm.

2 specimens from Batavia, June 1909 and Oct. 1908 (freshly emerged); 2 specimens from Nongkodjadar, Jan. 1911; 5 specimens from Semarang.

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Chrysopa flaveola Schn.

SCHNEIDER, Monogr. Chrys. pag. 75, tab. 11 (1851).

2 specimens from Batavia, June and Aug. 1908; 1 specimen from Semarang, March 1910, and 1 from Oengaran, Dec. 1909.

Chrysopa splendida Weele.

V. D. WEELE, Notes Leyd. Mus. XXXI, pag. 72, pl. 5, fig. 29.

One specimen which may be referred to the subspecies *timorensis* Weele, from Semarang, Nov. 1909.

Chrysopa ruficeps Mac Lachl.

MAC LACHLAN, Tijdschr. Ent. XVIII, p. 2, t. I, fig. 1-4 (1875).

Five specimens from Batavia, Semarang and Nongkodjadar.

Chrysopa ochracea Alb.

ALBARDA, Midden-Sumatra, IV, p. 15 (1881).

Eight specimens from Batavia and Semarang.

Chrysopa vicina Kny.

KEMPNY, Verh. zool.-bot. Ges. Wien, LIV, p. 354 (1904).

Two specimens from Semarang, Nov. 1910, and from Djocja, Febr. 1911.

I think that this species probably may be the same as *Chr. ramburi* Schn.

Nothochrysa evanescens Mac Lachl.

MAC LACHLAN, Ent. Monthl. Mag. VI, p. 25 (1869).

One specimen from Batavia, Nov. 1908; three specimens from Semarang, Nov. 1909, Jan. 1910 and Febr. 1910.

Leucochrysa abnormis Alb.

ALBARDA, Midden-Sumatra IV, p. 16 (1881).

Four specimens from Batavia, December 1908.

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Ankylopteryx octopunctata Fabr.

FABRICIUS, Ent. Syst. II, p. 85 (1793).

Three specimens from Batavia, Aug. and Oct. 1908; eight specimens from Semarang, May, July, Nov. and Dec.; one specimen from Oengaran, June 1910.

Fam. MANTISPIDAE.

Mantispa amabilis Gerst.

GERSTAECKER, Mitt. naturw. Ver. Neu-Vorp. und Rügen, XXV, p. 152 (1893).

Two females, Tempoeran, April 1910, and Djerakah, Semarang, Aug. 1910.

Silkeborg, November 10, 1913.

NOTE XXVII.

AUCHENOGLANIS BÜTTIKOFERI, N. SP.
FROM WEST AFRICA

BY

Dr. C. M. L. POPTA.

(With plate 10).

The Director of the Zoological Garden in Rotterdam, Dr. J. Büttikofer, presented some fishes to the Leyden Museum, one of which is new to science and dedicated to its donor. They were brought to the above mentioned garden from Warri in Upper Nigeria, West Africa. They are:

Calamichthys calabaricus Smith, a male and a female.

Ophiocephalus africanus Steind., 2 specimens.

Auchenoglanis Büttikoferi, n. sp. 1 specimen.

Auchenoglanis Büttikoferi, n. sp.

Altitudine corporis quae 6, longitudine capitis quae $2\frac{4}{5}$, longitudine corporis continetur absque pinna caudali. Oculis diametro quae $7\frac{1}{2}$, longitudine capitis continetur, diametro 2 distantibus. Scuto capitis rugoso, crista interparietali os interspinosum attingenti. Naribus posterioribus oculo magis quam rostri apici approximatis, labiis non papillatis, dentibus maxillae superioris in vitta parva, dentibus maxillae inferioris in vitta longa, latiore ad symphysam. Cirris 6, supramaxillaribus $\frac{2}{3}$ capitis attingentibus, inframaxillaribus externis finem capitis, inframaxillaribus internis aperturam branchialem attingentibus. Capite et corpore superne fuligineis, inferne in parte anteriore albis, inferne in parte

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posteriore stramineis, umbratis fuliginee. Pinna dorsali et adiposa fuligineis, ceteris pinnis umbratis fuliginee.

Body oblong, head depressed, body anteriorly as broad as high, afterwards the more and more compressed. Depth of body 6 times in total length without caudal fin, length of head $2\frac{4}{5}$ times, wide of body 6 times. Head rough at the upper-side, ramificate-striate, the humeral processes too, the gillcovers are radiate-striate; there is a weak skin on the cheeks and on both sides of the striated plate of the gillcovers. Head $\frac{2}{3}$ as broad as long, $\frac{13}{20}$ as high as broad; snout flat, obtusely pointed, $\frac{13}{30}$ of the length of the head, as long as the postorbital space. Eyes placed in the middle of the length of the head, directed laterally; diameter of eye $7\frac{1}{2}$ times in the length of the head, twice in the interorbital width. Width of the mouth $\frac{11}{20}$ of that of the head, lips wide but thin, without papillae. The prae-maxillary teeth in a short band, which is $\frac{1}{3}$ as broad as long; the mandibular teeth in a long band, which reaches with the ends nearly to the mouth-corners, anteriorly it is widened in two groups, which at the symphysis almost touch each other (fig. 3); the teeth are of unequal size, those at the outside in the under-jaw near the symphysis are the largest. Six feelers, the maxillary feelers reach to $\frac{2}{3}$ of the length of the head, the outer mandibular feelers to the end of the head and the inner ones come to the gill-opening behind it. Posterior nostril cleft-like, nearer to the eye than to the end of the snout. The occipital process is nearly twice as long as broad, as long as the eye and it reaches the interneural plate, which is of equal length, both have ramificate streaks on the upper-side. The humeral process is narrow, directed backwards downwards, $1\frac{3}{4}$ as long as the eye. The frontal groove is 4 times as long as broad. The gillmembranes are not united with the isthme and partly with one another, the notch goes till the vertical line of the anterior border of the eye.

