















NOVITATES ZOOLOGICAE.

VOL. XXIV., 1917.



# NOVITATES ZOOLOGICAE.

A Journal of Zoology

*IN CONNECTION WITH THE TRING MUSEUM.*

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.

VOL. XXIV., 1917.

*(WITH TWELVE PLATES.)*



ISSUED AT THE ZOOLOGICAL MUSEUM, TRING.

PRINTED BY HAZELL, WATSON & VINEY, LD., LONDON AND AYLESBURY.  
1917-1918.



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The Parts of this Volume were issued as follows :

Part I. (pages 1—323, Plate I.) : May 16th, 1917.

Part II. (pages 325—438, Plates II. to VIII.) : August 31st, 1917.

Part III. (pages 439—501, Plates IX., X.) : December 31st, 1917.

Part IV. (Index, Title-page, Contents, Errata and Plates XI., XII.) : March 1918.

## ERRATA.

- Page 496, line 25 : "*atrinucha*" should read "*atrinucha.*"  
Page 355, line 23 : "*auceps*" should read "*anceps.*"  
Page 269, line 38 : "*carchinnans*" should read "*cachinnans.*"  
Page 355, line 33 : "*Schwerz*" should read "*Schweiz.*"  
Page 455, line 37 : "*philorhyncha*" should read "*ptilorhyncha.*"  
Page 77, line 23 : "*nauna*" should read "*nouna.*"  
Page 407, line 36 : "*mamorata*" should read "*marmorata.*"

5. 320.

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No. I.

PAGES 1—323.

PLATE I.

ISSUED MAY 16TH, AT THE ZOOLOGICAL MUSEUM, TRING.

PRINTED BY HAZELL, WATSON & VINEY, LD., LONDON AND AYLESBURY.

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19 MAY 1917



# NOVITATES ZOOLOGICAE.

Vol. XXIV.

MAY 1917.

No. I.

## WESTERN BLACK-EARED WHEATEAR (*OENANTHE HISPANICA HISPANICA*), ON MIGRATION OBTAINED ON TUSKAR ROCK: A BIRD NEW TO IRELAND.

WITH REMARKS ON THE STATUS OF THIS SPECIES IN THE BRITISH ISLES.

BY PROFESSOR C. J. PATTEN, M.A., M.D., Sc.D.

(Plate I.)

IN the June number of *The Irish Naturalist*, 1916, p. 100, I published a preliminary note to the effect that I had received and identified a Black-eared Wheatear (*Oenanthe hispanica*)\* from Tuskar Light-station, Co. Wexford. The bird was collected alive in a disabled condition on the rock, at 7.15 p.m. on Tuesday, May 16th, 1916, by Mr. John Glanville, principal keeper, and to him I am deeply indebted for his kindness in sending me this interesting species—the first of its kind from Ireland. The earliest intimation which I received of its capture came in a letter kindly written by Mrs. Glanville, from Rosslare Harbour, dated May 17th, in which she informed me that her husband telephoned from the rock that morning the enclosed description of a bird which he caught alive the previous evening: “Wheatear with black throat; back of head, neck, and shoulders, golden-buff; lower back, white; central tail-feathers, black, rest white almost to tip, outer tail-feathers, graduating.”

Knowing that I could not receive the bird until next relief boat-day—a week hence—I wrote to Mrs. Glanville by return and asked her would she kindly telephone the following message to the rock to Mr. Glanville: “Delighted to hear about the strange Wheatear. Though the description you sent is brief and general, nevertheless you have furnished enough information to enable me

\* I published a similar note in *The Daily Express* (Dublin), June 8th, in *The Irish Times*, June 9th, and in *Nature*, June 15th, pp. 321–22, 1916. Time did not permit me to compare the specimen before sending these notes, and though strongly suspecting the bird to belong to the Western race, it seemed advisable not to state so definitely until a comparison was made. For this reason in the note in *Nature* and in *The Irish Naturalist* (where the scientific names are inserted) only the binomial expression *Oenanthe hispanica* appears: this being equivalent to Black-eared Wheatear generally, the race undetermined. But knowing now that this specimen from Tuskar belongs to the Western race, I give it its full trinomial designation, *Oenanthe hispanica hispanica*, to distinguish it from *Oe. hispanica xanthomelaena*, the Eastern form. The number of specimens for comparison which I had at my disposal was too small to afford full and satisfactory information; therefore, to be more certain, I sent the specimen to Mr. Eagle Clarke, to whom my best thanks are due for his kindness in comparing it with the collection of Black-eared Wheatears in the Royal Scottish Museum, Edinburgh. The result of Mr. Eagle Clarke's investigation was to confirm my diagnosis of the racial form of the bird from Tuskar.

to say without hesitation that the bird is the Black-throated form of the Black-eared Wheatear, but I cannot say whether it belongs to the Western or Eastern race until I have seen and compared the specimen. The Desert-Wheatear has also a black throat, but the *entire tail is black almost to the base*, in that way quite different from the description you have given. Therefore I have excluded the possibility of your bird being a Desert-Wheatear. I am glad you furnished me with a description of the tail, it has been a good guide, especially as you omitted to mention the colour of the axillaries and under wing-coverts, which in the Black-eared Wheatear are conspicuous for their *uniform black colour*. These feathers alone serve to distinguish this species from the Desert-Wheatear, in which the axillaries are mottled black and white. You will be interested to learn that this is the first time that a Black-eared Wheatear has been recorded from Ireland. When it arrives I shall wire you the name, feeling confident in the meantime that the provisional diagnosis made *in absentia* will prove correct."

On Thursday, May 25th, the bird arrived in a tin box, well packed in cotton-wool. Immediately before being sent by post it was removed from the spirit in which it had been immersed since the day it was procured; nevertheless its feathers were still quite moist when I received it. With the application of gentle heat it dried out beautifully in less than an hour, and it was gratifying to find that the plumage was good, and the epidermis well fixed. As anticipated, the bird proved to be a Black-eared Wheatear, and I immediately wired Mr. Glanville to that effect. Accompanying the specimen was a letter in which, in addition to the more usual technical data, such as the date, locality, hour of capture, meteorological conditions, etc., the following interesting information was given:

"When I landed at 9.30 a.m. I observed a number of birds on the rock: Whitethroats, Willow-warblers, Sedge-warblers, Swallows, and three Wheatears. At once I noticed the strange bird (one of the Wheatears) by its light plumage and by the lower part of its face and throat being black. I kept a sharp look-out all the day when the Wheatears remained. At 6.30 p.m. I caught a Whitethroat asleep with its head under its wing; this gave me some hope of getting the rare bird. I also met a large brown Wheatear asleep and missed it by a few inches; this bird also appeared strange to me. I next met the rare bird asleep with its head under its wing, and using the greatest caution I got it before it awoke. The third appeared to be a male Common Wheatear. J. McGinley states that there were dozens of Wheatears and Warblers in the rays of the lantern at 2 a.m. that day, the weather at the time being cloudy with rain, and the wind, coming from the S.S.W., was blowing with the force of a gentle breeze (F 3, Beaufort scale). There is only one species of Wheatear (the Common) described in Morris's *British Birds*. This is the only illustrated book I have, and so I am at a loss to find out the bird's name. I hope it is the first Irish record. The wind had been blowing from the W., S.W., W.N.W., and N.W., for six days previous to its capture, with much rain and fog."

On receiving the bird my first care was to take several photographs of it in the flesh, and then, having noted the plumage, ascertained the weight and measurements, I took off the skin and dissected the body without delay. The spirit, in which the bird was plunged immediately after death, fixed the epidermis splendidly, not a feather was lost, and the body generally was in an excellent state of preservation. I made a first-class skin, which, with other

avian rarities collected by me, will be mounted and in due course be presented to the National Museum, Dublin.

On examining the body I found strong objective evidence that the bird had struck its head against the lantern, or at all events against some object. For the vault of the skull was deeply indented in the region of the right frontal bone.\* This wound was surrounded by a considerable degree of haemorrhage. The lesion I consider was quite sufficient to detain the bird on the rock and to cripple its muscular activities sufficiently to prevent it obtaining food, which consists largely of insects captured on the wing. An examination of the gizzard proved my point to be correct. For, unlike the majority of birds which I have collected after they had been perambulating all day on the rock and on dissection have found their gizzards to contain a considerable amount of insect food, the gizzard of this Black-eared Wheatear was absolutely empty. This demonstrated conclusively that the bird was too seriously hurt to hunt for food.†

In connection with this fact it occurred to me that it might be well to write to Mr. Glanville and ascertain from him some information regarding the demeanour of the bird during the nine and three-quarter hours of daylight (9.30 a.m. to 7.15 p.m.) during which he kept it under observation. In reply he wrote: "I think you must be right about the Black-eared Wheatear having damaged itself by striking, as several times during the day the bird was gathered up with its head under its wing, and its feathers puffed out." Here is strong evidence to show that the bird was not only disabled, but was in a sinking condition—indeed, to find it in broad daylight with its head under its wing indicated that it was seized with more than ordinary sleep from fatigue; in short, the bird was dying ‡: hence despatch shortened its miseries and was an act of mercy. In the interests of Irish ornithology it was fortunate that this Wheatear—new to Ireland—fell into Mr. Glanville's hands, as disabled birds are often washed away at high tide, especially when the wind rises and the sea roughens; are frequently picked off by Merlin Falcons, less often by gulls; or again they may creep out of sight to die in crevices where they may never be recovered, or at most their fragmentary remains may be all that can be obtained to establish their identity. As it is, a splendid complete specimen has been secured and photographed in the flesh, the body has been thoroughly examined, and a perfect skin has been preserved for the National Museum, Dublin.§

\* See fig. 5, pl. I., and p. 9, for detailed description of the injury to the head.

† Flies were plentiful. But it is interesting to note that before flies appear, uninjured migrants (land-birds), which alight on the rock, will feed on minute marine crustaceans, vermes, and molluscs. I have proved this by dissecting the gizzards of several species.

‡ Many observers, and especially those who possess aviaries, no doubt have noticed how customary it is for a bird when in the last stages of exhaustion, either from disease, starvation, or injury, to puff out its feathers, and tuck its head under its wing, and not until, with the last flicker of life, when the bird, becoming too weak to stand, rolls over, is the head withdrawn.

§ Wounded or not, it was quite right under the circumstances that this new Irish bird was collected by a *proper person* for scientific purposes. For the student of ornithology who has made a serious study of bird-migration, at rock stations, knows full well how manifold are the dangers which confront the migrant which perforce dares to alight and tarry *en route* on a marine rock, and how difficult are its chances of reaching its *natural habitat*. Nay more, should it reach this in safety, its foreign appearance in a land which it has more or less accidentally visited, would unduly attract many of its natural enemies—especially in this particular case where the plumage of the bird in question is markedly showy—to which if it fell a prey its presence in Ireland would have remained unknown. The collection of a rare bird or other creature, whose status is as yet quite unknown,

Although the gizzard was absolutely devoid of foodstuffs, the condition of the body was decidedly good, the muscles firm, and there was a considerable amount of fat present, especially about the root of the neck and upper region of the thorax. The bird weighed four drams eighteen grains, being proportionately as heavy as were any well-nourished Common Wheatears which I have obtained on their regular migrations from Tuskar Light-station. Like the Aquatic Warbler recently procured on Tuskar Rock, this Wheatear cannot be placed in the category of a waif, and what I have said in regard to the movements and fate of the former holds good in the main for such in the latter,\* namely that the bird had not been perambulating about on the rock in a half-starved condition for some days before death overtook it and rid it of its miseries. In other words, it was not a bird which, becoming separated from its companions, drifted about aimlessly, until fatigued or storm-bound † it sought refuge on a rock. On the contrary, the foregoing evidence, circumstantial and objective, is ample to show that the bird struck the lantern at night, was seen on the rock next morning and several times during the day, and was captured in the evening. The evidence of its having struck the lantern, or some object close by, resolves itself into incontrovertible proof when the head was examined *post-mortem*.

Assuming this to have been the sequence of events, it is interesting to note that the bird travelled with several other species which habitually reach Tuskar on migration, including its close relatives the Common and Greenland Wheatears.‡ Because in addition to the general statement made by Mr. McGinley, namely that there were dozens of Wheatears and Warblers in the rays at the lantern at 2 o'clock on the morning of May 16th, I have received direct proof that Sedge-warblers, Willow-warblers, Spotted Flycatchers, and Common Wheatears struck at that time, for Mr. Glanville sent me specimens which I received in the same parcel which contained the Black-eared Wheatear. Now, in my paper

is not only justifiable but highly desirable, provided of course that full data of the record be supplied, that the specimen itself be properly dissected and in every way investigated, and the skin be carefully preserved and in due course be presented to the Dublin Museum, so that it may take its proper place among the National Collection. It would be a different matter altogether were such a species to repeat its visits sufficiently often so as to arouse suspicion as to the possibility of its breeding. Obviously then one would refrain from repeatedly collecting. It so happens, however, that the vast majority of migrants collected alive at light-stations have proved to have been wounded or in an exhausted state. Herein then lies the duty of the collector who perchance comes across such unfortunate birds to put them out of pain. By such a procedure he performs a humane act, and at the same time is afforded the opportunity of benefiting ornithological science by duplicating the collections not only of common but of many rare and interesting species, which if found un wounded it might not be morally right to deprive of their lives. *The supremely important study of variation* can only be made when a sufficiently large number of a given species is collected, and we look to those who have the unique opportunities at light-stations to conserve duplicates and multiples of rare species.

\* Except that the Aquatic Warbler was killed outright by striking the lantern and was picked up dead on the rock a few hours later, *i.e.* at dawn, whereas the wounded Black-eared Wheatear lingered for some seventeen and a half hours after it struck before being collected and put out of pain ("Aquatic Warbler on Migration," *Zoologist*, March 1915, p. 82).

† As a matter of fact at the time that I have essayed this Black-eared Wheatear to have struck the lantern, the wind, blowing from the S.S.W., only registered, according to Beaufort's scale, a gentle breeze, *i.e.* Force 3, and the condition of the weather was cloudy and rainy. The next day the wind maintained much the same force and direction, veering and backing between S. and W. In the evening when the bird was secured, the weather, though foggy (as it was all day), was quite calm, the southerly wind only registering a light breeze (F. 2, Beaufort).

‡ Just as the Aquatic Warbler obtained at Tuskar travelled with its close relative the Sedge-warbler ("Aquatic Warbler on Migration obtained on Tuskar Rock," *Zoologist*, March 1915, pp. 81-92).

dealing with the Aquatic Warbler from Tuskar I have given cogent reasons to show that although only one bird—a Wheatear—was obtained on the night it struck, none the less this Aquatic Warbler travelled in company with several species, and more than likely with other Aquatic Warblers, and it is all the more reasonable to assume that this Black-eared Wheatear was accompanied by other members of its own kind.\* It is perfectly clear that a great company of migrants of different kinds pursuing their regular routes had in their midst as they reached Tuskar a species of Wheatear as yet undiscovered in Ireland.

Why this bird came along with them is a question deserving close attention. We are told that there were "dozens of Wheatears" in the rays that night, and as already indicated there may have been some more Black-eared examples, It is quite conceivable that a small party of Black-eared Wheatears, detaching themselves for some more or less trivial reason from the main body, may have sighted and joined a company of Common Wheatears steering somewhat in the same direction. If, on the one hand, it may be said that such an idea is but theoretical, I would, on the other hand, remind the reader that in so far as the Common Wheatear is concerned, its migrations at light-stations are almost invariably characterised by marked gregariousness. This is readily understood; for it is an extremely abundant species, has an extraordinarily wide distribution on its vernal migrations, *i.e.* its breeding-range is of vast extent, so that different companies, as they forge forwards, are apt to meet and join up, and in dark and foggy weather to be held up in large assemblies at the lantern; and, thirdly, the Wheatear is on the whole amicably disposed to other species and to members of its own family. Hence a few Black-eared Wheatears would not feel strange in the company of their larger relatives; nay more, being gregarious themselves on migration, and being cut off from the company of their own kind, they might well prefer the presence rather than the absence of the Common Wheatear *en route*. Indeed, being in the minority they might readily accept the escort of the majority and so proceed onwards, oblivious of the fact that they were out-stepping the normal boundaries of their breeding-range. How much farther the Tuskar Black-eared Wheatear might have journeyed, had it not injured itself, is of course a difficult problem to solve.

\* I have already put forward cumulative evidence to show that rare as well as common birds are apt to visit light-stations on migration in the plural even more than in the singular number: witness occurrence of Tree-pipits at Tuskar in September 1913 (*Irish Naturalist*, November 1913, p. 220) and again in September 1915 (*Irish Naturalist*, June 1916, pp. 90-91), and of Reed-warblers in September 1911 (*ibid.* March 1912, p. 50); *vide* also remarks in my articles on "Grasshopper-warblers on Migration" (*ibid.* August 1912, p. 139, also on "Aquatic Warbler on Migration at Tuskar Rock" (*Zoologist*, March 1915, pp. 81-92), and on "Remains of a Tree-pipit found on Tuskar Rock" (*Irish Naturalist*, June 1916, pp. 85-93). Indeed the term "rare" is often more applicable to the periodic than to the numeric status of many species. I have pointed out what an easy matter it is for migrants to escape detection of the lightkeepers, because on striking the lantern many may fall into the sea, or on an inaccessible part of the rock, or if the part be accessible it may be uncovered only at ebb-tide, so that birds would probably be carried away at high-water before being retrieved; lastly, many, whilst flying round the lantern, may escape detection, or at all events identification of species, through not striking the glass and thereby not allowing the lightkeeper the opportunity of bringing them to hand for close examination. (*Vide* my article on "Aquatic Warbler on Migration obtained on Tuskar Rock," *Zoologist*, March 1915, p. 83.)

## DESCRIPTION OF THE SPECIMEN.

## Plumage.

*Markings.*—Forehead and front of crown, silver-grey exhibiting a slight metallic lustre; traced backwards over the rest of the crown this shade gradually merges through straw-colour to golden-buff which is continued over the nape, upper back, and inter-scapular region, and, becoming darker through an admixture with a greyish transverse band which crosses the mid-back, is succeeded by a broad patch of white on the lower back and rump; right central tail-feather black almost to the base. This is a fresh feather evidently acquired during the spring moult. Its fellow on the left is brown almost to the base, shorter, and shows evidence of wear, and was acquired during the previous autumn moult; rest of tail-feathers white, margined with brown forming a terminal band which is considerably broader at the edges. The feather immediately outside the right central feather is also new, is longer than the corresponding feather on the left side, and has a blackish margin interrupted by a white spot. The rest of the tail-feathers are old, being acquired during the previous autumn moult. Lesser, median, and most of the greater wing-coverts black, some of these feathers showing traces of buff edgings (these feathers are new, being acquired during the spring moult); primary wing-coverts and the outer greater wing-coverts adjoining them, *dull brown edged with dull buff* (these feathers are old and were acquired during the previous autumn moult). The same holds good for the primaries, secondaries, and inner secondaries (tertiaries), which are *dull mud-brown* in colour, the buffish edgings being obscured through fading and reduced by abrasion. The scapulars show blackish bases, and are broadly margined with golden-buff which intermingles with that shade in the inter-scapular feathers. The golden-buff on the nape sweeps round the sides of the lower neck, and, becoming poorer in shade at the bottom of the throat, passes gradually into the dull impure buffish-white of the breast, abdomen, and under tail-coverts. The under wing-coverts and axillaries are black; but the minute feathers lining the edge of the under surface of the wing, in the line of the bastard primary, are black broadly edged with greyish-white, giving them a mottled appearance. The lores, cheeks (including the ear-coverts), chin, and upper throat, are black; some of the feathers being minutely flecked with greyish-white. A whitish semicircular collar circumscribes this black area below, and intervenes between it and the golden-buff of the sides of the neck and lower part of the throat.