The height of the dorsal fin is equal to $\frac{8}{15}$ of the length of the head, its base is equal to $\frac{7}{15}$, its spine also to $\frac{7}{15}$,

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this is anteriorly but little serrated in the upper part, in the lower part it is smooth, on the sides it is striated. The dorsal fin is rounded superiorly, it is situated in the midst of the length of the body without caudal fin. The adipose fin is $6\frac{1}{2}$ times as long as high, its distance from the first dorsal fin equals its height. The pectoral fins measure $\frac{3}{5}$ of the length of the head, their spine is stronger than the dorsal spine, anteriorly feebly serrated in the upper part, in the lower part finely toothed, posteriorly coarsely toothed, but not till the upper end, laterally it is striated; its length equals $\frac{8}{15}$ of the length of the head. The ventral fins do not reach the anal fin, their length equals $\frac{2}{5}$ of the length of the head, they are situated half way under the two last dorsal rays. The anal fin begins under the $\frac{15}{26}$ part of the adipose fin, its height is equal to $\frac{13}{30}$ of the length of the head, its base of $\frac{1}{3}$. The caudal fin is rounded, $\frac{1}{5}$ of the total length. The free portion of the caudal peduncle measures $\frac{1}{3}$ of its height.

The fish is in spirits on the upper-side violetbrown coloured (near 11 of Saccardo, 1894), on the under-side anteriorly white, posteriorly yellowish with violetbrown shade; the dorsal fin and the adipose fin are violetbrown, the other fins are shaded with that colour.

B. 9; D. I, 7; P. I, 7; V. 6; A. II, 11; C. 18.

Length of individual	105 mm.
Length without caudal fin	84 mm.
Height of body	14 mm.
Length of head till end of humeral process	30 mm.
Width of head	20 mm.
Height of head	13 mm.
Length of snout	13 mm.
Diameter of eye	4 mm.
Interorbital space	8 mm.

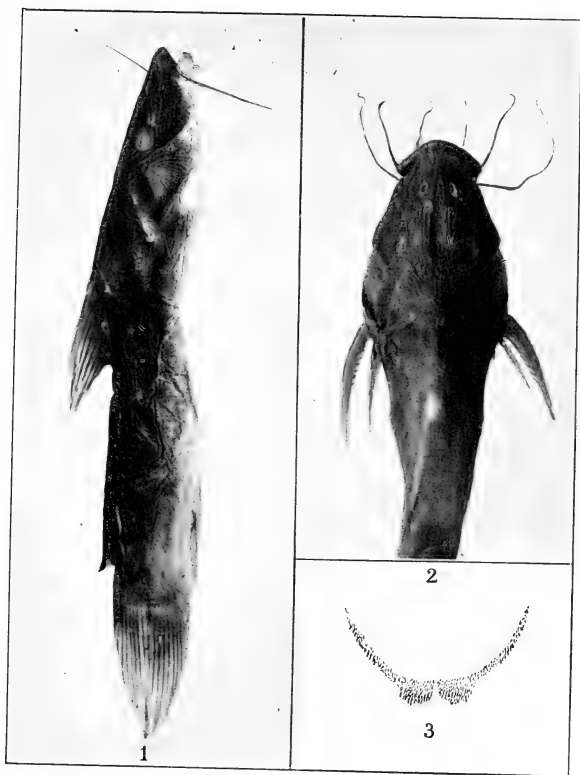
Auchenoglanis Büttikoferi comes nearest to *Auchenoglanis monkey* Keilhack, of which is said: "Die Mandibularzähne stehen in zwei runden Feldern, an deren hintere äussere Ecken sich ein schmales Band anschliesst, das bis an den Mundwinkel reicht." *A. Büttikoferi* has the mandibular

teeth in a band that, at both sides of the symphysis, is widened anteriorly; in the fore part of this round widening the teeth are larger.

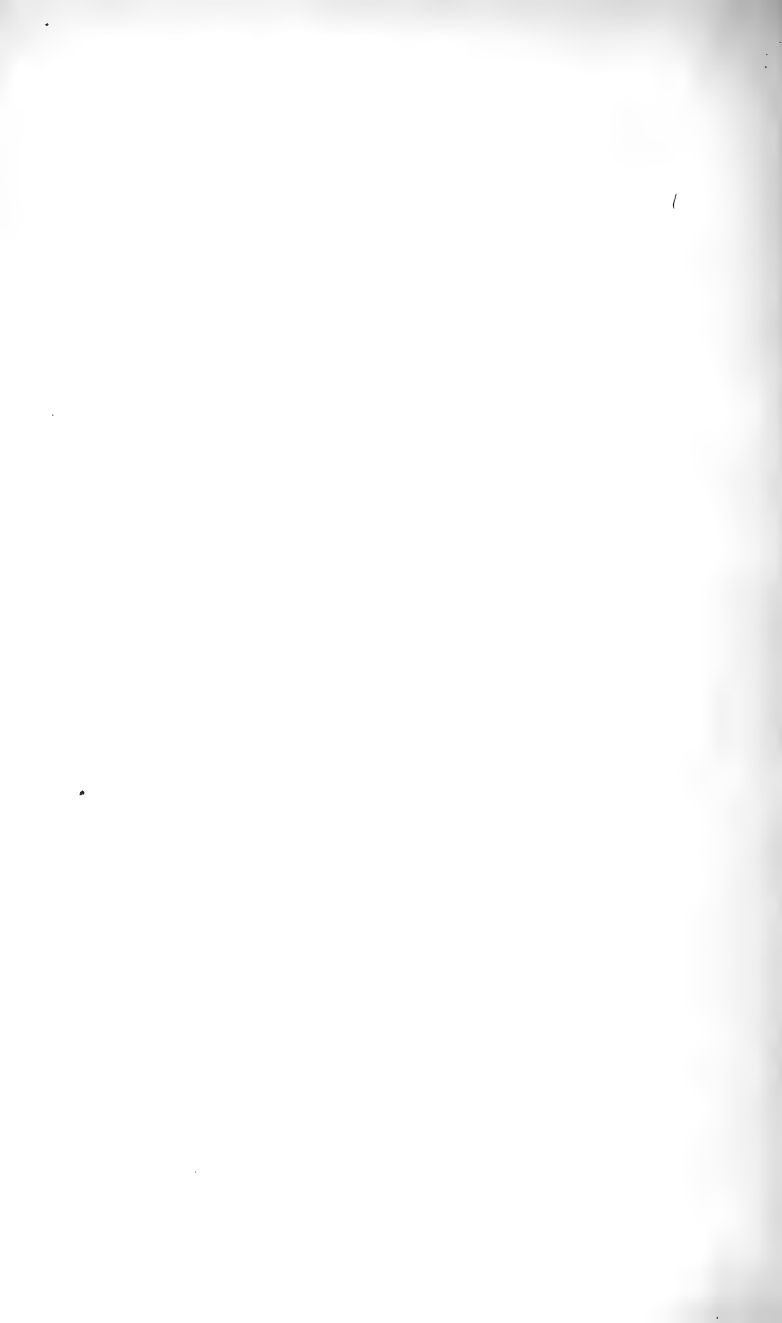
A. Büttikoferi differs from *A. monkey* chiefly in the height of the body, in the length and roughness of the head, in the larger eyes, in the nostrils placed nearer to the eyes, in the shorter feelers and in other coloration.

In the roughness of the head it approaches *A. biscutatus* (Geoffroy) Gthr., but it is distinct from it by its lower body, longer head, larger eyes, the situation of the nostrils, the smooth lips, the arrangement of the teeth, the shape of the adipose fin, the denticulation of the pectoral spine, the coloration etc.

Leyden Museum, November 1913.



AUCHENOGLANIS BÜTTIKOFERI, n. sp.



NOTE XXVIII.

FAUNA SIMALURENSIS.
COLEOPTERA, FAM. BUPRESTIDAE.

BY

Dr. H. J. VETH.

1. *Chrysochroa (Melanoxantha) bicolor* F., var. *nigricornis* H. Deyr.

1 ♀ (n^o. 1250) Febr. 1913 and 1 ♂ (n^o. 3732) July 1913, from Sinabang (Simalur).

Both with the white spots on the elytra very large.

2. *Chrysochroa fulminans* F., var. *nigra* n. var.

6 ♂♂ and 9 ♀♀ (n^{os} 2841—2847 and 2873—2880) April 1913, from Pulu Babi.

Of this species three colour-varieties occur, viz. the common yellowish or bluish green one, with the apex of the elytra of a brilliant red; the shining blue one, with the apex of the elytra green, and the black one. Transitions between these forms hardly exist. Kerremans, in his „Monographie des Buprestides”, makes no mention of the black variety, which consequently seemed to me to be unknown. On my inquiring, Kerremans however wrote me that it was known to him from Halmaheira. Now it is a well known fact that Kerremans does not like to give names to varieties and though I participate his opinion in the main point, I believe this to be one of the cases where the naming of the variety can be of interest. It seems very possible to me that the different colours are in relation with one or the other particularity of the climate,

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f. i. the degree of humidity or the relative height. By giving names to these varieties the attention is more fixed upon them.

The blue variety bears in the Leyden Museum the manuscript-name *indigotea*, given by the late Snellen van Vollenhoven. I now propose to name the black variety *nigra*. The males of this variety have the last three segments of the abdomen red, as is also the case, though less obvious, in the var. *indigotea*.

3. *Chrysodema rubifrons* H. Deyr.

2 ♂♂ (n^{os} 2871 and 2872) April 1913, from Pulu Babi.

1 ♂ var. (n^o. 2751) March 1913, from Sinabang (Simalur).

About this species Kerremans wrote me the following: „Le *Chrysodema rubifrons* H. Deyr. est une espèce dont le type provient de Malacca. Vos exemplaires sont un peu plus rugueux sur les élytres que le type, mais je ne pense pas qu'il y ait lieu de l'en séparer. Je n'en ai pas encore vus de Sumatra. Le 3^e exemplaire (violacé) paraît être une variété de la même espèce chez laquelle l'allure des côtes élytrales est assez variable.”

4. *Endelus Modiglianii* Kerr.

2 specimens: one (n^o. 1096) Febr. 1913, from Sinabang (Simalur), the other (n^o. 3694) May 1913, from Pulu Pandjang.

the Hague, November 1913.

NOTE XXIX.

FAUNA SIMALURENSIS.

LEPIDOPTERA RHOPALOCERA:

FAM. SATYRIDAE, MORPHIDAE & NYMPHALIDAE.

BY

R. VAN EECKE.

Continuing the enumeration of the Lepidoptera from Simalur and neighbouring islets, collected by Mr. Edw. Jacobson, I have to notice only one new form of *Cethosia* and of *Acca* among a number of 16 species of Nymphalidae. The Satyridae were represented by one species and the Morphidae by two.

According to a letter of Mr. Jacobson the Lepidopterous Fauna of the named islands must be much richer than the collection brought together by him, let think, because it was very difficult to capture the very high flying butterflies. In some cases Mr. Jacobson has made use of his rifle, what is very well to see in the specimens.

The families of the Danaidae, Euplocinae and Lycaenidae will be enumerated later on.

Fam. SATYRIDAE.

1. *Ypthima pandocus* Moore. 3 ♂ & 2 ♀. Nos. 6001—6005.
Hab. Sinabang and Sibigo (Simalur), 1—8/1913.

Fam. MORPHIDAE.

2. *Amathusia amythaon* Doubld. ♀?. No. 6006.
Hab. Pulu Babi, 4/1913.

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This specimen is very damaged by a shot; the anterior wings are totally pierced and so the pattern is not well visible. The blue subcostal band is larger than that in the specimens from Java.

3. *Clerome arcesilaus* Fabr. var. *besa* Hew. ♂. No. 6007.

Hab. Pulu Babi, 4/1913.

Fam. NYMPHALIDAE.

4. *Cethosia hypsea* Doubld. Hew. nov. var. *nigrescens*. ♂. No. 6008.

Hab. Sinabang (Simalur), 7/1913.

Size, shape and further habitus is that of *C. gabinia* Weymer, which I think to be also a variety of *hypsea*. Between *C. cyane* Dru. and *C. penthesilea* Cram. is no macroscopical difference in the genitalia, but certainly it exists between *cyane* and *hypsea*. The male copulatory-apparatus of *gabinia* and of *nigrescens* do not differ from that of *hypsea*, so that I like to regard the specimen from Simalur as a variety of *hypsea*. Yet the pattern is quite different: the yellowish band on the anterior-wing is absent, so that this wing is nearly black except a triangular red part near the hind-margin. The upperside of the posterior-wing is like that of *gabinia*, only the semi-orbicular figures in the black margin are quite indistinct.