*Phase.*—According to Saunders the wings (including not only the coverts but all the feathers of flight) of the *adult male Black-eared Wheatear in full nuptial plumage* (Black-throated Wheatear of his time) are nearly black, and the forehead is white, whereas in the bird from Tuskar the flight-feathers are *nut-brown* in shade contrasting markedly with the black wing-coverts, and the forehead is silver-grey; lastly, the tail of the bird, which Saunders describes, shows clearly in the illustration that it has a much narrower terminal band (than in the Tuskar bird), which appears in fact incomplete.\* Moreover, this band is described as *black, not brown*, as in the Tuskar bird. These points of difference in plumage

\* It is significant, as Saunders remarks, that the black margin of the tail is subject to great diminution and partial disappearance with age (*Manual of British Birds*, 1899, p. 24).

are quite definite and apparently are to be interpreted in terms of difference in *phase of plumage according to age*. The description given by Saunders refers to the fully adult bird in its *true nuptial plumage-phase*; the description I have detailed of the Tuskar bird is referable to a bird *in a younger plumage-phase*. It may represent the adolescent male plumage-phase, acquired by partial moult in the early spring (about February or March), *of the first year*, and worn during the ensuing summer. Should the bird not breed at this age, then the phase of plumage it has assumed falls into line with that worn at a corresponding age by several species of wading-birds, *e.g.* Sanderling, which I have proved do not all breed in their first year, yet the plumage acquired is so like the nuptial plumage that I have designated it the *nuptialoid* or *pre-nuptial plumage-phase*.\* If then the plumage-phase of the Black-eared Wheatear from Tuskar be adolescent, it is curious to find that the moult is not quite comparable to what takes place in the Common Wheatear when acquiring its adolescent plumage, which is worn at a corresponding age; for in the case of the latter bird the rule is that *none of the wing-coverts are renewed*. To this rule, however, after examining a large series of specimens, I have seen many exceptions—that is to say, cases in which some of the wing-coverts were renewed but not on so extensive a scale as has taken place in the Black-eared Wheatear in question.

Dr. C. B. Ticehurst in his interesting papers on the subject of plumage-changes points out that in the case of the Common Wheatear when acquiring its adolescent plumage, normally none of the wing-coverts are renewed, but “sometimes the innermost of the greater coverts and rarely also the innermost secondary are moulted.” † Though in my experience other wing-coverts besides these are not uncommonly renewed, the occasional moult of some of the short wing-feathers is not by any means of a stereotyped character; albeit at best it is a desultory process, and the possibility of its being in part adventitious rather than being correlated strictly with the onset of maturity, must not be at once dismissed. It is held that in the assumption of the adolescent and subsequent adult nuptial plumages the rectrices of the Common Wheatear are not renewed. If this be the rule also in the case of the Black-eared Wheatear, then the renewal of two of these feathers in the Tuskar bird has been adventitious, that is to say they have replaced two which have been accidentally pulled out, or otherwise shed. In support of this view I may say that at light-stations I have frequently come across migrants of various species in which the tail was imperfect, and which, from the distribution of the moult, bore evidence that the renewal of the feathers was quite adventitious. In regard to the black flight-feathers assumed by the adult birds in nuptial-plumage, it is interesting to find that they are often in a very much better state of preservation than are the brown ones assumed by the birds in the adolescent plumage. This leads one

\* *Vide* my papers on “Migratory Movements of Certain Shore-birds on Dublin Coast,” read before the British Association, Dublin meeting, September 1908, and published *in extenso* in the *Naturalist*, February 1st, 1909, pp. 83, 84, 85; also on “The Pre-nuptial Plumage in *Calidris arenaria*,” read before the British Association, Winnipeg meeting, August 1909, published in the *Report*; and on “Semination in *Calidris arenaria*,” read before the British Association, Sheffield meeting, August 1910, published in the *Report*; and on “The Vernal Plumage-changes in the Adolescent Blackbird and their correlation with Sexual Maturity,” read before the British Association, Portsmouth meeting, August 1911, and published in the *Report*.

† “Sequence of Plumages in British Birds,” *British Birds*, vol. iii. 1909-10, p. 392.

to raise the question, Do the adult birds renew their flight-feathers in some cases in the vernal moult? The fact that these feathers may be abraded of the buff edgings in varying degrees does not necessarily negative the idea, as such a process of abrasion may proceed later on in the spring.

Before leaving this part of the subject I may state that from a minute anatomical examination of the reproductive organs I would say that the Tuskar bird had reached the sexually active stage of its life, but it does not necessarily follow that there must be a strict correlation between the first arrival at puberty and the assumption of the full nuptial garb. Many external sexual characters do not appear till some time after semination has first manifested itself; for example, the growth of the hair on the face of man, especially the beard, does not as a rule show to any extent until a considerable period after puberty, and many other examples might be cited. To sum up, then, I would say that the Black-eared Wheatear from Tuskar was in adolescent or pre-nuptial plumage, had just reached the age in which it was capable of breeding, but whether it would have done so this season had it survived and had it met a mate, remains an open question. Lastly, in submitting the bird to Mr. Eagle Clarke for comparison with specimens in the Royal Scottish Museum, Edinburgh, I find that his testimony regarding the probable age agrees substantially with that of mine, for he informs me that he is of the opinion "that though mature it is not an old bird." \*

*Condition.*—The condition of the plumage on the whole is good; the full complement of feathers is present, and none of the long feathers of the wings or tail are bent or broken. The only feathers which had not been renewed by the spring moult are the flight-feathers, with the primary-coverts and a few of the outer greater wing-coverts already indicated, and ten of the twelve tail-feathers. Of these, the tail-feathers are in quite a good condition and the dark band is but little faded; the wing-coverts are also in good condition, but these and the flight-feathers have faded to some extent. The tips of the latter, especially the middle series of primaries, are roughened by abrasion, and are the only group of feathers which detract slightly from the beauty of the birds' dress. The rest of the plumage, recently acquired, is clean and bright and the individual feathers are in perfect condition.

#### Feet.

In colour the feet are black, but the tarso-metatarsus (the part commonly called the leg) as distinct from the phalanges or toes, is shorter than in the foot of the Common Wheatear by about 6 mm. (*vide* measurements). This part of the foot is almost as strongly built as in the Common Wheatear, but the toes are more slender, and the nails smaller and shorter. The outer and inner toes are practically of the same length in the two species, and the difference in the ratio of length of toe to nail is almost negligible, the nail of these toes being but a mere shade longer and sharper in the Common Wheatear; but in the mid and hind-toes the nails of the latter are definitely longer, the difference being more marked in the hind-toe; yet these toes, *minus* their nails, are almost the same length in the two species (*vide* measurements).

\* W. Eagle Clarke *in litt.*

### Beak.

Like the feet, the beak is black, and in contour and measurements is practically identical with that of the Common Wheatear.

### Bodily Condition.

In the opening pages of this paper I referred, in passing, to the decidedly good condition of the body, the good tone of the muscles, and the presence of fatty tissue in considerable amount, especially about the root of the neck and upper part of the thorax. Here I may add that I examined all the viscera and found them perfectly healthy except part of the brain, which was congested and haemorrhagic as the result of the indented part of the skull pressing unduly on its surface. The details regarding the injury to the skull showed that the vault was deeply indented in the region of the right frontal bone, 3 mm. behind the right orbital rim and 1.5 mm. lateral to the sagittal suture. The indentation measured in its longest diameters 4.5 mm. and was 2 mm. deep, and in outline was triangular. It was surrounded by a considerable degree of subcranial haemorrhage (see fig. 5, pl. I.). *The gizzard* was absolutely empty; the significance of this condition I have dealt with fully on p. 3.

The *testes* showed out very prominently; both were equally developed, moderately distended, and reddish in colour. They were about the size of small garden-peas, the left approaching a globular outline, while the right was oval in shape and situated at a higher level than its fellow. Microscopical examination showed that spermatogenesis had commenced, but that semination had not reached full activity.

### Measurements.

Total length of specimen from tip of beak to tip of tail, 15 cm.; length of right wing, measured from fold of carpal joint to tip of third and longest primary, 8.4 cm.; left wing, 8.3 cm.; bastard primary, 2.1 cm.; length from tip of wings (folded) to tip of tail, 2 cm.; length of tail, 6 cm.; length of foot \* less toes, 2.25 cm.; toes: hind, 1 cm. (nail 4 mm., rest of toe 6 mm.); inner, 1 cm.; middle, 1.4 cm. (nail 3 mm., rest of toe 1.1 cm.); outer, 9 cm.; length of beak (culmen), 1.2 cm.; same as that of the Common Wheatear. Left testis, 5 mm. in length, 4 mm. in breadth; right testis, 6 mm. in length, 4 mm. in breadth.

### Weight.

After the feathers had been thoroughly dried, the bird weighed 4 drams 18 grains. This Wheatear, while reaching in total length that of the Common species, is not so bulky, and so its weight, which is about 1 dram less, is not disproportionately reduced. The ratio of its weight to that of an average well-nourished Common Wheatear is about correct; but I may point out that frequently Common Wheatears arrive at light-stations in an extraordinarily obese con-

\* In the Common Wheatear the foot, less the toes, measures on average 2.85 cm.; the hind toe 1.3 cm., of which the nail measures 6 mm., the rest of the toe 7 mm.; the inner toe 1 cm.; the mid-toe 1.5 cm., of which the nail measures 4 mm., the rest of toe 1.1 cm.; outer toe, 9 cm.

dition, turning the scales at  $6\frac{1}{2}$  or even  $7\frac{1}{4}$  drams! Compared with such birds the Black-eared Wheatear from Tuskar would be somewhat proportionately under-weight; however, I have little doubt that extra-fat Black-eared Wheatears of heavier weight occur among the numbers which, without undue prolongation or disturbance *en route*, affect regular migrations.

#### TOTAL OCCURRENCES OF THE WESTERN BLACK-EARED WHEATEAR IN THE BRITISH ISLES.

The Black-eared Wheatear, which forms the theme of this paper, is the first specimen which has been obtained in Ireland, and I am not aware that it has ever been observed in the country previously, but considering that the bird has penetrated farther north and west, it is quite likely that it has reached the Irish coast on previous occasions, but has passed unnoticed; now, however, with the production of a specimen, the record of its occurrence has been rendered authentic, and the bird accordingly takes its place on the Irish List. The records in Great Britain have been *actually* more frequent of latter years—I shall point out the reason for this further on when dealing with the status of the bird—here, however, it is convenient to state that as the Black-eared Wheatear was formerly looked upon as a distinct species from the Black-throated Wheatear, its rarity appeared still more marked. Now, however, it is recognised that there is only one species, some members of which exhibit black throats, others a whitish shade\* (Hartert). Adopting the modern name of Western Black-eared Wheatear, and including birds in both phases of plumage, we find that the total occurrences up to the present time in Great Britain are as follows: One, an adult male with a black throat, obtained near Bury, Lancashire, on May 8th, 1875; one, also an adult male with a black throat, *seen, but not obtained*, by Mr. H. B. Hewetson, near Spurn, Yorkshire, on September 18th, 1892. The above instances are taken from Saunders's *Manual of British Birds*, second edition, 1899, p. 23.† The following occurrences have been recorded subsequent to the publication of Saunders's *Manual*: One, a male, obtained near Polegate, Sussex, on May 28th, 1902; one, an adult male, obtained near Hoo, Sussex, on May 22nd, 1905 ‡; one, an adult male with a black throat, obtained near Lydd, Kent, on May 23rd, 1906.§ The above three instances have been gleaned from a paper in *British Birds*, vol. i. pp. 6, 7, by Saunders, entitled, "Additions to the List of British Birds since 1899." Still later notices of the occurrences of this Wheatear in Great

\* *Vide* "Notes on Various Species of British Birds" (from Part VI. *Vögel d. pal. Fauna*), by Dr. Ernst Hartert; *British Birds*, vol. xv. 1910-11, pp. 131-2.

† Described by Saunders as Black-throated Wheatears (*Saxicola stapanina*), the light-throated form, the true Black-eared Wheatear of that period (*S. aurita*), then unknown to have visited the British Isles.

‡ These two birds, showing whitish throats, were regarded as examples of the true Western Black-eared Wheatear (*S. caterinae*), and were recorded as the first and second of their kind obtained in the British Isles. In reality they represent the third and fourth recorded occurrences, and the second and third specimens actually brought to hand.

§ Described as a Black-throated Wheatear (*S. occidentalis*), and recorded as the second of its kind obtained in the British Isles. In reality it was the fourth Western Black-eared Wheatear obtained and the fifth recorded. N.B.—The specific name *occidentalis* was adopted because the name *stapanina* was transferred to represent the specific name of the Eastern Black-eared Wheatear.

Britain are as follows : One, a male, obtained at Winchelsea, Sussex, on May 2nd, 1907 (J. B. Nichols, *British Birds*, vol. i. 1907-8, p. 185) \* ; one, a male with a black throat, obtained at Fair Isle, Scotland, on September 25th, 1907 (W. Eagle Clarke, *Studies in Bird Migration*, vol. ii. p. 145 ; *Annals of Scottish Natural History*, 1907, p. 246, and *ibid.* 1908, pp. 72-85 ; and Witherby, *British Birds*, vol. i. p. 382) † ; one, a female in winter dress, obtained at St. Kilda, on September 21st, 1911 (W. Eagle Clarke, *Studies in Bird Migration*, vol. ii. p. 217) ‡ ; two males, each with a black throat, obtained near Winchelsea, Sussex, respectively on May 16th and 19th, 1912 (J. B. Nichols, *British Birds*, vol. vi. 1912-13, p. 184) § ; one, a male, the colour of throat not mentioned, obtained at Hollington, Sussex, on May 5th, 1915 (H. W. Ford-Lindsay, *British Birds*, vol. ix. 1915-16, p. 121) || ; one, a male with "no frontal band of black," obtained at St. Leonards, Sussex, on October 30th, 1915 (H. Ford-Lindsay, *ibid.* p. 249) ¶ ; one, an adolescent male with a black throat, obtained on Tuskar Rock, co. Wexford, on May 16th, 1916 (C. J. Patten, *Dublin Daily Express*, June 8th, 1916 ; *Irish Times*, June 9th, 1916 ; *Nature*, June 15th, 1916, pp. 321, 322 ; *Irish Naturalist*, June 1916, p. 100) \*\* ; this, the most recent occurrence, completes the number of British-taken specimens up to date.

\* Described as the Western Black-eared Wheatear (*S. caterinae*), and recorded as the third obtained in the British Isles ; in reality it was the fifth obtained and sixth recorded.

† Described as the Black-throated Wheatear (*S. occidentalis*) and recorded as the third British and first Scottish example procured. In reality it was the sixth Western Black-eared Wheatear obtained in Great Britain and the seventh recorded, and the first from Scotland. A ready and concisely drawn-up reference to the above seven records is to be found in Dr. Hartert's *Hand-list of British Birds*, 1912, p. 81. All these birds have been included under the one name of the Western Black-eared Wheatear (*Oenanthe h. hispanica*) ; the question of there being only one species, dimorphic in the plumage of the throat, having been answered in the affirmative, the name Black-throated was abandoned. The alteration in the nomenclature is the outcome of Dr. Hartert's researches, and is now widely adopted.

‡ Here named Black-throated Wheatear (*Saxicola hispanica*), and recorded as the second specimen obtained in Scotland ; this bird was entered as the Western Black-eared Wheatear (*Oenanthe h. hispanica*) in a paper in *British Birds*, vol. vi. 1912-13, p. 152, by the Editors, entitled "Additional Records from Fair Isle and St. Kilda." This paper appeared subsequent to the publication of Dr. Hartert's *Hand-list of British Birds*, and as a result his nomenclatural and vernacular names for the species have been adopted. It is interesting to note that Mr. Eagle Clarke while still adhering to the older name of Black-throated Wheatear had already adopted the same specific name of *hispanica* as did Dr. Hartert instead of *occidentalis*. This bird represents the seventh Western Black-eared Wheatear obtained, and the eighth recorded in Great Britain, and the second obtained in Scotland.

§ Both named the Black-throated form of the Western Black-eared Wheatear, of which form only four previous captures had been made in Great Britain. This statement is correct. However, proceeding with statistics regarding both forms we find these two birds to be the eighth and ninth obtained, and the ninth and tenth recorded in Great Britain.

|| The title of the note here is "Western Black-eared Wheatear in Sussex," but in the text Mr. Ford-Lindsay speaks of the bird as the Black-throated Wheatear ; hence I presume it is a Black-throated form and have entered it as such in the synoptical tables (A) and (C). It represents the tenth specimen obtained and the eleventh recorded in the British Isles of the Western Black-eared Wheatear.

¶ Designated Western Black-throated Wheatear, yet while this older vernacular name is used, the most modern trinomial nomenclatural term, viz. *Oenanthe h. hispanica*, is applied. This bird is the eleventh obtained and the twelfth recorded in the British Isles of the Western Black-eared Wheatear.

\*\* Called Black-eared Wheatear (*Oenanthe hispanica*), the racial form being undetermined when these preliminary notes were sent to press. In the Dublin daily papers above mentioned, I did not insert the scientific names. This bird is the twelfth obtained and the thirteenth recorded in the British Isles, and the first obtained in Ireland, of the Western Black-eared Wheatear.

## SYNOPTIC TABLES.

A. TABLE SHOWING AUTHENTIC BRITISH RECORDS IN SERIAL ORDER OF THE BLACK-THROATED FORM.

Serial Record.	Sex.	Date.	Locality.
First British	Male	May 8th, 1875	Lancashire.
Second British	Male	May 23rd, 1906	Kent.
Third British and First Scotch	Male	Sept. 25th, 1907	Fair Isle.
Fourth British and Second Scotch	Female	Sept. 2nd, 1911	St. Kilda.
Fifth British	Male	May 16th, 1912	Sussex.
Sixth British	Male	May 19th, 1912	Sussex.
Seventh British	Male	May 5th, 1915	Sussex.
Eighth British and First Irish	Male	May 16th, 1916	Wexford.

B. TABLE SHOWING AUTHENTIC BRITISH RECORDS IN SERIAL ORDER OF THE LIGHT-THROATED FORM.

Serial Record.	Sex.	Date.	Locality.
First British	Male	May 28th, 1902	Sussex.
Second British	Male	May 22nd, 1905	Sussex.
Third British	Male	May 2nd, 1907	Sussex.
Fourth British	Male	Oct. 30th, 1915	Sussex.

C. TABLE SHOWING AUTHENTIC BRITISH RECORDS IN SERIAL ORDER OF THE TWO FORMS TAKEN TOGETHER.

Serial Record.	Sex.	Date.	Locality.
First British	Male	May 8th, 1875	Lancashire.
*Second British	Male	May 28th, 1902	Sussex.
*Third British	Male	May 22nd, 1905	Sussex.
Fourth British	Male	May 23rd, 1906	Kent.
*Fifth British	Male	May 2nd, 1907	Sussex.
Sixth British and First Scotch	Male	Sept. 25th, 1907	Fair Isle.
Seventh British and Second Scotch	Female	Sept. 2nd, 1911	St. Kilda.
Eighth British	Male	May 16th, 1912	Sussex.
Ninth British	Male	May 19th, 1912	Sussex.
Tenth British	Male	May 5th, 1915	Sussex.
*Eleventh British	Male	Oct. 30th, 1915	Sussex.
Twelfth British and First Irish	Male	May 16th, 1916	Wexford.

N.B.—The light-throated forms are marked with an asterisk. The first two of these records (second and third British) are interposed between the records of the first and second Black-throated forms; the third (fifth British) between the second and third Black-throated forms; and the fourth (the eleventh British) between the seventh and eighth Black-throated forms.

It may now be observed from the above statistics that, during a period lasting forty-one years, namely, from May 8th, 1875, when the first bird was obtained, to May 16th, 1916, when the latest to date was obtained, thirteen examples have been recorded, which, with the exception of one, have all been handled and identified beyond doubt. Nine of the twelve authentic records, that is to say three-fourths, come from England; two, or one-sixth, from Scotland; and one, or one-twelfth, from Ireland.

#### STATUS OF THE WESTERN BLACK-EARED WHEATEAR AS A BRITISH BIRD.

During latter years this Wheatear has been more frequently recorded than formerly, and though it may be correct to regard it still a rare bird, obviously it is less so than was supposed. As I have already pointed out when framing the status of other rare British birds—*e.g.* Aquatic and Icterine Warblers\*—the study of ornithology has found much favour of late, and many more workers have made a special study of migration, not only on the mainland but at light-stations built on rocks and islands some miles off the coast, and situated so as to lie along and often to intersect important migration-routes. Added is the valuable co-operation and increasing vigilance of the light-keepers; the result is that the number of records of heretofore supposed very rare birds has markedly increased, and in many cases the status of species calls for revision.

It requires but a passing glance at the synoptical table (C) to find that while twenty-seven years elapsed between the capture of the first and second birds, *i.e.* May 8th, 1875, to May 28th, 1902, from the latter date onward this Wheatear has been recorded *almost annually, and in some seasons even in the plural number.* Most specimens have been taken in Sussex, due no doubt largely to the fact that this county possesses keen observers; albeit there is every reason to think that this Southern European Wheatear, in affecting its normal vernal migration-range, may betimes somewhat slightly overshoot the mark and arrive on the coasts of other British maritime southern counties. Unlike the Icterine and Aquatic Warbler, which normally push far enough north to breed in latitudes on the Continent corresponding to—and in the case of the Icterine Warbler, even beyond—those of our Isles, the northern limit of the vernal migration-range of the Western Black-eared Wheatear is said to be limited by the River Loire in France. With this more restricted breeding-range the species could hardly be expected to visit the higher latitudes of the British Isles with any degree of regularity. It may be safer to regard its visits to Yorkshire, Lancashire, and in a far greater degree to St. Kilda and Fair Isle, as quite exceptional. This is borne out by the fact that Mr. Eagle Clarke has only obtained it once from these Scottish islands, a contrast to the visits of the Icterine Warbler to Fair Isle, where it “occurred annually on the island during recent years in spring or autumn or both.” †

The visit of the Western Black-eared Wheatear to Tuskar Rock is not altogether surprising. The situation of this station lies along the line of the

\* *Vide* papers on “Aquatic and Icterine Warblers obtained on Tuskar Rock,” *Zoologist*, March 1915, pp. 82–92, and *ibid.* February 1916, pp. 41–54.

† “Notes on the Migratory Birds observed at Fair Isle in 1914,” *Scottish Naturalist*, May 1915, p. 104.

migration-route of birds pushing up towards the south-west sea-board of England, and it requires but little extension of a north-west flight for a bird to reach a rock off the south-east corner of Ireland—*e.g.* Tuskar—instead of the coast of Devonshire or Cornwall. In support of this argument it should be remembered that the Wheatear as a class is a strong and very energetic bird, endowed with powerful, well sustained, and rapid flight.\* Again, the geographical distribution of the breeding-grounds of the Common Wheatear, in which may be included the Greenland form, is of very considerable extent, and for aught we know the breeding-ground of the Western Black-eared Wheatear may be wider than we are aware of, nor should the question of the possibility of its breeding-range becoming more extensive of later years be altogether neglected. Not that I wish to imply that the bird resorts or has resorted to the south of Ireland to breed, we have no evidence whatever to substantiate this view. For the present I am content to regard the visit of the bird to Tuskar as representing a prolongation in flight of one of the numbers which make for the southern sea-board of England, where the status of such birds requires close scrutiny. And indeed it seems particularly interesting at this juncture to bear in mind that not one of the eight birds taken in the South of England met its death at a light-station by striking the lantern, or such like accident.†

In other words there is no evidence to show that fog was encountered, and that any of these birds, becoming bewildered during their nocturnal movements by the glare of the lantern, deviated from or were delayed on their accustomed route. Indeed the question of the possibility of these eight Black-eared Wheatears arriving in the south of England, not as vagrants, waifs, refugees, or mere accidental visitors, but as genuine summer-visitors, prepared to breed if suitable nesting-sites presented themselves, must not be summarily dismissed. Wheatears as a class are not particularly fastidious in their choice of nesting-sites, provided they can secure cover in some open upland country among stone-walls, burrows, crevices, etc. However, it is rather curious that these eight birds were all males ‡: possibly, however, they, or some of them, may have had their consorts with them, but the latter being less showy were overlooked.

On the other hand, supposing the view be adopted that these Wheatears were accidental visitors which overshot their breeding migration-range, then possibly the males, stronger, more ardent, and energetic, might more readily go astray. The weight of this hypothesis becomes much reduced on closer study, for accidental visitors are frequently represented by females as well as by males, for example the Dartford, Aquatic, and Icterine Warblers, taken recently on Tuskar Rock, were females, and many others might be cited. But whatever may have been the *vis a tergo* which propelled these Wheatears to travel beyond their normal limit and to reach the southern shores of England, I think it is

\* On rock light-stations off the coast of Ireland, Wheatears are harassed and preyed upon to a large extent by Merlin Falcons. I have witnessed over and over again the speed and adroitness in turning and the endurance on the wing displayed by the Wheatear when closely pursued, and many times I have perceived the Falcon relinquish the chase.

† The one other bird which completes the number at present known to have been taken in England, namely the Lancashire bird, did not strike a lantern on the coast either, but it is more expedient not to include it in the text with the south of England birds seeing that its visit was more likely accidental than otherwise.

‡ Moreover, the vagrants to Tuskar, Lancashire, and Fair Isle, were males, the only female being the bird which wandered to the outlying island of St. Kilda. In short, eleven of the twelve British-taken Western Black-eared Wheatears proved to be of the male sex.

more likely than not that the birds come under the category of occasional if not annual *summer-visitors* rather than *accidental vagrants*. It has not yet been proved that their visits are annual and regular; at the same time the evidence, as it accumulates, points in that direction.

With the data at our disposal the question in regard to the periodic status of the bird is becoming unfolded, and so far as our present knowledge goes would read somewhat as follows: A frequent, and quite likely an annual, summer-visitor to the southern counties of England, and occurring as a very rare vagrant in more northern latitudes of the British Isles. What the numeric status may be remains to be seen. It is certain, however, that those specimens obtained do not by any means exhaust the numbers which appeared each season. If we adopt the estimate made by such competent authorities as Dr. E. Hartert, Rev. F. C. R. Jourdain, Dr. N. F. Ticehurst, and Mr. H. F. Witherby, namely, that for every *straggler* which is identified and recorded, at least ten go past unidentified and unrecorded,\* and admitting the Western Black-eared Wheatear to be a *frequent summer-visitor rather than a mere straggler*, it seems to me proportionate if the numbers which escape detection in a given area where the bird has occurred be estimated at *twenty times greater*. If for the present such an estimate be granted, then the numeric status of the bird might be put down as "*occurring in very small numbers.*"

The complete status of this Wheatear might then read as follows: A frequent, quite likely an annual visitor to the southern counties of England, occurring in very small numbers, and a very rare vagrant to more northern latitudes in the British Isles. In regard to Ireland apart from Great Britain, it is impossible with but one specimen at our disposal, this representing the sole record known up to the present, to set forth the status of the bird. If, as already suggested, the Tuskar bird represents one of the South of England visitors which prolonged its journey slightly, with negligible deviation of route, it might be appropriately called for the present *an expectant*, rather than a *mere haphazard accidental vagrant*. This much may be added, however, in conclusion, that, while on the one hand the Black-eared Wheatear is a migrant in summer to more southern European latitudes; on the other hand, being a bird of strong flight and energy, it may be led to overstep the boundary of its breeding-range more readily and oftener than has been supposed, and, if a sharp look-out be kept, it may be found visiting Ireland again at no distant date. Its chances of fraternising in flight with some of the thousands of Common and Greenland Wheatears which reach Tuskar annually in spring, and thence of alighting on Irish soil, are not improbable. We have seen that the Tuskar bird arrived synchronously with several Common Wheatears and many other species which habitually visit Tuskar on spring migration; that it was in good condition; and was not a waif which had drifted about aimlessly, until fatigue or storm-bound it sought refuge on the rock. In truth it was affecting a vigorous migration. Such are hopeful signs that it will re-visit Ireland. I fervently hope so.

#### GENERAL GEOGRAPHICAL DISTRIBUTION.

In regard to the general geographical distribution of the Western Black-eared Wheatear, Saunders provides the following: "Although some occurrences

\* *Vide* Introduction, p. xi. *Hand-list of British Birds*, 1912, by above authors.

formerly recorded under this name \* in Heligoland were really those of the Desert-Wheatear, yet the present species seems to have been obtained there once; while Schlegel records it from Haarlem, Holland. It breeds regularly about as far north as the line of the Loire in France; southward in the Spanish Peninsula, Morocco, Algeria, and Italy. In the latter country it meets with *S. melanoleuca* † Guldenstadt: a form which some ornithologists consider to be specifically distinct, characterised by a whiter back and larger amount of black on the throat. This form occupies Greece, South Russia, Asia Minor, Palestine, and Persia; both races migrating wholly or partially to more southern regions in winter and meeting in Tunisia. The extremes of each are distinguishable in adult males, but there appear to be numerous intergradations, and I have therefore treated the bird under one heading."

#### DESCRIPTION OF PLATE.

Fig. 1 shows the golden-buff of the upper parts separated by a dark greyish transverse band from the white area over the tail; also the central tail-feathers black in their entire length to the base.

Fig. 2 shows the golden-buff sweeping ventrally round the sides of the neck and merging into the impure white of the under parts; also the black axillaries and under wing-coverts.

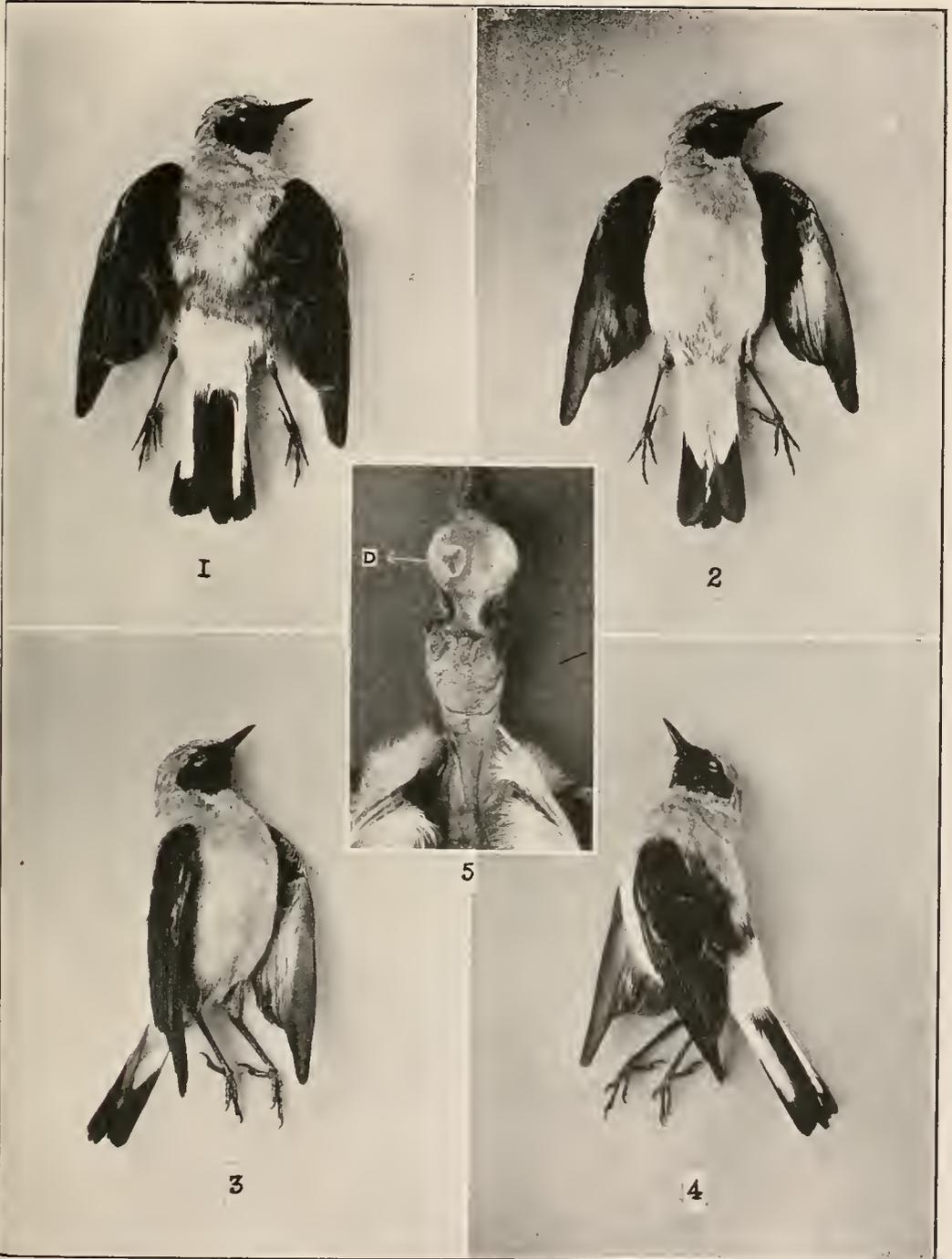
Figs. 3 and 4 show the feet and small slender claws in profile; in fig. 3 the tail is viewed from below, in fig. 4 from above.

The silver-grey forehead, black face and throat with whitish semicircular collar beneath, are shown in each of the four figures.

Fig. 5 shows a dorsal view of the skull, the right frontal bone of which is deeply indented (D). Surrounding the indentation is a considerable degree of subcranial hæmorrhage. This photograph was taken immediately after the skin was reflected from the head, before the brain was removed and the skull cleaned permanently.

\* The Black-throated Wheatear (*Saxicola stapania*) described and figured in Saunders's *Manual*, now known to be identical with the Black-throated form of the Western Black-eared Wheatear (*Oenanthe h. hispanica*). The Western White-throated form has the same distribution, but being considered by Saunders a distinct species (*S. aurita*) which had not then visited the British Isles, its distribution is not mentioned in his book.

† This bird is the Eastern Black-eared Wheatear (*Oenanthe hispanica xanthomelaena*) of modern nomenclaturists.



WESTERN BLACK-EARED WHEATEAR, FROM TUSKAR ROCK, CO. WEXFORD.<sup>1</sup>

Four photographs of the bird in the flesh: fig. 1, dorsal view; fig. 2, ventral view; fig. 3, right profile; fig. 4, left profile. Also a photograph of the vault of the skull, showing at (D), fig. 5, the deep indentation of the right frontal bone. N.B.—The bird (figs. 1, 2, 3, 4) is represented at half its natural size; the vault of the skull (fig. 5) at its natural size.

Photos by C. J. Patten.



## A CLASSIFICATION OF THE PYRALIDAE, SUBFAMILY GALLERIANAE.

By SIR GEORGE F. HAMPSON, BART., F.Z.S., ETC.

**P**ROBOSCIS well developed, short, or aborted and minute; palpi of male in the typical genera short, upturned and thickly scaled, hidden below the very large frontal tuft, in female downcurved and two or three times the length of head. In the more ancestral genera the palpi may be long and downcurved in both sexes, or rarely upturned; maxillary palpi small and filiform, or obsolete, sometimes more developed and somewhat dilated with scales, rarely long and two-jointed; frons usually with large tuft of hair; eye large, round; antennae usually almost simple, sometimes ciliated, in *Sphinctocera* with a small tooth at one-fifth, the basal joint often long, in *Megartheria* very long and curved; thorax and abdomen without crests; tibiae with all the spurs present. Forewing with the shape very variable; vein 1 *a* separate from 1 *b*; 1 *c* absent; 4 sometimes absent or stalked with 5; 6 sometimes stalked with 7, 8, 9; 7 present; 9 often and 8 and 10 rarely absent; 10 from cell or sometimes stalked with 8, 9; the male often has the cell very much produced, sometimes almost to termen, and with a glandular swelling containing masses of flocculent hair at base of costa on underside. Hindwing with the median nervure pectinated on upperside; veins 1 *a*, *b*, *c* present; 4 often and 3 rarely absent, 3 and 5 or 4, 5 often stalked; the discocellulars often angled inwards almost to the base, rarely almost obsolete; 6, 7 from cell or stalked, in *Agdistopsis* 6 absent; 7 anastomosing with 8 or free; frenulum of female multiple.

The neuration is not very constant, and in the forewing of the same species vein 6 may be from the cell or stalked with 7, 8, 9; 7 may be given off from 8 before or beyond 9, and 10 may be rarely either present or absent; in the hindwing vein 4 is rarely either present or absent.

Larvae with all the prolegs present; in *Galleria* rather short and stout, in *Aphomia* longer and more cylindrical; in *Galleria* and *Achroia* they live in the hives of bees, forming silken tubular galleries, in *Aphomia* in the nests of *Vespa* or *Bombus*, whilst some exotic species live in the nests of ants.

A † before a reference means that the type is in the British Museum, and an \* that the species is not in the collection.

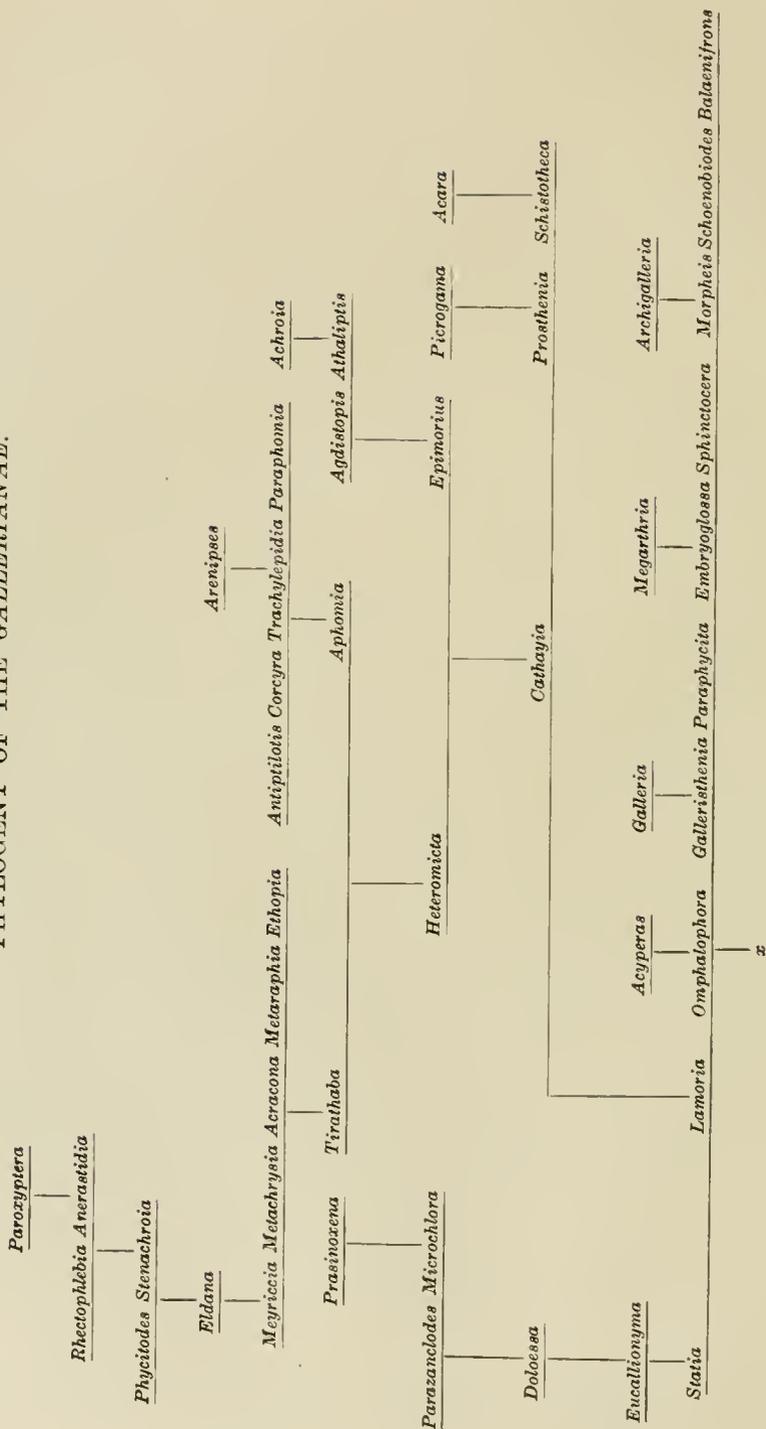
In my opinion the name used for the subfamily and the genus *Aphomia* should be respectively *Tineinae* and *Tinea* Linn., but in deference to the wishes of the Editors of the *Novitates* I have here employed the terms *Gallerianae* and *Aphomia* pending a more general consensus of the opinions of zoologists on the subject.