On the underside the pattern is like that of *gabinia* with more black lines where *gabinia* has stips. In the semi-orbicular figures of the margin are stips instead of small lines between the nervules.

Gabinia lives on the island Nias and so it is important, that on a neighbouring island once more is another form of *hypsea*. I have also compared my *nigrescens* with material of *hypsea* from Java till Malacca and with one specimen of *hypsinia* Feld. from Riouw.

The result of my microscopical researches will be published later on, with figures of some butterflies from Simalur.

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5. *Cirrochroa fasciata* Feld. ♂. No. 6009.
 Hab. Labuan Badjan (Simalur), 6/1913.

6. *Cynthia arsinöe* Cram. var. *orahilia* Kheil. 7 ♂. Nos. 6010—6016.
 Hab. Sinabang (Simalur), 1/1913.
 These specimens are quite like those of the island Nias.

7. *Messaras erymanthis* Dru. ♀. No. 6017.
 Hab. Labuan Badjan (Simalur), 6/1913.

8. *Junonia laomedea* Linn. 8 ♂ & 1 ♀. Nos. 6018—6026.
 Hab. Simalur: Sinabang, 3/1913; Ajer dingin, 8/1913;
 Labua, 4/1913; Labuan Badjan, 6/1913.
 These specimens differ from the other ones from the
 Malayan Archipelago by the paleness of the underside.
 The black stips in the ocelli near the outer-margin are
 also smaller. One male, however, is coloured quite like the
 specimens from Java.

9. *Junonia asterie* Linn. 2 ♂ & 2 ♀. Nos. 6027—6030.
 Hab. Labuan Badjan, 6/1913.
 The specimens do not differ from those from N. E.
 Sumatra.

10. *Rhinopalpa polynice* Cram. var. *elpinice* Feld. 2 ♀. Nos. 6031 and 6032.
 Hab. Sinabang (Simalur), 1/1913; Pulu Babi, 4/1913.

11. *Doleschallia bisaltide* Cram. ♂. No. 6033.
 Hab. Sinabang, 1/1913.

12. *Cyrestis maenalis* Erichs. ♂. No. 6034.
 Hab. Kuala sorib (Simalur), 5/1913.

This specimen is a very remarkable one, because it is

a variety between *irmae* Forbes, which is common on Sumatra, and the typical *maenalis* from the Philippines. Yet I think it nearer to *irmae*. The parallel black lines and generally the black colour are more extensive.

13. *Cyrestis rahria* Westw. ♀. No. 6035.

Hab. Pulu Babi, 4/1913.

Cyrestis rahria Westw. var. *peraka* Dist. 3 ♂. Nos. 6036—6038.

Hab. Sinabang (Simalur), 3, 1913; Ajer dingin (Simalur), 4/1913.

14. *Hypolymnas anomala* Wall. ♂ & ♀. Nos. 6039 & 6040.

Hab. Simalur: Abail, 4/1913; Lasikin, 3/1913.

15. *Minetra sylvia* Cram. 2 ♂ & 1 ♀. Nos. 2177 & 2178, 6041.

Hab. Laulo (Simalur), 8/1913; Labuan Badjan, 6/1913.

Nos 2177 & 2178 are captured in copulation. Colour and pattern are like the specimens from Malacca.

16. *Acca procris* Cram. nov. var. *vicina*. ♀. No. 6042.

Hab. Sinabang (Simalur), 5/1913.

The size is that of *A. aemonia* Weym. from the island Nias and so is also the further form and habitus. The pattern is totally different and resembles more that of the *A. procris* from Sumatra, Borneo and Java. The colour is also more like that of the typical *procris*; yet this female specimen can be separated at a glance from all the other ones by the yellowish white band on the upper-side of the wings and by the pattern on the under-side. The series of white spots is very broad near the cell of the anterior-wing and becomes very narrow to the anales of the posterior-wing. Round the cubitus 2 and the analis of the anterior-wing the white colour is invaded by black-brown, being the surrounding colour of the series. Near the costa

four stips are present like those of *procris*. The general colour is black brown. Near the outer-margin of the anterior-wing is a zig-zag line, which is more dissolved into black stips in *procris*.

The colour and pattern on the underside of the wings are like those of *procris*, except the running of the series of white spots. So the figure round the body, formed by the outline of the series, is very different.

Perhaps I am wrong in writing of a variety of *procris*, because it is possible, that we have to do with a species between *procris* and *aemonia*, but one female specimen may not be a decider to me.

Mr. Jacobson has probably reared the butterfly ex pupa, because I have also its empty larval skin, resembling that of *procris*.

17. *Neptis vikasi* Horsf. ♂. No. 6043.

Hab. Sinabang (Simalur), 2/1913.

18. *Athyma pravara* Moore. ♂ & ♀. Nos. 6044—6045.

Hab. Sinabang (Simalur), 2/1913; Labuan Badjan (Simalur), 6/1913.

19. *Prothroe Franckii* Godt. 2 ♀. Nos. 6046 & 6047.

Hab. Labuan Badjan (Simalur), 3/1913; Pulu Babi, 4/1913.

The specimen from Pulu Babi differs on the underside from that from Simalur and other islands by the absence of the white band between costa and outer-corner of the anterior-wing. Only near the costa are four small whitish spots. The colour on the underside is also much blacker than in the specimens from other islands.

Leyden Museum, December 9, 1913.

NOTE XXX.

FAUNA SIMALURENSIS.
COLEOPTERA, FAM. CLERIDAE ¹⁾

BY

Dr. H. J. VETH.1. *Cylidrus* spec.?1 specimen (n^o. 4413) from Laut Tawar, August 1913.Perhaps an aberrant, more darkly coloured specimen of the common *Cylidrus cyaneus* F.2. *Tillus notatus* Klug.1 specimen (n^o. 3677) from Bangkal, May 1913.3. *Cylidroctenus chalybaeum* Westw.2 specimens (n^{os}. 1120 and 3055) from Sinabang (Simalur), February and April 1913.4. *Ommadius* spec.?1 specimen (n^o. 2807) from Pulu Babi, April 1913.5. *Anthicoclerus anthicoides* Westw.1 specimen (n^o. 3056) from Sinabang (Simalur), April 1913.6. *Necrobia rufipes* de Geer.1 specimen (n^o. 3047) from Sinabang (Simalur), March 1913.

the Hague, December 1913.