Two species have been claimed as the type of the genus, *sociella* the first on the list, a *pellionella* the twenty-first.

Linné's description of *Tinea* is "Alis convolutis, fere in cylindrum; fronte prominula."

The first part of the description applies to the wings in repose, in *sociella* they are folded almost into a cylinder, in *pellionella* they are more tent-like in shape, with the apices of the forewings turned outwards; the second part applies

PHYLOGENY OF THE GALLERIANAE.



to the hair on the frons which in *sociella* forms a thick tuft, whilst in *pellionella* it consists of loose hair ; in fact *sociella* exactly answers the generic description, and *pellionella* does not.

The Latin word *Tinea* means a larval insect pest ; it is used by Virgil for the worms of moths that live in bee-hives, by Horace for book-worms, and by other authors for those of clothes-moths, etc.

The type of a genus is the species from which the original author described that genus, and no action by a subsequent author or by all the Zoological Congresses in the world can alter that fact. The difficulty is to determine what that species is when the type is not indicated. The author would naturally put his type species down first on his list, but he might subsequently rearrange his list so as to get a more natural order of the species. Unless, however, there is any evidence of this, such as the first species not agreeing with the generic description, that species must be presumed to be the type.

Under *Tortrix* Linné states that the larvae twist leaves, uniting them by threads and living and feeding between them. The first species on his list, *prasinana*, therefore cannot be the type, and the second species, *viridana*, becomes the type.

The type of *Sphinx* is *ligustri*, because Linné in *Faun. Succ.* states that it is commonly called "The Sphinx" from the attitude of the larva. Similarly the type of *Bombyx* is *mori* because he calls it "The Bombyx," and the silkworm exclusively was known by that name to the Greeks and Romans.

Three methods are in use for determining the type of a genus when the type is not indicated.

1. The above, which is used in the revision of the Sphingidae by Rothschild and Jordan, the Catalogue of Lepidoptera Phalaenae in the British Museum, by most of the authors in Scitz' *Macrolepidoptera*, and by most American authors. It is the only method by which finality can be reached, and is rapidly coming into general use.

2. That the first reviser of a genus fixes the type of that genus. No two authors seem to agree exactly in their interpretation of this law, or as to what constitutes a revision, and whether a type has been fixed or not. Its chief advantage seems to be that each author can continue to use a generic name in the sense to which he is accustomed.

3. That all species on the original list of a genus which have been used as the types of later genera shall be eliminated, and one of the remaining species be fixed as the type of the genus.

This led to so many anomalies, such as the least applicable species being fixed as the type of the genus, and even a species that the author of the genus had never seen, that it has fallen into disuse.

#### KEY TO THE GENERA.

- A. Hindwing with veins 3, 4 absent.
  - a. Forewing with vein 4 absent, 6, 7, 8 stalked . . . . . *Paroxyptera*, p. 27
  - b. Forewing with vein 4 present, 6 from the cell . . . . . *Metachrysia*, p. 30
- B. Hindwing with vein 3 present, 4 absent.
  - a. Forewing with veins 6, 7, 8, 9 stalked.
    - a<sup>1</sup>. Hindwing with the cell open . . . . . *Arenipses*, p. 36
    - b<sup>1</sup>. Hindwing with the cell closed . . . . . *Paraphomia*, p. 37

- b. Forewing with vein 6 from the cell.
- a<sup>1</sup>. Forewing with vein 4 absent.
- a<sup>2</sup>. Forewing with vein 9 absent . . . *Anerastidia*, p. 27
- b<sup>2</sup>. Forewing with vein 9 present . . . *Corecra*, p. 35
- b<sup>1</sup>. Forewing with vein 4 present.
- a<sup>2</sup>. Forewing with vein 9 absent.
- a<sup>3</sup>. Forewing with vein 11 becoming coincident with 12 . . . *Rhctophlebia*, p. 27
- b<sup>3</sup>. Forewing with vein 11 free.
- a<sup>4</sup>. Forewing with veins 4, 5 stalked
- a<sup>5</sup>. Frenulum absent; abdomen very long and tipuliform; hindwing with vein 6 absent . . . *Agdistopsis*, p. 43
- b<sup>5</sup>. Frenulum present; abdomen normal; hindwing with vein 6 present.
- a<sup>6</sup>. Forewing with vein 8 present; hindwing with the cell open . . . *Stenachroia*, p. 28
- b<sup>6</sup>. Forewing with vein 8 absent; hindwing with the cell closed . . . *Phycitodes*, p. 26
- b<sup>4</sup>. Forewing with veins 4, 5 from cell.
- a<sup>3</sup>. Frons with tuft of scales.
- a<sup>6</sup>. Forewing with vein 10 stalked with 7, 8 . . . *Metaraphia*, p. 31
- b<sup>6</sup>. Forewing with vein 10 from the cell . . . *Eldana*, p. 29
- b<sup>5</sup>. Frons without tuft of scales.
- a<sup>6</sup>. Hindwing with the apex produced and acute . . . *Achroia*, p. 44
- b<sup>6</sup>. Hindwing with the apex not produced . . . *Prasinoxena*, p. 23
- b<sup>2</sup>. Forewing with vein 9 present.
- a<sup>2</sup>. Forewing with vein 7 from 8 beyond 9.
- a<sup>4</sup>. Forewing with vein 10 stalked with 7, 8, 9.
- a<sup>5</sup>. Forewing with the cell long . . . *Antiptilotis*, p. 35
- b<sup>5</sup>. Forewing with the cell short.
- a<sup>6</sup>. Forewing with the apex produced and acute . . . *Acracora*, p. 30
- b<sup>6</sup>. Forewing with the apex not produced.
- a<sup>7</sup>. Forewings short, the termen straight . . . *Microchlora*, p. 24
- b<sup>7</sup>. Forewing long, the termen rounded . . . *Trachylepidia*, p. 26

- b<sup>4</sup>. Forewing with vein 10 from the cell.
- a<sup>6</sup>. Forewing with the costa excised beyond middle, the apex falcate . . . *Parazanclodes*, p. 23
- b<sup>3</sup>. Forewing with the costa evenly arched.
- a<sup>6</sup>. Forewing with the apex rectangular . . . *Doloessa*, p. 25
- b<sup>6</sup>. Forewing with the apex rounded . . . *Aphomia*, p. 37
- b<sup>3</sup>. Forewing with vein 7 from 8 before 9.
- a<sup>4</sup>. Forewing with vein 10 stalked with 7, 8, 9 . . . *Athaliptis*, p. 45
- b<sup>4</sup>. Forewing with vein 10 from the cell.
- a<sup>5</sup>. Forewing long and narrow.
- a<sup>6</sup>. Forewing lanceolate, the apex produced and acute . . . *Meyriccia*, p. 29
- b<sup>6</sup>. Forewing with the apex slightly produced.
- a<sup>7</sup>. Forewing with the costa strongly arched towards apex . . . *Ethopia*, p. 31
- b<sup>7</sup>. Forewing with the costa slightly arched . . . *Tirathaba*, p. 32
- b<sup>5</sup>. Forewing shorter and broader, the apex not produced . . . *Heteromicta*, † p. 42
- C. Hindwing with vein 4 present.
- a. Forewing with 10 stalked with 7, 8, 9.
- a<sup>1</sup>. Forewing with vein 7 from 8 beyond 9. . . *Paraphycita*, p. 54
- b<sup>1</sup>. Forewing with vein 7 from 8 before 9 or 9 absent.
- a<sup>2</sup>. Forewing with vein 3 from well before angle of cell . . . *Cathayia*, p. 46
- b<sup>3</sup>. Forewing with vein 3 from close to angle of cell . . . *Epimorius*, p. 45
- b. Forewing with veins 8, 9, 10 stalked and 6, 7 stalked; frons with rounded prominence . . . *Schoenobiodes*, p. 57
- c. Forewing with vein 10 from the cell.
- a<sup>1</sup>. Forewing with vein 9 absent; frons with conical prominence . . . *Archigalleria*, p. 55

† In *Heteromicta amydrastis* the forewing sometimes has vein 7 from 8 beyond 9, and in *H. oodes* vein 9 is sometimes absent.

- b<sup>1</sup>. Forewing with vein 9 present; frons with large tuft of hair.
- a<sup>2</sup>. Forewing with vein 7 from 8 beyond 9.
- a<sup>3</sup>. Forewing long and narrow.
- a<sup>4</sup>. Forewing with the apex rectangular . . . . . *Picrogama*, p. 47
- b<sup>4</sup>. Forewing with the apex rounded, the termen very short . . . . . *Prosthenia*, p. 48
- b<sup>3</sup>. Forewing broader.
- a<sup>4</sup>. Forewing with the termen excised . . . . . *Galleria*, p. 53
- b<sup>4</sup>. Forewing with the termen not excised . . . . . *Acara*, p. 49
- b<sup>2</sup>. Forewing with vein 7 from 8 before 9.
- a<sup>3</sup>. Palpi of male short, upturned.
- a<sup>4</sup>. Forewing with the discocellulars angled.
- a<sup>5</sup>. Hindwing with veins 4, 5 stalked.
- a<sup>6</sup>. Forewing with the apex produced and falcate . . . . . *Eucallionyma*, p. 26
- b<sup>6</sup>. Forewing with the apex not produced.
- a<sup>7</sup>. Forewing very narrow . . . . . *Picrogama* (part), p. 47
- b<sup>7</sup>. Forewing broad . . . . . *Schistothea*, p. 49
- b<sup>5</sup>. Hindwing with veins 4, 5 from angle of cell . . . . . *Statia*, p. 26
- b<sup>4</sup>. Forewing with the discocellulars curved . . . . . *Lamoria*, ‡ p. 50
- b<sup>3</sup>. Palpi of male long and downcurved.
- a<sup>4</sup>. Forewing with the costa arched beyond middle then rather truncate towards apex which is produced and acute.
- a<sup>5</sup>. Palpi about the length of head and fringed with long hair below, the maxillary palpi dilated with scales . . . . . *Omphalophora*, p. 52
- b<sup>5</sup>. Palpi about twice the length of head and moderately fringed with hair below, the maxillary palpi filiform . . . . . *Acyperas*, p. 52
- b<sup>4</sup>. Forewing with the costa evenly arched, the apex rounded; palpi about twice the length of head.

‡ In *Lamoria inostentalis* vein 4 of the hindwing is often absent.

- a<sup>5</sup>. Antennae with the basal joint very long and curved *Megarthria*, p. 54
- b<sup>5</sup>. Antennae with the basal joint short . . . . . *Embryoglossa*, p. 54
- c<sup>4</sup>. Forewing with the costa slightly excised beyond middle, the apex rounded; palpi about three times length of head . . . . . *Sphinctocera*, p. 55
- c<sup>2</sup>. Forewing with vein 7 from the cell.
  - a<sup>3</sup>. Frons with very large conical prominence, grooved below; palpi short and upturned . . . . . *Balaenifrons*, p. 57
  - b<sup>3</sup>. Frons with conical prominence ending in a small corneous beak; palpi obliquely upturned; forewing with veins 9 to 12 becoming coincident below costa . . . . . *Morpheis*, p. 56
  - c<sup>3</sup>. Frons without prominence; palpi porrect, about twice the length of head . . . . . *Galleristhenia*, p. 53

GEN. *Parazanclodes*.

*Parazanclodes* Hmps., *Rom. Mém.* viii. p. 490 (1901) . . . . . Type. *chrysaugella*

Proboscis aborted; palpi of male slight, upturned; maxillary palpi minute; frons with rather large tuft of hair; antennae short, the basal joint dilated; forewing narrow, the costa arched at base, then strongly excised, the apex produced and falcate, the termen strongly excised to middle; the cell two-thirds length of wing; vein 3 from well before angle of cell; 4 and 5 well separated; 6 from upper angle; 7, 8, 9 stalked, 7 from beyond 9; 10, 11 from cell; the male with large glandular swelling at base of costa on underside fringed with long hair, the cell clothed with fine hair, a patch of androconia below the cell before base of vein 2. Hindwing with vein 2 from before angle of cell; 3 and 5 from angle; 4 absent; 6, 7 stalked, 7 anastomosing with 8; the male with patch of androconia in lower extremity of cell on upper side.

\* *Parazanclodes chrysaugella*.

*Parazanclodes chrysaugella* Hmps., *Rom. Mém.* viii. p. 490. pl. 53. f. 18 (1901).

**Br. N. Guinea.**

GEN. *Prasinoxena*.

*Prasinoxena* Meyr., *Trans. Ent. Soc.* 1894. p. 479 . . . . . Type. *monospila*

Proboscis slight; palpi of male minute, upturned, of female porrect and extending about the length of head; maxillary palpi slight; frons without tuft of hair; antennae short, the basal joint somewhat long and dilated. Forewing rather short and broad, the costa rather oblique towards apex which is produced and pointed, the termen oblique; the cell long; vein 2 from middle of cell; 3, 4, 5 from angle; 6 from just below upper angle; 7, 8, and 10 stalked, 7 from beyond 10, 9 absent; 11 from cell; the male with slight glandular swell-

ing at base of costa. Hindwing with the cell open; veins 3 and 5 stalked to near termen, 4 absent; 7 anastomosing with 8; the male with a fold on inner margin containing a tuft of long hair.

Sect. I. Forewing of male on underside with fringe of hair along median nervure to just beyond the cell, downturned above the nervure and upturned below it.

(1) *Prasinoxena metaleuca*.

† *Prasinoxena metaleuca* Hmps., *J. Bomb. Nat. Hist. Soc.* xxi. p. 1249, pl. G. f. 28 (1912).

**Ceylon.**

Sect. II. Forewing of male on underside with a streak of hairy scales above median nervure.

(2) *Prasinoxena monospila*.

† *Prasinoxena monospila* Meyr., *Trans. Ent. Soc.* 1894. p. 480; Hmps., *Rom. Mém.* viii. p. 499. pl. 54. f. 14.

**Borneo; Pulo Laut.**

Sect. III. Forewing of male on underside normal.

(3) *Prasinoxena bilineella*.

*Prasinoxena bilineella* Hmps., *Rom. Mém.* viii. p. 500. pl. 54. f. 17 (1901).

**Amboina; Batchian.**

(4) *Prasinoxena viridissima*.

† *Prasinoxena viridissima* Swinh., *Fasic. Malay. Zool.* i. p. 98 (1903).

**Selangore.**

(5) *Prasinoxena hemisema*.

† *Prasinoxena hemisema* Meyr., *Trans. Ent. Soc.* 1894. p. 480; Hmps., *Rom. Mém.* viii. p. 500. pl. 54. f. 15.

**Pulo Laut; Sumbawa.**

GEN. *Microchlora*.

*Microchlora* Hmps., *Rom. Mém.* viii. p. 468 (1901) . . . . . Type.  
*cariassella*

Proboscis slight; palpi of male short, upturned; maxillary palpi minute; frons without tuft of hair; antennae with the basal joint long and dilated. Forewing short and broad, the apex rectangular, the termen straight; the cell rather short; vein 2 from middle of cell; 3, 4, 5 well separated; 6 from upper angle; 7, 8, 9, 10 stalked, 7 from beyond 9; 11 from cell. Hindwing with the cell short; vein 2 from near angle of cell; 3 and 5 stalked, 4 absent; the discocellulars angled; 6, 7 from upper angle, 7 anastomosing with 8; the male with fold on inner area containing a tuft of long hair.

(1) *Microchlora cariasella*.

*Microchlora cariasella* Hmps., *Rom. Mém.* viii. p. 468. pl. 54. f. 13 (1901).

**Batchian; Celebes.**

(2) † *Microchlora bilineella* n. sp.

♂. Head and thorax emerald-green; pectus, legs and abdomen whitish. Forewing emerald-green, an erect slightly waved black and whitish antemedial line from subcostal nervure to inner margin, a white point before it in submedian fold; a slightly waved black and whitish postmedial line from below costa to inner margin, excurved to vein 4 then rather oblique, a white point beyond it below vein 4; the costa towards apex, termen and cilia red-brown and whitish with a series of white points defining the green area. Hindwing white. Under-side of forewing and the costal area of hindwing green.

**Solomon Is.**, Bougainville (Meek), 1 ♂ type. *Exp.* 20 mill.

GEN. *Doloessa*.

<i>Doloessa</i> Zell., <i>Isis</i> . 1848. p. 860 . . . . .	Type.
<i>Thagora</i> Wlk., xxviii. 205 (1863) . . . . .	<i>viridis</i>
	<i>figurana</i>

Proboscis fully developed; palpi of male very short, upturned, thickly scaled, of female porrect and extending about the length of head; maxillary palpi filiform; frons with large tuft of hair above; antennae of male almost simple, the basal joint with tuft of hair below. Forewing rather narrow, the apex rectangular, the termen evenly curved; veins 3 and 5 from close to angle of cell; 6 from upper angle; 7, 8, 9 stalked, 7 from beyond 9; 10, 11 from cell. Hindwing with vein 2 from close to angle of cell; 3 and 5 strongly stalked, 4 absent; the discocellulars angled to near base; 6, 7 stalked, 7 anastomosing with 8.

Sect. I. Forewing of male on underside with the cell and the area just below and beyond its extremity clothed with black androconia; hindwing on upperside with the costal area clothed with black androconia to beyond middle.

(1) *Doloessa hilaropis*.

*Melissoblaptes hilaropis* Meyr., *Trans. Ent. Soc.* 1897. p. 378.  
*Doloessa plumbolineella* Hmps., *Rom. Mém.* viii. p. 488. pl. 54. f. 10 (1901).  
**Queensland.**

(2) *Doloessa castanella*.

† *Thagora castanella* Hmps., *Moths Ind.* iv. p. 4 (1896); id., *Rom. Mém.* viii. p. 488.  
*Carcinoptera ochrociliella* Rag., *Rom. Mém.* viii. pl. 8. f. 24 (1893) non descr.  
**Ceylon; Andamans; Christmas I.; Tenimber.**

Sect. II. Wings of male without patches of androconia.