1) All the specimens have been identified by Dr. S. Schenkling.

NOTE XXXI.

FAUNA SIMALURENSIS.
COLEOPTERA, FAM. CICINDELIDAE

VON

Dr. WALTHER HORN.1. *Collyris celebensis* Chaud.

- 1 Exemplar (n^o. 2859) von Pulu Babi, April 1913.
3 Exemplare (n^{os}. 992, 1077 und 2860) von Sinabang (Simalur), Februar 1913.

2. *Cicindela speculifera brevipennis* W. Horn.

- 22 Exemplare von Sinabang und Lasikin (Simalur),
Februar, März, Mai und Juni 1913.

3. *Cicindela discreta* Schaum.

- 8 Exemplare (n^{os}. 1103, 1104, 1106, 1111, 1148, 1149,
1150 und 3745) von Sinabang (Simalur), Januar,
Februar und Juli 1913.

4. *Cicindela Jacobsoni* W. Horn, nov. spec. ♀.

- 2 Exemplare (n^{os}. 2756 und 2758) von Lasikin (Simalur), April 1913.
1 Exemplar (n^o. 3743) von Labuan Badjang (Simalur),
Juni 1913.

Trochanteribus anticis pila fixata ornatis, trochanteribus intermediis nudis. Capite toto, prosterno, pronoto nudis; pro-episternis fere nudis (solummodo intus sparsissime setosis); meta-episternis cum parte adjacente metasterni

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partequae laterali coxarum posticarum, abdominis lateribus et partibus centralibus (his brevissime) pilosis. Antennarum articulo primo (nudo), femoribus 4 primis aut omnibus maxima ex parte testaceis. Labro, palpis (non inflatis), trochanteribus coxisque testaceis. — Long. 8 mm (sine labro).

In collectione auctoris et Dr. Veth.

Cicindelae discretae Schm. similis, differt labro medio magis producto, 4 setoso; fronte inter oculos profundius excavata; vertice paullo longiore et angustiore; pronoto paullo longiore angustiore (praecipue antice), lateribus paullo minus rectis (antice posticeque paullo magis constricto), disco discrete subtilissime densissime transversim striolato; elytris evidententer angustioribus, sine plagis velutinis, spina suturali obtusissima; lunula humerali multo longiore posticeque crassiore, macula marginali media majore obliqua (discum et posticem versus descendente: lateraliter non dilatata, discum non attingente), puncto discoidali nullo, macula ante-apicali majore virguliformi (antice incrassata) margini magis approximata cum linea apicali marginali connata aut fere connata. Antennarum articulo 2.—4. testaceo-cyaneis; tibiis tarsisque testaceis aut plus minusve cyaneo-indutis; femoribus posticis testaceis aut in medio et distaliter cyaneis; femoribus 4 anticis leviter cyaneo-indutis.

Diese auf der nahe der Nordwest-Ecke von Sumatra gelegenen Insel Simalur vorkommende Art ähnelt in manchem der *Cic. discreta*. Pronotum vorn und hinten gleichmässig eingeschnürt. Oberseite des ganzen Tieres mehr kupfrig-bräunlich, Kopf und Halsschild unten mehr messingfarben, Rest der Unterseite entweder changierend kupfrig-violett oder mehr grünlich erzfarben. Flügeldecken Grübchen auf dem bräunlichen Ton im allgemeinen etwas besser sichtbar als dort. Spiegelfleck der ♀♀ gross, mässig glänzend, kupfrig. Wegen der Schmalheit erscheinen die Flügeldecken weniger abgeflacht.

5. *Cicindela funerea opigrapha* Dej.

1 Exemplar (n^o. 4750) von Sibigo (Simalur), August 1913.

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6. *Cicindela didyma* Dej.

6 Exemplare (n^{os}. 1112, 1113, 1286, 1289—1291)
von Sinabang (Simalur), Januar und Februar 1913.

Die blauen und grünen Töne der Ober- und Unterseite sowie der Schenkel treten mehr zurück, dafür dominieren kupfrige. Die Makeln der Flügeldecken sind etwas vergrößert und der Scheibenfleck mit der Mittelrandmakel verbunden.

7. *Cicindela longipes* F.

25 Exemplare von Lasikin (Simalur), März und April 1913.

Berlin-Dahlem, December 1913.

NOTE XXXII.

ON A PECULIAR MODE OF ATTACHING OF
SIPHONARIA SIPHO, SOW.

BY

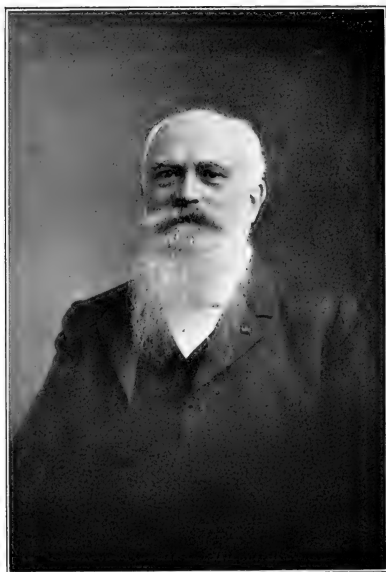
Dr. J. H. VERNHOUT.

Lately the Leyden Museum received from Prof. K. Martin some specimens of *Siphonaria sipho* Sow., collected by himself at Batoe Kapal on the eastcoast of Hocamoeal, a peninsula of the island of Ceram, one of the Molucca's. Now it is not to be wondered at, that this species, widely distributed in the Molucca's, was also found in the quoted locality; but an observation about its mode of attaching, made by Prof. Martin, who communicated it to me, and kindly allowed me to publish it, seems to be very remarkable.