(3) *Doloessa constellata*.

† *Doloessa constellata* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 94 (1901); id., *Rom. Mém.* viii. p. 489. pl. 54. f. 12.  
**Assam, Khásis.**

(4) *Doloessa viridis*.

*Doloessa viridis* Zell., *Isis*. 1848. p. 860; Rag., *Rom. Mém.* viii. p. 489. pl. 46. f. 16.  
 † *Thagora figurana* Wlk., xxvii. 205 (1863); Hmps., *Ill. Het. B. M.* ix. pl. 157. f. 8; id., *Moths Ind.* iv. p. 5.  
*Tyana ornata* Wileman, *Entom.* xliii. p. 291 (1910).  
**Formosa; Ceylon; Philippines; Java; Kei Is.; N. Guinea; Solomon Is.; Queensland.**

GEN. *Eucallionyma*.

	Type.
<i>Callionyma</i> Meyr., <i>Proc. Linn. Soc. N.S.W.</i> vii. p. 161 (1882), nec <i>Callionymus</i> Linn., <i>Pisces</i> (1758)	<i>sarcodes</i>
<i>Eucallionyma</i> Rag., <i>Rom. Mém.</i> viii. p. 430 (1901)	<i>sarcodes</i>

Proboscis slight; palpi of male short, upturned, thickly scaled, of female downcurved; frons with large tuft of hair; antennae of male almost simple, the basal joint somewhat dilated. Forewing with the costa moderately arched, the apex produced and somewhat falcate, the termen obliquely curved; the lower angle of cell produced; vein 3 from near angle; 5 from above angle; the discocellulars angled inwards; vein 6 from upper angle; 7, 8, 9 stalked, 7 from before 9; 10, 11 from cell; the male with large fold on basal half of costa on underside containing masses of flocculent hair. Hindwing with vein 3 from angle of cell; 4, 5 stalked; the discocellulars angled inwards to rather near base; 6, 7 stalked, 7 anastomosing with 8.

*Eucallionyma sarcodes*.

*Callionyma sarcodes* Meyr., *Proc. Linn. Soc. N.S.W.* vii. p. 161 (1882); Rag., *Rom. Mém.* viii p. 431. pl. 53. f. 7.

**N.S. Wales; Victoria.**

GEN. *Statia*.

	Type.
<i>Statia</i> Rag., <i>Rom. Mém.</i> viii. p. 443 (1901)	<i>chlorella</i>

Proboscis strong, short; palpi of female slender, the second joint oblique to just beyond the frons, the third minute, porrect, acuminate at tip; antennae short, ciliated. Forewing with the costa arched, the apex somewhat produced, the termen evenly curved; vein 3 from near angle of cell; 4, 5 separate; the discocellulars strongly angled inwards, 6 shortly stalked with 7, 8, 9; 7 from before 9; 10, 11 from cell. Hindwing with the lower angle of cell much produced; vein 3 from before angle; 4, 5 from angle; the discocellulars strongly angled inwards; 6, 7 strongly stalked, 7 anastomosing with 8.

\* *Statia chlorella*.

*Statia chlorella* Rag., *Rom. Mém.* viii. p. 444. pl. 45. f. 14 (1901).

**Peru.**

GEN. *Phycitodes* nov.

Type *P. albistriata*.

Proboscis fully developed; palpi of female very short, porrect and not reaching as far as the large frontal tuft of hair; maxillary palpi invisible; antennae rather long, with slight tufts of scales at the joints. Forewing long and narrow, the apex rounded, the termen obliquely curved; vein 2 from towards angle of cell; 3 from before angle; 4, 5 stalked; 6 from upper angle; 7 from before angle; 8, 9 absent; 10, 11 from cell; a fringe of scales below base of costa on underside. Hindwing with the cell about one-third length of wing; vein 2 from towards angle; 3 from angle; 5 from just above angle, 4 absent; the discocellulars curved; 6, 7 from upper angle of cell; 7 anastomosing with 8.

† *Phycitodes albistriata* n. sp.

♀. Head, thorax and abdomen reddish brown mixed with white; forewing whitish tinged and thickly irrorated with dark purplish brown; white fasciae on basal half of costa, in lower part of cell and on median nervure, and streaks on the veins beyond the cell; slight dark spots in upper and lower angles of cell and a terminal series of points; a faint brown antemedial line, excurved in the cell then oblique, and faint rather diffused oblique postmedial line. Hindwing ochreous white tinged with reddish brown, especially on costal area; a terminal brown line; cilia white with a brown line near base. Underside more suffused with brown.

**Br. E. Africa**, N'dimu (Betton), 1 ♀ type. *Exp.* 36 mill.

GEN. *Rhectophlebia*.

*Rhectophlebia* Rag., *Nouv. Gen.* p. 52 (1888) . . . . . Type. *monilella*

Proboscis small; palpi of female downcurved, extending about three times length of head, the second joint thickly scaled, the third short; maxillary palpi absent; frons with large tuft of hair; antennae ciliated. Forewing rather narrow, the apex rounded, the termen evenly curved; vein 2 from near angle of cell; 3 from angle; 4, 5 strongly stalked; 6 from upper angle; 7, 8 stalked, 9 absent; 10, 11 from cell, 11 becoming coincident with 12. Hindwing with the cell very short; veins 3 and 5 stalked, 4 absent; 6, 7 from upper angle, 7 anastomosing with 8.

\* *Rhectophlebia monilella*.

*Rhectophlebia monilella* Rag., *Nouv. Gen.* p. 52 (1888); id., *Rom. Mém.* viii. p. 493. pl. 8. f. 23.

**Colombia.**

GEN. *Paroxyptera*.

*Paroxyptera* Rag., *Rom. Mém.* viii. p. 503 (1901) . . . . . Type. *filiella*

Proboscis small; palpi short, oblique, the third joint very short, porrect; maxillary palpi obsolete; frons with strong tuft of hair; antennae of female minutely serrate, the basal joint with tuft of hair on inner side. Forewing narrow, the apex produced, the termen very oblique; veins 3 and 5 from angle of cell, 4 absent; 6, 7, 8 stalked, 9 absent; 10, 11 from cell. Hindwing with veins 2 and 5 from angle of cell, 3, 4 absent; 6, 7 from upper angle, 7 anastomosing with 8.

\* *Paroxyptera filiella*.

*Achroea filiella* Saalm., *Ber. Senck. Ges.* 1879. p. 308; Rag., *Rom. Mém.* viii. p. 503. pl. 45. f. 4.

**Madagascar.**

GEN. *Anerastidia*.

*Anerastidia* Hmps., *Rom. Mém.* viii. p. 500 (1901) . . . . . Type. *albitructella*

Proboscis slight; palpi of male short, upturned, fringed with hair, of female downcurved and extending about the length of head; maxillary palpi minute; frons with a large tuft of hair; antennae short, the basal joint long and tufted

with hair in front. Forewing long and narrow, the apex rounded, the termen oblique; the cell long; vein 2 from middle of cell; 3 and 5 from angle, 4 absent; the discocellulars curved; vein 6 from upper angle; 7, 8 stalked, 9 absent; 10, 11 from cell; the male with small glandular swelling and tuft of hair at base of costa on underside. Hindwing with vein 2 from angle of cell; 3 and 5 stalked, 4 absent; the discocellulars retracted almost to base; veins 6, 7 from upper angle, 7 anastomosing with 8.

(1) *Anerastidia rhodoneura*.

*Anerastidia rhodoneura* Turner, *Pr. R. Soc. Queensl.* xix. p. 43 (1905).

**Queensland**, Thursday I.

(2) *Anerastidia albivittella*.

† *Anerastidia albivittella* Hmps., *Rom. Mém.* viii. p. 500. pl. 54. f. 22 (1901).

*Hypsotropha bipunctella* Wileman, *Trans. Ent. Soc.* 1911. p. 356.

**Japan; Borneo; Pulo Laut; Amboina.**

(3) † *Anerastidia pulverea* n. sp.

♂. Head and thorax white faintly tinged with brown; abdomen white, the second and third segments dorsally tinged with ochreous. Forewing white faintly tinged with red-brown and irrorated with a few dark scales; an oblique subterminal series of slight blackish marks in the interspaces; a terminal series of black points. Hindwing semihyaline white, the veins and termen tinged with ochreous.

♀. Thorax irrorated with blackish scales; forewing thickly irrorated with blackish scales, a diffused antemedial black mark above inner margin, the subterminal spots and terminal points more distinct; hindwing with the termen tinged with brown towards apex.

**Argentina**, Gran Chaco, Florenzia (Wagner), 1 ♂ type, Sta. Fé, Ocampo (Wagner), 1 ♀. *Exp.* 22 mill.

(4) \* *Anerastidia ebenopasta*.

*Anerastidia ebenopasta* Turner, *Pr. R. Soc. Queensl.* xviii. p. 122 (1904).

**Queensland.**

GEN. *Stenachroia*.

*Stenachroia* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 93 (1901) . . . . . Type. *elongella*

Proboscis fully developed; palpi of male small, upturned, thickly scaled, of female downcurved, extending about twice the length of head; frons with large tuft of hair; antennae short, the basal joint long and with tuft of hair below. Forewing very long and narrow, the apex rounded, the termen obliquely curved; vein 2 from middle of cell; 3 from angle; 4, 5 strongly stalked; 6 from upper angle; 7, 8 stalked from before angle, 9 absent; 10, 11 from cell; the male with glandular swelling at base of costa on underside and fringe of upturned hair from middle of median nervure. Hindwing with the cell open; veins 3 and 5 stalked, 4 absent; 6, 7 from upper angle, 7 anastomosing with 8.

(1) *Stenachroia elongella*.

† *Stenachroia elongella* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 93 (1901); id., *Rom. Mém.* viii. p. 494. pl. 54. f. 20.

**Assam, Khasis; Bengal, Pusa; Ceylon.**

(2) \* *Stenachroia myrmecophila*.

*Stenachroia myrmecophila* Turner, *Pr. R. Soc. Queensl.* xix. p. 54 (1905).

**Queensland.**

GEN. *Eldana*.

*Eldana* Wlk., xxxii. 632 (1865) . . . . . Type. *saccharina*

Proboscis slight; palpi of male short and upturned, of female downcurved and extending about the length of head; maxillary palpi minute; frons with tuft of scales; antennae short, the basal joint long and dilated. Forewing long and narrow, the costa slightly arched, the apex rounded, the termen evenly curved; vein 2 from middle of cell; 3 from well before angle; 4, 5 from angle; 6 from upper angle; 7, 8 stalked from before angle, 9 absent; 10, 11 from cell; the male with slight glandular swelling at base of costa on underside. Hindwing with vein 2 from near angle of cell; 3 and 5 stalked, 4 absent; the discocellular angled inwards to near base; veins 6, 7 from upper angle, 7 anastomosing with 8.

(1) \* *Eldana leucostictalis*.

*Eldana leucostictalis* Lower, *Tr. R. Soc. S. Austr.* 1903. p. 50.

**Queensland.**

(2) *Eldana saccharina*.

† *Eldana saccharina* Wlk., xxxii. 633 (1865); Hmps., *Rom. Mém.* viii. p. 495. pl. 45. f. 18.

**Sierra Leone; Gold Coast; Mozambique.**

GEN. *Meyriccia*.

*Meyriccia* Rag., *Rom. Mém.* viii. p. 456 (1901) . . . . . Type. *latro*

Proboscis fully developed; palpi of male short, upturned, of female downcurved and extending about twice the length of head; maxillary palpi tufted with hair; frons smooth, with large tuft of hair above; antennae short, almost simple. Forewing very long and narrow, the apex rounded, the termen obliquely curved; the cell about three-fourths length of wing; vein 3 from well before angle; 4, 5 from angle; the discocellulars angled; 6 from just below upper angle; 7, 8, 9 stalked, 7 from before 9; 10, 11 from cell; male with small glandular swelling at base of costa on underside and the cell clothed with silky hair. Hindwing with vein 2 from close to angle of cell; 3 and 5 stalked, 4 absent; the discocellulars angled inwards almost to base; 6, 7 from upper angle, 7 anastomosing with 8.

*Meyriccia latro*.

† *Melissoblyptes latro* Zell., *Verh. zool.-bot. Ges. Wien.* 1873. p. 213; Rag., *Rom. Mém.* viii. p. 457. pl. 46. f. 8.

**N. S. Wales; S. Australia; W. Australia.**

GEN. *Metachrysia*.

*Metachrysia* Hmps., *Rom. Mém.* viii. p. 504 (1901) . . . . . Type.  
*acyperella*

Proboscis small; palpi slender, upturned, fringed with hair; maxillary palpi very small; frons with small tuft of hair; antennae of male short. Forewing narrow, the costa arched before apex which is obliquely truncate and produced to a point, the termen oblique; the cell very long, the lower angle produced; veins 2, 3, 4, 5 given off at equal distances and parallel; the discocellulars very oblique; vein 6 from upper angle of cell; 7, 8 stalked, 9 absent; 10, 11 from cell; the male on underside with the cell clothed with fine silky hair, with a small glandular swelling at base of costa. Hindwing with the cell open; veins 2 and 5 stalked, 3, 4 absent; 6, 7 stalked, 7 anastomosing with 8.

\* *Metachrysia acyperella*.

*Metachrysia acyperella* Hmps., *Rom. Mém.* viii. p. 504. pl. 53. f. 17 (1901).

D'Entrecasteaux Is., Fergusson I.

GEN. *Acracona*.

*Acracona* Karsch, *Ent. Nachr.* xxvi. p. 244 (1900) . . . . . Type.  
*remipedalis*

Palpi of male minute, of female reaching just beyond the large frontal tuft; maxillary palpi small; antennae with the basal joint long, the shaft of moderate length ciliated; fore and mid tibiae and tarsi thickened and flattened especially in female. Forewing with the costa arched at base, the apex strongly produced and acute; the cell rather short; vein 3 from near angle of cell; 4, 5 from angle; the discocellulars curved; 6 from below upper angle; 7, 8, 9, 10 stalked, 7 from beyond 9; 11 free; male with a large glandular swelling enclosing flocculent hair on underside of basal costal area and a fringe of long upwardly directed hair in submedian fold at middle. Hindwing with veins 3 and 5 from angle of cell, 4 absent; the discocellulars angled inwards; 6, 7 from upper angle, 7 anastomosing with 8.

(1) \* *Acracona flammealis* n. sp.

Head and thorax purplish red; abdomen orange-red. Forewing purplish red irrorated with darker scales; an indistinct discoidal spot; cilia orange. Hindwing orange-red.

S. Nigeria, Warri (Roth.), type in coll. Rothschild. *Exp.* ♂ 28, ♀ 36 mill.

(2) † *Acracona metachryseis* n. sp.

♀. Head, thorax, abdomen and forewing rufous with a greyish tinge, the last slightly irrorated with fuscous and with a fuscous discoidal spot; cilia orange. Hindwing golden orange. Underside orange except costal area of both wings.

Sierra Leone (Clements), 1 ♀ type. *Exp.* 42 mill.

(3) \* *Acracona remipedalis*.

*Acracona remipedalis* Karsch, *Ent. Nachr.* xxvi. p. 245 (1900).

Togoland.

GEN. **Metaraphia.**

*Metaraphia* Hmps. n., *Rom. Mém.* viii. p. 494 (1901) . . . . . Type. *postluteella*

Proboscis slight; palpi of female short, porrect, typically not extending as far as the frontal tuft which is large and truncate; antennae short, the basal joint long and curved. Forewing long and narrow, the costa slightly arched, the apex typically acute, the termen evenly curved; the cell long; vein 2 from middle of cell; 3 from well before angle; 4, 5 from angle; the discocellulars angled; 6 from upper angle; 7, 8 and 10 stalked, 7 from beyond 10, 9 absent; 11 from cell; a small glandular swelling at base of costa on underside. Hindwing with the apex typically produced and acute; vein 2 from near angle of cell; 3 and 5 stalked, 4 absent; the discocellulars strongly angled; 6, 7 from upper angle, 7 anastomosing with 8.

Sect. I. Both wings with the apex produced and acute; forewing with vein 2 from middle of cell; palpi not extending as far as the frontal tuft.

(1) **Metaraphia postluteella.**

† *Metaraphia postluteella* Hmps. n., *Rom. Mém.* viii. p. 495. pl. 55. f. 2 (1901).

**Borneo, Baram.**

Sect. II. Both wings with the apex rounded; forewing with vein 3 from near angle of cell; palpi extending about the length of head.

(2) † **Metaraphia calamistis** n. sp.

♀. Head, thorax and abdomen ochreous tinged with rufous, especially on dorsum of abdomen. Forewing ochreous irrorated with black-brown especially along median nervure; a diffused antemedial blackish mark on vein 1 and terminal series of points. Hindwing ochreous, the termen brownish. Underside with the forewing and costal area of hindwing irrorated with brown.

**W. Colombia, San Antonio (Palmer), 1 ♀ type. Exp. 28 mill.**

GEN. **Ethopia.**

*Ethopia* Wlk., xxxi. 233 (1863) . . . . . Type. *roseilinea*

Proboscis fully developed; palpi of male short, upturned, thickly scaled, of female obliquely upturned, the second joint reaching to about middle of frons, the third long, smoothly scaled; maxillary palpi slight; frons with tuft of hair; antennae short, almost simple; male with large protrusible genital tuft. Forewing narrow, the costa highly arched throughout in female, towards apex only in male, the apex rounded, the termen obliquely curved, the inner margin somewhat excised towards tornus; male with vein 3 from just before angle of cell; 4 from angle with a recurrent vein running back from it to middle of subcostal nervure; vein 5 from middle of cell from the almost obsolete discocellulars which are strongly angled inwards above it; 6 from upper angle; 7, 8, 9 stalked, 7 from before 9; 10, 11 from cell; the cell on underside clothed with silky downturned hair; female with veins 4, 5 from angle of cell and the discocellulars strongly angled inwards. Hindwing with veins 3 and 5 from angle of cell, 4 absent; the discocellulars angled inwards to near base; 6, 7 strongly stalked and anastomosing with 8; the male with fringe of long downturned hair on upperside from beyond upper angle of cell.

**Ethopia roseilinea.**

*Ethopia roseilinea* Wlk., xxxi. 233 (1863); Swinh., *Cat. Het. Mus. Oxon.* ii. pl. vii. f. 4; Hmps., *Rom. Mém.* viii. p. 458. pl. 53. f. 6.

*Grambomorphia aurora* Voll., *Tijd. v. Ent.* xvi. p. 246. pl. 12. f. 2 (1873).

**Philippines, Mindanão; Salawati; Dutch N. Guinea; D'Entrecasteaux Is., Fergusson I.**

**GEN. Tirathaba.**

	Type.
<i>Tirathaba</i> Wlk., xxx. 961 (1864) . . . . .	<i>mundella</i>
<i>Muciella</i> Wlk., xxxv. 1739 (1866) . . . . .	<i>mundella</i>
<i>Harpagoneura</i> Butl., <i>A. M. N. H.</i> (5). xv. p. 242 (1885) . . . . .	<i>complexa</i>
<i>Coleoneura</i> Rag., <i>Nouv. Gen.</i> p. 52 (1888) . . . . .	<i>trichogramma</i>

Proboscis fully developed; palpi of male short, upturned, thickly scaled, of female downcurved and extending about twice the length of head; maxillary palpi slight; frons with tuft of hair; antennae short and almost simple. Forewing narrow, the apex slightly produced, the termen evenly curved; the cell in male typically about two-thirds length of wing; vein 3 from just before angle of cell; 4 from angle; 5 typically from well above angle; the discocellulars angled inwards; 6 from below upper angle; 7, 8, 9 stalked, 7 from before 9; 10, 11 from cell; the male typically with small glandular swelling at base of costa on underside and the cell clothed with silky androconia; female with vein 3 typically from near angle of cell and 4, 5 strongly stalked. Hindwing with veins 3 and 5 from angle of cell or stalked, 4 absent; the discocellulars angled inwards to near base; 6, 7 from upper angle, 7 touching 8 at a point; the male with fringe of hair from below basal part of costa on upperside.

Sect. I. (*Harpagoneura*). Forewing of male with an elongate band beyond upper angle of cell, the subcostal neuration and terminal area distorted; the cell extending to about three-fourths of wing.

**(1) Tirathabaacrocausta.**

† *Harpagoneuraacrocausta* Meyr., *Trans. Ent. Soc.* 1897. p. 79; Hmps., *Rom. Mém.* viii. p. 466. pl. 54. f. 9.

*Muciallafuscolimbatis* Snell., *Tijd. v. Ent.* xliii. p. 308. pl. 17. ff. 10. 11 (1900).

**Philippines; Java; Celebes, Sangir I.; D'Entrecasteaux Is., Fergusson I.; Louisiade Is., St. Aignan; Queensland, Cedar Bay.**

**(2) Tirathabatrachogramma.**

*Heteromictatrachogramma* Meyr., *Trans. Ent. Soc.* 1886. p. 273; Rag., *Rom. Mém.* viii. p. 461. pl. 51. f. 13.

*Coleoneura tacanovella* Rag., *Nouv. Gen.* p. 52 (1888).

**Fiji.** The larva eats into young coconuts.

**(3) Tirathabacomplexa.**

† *Harpagoneura complexa* Butl., *A. M. N. H.* (5). xv. p. 242 (1885); Rag., *Rom. Mém.* viii. p. 465. pl. 54. f. 7.

**Ellice Is.**

(4) \**Tirathaba irrufatella*.*Tirathaba irrufatella* Rag., *Rom. Mém.* viii. p. 462. pl. 43. f. 26 (1901).**Japan.**

Sect. II. Forewing of male without brand beyond upper angle of cell, the subcostal neuration and terminal area not distorted.

A. Forewing of male with the cell extending almost to termen.

(5) †*Tirathaba pseudocomplana* n. n.*Harpagoneura complana* Hmps., *Rom. Mém.* viii. p. 466. pl. 46. f. 13 (nec Feld).

**Br. N. Guinea**, Aroa R. ; **D'Entrecasteaux Is.**, Fergusson I. ; **Solomon Is.**, Florida I. ; **Queensland**, Geraldton.

B. Forewing with the cell extending to about two-thirds of wing.

a. (*Tirathaba*). Forewing of female with veins 4, 5 strongly stalked.

(6) *Tirathaba mundella*.† *Tirathaba mundella* Wlk., xxx. 961 (1864).† *Mucialla mundella* Wlk., xxxv. 1739 (1866).**Borneo**, Sarawak.

b. Forewing of female with veins 4, 5 from cell or shortly stalked.

a<sup>1</sup>. Forewing of male on underside with glandular swelling below base of costa and the cell clothed with silky androconia.

(7) †*Tirathaba ignivena* n. sp.

♀. Head and thorax brownish grey tinged with purplish red ; abdomen orange-yellow ; pectus and legs whitish irrorated with red-brown ; ventral surface of abdomen yellowish white. Forewing pale grey-brown, the basal and costal areas irrorated with a few black scales ; the veins below costa with rather diffused purplish-red streaks, the other veins and inner margin with well-defined fiery-red streaks ; a fine black terminal line interrupted by white points ; cilia red-brown with blackish marks near base. Hindwing orange-yellow. Underside of forewing yellow with a brownish tinge.

**Louisiade Is.**, St. Aignan, 1 ♀ type. *Exp.* 36 mill.

(8) *Tirathaba rufivena*.† *Lamoria rufivena* Wlk., xxx. 960 (1864) ; Hmps., *Moths Ind.* iv. p. 5 ; id., *Rom. Mém.* viii. p. 460. pl. 46. f. 7.*Lamoria ruptilinea* Wlk., xxxv. 1723 (1866).*Melissoblaptes rufovenalis* Snell., *Tijd. v. Ent.* xxiii. p. 248 (1879) ; id., xxvii. p. 53. pl. 5. f. 10.

**Ceylon** ; **Singapore** ; **Borneo**, Sarawak ; **Bali** ; **Buru** ; **Celebes** ; **Gilolo** ; **Batchian** ; **Dutch N. Guinea** ; **Louisiade Is.**, St. Aignan I. ; **Queensland**.

(9) †*Tirathaba maculifera* n. sp.

♂. Head and thorax white mixed with ferruginous ; abdomen orange-yellow, the anal tuft white at tip. Forewing white, the costal area and submedian fold tinged with ferruginous ; the wing mottled with ferruginous spots especially along submedian fold and an ill-defined subterminal band ; a short

streak in base of cell and spots at middle of cell and upper angle; a terminal series of points. Hindwing and underside orange-yellow.

♀. Forewing entirely suffused with ferruginous, the veins streaked with ferruginous, the subterminal band just traceable, the spots absent.

**Dutch N. Guinea**, Ron I. (Doherty), 1 ♂; **D'Entrecasteaux Is.**, Goodenough I. (Meek), 1 ♂, Woodlark I. (Meek), 1 ♂ type, ♀ in coll. Rothschild; **Louisiade Is.**, St. Aignan I. (Meek), 1 ♂. *Exp.* 24-30 mill.

(10) † **Tirathaba fuscistriata** n. sp.

♀. Head and thorax ochreous grey tinged with purplish red-brown; abdomen dull ochreous. Forewing ochreous grey tinged with purplish red-brown, the veins of costal half streaked with blackish; traces of postmedial and subterminal series of slight brownish spots; the apical part of costa and termen with series of dark striae; cilia pale purplish red, the tips dark towards apex, Hindwing dull ochreous, the costal area tinged with brown, the cilia pale purplish red. Underside dull ochreous; forewing with the disk suffused with fuscus, the costal and terminal areas tinged with purple; hindwing with the costal area suffused with fuscous.

**Dutch N. Guinea**, Dorey (Doherty), 1 ♀ type. *Exp.* 30 mill.

(11) \* **Tirathaba purpurella** n. sp.

♀. Head and thorax pale ochreous tinged with purplish; palpi fuscous at tips; metathorax edged with fuscous; abdomen ochreous, the anal tuft and ventral surface tinged with purple. Forewing purple suffused with fuscous, the veins streaked with fuscous; a rufous discoidal spot. Hindwing greyish fuscous, somewhat ochreous towards base; cilia purple on apical half.

**Louisiade Is.**, St. Aignan I. (Meek), type ♀ in coll. Rothschild. *Exp.* 38 mill.

(12) **Tirathaba grandinotella**.

† *Tirathaba grandinotella* Hmps., *J. Bomb. N. II. Soc.* xii. p. 96 (1898); id., *Rom. Mém.* viii. p. 462, pl. 45. f. 17.

**Assam**, Khásis; **Amboina**.

(13) **Tirathaba semifoedalis**.

*Botys semifoedalis* Wlk., xxxiv. 1439 (1865); Hmps., *Rom. Mém.* viii. p. 462. pl. 54. f. 4.

**Bhután**; **Celebes**, Sula I.

(14) **Tirathaba parasitica**.

*Melissoblastes parasiticus* Lucas, *Pr. R. Soc. Queensl.* xiii. p. 85 (1898).

*Harpagoneura hepialivora* Hmps., *Rom. Mém.* viii. p. 464. pl. 53. f. 19 (1901).

**Queensland**.

(15) **Tirathaba haematella**.

† *Tirathaba haematella* Hmps., *Rom. Mém.* viii. p. 463. pl. 54. f. 21 (1901).

**Aru Is.**

♂. Forewing of male without secondary sexual characters.

(16) *Tirathaba unicolorella*.

† *Mucialla unicolorella* Hmps. n., *Moths Ind.* iv. p. 5 (1896); id., *Rom. Mém.* viii. p. 463. pl. 54. f. 6.

**Bhután; Assam, Khásis.**

(17) † *Tirathaba nitidalis* n. sp.

♀. Head, thorax and abdomen white, the anal tuft brownish. Forewing silvery white, the costal edge black towards base; a diffused purplish-fuscous subterminal line, slightly excurved at middle, the area beyond it faintly tinged with purplish fuscous. Hindwing silvery white, the inner area slightly tinged with brown.

**Dutch N. Guinea, Kapaur (Doherty), 1 ♀ type. Exp. 18 mill.**

GEN. *Antiptilotis*.

*Antiptilotis* Meyr., *Trans. Ent. Soc.* 1897. p. 80 . . . . . Type. *rubicunda*

Proboscis fully developed; palpi of male short, upturned; maxillary palpi slight; frons with large tuft of hair; antennae short, the basal joint with tuft of hair. Forewing narrow, the costa arched at base, the apex somewhat produced, the termen obliquely curved; cell long; vein 2 from middle of cell; 3 from near angle; 4, 5 from angle; 6 from upper angle; 7, 8, 9, 10 stalked, 7 from beyond 9; 11 from cell; the male with large glandular swelling at base of costa on underside fringed with hair at extremity met by a fringe of upturned hair from middle of median nervure. Hindwing with the apex produced and acute; the cell short, vein 2 from near angle of cell; 3 and 5 stalked, 4 absent; the discocellulars angled; 6, 7 shortly stalked, 7 not anastomosing with 8; the male with tuft of scales on upperside below base of cell.

*Antiptilotis rubicunda*.

† *Antiptilotis rubicunda* Meyr., *Trans. Ent. Soc.* 1897. p. 80; Hmps. n., *Rom. Mém.* viii. p. 467. pl. 54. f. 2.

*Melissoblastes euchiellus* Snell., *Tijd. v. Ent.* xliii. p. 308. pl. 17. f. 9 (1900).

**Java; Celebes, Sangir I.**

GEN. *Coreyra*.

*Coreyra* Rag., *Ent. Mo. Mag.* xxii. p. 23 (1885) . . . . . Type. *cephalonica*

Proboscis almost obsolete; palpi of male short, upturned, thickly scaled, of female downcurved and extending about twice the length of head; maxillary palpi minute; frons with large tuft of hair above; antennae short, the basal joint large and with tuft of hair below. Forewing narrow, the costa arched towards apex which is rounded, the termen obliquely curved; vein 2 from well beyond middle of cell; 3 and 5 from angle, 4 absent; the discocellulars angled; vein 6 from just below upper angle; 7, 8, 9 stalked, 7 from beyond 9; 10, 11 from cell; the male with slight glandular swelling at base of costa. Hindwing with vein 2 from near angle of cell; 3 and 5 stalked, 4 absent; the discocellulars retracted to near base; veins 6, 7 from upper angle, 7 anastomosing with 8.

(1) *Corcyra cephalonica*.

*Melissoblaptus cephalonica* Sttn., *Ent. Mo. Mag.* ii. p. 172 (1865); Rag., *Rom. Mém.* viii. p. 491. pl. 45. f. 23; Stand., *Cat. Lep. pal.* ii. p. 1.

*Melissoblaptus oconomellus* Mann, *Verh. zool.-bot. ges. Wien.* 1872. p. 35.

**W. Indies; Brazil; Britain; Germany; Sicily; Corcyra; Bulgaria; Seychelles; Asia Minor, Bithynia; Madras; Ceylon; Java; Christmas I.; Cocos Keeling I.; N. Australia.**

(2) *Corcyra translineella*.

*Corcyra translineella* Rag., *Rom. Mém.* viii. p. 492. pl. 51. f. 26 (1901).

**Sudan; Br. C. Africa; Réunion; Ceylon; Kei Is.** Probably not distinct from *C. cephalonica*.

(3) \* *Corcyra asthenistis*.

*Corcyra asthenistis* Turner, *Pr. R. Soc. Queensl.* xviii. p. 155 (1904).

**Queensland.**

GEN. *Arenipses*.

*Arenipses* Hmps., *Rom. Mém.* viii. p. 501 (1901) . . . . . Type. *sabella*

Proboscis fully developed; palpi of male short, upturned and fringed with hair, of female downcurved and extending about three times length of head; frons with large tuft of hair; antennae short, the basal joint rather large. Forewing narrow, the apex rounded, the termen evenly curved; the cell in male very long and produced to a point at vein 5; veins 2, 3, 4, 5 given off at equal distances and parallel; the discocellulars very oblique; veins 6, 7, 8, 9 stalked, 7 from beyond 9; 10, 11 from cell; the cell on underside clothed with fine silky hair and with a large glandular swelling filled with flocculent hair at base of costa; of female with the cell normal; vein 3 from before angle of cell; 4, 5 separate, the discocellulars angled. Hindwing with the cell open, the lower discocellular very faint and the upper absent; veins 3 and 5 stalked, 4 absent; 6, 7 stalked, 7 anastomosing with 8.

*Arenipses sabella*.

† *Arenipses sabella* Hmps., *Rom. Mém.* viii. p. 501. pl. 24. f. 1 (1901); Staud., *Cat. Lep. pal.* ii. p. 1.

**Algeria; Arabia; Persia.**

GEN. *Trachylepidia*.

*Trachylepidia* Rag., *Ann. Soc. Ent. Fr.* 1887. p. 260 . . . . . Type. *fructicassella*

Proboscis slight; palpi of male short, upturned, thickly scaled, of female downcurved and extending about the length of head; maxillary palpi slight; frons with large tuft of hair; antennae of moderate length, the basal joint with tuft of scales below. Forewing narrow, the apex rounded, the termen evenly curved; the cell rather short; vein 2 from middle of cell; 3 from well before angle; 4, 5 from angle; 6 from just below upper angle; 7, 8, 9, 10 stalked, 7 from beyond 9; 11 from cell; the male with large glandular swelling at base of costa on underside, fringed with hair at extremity met by a fringe of upturned hair from middle of median nervure. Hindwing with vein 2 from near angle

of cell ; 3 and 5 stalked, 4 absent ; the discocellulars angled to near base ; 6, 7 from upper angle ; 7 anastomosing with 8.

**Trachylepidia fructicassiella.**

*Trachylepidia fructicassiella*, Rag. *Ann. Soc. Ent. Fr.* 1887. p. 260 ; id., *Rom. Mém.* viii. p. 469. pl. 46, f. 15.

**Egypt ; Mozambique ; Transvaal ; Syria ; Punjab ; Bengal ; Ceylon.**

GEN. **Paraphomia.**

*Paraphomia* Hmps., *Rom. Mém.* viii. p. 501 (1901) . . . . . Type. *vineteella*

Proboscis slight ; palpi of male short, upturned, of female downcurved and extending about the length of head ; maxillary palpi slight ; frons with small tuft of scales ; antennae short, the basal joint long and dilated. Forewing with the costa arched, the apex rounded ; the cell narrow and long ; vein 2 from about the middle of cell ; 3 from well before angle ; 4, 5 from angle ; the discocellulars angled ; 6, 7, 8, 9 stalked ; 10, 11 from cell ; the male with glandular swelling at base of costa on underside. Hindwing with vein 2 from near angle of cell ; 3 and 5 strongly stalked, 4 absent ; the discocellulars angled inwards almost to base ; 6, 7 stalked, 7 anastomosing with 8.

(1) \* **Paraphomia vineteella.**

*Paraphomia vineteella* Hmps., *Rom. Mém.* viii. p. 502. pl. 55. f. 1 (1901).

**Tenimber Is. ; Queensland, Cedar Bay.**

(2) \* **Paraphomia natalensis.**

*Paraphomia natalensis* Hmps., *Rom. Mém.* viii. p. 502. pl. 55. f. 5 (1901).

**Natal.**

GEN. **Aphomia.**

<i>Tinea</i> Linn., <i>Syst. Nat.</i> edit. x. p. 496 (1858). partim † . . . . .	? <i>sociella</i>
<i>Aphomia</i> Hübn., <i>Verz.</i> p. 369 (1827) . . . . .	<i>sociella</i>
§ <i>Melia</i> Curt., <i>Brit. Ent.</i> vi. p. 201 (1829) nec <i>Bibl. Crust.</i> 1820 . . . . .	<i>sociella</i>
<i>Meliana</i> Curt., <i>Brit. Ent.</i> vi. Index (1829) . . . . .	<i>sociella</i>
<i>Melissoblastes</i> Zell., <i>Isis.</i> 1839. p. 180 . . . . .	<i>joedella</i>
<i>Bapara</i> Wlk., xxxii. p. 620 (1865) . . . . .	<i>oblitrosa</i>
<i>Paralipsa</i> Butl., <i>A. M. N. H.</i> (5). iv. p. 454 (1879) . . . . .	<i>gularis</i>

Proboscis fully developed ; palpi of male short, upturned, thickly scaled, of female downcurved and extending about three times length of head ; maxillary palpi dilated with scales ; frons with large tuft of hair above ; antennae about half the length of wing, the 1st joint with tuft of scales below. Forewing rather narrow, the costa arched, the termen evenly curved ; the males typically with the cell very large and extending almost to the termen ; veins 3, 4, 5 widely separated and parallel ; the discocellulars almost obsolete, 6 from below upper angle of cell ; 7, 8, 9 stalked, 7 from beyond 9 ; 10, 11 from cell ; a small glandular swelling at base of costa on underside and the whole cell clothed with fine silky scales ; female with the cell about two-thirds length of wing ; vein 3 from well before angle ; 4, 5 from angle ; the discocellulars strongly angled ; 6 from

† Cf. p. 17.

§ Curtis fixes the type as *sociella*, and his description and structural details on the plate of *Senta flammea* are from *sociella*.

upper angle. Hindwing with the termen excised below apex; vein 2 from close to angle of cell; 3 and 5 strongly stalked, 4 absent; the discocellulars obsolescent and angled inwards to near base; 6, 7 from upper angle, 7 anastomosing with 8.

Sect. I. (*Aphomia*). Forewing of male with the cell very broad and extending almost to termen, veins 3, 4, 5 widely separated and parallel, the discocellulars very indistinct, vein 6 from below upper angle; a small glandular swelling at base of costa on underside and the whole cell clothed with silky scales.

(1) *Aphomia sociella*.

*Tinea sociella* Linn., *Syst. Nat.* edit. x. p. 534 (1758) ♂; Rag., *Rom. Mém.* viii. p. 471; Staud., *Cat. Lep. pal.* ii. p. 1; Dyar, *Cat. Lep. N. Am.* p. 413.

*Tinea colonella* Linn., *Syst. Nat.* edit. x. p. 534 (1758) ♀; Clerek, *Icones.* pl. 3. f. 8. 11; Hübner, *Eur. Schmidt. Tin.* ff. 22, 23; Dup., *Lép. Fr.* x. pl. 282. f. 6; Steph., *Ill. Brit. Ent. Haust.* p. 296.

*Tinea tribunella* Schiff., *Wien Vers.* p. 319 (1776).

*Aphomia sociella* ab. *rufinello* Krul., *Rev. Russ. Ent.* viii. p. 274 (1909).

**N. America; Europe; Asia Minor; Syria.**

Sect. II. (*Paralipsa*). Forewing of male with the cell shorter and narrower, produced at extremity but not reaching to near termen, veins 3, 4, 5 well separated and parallel, 6 from below upper angle, a large glandular swelling at base of costa on underside extending to near middle of wing and fringed with long hair outwardly, the whole cell clothed with silky andræconia.

(2) *Aphomia gularis*.