On a piece of „Glimmerschiefer” (n^o 389 of Prof. Martin's collection) he observed some small specimens of *Siphonaria sipho*, attached with their apices to the stone, so as to form little cups. Prof. Martin himself loosened the shells and took the soft parts out of them. The apices of the shells show no characters different from those of other shells of this species in our collection.

No other example of a limpet-like mollusc, having been found attached on this manner, being known to me, I mention it. Perhaps other naturalists might have observed similar facts; in that case they should oblige me, if they bring them to my notice.

Leyden Museum, December 17, 1913.



A. J. VAN DER STOK

H. A. J. van der Stok

FREDERICUS ANNA JENTINK.

Born August 20th, 1844.

Died November 4th, 1913.

By his decease the Leyden Museum of Natural History has lost a Director, who during nearly thirty years has given all his energy to this Institution, has tried to extend and to complete its collections and to bring its internal arrangement more in agreement with modern views. In the first years of his employment at the Museum (Conservator, 1875—84) he had the good fortune to study under the guidance of Hermann Schlegel and to be introduced by him in the System of the Mammals; for to this class he applied nearly all his scientific labour and he has published a great number of papers on them. Especially by his publications on the Bats and the Rodentia he became known as a learned and accurate scientific investigator. However a good deal of his time in the latest

years of his life has been devoted to the foundation of a new Museum, in which he endeavoured to realise the idea of a complete separation between the scientific and the public collections and thus to effectuate „das Ideal eines naturhistorischen Museums”.

His opinion regarding this question he explained in a communication to the International Congress of Zoology at Bern; for he was not only an assiduous visitor of these international assemblies, but as a President of the Congress at Leyden in 1895, he was also a member of the Comité Permanent. Returning from the latest congress at Monaco he showed the first traces of an illness, that in a few months has ruined his vigorous constitution.



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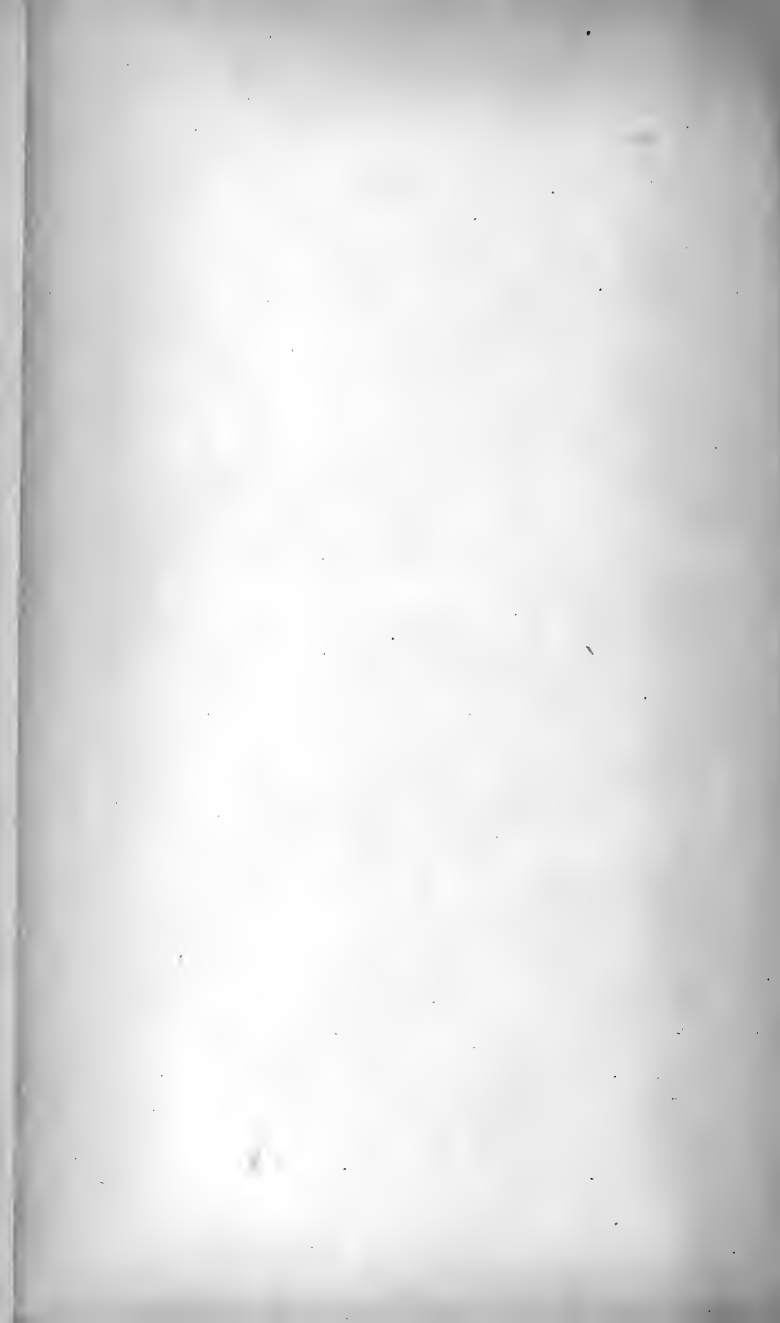
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1) not „Thinicorus”.



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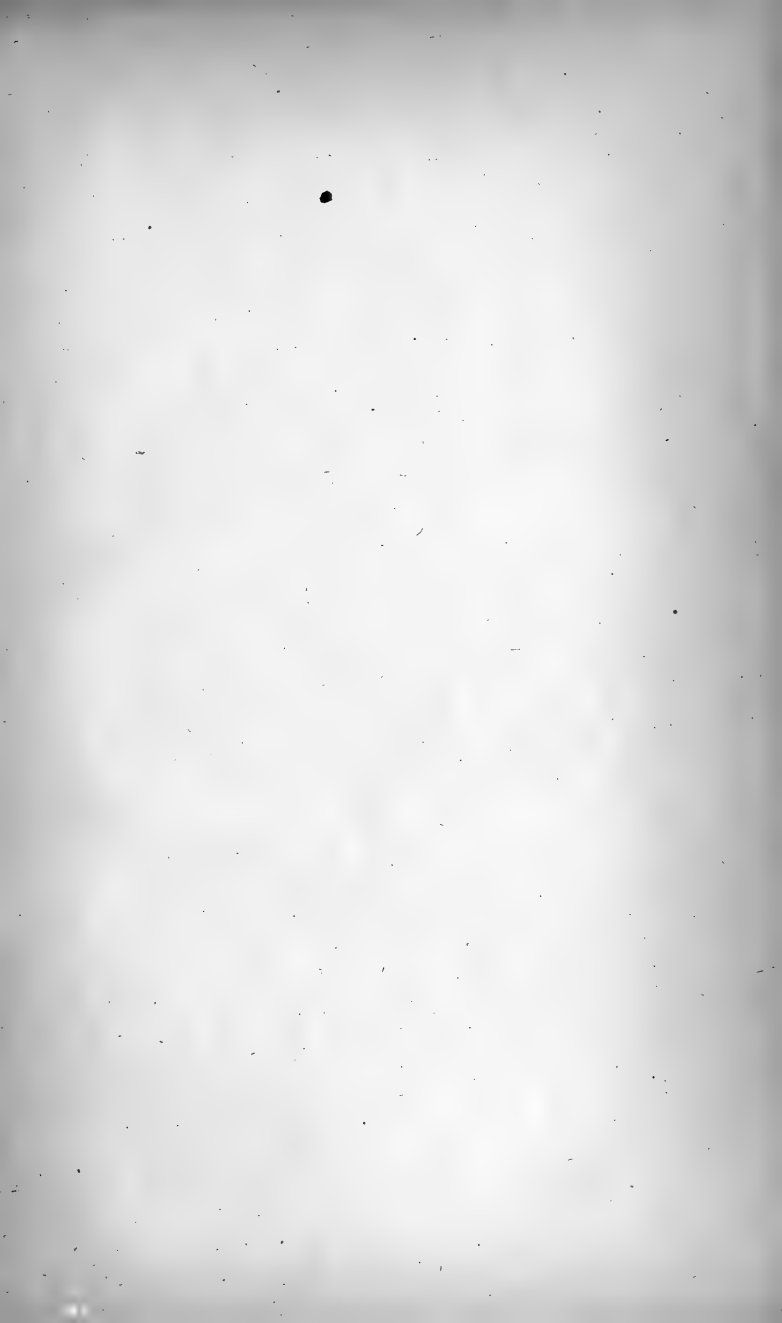
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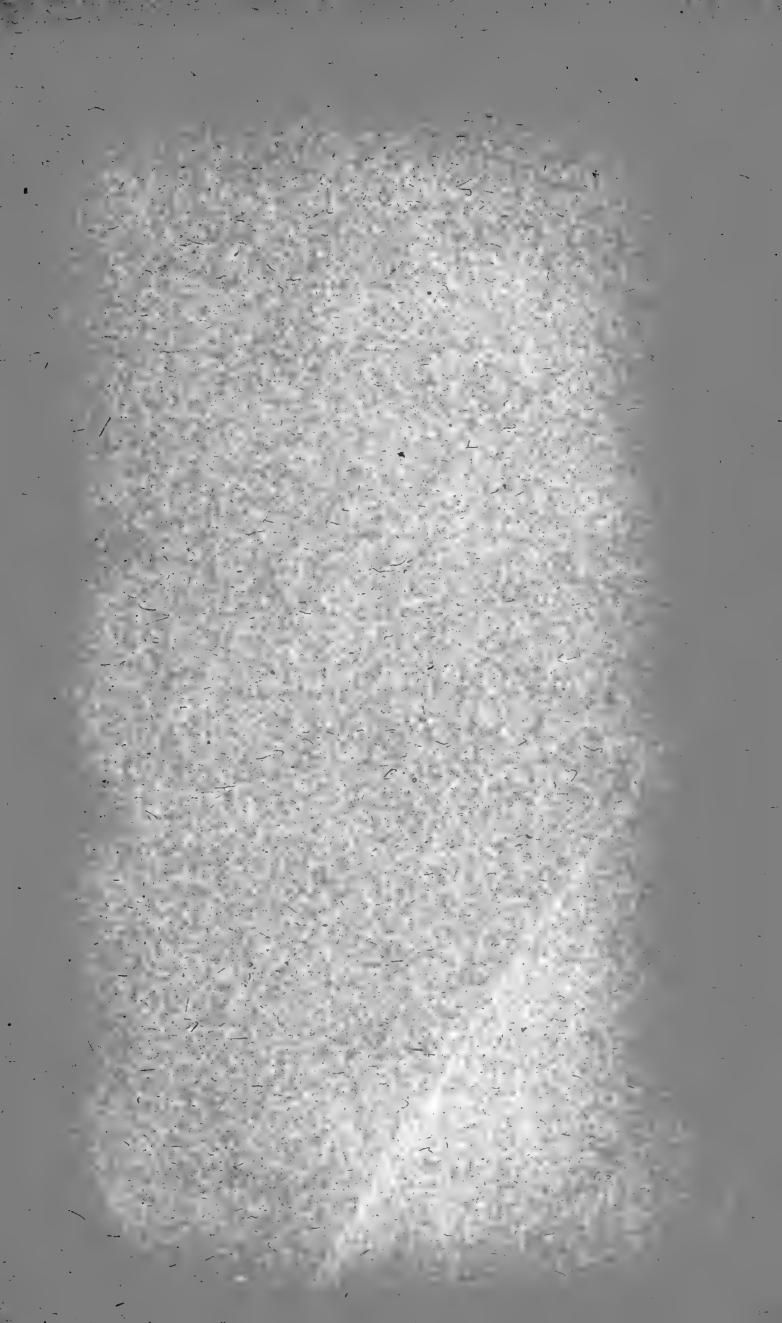
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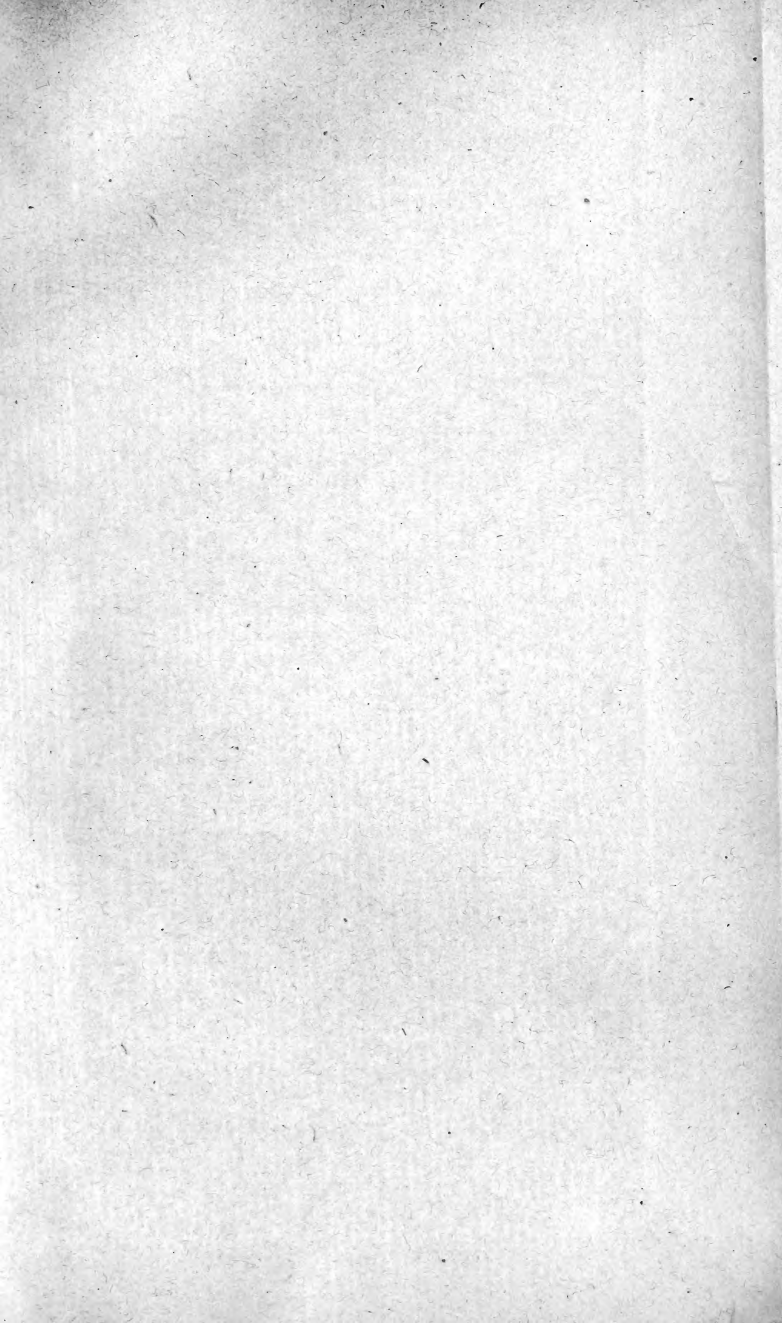