*Melissoblastes gularis* Zell., *Hor. Soc. Ent. Rosc.* xiii. p. 74. pl. 1. f. 26 and pl. 2. f. 27 (1877).

† *Paralipsa modesta* Butl., *A. M. N. H.* (5). iv. p. 455 (1879) ♂; Rag., *Rom. Mém.* viii. p. 474. pl. 43. f. 25.

† *Melissoblastes tenebrosus* Butl., *Ill. Het. B. M.* iii. p. 78. pl. 60. f. 1 (1879) ♀.

**Japan; C. and W. China; Sikkim; Bhutan; Madras.**

(3) \* *Aphomia spoliatrix*.

*Aphomia spoliatrix* Christ., *Bull. Nat. Mosc.* lvi. p. 59 (1881); Rag., *Rom. Mém.* viii. p. 476. pl. 46. f. 14; Staud., *Cat. Lep. pal.* ii. p. 1.

**E. Siberia.**

(4) \* *Aphomia decolorella*.

*Paralipsa decolorella* Hmps., *Rom. Mém.* viii. p. 474. pl. 55. f. 3 (1901).

**D'Entrecasteaux Is., Fergusson I.**

(5) † *Aphomia ochracea* n. sp.

♂. Pale ochreous slightly tinged with brown. Forewing irrorated with a few black scales, the costal and terminal areas slightly tinged with red; faint dark points at middle and end of cell; traces of a curved postmedial line; a terminal series of black points. Hindwing ochreous white.

♀. Head, thorax and forewing whitish tinged and irrorated with purplish red; abdomen and hindwing suffused with brown.

**Dutch N. Guinea, Jobi I. (Doherty); Louisiades Is., Woodlark I., St. Aignan (Meek), 1 ♂, 1 ♀ type. Exp. ♂ 24, ♀ 26 mill.**

(6) \* *Aphomia erubella*.*Paralipsa erubella* Hmps., *Rom. Mém.* viii. p. 475. pl. 53. f. 20 (1901).**D'Entrecasteaux Is., Fergusson I.**(7) *Aphomia terrenella*.*Aphomia terrenella* Zell., *Isis*, 1848. p. 859; Rag., *Rom. Mém.* viii. p. 476. pl. 56. f. 12.† *Melissoblastes furellus* Zell., *Verk. zool.-bot. ges. Wien*, 1873. p. 212; Dyar, *Cat. Lep. N. Am.* p. 413.**U.S.A., New York, Georgia.**(8) \* *Aphomia fulminalis*.*Melissoblastes fulminalis* Zell., *Verk. zool.-bot. ges. Wien*, 1872. p. 560. pl. 3. f. 9; Dyar, *Cat. Lep. N. Am.* p. 413.**U.S.A., Texas.**(9) *Aphomia stenopepla*.*Paralipsa stenopepla* Turner, *Pr. R. Soc. Queensl.* xviii. p. 156 (1904).**Queensland.**(10) *Aphomia monochroa*.† *Melissoblastes monochroa* Hmps., *J. Bomb. Nat. Hist. Soc.* xxi. p. 1249. pl. G. f. 29 (1912).**Ceylon.**(11) *Aphomia vinotincta*.† *Melissoblastes vinotincta* Hmps., *J. Bomb. Nat. Hist. Soc.* xviii. p. 257. pl. E. f. 38 (1908).**Ceylon.**(12) *Aphomia rosella*.† *Tirathaba rosella* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 97 (1898); id., *Rom. Mém.* viii. p. 465. pl. 54. f. 8.**Assam.**(13) † *Aphomia albifusa* n. sp.

♂. Head and thorax white mixed with pale brown; abdomen yellow brown. Forewing pale brown with broad fascia of white suffusion below costa extending at base to inner margin. Hindwing orange-yellow.

♀. Forewing entirely suffused with pale brown and irrorated with darker brown; reddish streaks from base of median nervure in and below the cell; a dark terminal line.

**Celebes, Sangir I. (Doherty), 1 ♂, 1 ♀ type. Exp. ♂ 26, ♀ 30 mill.**

Sect. III. (*Melissoblastes*). Forewing of male with the cell extending to about two-thirds of wing, not produced at extremity, vein 3 from close to angle of cell; 4, 5 shortly stalked; a large glandular swelling at base of costa on underside fringed with long hair outwardly met by some upturned hair from median nervure, the cell not clothed with androconia.

(14) *Aphomia bipunctana*.*Tinea anella* Zinck., *Germ. Mag.* iv. p. 244 (nec Schiff.); Leech, *Pyr.* pl. 13. f. 4.*Melissoblastes bipunctanus* Zell., *Isis*, 1848. p. 580 (nec Curt.); Rag., *Rom. Mém.* viii. p. 480; Staud., *Cat. Lep. pal.* ii. p. 1.*Melissoblastes bipunctanus* var. *sapozhnikovi* Krul., *Rev. Russ. Ent.* viii. p. 274 (1909).**Europe; E. Turkestan, Küldja; Japan; N. China; Ceylon.**

(15) *Aphomia unicolor*.

*Melissoblastes unicolor* Staud., *Hor. Ent. Soc. Ross.* vii. p. 212 (1870); Rag., *Rom. Mém.* viii. p. 482. pl. 45. f. 21; Staud., *Cat. Lep. pal.* ii. p. 1.

**Algeria; Greece; Bulgaria; Asia Minor, Bithynia.**

(16) \**Aphomia foedella*.

*Melissoblastes foedella* Zell., *Isis*, 1839. p. 180; Herr. Schäff., *Eur. Schm. Pyr.* ff. 147, 148 and iv. p. 133; Rag., *Rom. Mém.* viii. p. 483; Staud., *Cat. Lep. pal.* ii. p. 1.

**Hungary; Bohemia.**

(17) \**Aphomia isodesma*.

*Melissoblastes isodesma* Meyr., *Trans. Ent. Soc.* 1886. p. 272; Rag., *Rom. Mém.* viii. p. 484. pl. 51. f. 14.

**Fiji.**

(18) *Aphomia sordidella*.

*Gyrtona sordidella* Wlk., xxxv. 1723 (1866); Rag., *Rom. Mém.* viii. p. 484. pl. 44. f. 25.

**W. Australia; N. S. Wales.**

(19) †*Aphomia melanomochla* n. sp.

♀. Head, thorax and abdomen grey-white mixed with brown; antennae ringed fuscous and white. Forewing grey-white suffused in parts and irrorated with brown; a fine black streak in submedian fold to the postmedial line; a dark mark on median nervure before the antemedial line which is rather diffused, black-brown, oblique to submedian fold, and slightly incurved at vein 1; a black bar in cell towards extremity, and a rather lunulate discoidal bar defined on outer side by white; postmedial line rather diffused black-brown, defined on outer side by white to submedian fold where there is a dark mark beyond it, oblique and slightly sinuous to beyond lower angle of cell where it is acutely angled outwards, then inwardly oblique to submedian fold and erect to inner margin, some dark brown suffusion beyond it on costal area. Hindwing white, the terminal area slightly tinged with red-brown; a reddish brown terminal line and slight line near base of cilia.

**W. Australia,** Sherlock R. (Clements), 1 ♀ type. *Exp.* 28 mill.

(20) *Aphomia phloeomima*.

*Hypolophota phloeomima* Turner, *Ann. Queensl. Mus.* x. p. 108 (1911).

**N. Australia.**

(21) \**Aphomia aegidia*.

*Melissoblastes aegidia* Meyr., *Trans. Ent. Soc.* 1887. p. 252; Rag., *Rom. Mém.* viii. p. 485. pl. 51. f. 7.

**S. Australia.**

(22) \**Aphomia disema*.

*Melissoblastes disema* Lower, *Tr. R. Soc. S. Austr.* xxix. p. 103 (1905).

**Victoria.**

(23) *Aphomia odontella*.

† *Melissoblastes odontella* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 96 (1901); id., *Rom. Mém.* viii. p. 485. pl. 54. f. 18.

**Ceylon.**

(24) \* *Aphomia fuscolimbella*.

*Melissoblyptes fuscolimbella* Rag., *Nouv. Gen.* p. 20 (1887); id., *Rom. Mém.* viii. p. 485. pl. 46. f. 11 ;  
Dyar, *Cat. Lep. N. Am.* p. 413.

**U.S.A.**

(25) *Aphomia variegatella*.

† *Melissoblyptes variegatella* Hmps., *Rom. Mém.* viii. p. 486. pl. 54. f. 19 (1901).

**Borneo.**

(26) *Aphomia obliterosa*.

*Bapara obliterosa* Wlk., xxxii. 603 (1865); Swinh., *Cat. Het. Mus. Oxon.* ii. pl. vii. f. 2 ; Hmps.,  
*Rom. Mém.* viii. p. 487. pl. 53. f. 14.

**N. Guinea; D'Entrecasteaux Is.**

(27) \* *Aphomia distictella* n. sp.

♂. Head and thorax brown irrorated with fuscous; abdomen fuscous. Forewing brown irrorated with fuscous; a black point in end of cell and another on discocellulars. Hindwing dark fuscous-brown; the cilia paler with a dark line through them.

**Natal** (A. J. Spiller), type in coll. Rothschild. *Exp.* 22 mill.

(28) \* *Aphomia homochroa*.

*Melissoblyptes homochroa* Turner, *Pr. R. Soc. Queensl.* xix. p. 53 (1905).

**Queensland.**

Sect. IV. Forewing of male with the cell extending to about two-thirds of wing; not produced at extremity; veins 3, 4 from angle of cell; 5 from above angle; a small glandular swelling at base of costa on underside, the cell clothed with silky androconia; hindwing with tuft of long hair from below costa near base on upperside

(29) † *Aphomia cyclophora* n. sp.

♂. Head, thorax and abdomen whitish tinged with pale purplish red. Forewing pale purplish red irrorated with blackish; a minute annulus incompletely defined by black scales in middle of cell and a more complete discoidal annulus; traces of a diffused dark postmedial line, oblique to vein 5, then inwardly oblique and somewhat dentate; traces of a curved dark subterminal line; a terminal series of black bars. Hindwing ochreous yellow tinged with brown except on inner area; a slight brown terminal line; cilia brownish to vein 2 with a pale line at base, then yellowish. Underside ochreous white tinged with brown, forewing with the cell clothed with golden yellow androconia; hindwing with the tuft of hair ochreous.

**Br. N. Guinea**, Milne Bay (Meek), 1 ♂ type. *Exp.* 34 mill.

Sect. V. Forewing of male with the cell extending to about two-thirds of wing; not produced at extremity; vein 3 from before angle of cell; 4, 5 from angle; the wings without secondary sexual characters.

(30) † *Aphomia caffralis* n. sp.

♂. Head and thorax grey tinged with purplish red and with some blackish mixed; abdomen pale grey with a faint ochreous tinge towards base and some fuscous brown suffusion towards extremity; pectus, legs and ventral surface of abdomen whitish irrorated with blackish, the tarsi banded with blackish. Forewing grey tinged with purplish red and sparsely irrorated with black; a diffused whitish streak in submedian fold from before the antemedial to the postmedial line; a black point at base of vein 1, and subbasal point in the cell; antemedial line rather diffused, blackish, oblique to submedian fold, then erect; rather diffused black spots in cell towards extremity and on discocellulars, with a few white scales between them; postmedial line rather diffused blackish, defined on outer side by some white scales, rather obliquely incurved to discal fold, then inwardly oblique; a punctiform blackish terminal line; cilia with a slight pale line near tips. Hindwing whitish suffused with reddish brown, the cilia whiter with two dark lines through them except towards tornus. Underside of forewing fuscous with the costal edge pale; hindwing whitish tinged with red-brown, the costal area suffused with fuscous.

**Transvaal**, Kranspruit (Jause), 1 ♂ type; **Orange R. Colony**, Bloemfontein (Eekersley), 1 ♂. *Exp.* 26–30 mill.

*Auctororum.*

<i>Aphonia erumpens</i> Lucas, <i>Pr. R. Soc. Queensl.</i> xiii. p. 79 (1898) . . . . .	Queensland
<i>Melissoblaptēs burellus</i> Holl., <i>Nov. Zool.</i> vii. p. 581 (1900) . . . . .	Buru
<i>Melissoblaptēs baryptera</i> Lower, <i>P. Linn. Soc. N.S.W.</i> 1901. p. 659 . . . . .	Victoria; S. Australia
<i>Melissoblaptēs agramma</i> Lower, <i>Tr. R. Soc. S. Austr.</i> 1903. p. 49 . . . . .	Louisiades Is.; Queensland
<i>Melissoblaptēs cissinobaphes</i> Turner, <i>Tr. R. Soc. Queensl.</i> xix. p. 90 (1905) . . . . .	Queensland
<i>Aphomia grisea</i> Turati, <i>Ent. Rec.</i> xxv. p. 18 (1913) . . . . .	Sardinia

GEN. *Heteromicta*.

	Type.
<i>Heteromicta</i> Meyr., <i>Trans Ent. Soc.</i> 1886. p. 273 . . . . .	<i>pachytera</i>
<i>Hypolophota</i> Turner, <i>Pr. R. Soc. Queensl.</i> xviii. p. 155 (1903) . . . . .	<i>oodes</i>

Proboscis fully developed; palpi of male upturned, short, thickly scaled, of female obliquely porrect and extending about the length of head; maxillary palpi minute, filiform; frons with large tuft of hair; antennae of male almost simple, the first joint rather long. Forewing rather short and broad, the costa moderately arched, the apex rounded; veins 3 and 5 from near angle of cell; 6 from upper angle; 7, 8, 9 stalked from before angle, 7 from before 9; 10, 11 from cell; the male typically without secondary sexual characters. Hindwing with vein 2 from near angle of cell; 3 and 5 strongly stalked, 4 absent; the discocellulars angled inwards to near base; 6, 7 from upper angle; 7 anastomosing with 8.

Sect. I. (*Hypolophota*). Forewing of male on underside with costal fold extending to beyond middle of wing and containing large masses of floculent hair, vein 5 well separated from 4.

(1) *Heteromicta amydrastis*.

*Hypolophota amydrastis* Turner, *Pr. R. Soc. Queensl.* xviii. p. 156 (1904).

**Queensland.** The forewing (*vide* Turner) sometimes has vein 7 from 8 beyond 9.

(2) *Heteromicta oodes*.*Hypolophota oodes* Turner, *Pr. R. Soc. Queensl.* xviii. p. 155 (1904).**Queensland.** The two specimens in B.M. have vein 9 of the forewing absent.Sect. II. (*Heteromicta*). Forewing of male without secondary sexual characters, vein 5 from close to 4.(3) *Heteromicta pachytera*.*Aphomia pachytera* Meyr., *Proc. Linn. Soc. N.S.W.* 1879. p. 237; *Rag., Rom. Mém.* viii. p. 453. pl. 45. ff. 19. 20.**Queensland; N. S. Wales; Victoria; S. Australia; Tasmania.**(4) \**Heteromicta polioستola*.*Heteromicta polioستola* Turner, *Pr. R. Soc. Queensl.* xviii. p. 158 (1903).**Queensland.**(5) *Heteromicta tripartitella*.*Aphomia tripartitella* Meyr., *Proc. Linn. Soc. N.S.W.* 1879. p. 236; *Rag., Rom. Mém.* viii. p. 454. pl. 46. f. 9.**Queensland; N. S. Wales.**(6) *Heteromicta ochraceella*.*Heteromicta ochraceella* Hmps., *Rom. Mém.* viii. p. 455. pl. 54. f. 1 (1901).**Queensland.**(7) \**Heteromicta nigricostella*.*Heteromicta nigricostella* Hmps., *Rom. Mém.* viii. p. 455. pl. 54. f. 3 (1901).**Queensland.***Auctorum.*

<i>Heteromicta poeodes</i> Turner, <i>Pr. R. Soc. Queensl.</i> xix. p. 54 (1905)	. . .	Queensland
<i>Hypolophota agasta</i> Turner, <i>Ann. Queensl. Mus.</i> x. p. 109 (1911)?	<i>Aphomia</i>	Queensland; N. Australia
<i>Heteromicta alypeta</i> Turner, <i>Ann. Queensl. Mus.</i> x. p. 109 (1911)	. . .	Queensland
<i>Heteromicta leptochlora</i> Turner, <i>Pr. R. Soc. Queensl.</i> xxiv. p. 129 (1913)	. . .	Queensland

GEN. *Agdistopsis* nov.Type *A. petrochroa*.

Proboscis aborted, minute; palpi obliquely porrect, the second joint with some rough scales and extending about twice the length of head, the third moderate and somewhat dilated at extremity; maxillary palpi absent; frons with small tuft of hair; antennae of male somewhat laminate and with fasciculate cilia; legs long, the fore tibiae slight, fringed with hair, the mid and hind tibiae smoothly scaled, the hind tibiae curved and with the medial spurs absent; abdomen very long and tipuliform. Forewing very long and narrow, the apex rounded, the termen evenly curved; the cell about two-thirds length of wing; vein 3 from close to angle; 4, 5 stalked; the discocellulars curved; 6 from upper angle; 7, 8, 10 stalked, 9 absent; 11 from cell, some rough hair from base of costa on underside. Hindwing with some rough hair from base of costa, but

the retinaculum absent; the apex produced and acute, the termen very oblique and somewhat excised below apex; veins 3 and 5 from angle of cell, 4 absent; the discocellulars erect; 6 absent; 7 from upper angle, closely approximated to but not anastomosing with 8.

The genus has a remarkable superficial resemblance to *Agdistis*.

#### *Agdistopsis petrochroa* n. sp.

Head, thorax and abdomen ochreous white with a brownish tinge, the last with paler segmental bands and slight dark sublateral streaks; legs rather browner. Forewing ochreous white with some blackish irroration especially below and beyond the cell, the costal area paler; a diffused oblique black fascia intersected by a pinkish streak below basal half of cell. Hindwing whitish tinged with fuscous brown, thinly scaled; cilia with a fine ochreous line at base.

*Hab.* **Formosa**, Kanshrei in coll. Wileman; **Ceylon**, Kandy (Mackwood), ♂ type; **Singapore** (Ridley), 2 ♂, 2 ♀. *Exp.* 22-30 mill.

#### GENUS *Achroia*.

	Type.
<i>Achroia</i> Hübn., <i>Verz.</i> p. 163 (1827) not preocc. by <i>Aeraea</i> Hübn., <i>Verz.</i> p. 92 . . . . .	<i>grisella</i>
<i>Meliphora</i> Guen, <i>Ann. Soc. Ent. Fr.</i> xiv. p. 308 (1845), not descr. . . . .	<i>grisella</i>
<i>Vobrix</i> Wlk., xxx. 1014 (1864) . . . . .	<i>innotata</i>

Proboscis slight; palpi of male minute, upturned, hidden under the downturned hair on frons; of female downturned and extending to beyond the frons; maxillary palpi minute and dilated with scales; antennae rather long, the basal joint rather long and with tuft of scales below. Forewing elliptical, the costa arched, the apex rounded, the termen obliquely curved; male with vein 3 from before angle of cell; 4, 5 from angle; the discocellulars very oblique; 6 from upper angle; 7, 8 and 10 stalked, 7 from beyond 10, 9 absent; 11 from cell; female with the discocellulars less oblique, vein 3 from angle of cell and 4, 5 stalked. Hindwing of male with the apex produced and acute, the termen excised to vein 1 and obliquely truncate at tornus; vein 2 from well before angle of cell; 3 and 5 stalked, 4 absent; the discocellulars angled; 6, 7 from upper angle of cell, 7 anastomosing with 8; female with the apex less produced and the termen less excised, the cell shorter, vein 2 from near angle and 3 and 5 more strongly stalked.