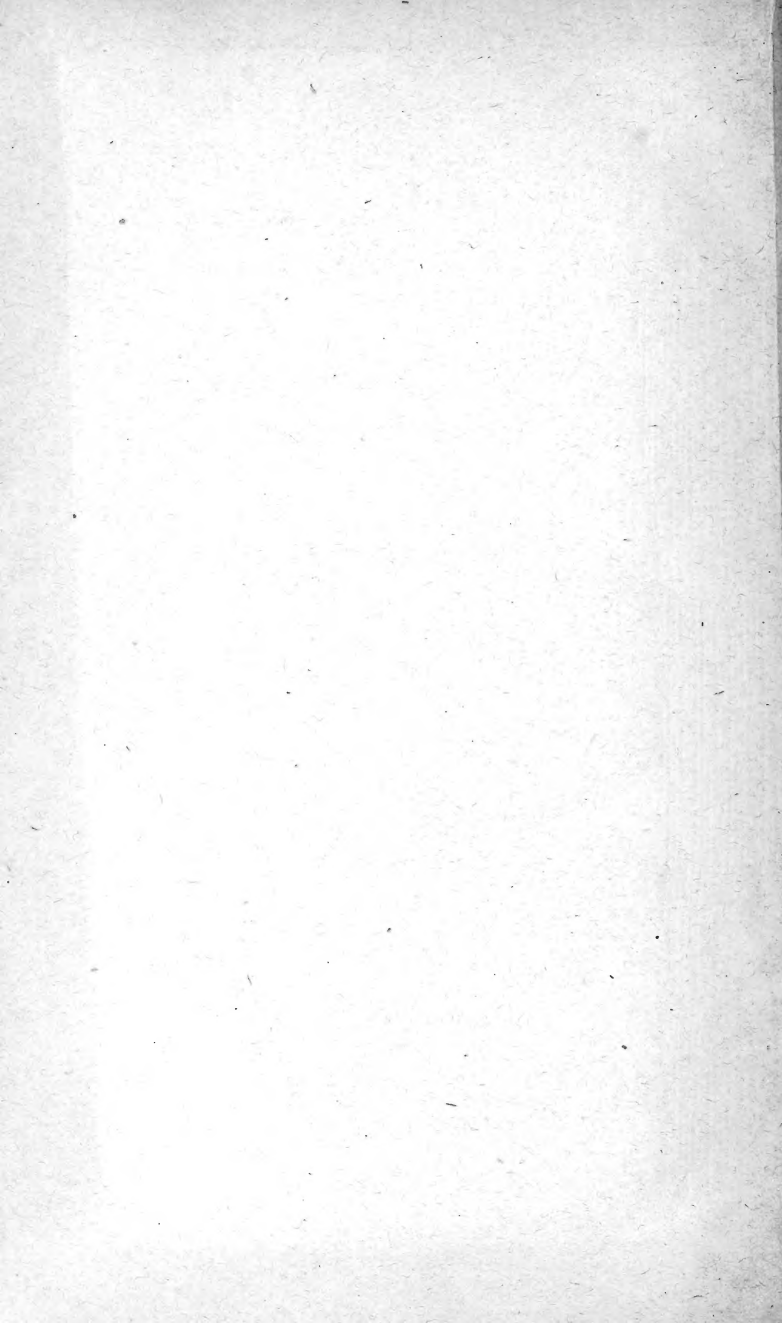
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