#### (1) \* *Achroia obscurevittella*.

*Achroia obscurevittella* Rag., *Rom. Mém.* viii. p. 498. pl. 43. f. 24 (1901).

**Japan.** Probably not distinct from *A. grisella*.

#### (2) *Achroia grisella*.

*Tinea grisella* Fabr., *Ent. Syst.* iii. 2. p. 289 (1794); Hmps., *Moths Ind.* iv. p. 6; Rag., *Rom. Mém.* viii. p. 497; Staud., *Cat. Lep. pal.* ii. p. 1.

*Galleria alvearia* Fabr., *Ent. Syst. Suppl.* p. 463 (1798).

*Bombyx cinereola* Hübn., *Eur. Schm. Bomb.* f. 91 (1802).

**U.S.A.; Jamaica; Europe; Sikkim; Bengal, Calcutta; Ceylon; Australia.**

#### (3) *Achroia innotata*.

† *Vobrix innotata* Wlk., xxx. 1014 (1864); Rag., *Rom. Mém.* viii. p. 498. pl. 55. f. 8.

**Ceylon; Borneo, Sarawak.** Probably not distinct from *A. grisella*.

*Auctorum.**Meliphora myrmecophila* Turner, *Pr. R. Soc. Queensl.* xxiv. p. 130 (1913) . . . . . QueenslandGEN. *Athaliptis*.*Athaliptis* Schaus, *A. M. N. H.* (8). xi. p. 252 (1913) . . . . . Type.  
*cymonia*

Palpi of female long, downcurved, slender; antennae almost simple. Forewing long and narrow, the apex rounded, the termen evenly curved; vein 3 from before angle of cell; 4, 5 from angle; 6 from just below upper angle; 7, 8, 9, 10 stalked, 7 from before 9 and beyond 10; 11 from cell. Hindwing with veins 3 and 5 stalked, 4 absent; the discocellulars angled inwards to near base; 6, 7 stalked.

\* *Athaliptis cymonia*.*Athaliptis cymonia* Schaus, *A. M. N. H.* (8). xi. p. 252 (1913).**Costa Rica.**GEN. *Epimorius*.*Epimorius* Zell., *Hor. Soc. Ent. Ross.* xiii. p. 76 (1877). . . . . Type.  
*suffusa*

Proboscis slight; palpi of male short, upturned, thickly scaled, of female downcurved and extending typically about twice the length of head; maxillary palpi minute; frons with tuft of hair; antennae of male typically serrate. Forewing with the costa arched, the apex rounded, the termen obliquely curved; vein 3 from close to angle of cell; 4, 5 typically shortly stalked; the discocellulars strongly angled inwards; 6 from just below upper angle; 7, 8, 9, 10 stalked, 9 from beyond 7; 11 from cell. Hindwing typically with vein 2 from close to angle of cell; 3, 4, 5 stalked; the discocellulars angled inwards to near base; 6, 7 stalked, 7 anastomosing with 8.

Sect. I. Palpi of female extending about three times length of head; antennae of male serrate; forewing with veins 4, 5 shortly stalked, the discocellulars strongly angled inwards; hindwing with veins 3, 4, 5 stalked and the discocellulars angled inwards to near base.

(1) *Epimorius suffusa*.*Epimorius suffusus* Zell., *Hor. Ent. Soc. Ross.* xiii. p. 76. pl. ii. f. 28 (1877); Rag., *Rom. Mém.* viii. p. 430. pl. 46. f. 3.**Costa Rica; S. Brazil.**(2) \* *Epimorius testaceella*.*Epimorius testaceellus* Rag., *N. Am. Phyc.* p. 20 (1887); id., *Rom. Mém.* viii. p. 430. pl. 45. f. 22.**Jamaica.**(3) † *Epimorius epipaschiella* n. sp.

♂. Head and thorax pale rufous tinged with grey and irrorated with blackish, the palpi with more black; abdomen white faintly tinged with brown; tarsi blackish with pale rings. Forewing grey tinged with rufous and irrorated with blackish; the basal area suffused and irrorated with black to just before

the medial line, which is black, inwardly oblique and incurved from subcostal nervure to just below the cell; the costal area beyond it whitish; a small rather oblique black discoidal spot; postmedial line black, diffused on inner side and defined on outer side by whitish, inwardly oblique, and with its outer edge minutely dentate, a blackish shade beyond it; the terminal area grey-white with some black at costa and a terminal series of minute black spots. Hindwing white, faintly tinged with brown; a slight dark terminal line. Underside of forewing white tinged with fuscous; hindwing with the costa slightly irrorated with fuscous.

**Colombia**, Minca (H. H. Smith), 1 ♂ type. *Exp.* 16 mill.

Sect. II. Palpi of female extending about twice the length of head; antennae of male ciliated; forewing with veins 4, 5 strongly stalked, the discocellulars less strongly angled inwards; hindwing with vein 3 from near angle of cell and the discocellulars not so strongly angled inwards.

(4) † *Epimorius adustalis* n. sp.

Head, thorax, and abdomen grey-brown with a slight reddish tinge. Forewing grey-brown with a slight reddish tinge and some black irroration; a slight discoidal spot formed by black scales; traces of an obliquely curved postmedial black line; a terminal series of black points. Hindwing and underside grey-brown with a slight reddish tinge.

**Sierra Leone** (Clements), 4 ♂, 1 ♀ type; **S. Nigeria**, Lagos (Sir G. Carter), 1 ♀, Old Calabar (Crompton), 1 ♀; Sapele (Sampson), 1 ♀; Warri (Roth.), 1 ♀. *Exp.* ♂ 18-22, ♀ 26-30 mill.

GEN. *Cathayia*.

*Cathayia* Hmps. n., *Rom. Mém.* viii. p. 451 (1901) . . . . . Type. *obliquella*

Proboscis slight; palpi of male short, upturned, thickly scaled, of female downcurved and extending about the length of head; maxillary palpi minute; frons with large tuft of hair; antennae of male rather short, the basal joint somewhat dilated. Forewing triangular, the costa arched, the apex somewhat produced and rounded, the termen oblique; the cell about two-thirds length of wing; vein 3 from well before angle; 4, 5 separate in male, in female stalked or from a point; 6 from upper angle; 7, 8 stalked from 10, 9 absent or from beyond 7, arising before the angle of cell; 11 from cell; the male on underside with a small glandular swelling at base of costa with a large tuft of black hair from below its extremity, the base of median nervure and cell clothed with rough androconia. Hindwing with vein 3 from angle of cell; 4, 5 stalked; the discocellulars angled inwards to near base; veins 6, 7 stalked, 7 anastomosing with 8.

(1) *Cathayia obliquella*.

*Cathayia obliquella*, Hmps. n., *Rom. Mém.* viii. p. 452. pl. 51. f. 6 (1901).

**Japan; C. China.**

(2) *Cathayia purpureotincta* n. sp.

♀. Head and thorax rufous with a few blackish scales; abdomen paler rufous; palpi with a slight purplish tinge; pectus, legs and ventral surface of

abdomen rufous, the last with some blackish irroration. Forewing bright rufous irrorated with black and slightly tinged with purple, the veins with slight pale streaks; an obscure mark formed by an aggregation of black scales in upper angle of cell and an oblique bar formed by black scales at middle of submedian interspace; traces of an oblique postmedial line formed by black scales from vein 5 to inner margin; cilia with a fine pale line at base. Hindwing ochreous tinged and irrorated with brown, the cilia with a faint purplish line through them from apex to vein 2. Underside reddish ochreous irrorated with dark brown; forewing tinged with purplish red, the disk suffused with brown, a faint curved blackish postmedial line.

*Hab. Borneo*, Kuching, 1 ♀ type. *Exp.* 32 mill.

GEN. **Picrogama.**

*Picrogama* Meyr., *Trans. Ent. Soc.* 1897. p. 91 . . . . . Type. *complana*

Proboscis rather short; palpi of male short, upturned, thickly scaled; of female downcurved and extending about twice the length of head; maxillary palpi slight; frons with large tuft of hair; antennae of male almost simple, the basal joint somewhat dilated. Forewing narrow, the apex rectangular, the termen evenly curved; the male with the lower part of cell produced, vein 3 from well before angle, 5 from above angle; the discocellulars angled inwards above and with a recurrent vein from their angle; 6 from upper angle; 7, 8, 9 stalked from before the angle, 7 typically from beyond 9; 10, 11 from cell; a small glandular swelling at base of costa on underside and the cell clothed with androconia; the female with veins 4, 5 from angle of cell, the discocellulars incurved. Hindwing with vein 3 from just before angle of cell; 4, 5 strongly stalked, the discocellulars angled inwards to near base; 6, 7 from upper angle, 7 anastomosing with 8.

Sect. I. Forewing with vein 7 from 8 beyond 9.

(1) **Picrogama complana.**

*Aphomia complana* Feld., *Reis. Nov.* pl. 137. f. 6 (1874).

*Picrogama anticosma* Meyr., *Trans. Ent. Soc.* 1897. p. 92; Hmps., *Rom. Mém.* viii. p. 445. pl. 53. ff. 10. 11.

**Celebes**, Sangir I.; **Amboina**; **Dutch N. Guinea**; **D'Entrecasteaux Is.**, Goodenough I., Fergusson I.; **Louisiade Is.**, St. Aignan I.

Sect. II. Forewing with vein 7 from 8 before 9.

(2) † **Picrogama albifascialis** n. sp.

♂. Head and thorax whitish tinged with red-brown; abdomen deep golden yellow. Forewing whitish tinged with brown and irrorated with dark brown, a purplish red tinge in lower part of cell and below vein 6 to termen; the veins of costal area with chocolate-brown streaks and two slight purple-brown streaks in the cell; a white fascia from base through the upper part of cell to apex broken up by the dark streaks on the veins; small elongate elliptical purple-brown spots in upper part of cell; an aggregate of dark scales at origin of vein 2; an obliquely curved postmedial shade formed by aggregations of dark scales

in the interspaces from below the white fascia to above inner margin ; a terminal series of slight black lunules. Hindwing deep golden yellow ; the cilia with a brown line at middle and white tips. Underside deep golden yellow, the terminal area of forewing and apex of hindwing greyish tinged with purple-red.

**Br. N. Guinea**, Milne Bay (Meek), 1 ♂ type. *Exp.* 46 mill.

(3) **Picrogama nigrisparsalis.**

† *Lamoria nigrisparsalis* Hmspn., *J. Bomb. Nat. Hist. Soc.* xiv. p. 658 (1903).

**Ceylon.**

GEN. **Prosthenia.**

*Prosthenia* Hmspn., *Rom. Mém.* viii. p. 450 (1901) . . . . . Type.  
*psittacolella*

Proboscis small ; palpi of male short, upturned, thickly scaled, of female with the second joint obliquely upturned to about vertex of head and bent forward at extremity, the third porrect ; maxillary palpi slight ; frons with large tuft of hair ; antennae of male almost simple, the basal joint with tuft of scales below. Forewing very narrow, the apex rounded, the termen very short ; the male with veins 2, 3, 4, 5 given off at even distances, the cell being strongly produced to a point at vein 5 ; 6 from upper angle ; 7, 8, 9 stalked, 7 from beyond 9 ; 10, 11 from cell ; a large costal fold on basal third of costa on underside with thick fringe of hair below and the cell clothed with androconia ; the female with vein 3 from well before angle of cell, veins 4, 5 from angle, the discocellulars angled. Hindwing with vein 3 shortly stalked with 4, 5 ; the discocellulars angled inwards to near base ; 6, 7 stalked, 7 anastomosing with 8.

(1) **Prosthenia psittacolella.**

† *Prosthenia psittacolella* Hmspn., *Rom. Mém.* viii. p. 450. pl. 54. f. 11 (1901).

*Hornigja sauberi* Semp., *Reis. Phil. Schmett.* ii. p. 644. pl. 66. f. 1 (1902).

**Singapore ; Borneo ; Philippines.**

(2) † **Prosthenia xyloryctella**, n. sp.

♀. Head, thorax and abdomen whitish tinged with brown ; antennae brown ringed with white ; tarsi dark brown ringed with white. Forewing whitish tinged with purplish brown and irrorated with dark brown ; antemedial line dark brown defined on inner side by whitish, oblique, sinuous ; two black-brown points in the cell towards extremity ; an oblique purple-brown discoidal lunule defined except on outer side by deep chocolate-brown and with a small chocolate-brown spot at its lower extremity ; postmedial line dark brown, curved, dentate, defined on outer side by whitish with a diffused dentate brown shade beyond it except on costal area ; the costa towards apex with white points with short black streaks between them and the costal area whitish ; a terminal series of black striae, forming a rather triangular spot below apex ; cilia whitish with slight brown line near base and stronger line near tips. Hindwing whitish tinged with brown ; a dark terminal line and faint line near base of cilia from apex to submedian fold. Underside whitish tinged with brown ; forewing with the markings less distinct ; hindwing with curved brown post-medial line from costa to vein 2.

**Queensland**, Toowong (Dodd), 1 ♀ type. *Exp.* 40 mill.

The specimen is labelled "found in xylo-stick, supposed to be parasitic on the pupae of *Xyloryctidae*." This and the other species of the genus are probably not parasitic but feed on the faeces and rubbish in the one case in the nest of the parrots, in the other in the borings of the *Xyloryctidae*.

GEN. *Acara*.

<i>Acara</i> Wlk., xxvii. 198 (1863)	. . . . .	Type.
<i>Ertzica</i> Wlk., xxxv. 1768 (1866)	. . . . .	<i>morosella</i>
		<i>morosella</i>

Proboscis short ; palpi of male short, upturned, fringed in front with long hair, of female obliquely downcurved, extending about twice the length of head and fringed below with long hair ; maxillary palpi minute ; frons with large tuft of hair ; antennae of male almost simple, the basal joint with a tuft of scales below. Forewing with the costa slightly arched, the apex produced and acute, the termen evenly curved ; the male with the cell about two-thirds length of wing ; veins 2, 3, 4, 5 given off at even distances ; the discocellulars angled inwards above ; vein 6 from upper angle ; 7, 8, 9 stalked from angle, 7 from beyond 9 ; 10, 11 from cell ; a large glandular fold on basal half of costa on underside, fringed with hair at extremity ; female with the cell shorter, vein 3 from near angle of cell, 5 from just above angle, the discocellulars angled inwards at middle. Hindwing with the apex produced and acute, the termen excised below apex ; vein 3 from just before angle of cell ; 4, 5 shortly stalked ; the discocellulars angled inwards to near base ; 6, 7 stalked, 7 not anastomosing with 8.

*Acara morosella*.

† *Acara morosella* Wlk., xxvii. 199 (1863) ; Hmps., *Moths Ind.* iv. p. 8 ; Rag., *Rom. Mém.* viii. p. 446. pl. 46. f. 10.

† *Ertzica maximella* Wlk., xxxv. 1768 (1866).

*Galleria macroptera* Snell., *Tijd. v. Ent.* xxiii. p. 249 (1879) ; id., *idem.* xxvii. p. 53. pl. v. f. 11.

*Acara impunctella* Sauber, *Semp. Reis. Phil. Schmelt.* ii. p. 645. pl. 66. f. 2 (1902).

**Assam ; Ceylon ; Philippines ; Java ; Celebes.**

*Auctorum.*

*Acara psolopasta* Turner, *Pr. R. Soc. Queensl.* xxiv. p. 131 (1913) ? *Eucallionyma.* Queensland

GEN. *Schistotheca*.

<i>Schistotheca</i> Rag., <i>Bull. Soc. Ent. Fr.</i> (6). ii. p. clxxv. (1882)	. . . . .	Type.
		<i>canescens</i>

Proboscis slight ; palpi of male short, upturned, thickly scaled, of female downcurved and extending about three times length of head ; frons smooth, with large tuft of hair ; antennae of male almost simple. Forewing with the costa arched, the apex rectangular, the termen evenly curved ; the male with vein 3 from long before angle of cell ; 5 from just above angle ; the discocellulars highly angled inwards ; vein 6 from below upper angle ; 7, 8, 9 stalked, 7 from before 9 ; 10, 11 from cell ; a large fold on basal half of costa on underside containing masses of flocculent hair ; the female with veins 4, 5 from a point. Hindwing with vein 3 from close to angle of cell ; 4, 5 stalked ; the discocellulars angled inwards to near base ; 6, 7 from upper angle, 7 not anastomosing with 8.

(1) *Schistotheca canescens*.

† *Schistotheca canescens* Rag., *Bull. Soc. Ent. Fr.* (6), ii. p. clxxv. (1882); id., *Rom. Mém.* viii. p. 429. pl. 45. f. 15.

**Chili.**

(2) *Schistotheca gigantella*.

*Crambus gigantella* Druce, *A. M. N. H.* (8). viii. p. 720 (1911).

**Peru.**

GEN. *Lamoria*.

	Type.
<i>Lamoria</i> Wlk., xxvii. 87 (1863) . . . . .	<i>adaptella</i>
<i>Maraclea</i> Wlk., xxvii. 88 (1863) . . . . .	<i>inostentalis</i>
<i>Tugela</i> Rag., <i>Nouv. Gen.</i> p. 51 (1888) . . . . .	<i>clathrella</i>

Proboscis minute; palpi of male short, upturned, thickly scaled, of female porrect, extending about twice the length of head and fringed with hair below; maxillary palpi minute; frons with large tuft of hair; antennae of male almost simple, the basal joint rather dilated. Forewing narrow, the costa arched, the apex rounded; vein 3 from close to angle of cell; 4, 5 stalked, from a point, or separate; the discocellulars curved; 6 from just below upper angle, from angle, or shortly stalked with 7, 8, 9, 7 from before 9; 10, 11 from cell; the male with glandular swelling at base of costa on underside. Hindwing with vein 2 from near angle of cell; 3, 4, 5 stalked; the discocellulars angled inwards to near base; 6, 7 stalked, 7 anastomosing with 8.

Sect. I. Forewing with veins 4, 5 separate.

A. Hindwing of male on upperside clothed with golden brown androconia except on terminal area and on underside along the median nervure and veins 4 to 2.

(1) *Lamoria pachylepidella*.

*Lamoria pachylepidella* Hmps., *Rom. Mém.* viii. p. 441. pl. 53. f. 3 (1901).

**Queensland.**

B. (*Maraclea*). Hindwing of male normal.

(2) *Lamoria oenachroa*.

*Lamoria oenachroa* Turner, *Pr. R. Soc. Queensl.* xix. p. 55 (1905).

**Queensland; W. Australia.**

(3) *Lamoria inostentalis*.

† *Maraclea inostentalis* Wlk., xxvii. 88 (1863); Hmps., *Rom. Mém.* viii. p. 436. pl. 53. f. 2.

**Japan; Formosa; C. and W. China; Borneo; D'Entrecasteaux Is.,** Ferguson I. The hindwing often has vein 4 absent.

(4) † *Lamoria medianalis* n. sp.

♂. Head and thorax pale purplish grey mixed with blackish; abdomen ochreous white, tinged with rufous at base; legs grey tinged with brown; ventral surface of abdomen whitish irrorated with brown. Forewing pale purplish grey irrorated with blackish, with a dark shade along median nervure and whiter shades in the cell and submedian interspace; a small obscure discoidal spot tinged

with rufous; a faint slightly dentate brown postmedial line, oblique to vein 4, then inwardly oblique: a terminal series of blackish points. Hindwing ochreous white, the terminal area tinged with brown except towards tornus. Underside of forewing grey-brown; hindwing whitish, the costal area tinged with brown.

**Mashonaland** (Dobbie), 1 ♂ type. *Exp.* 34 mill.

Sect. II. (*Lamoria*). Forewing with veins 4, 5 from a point or stalked.

(5) *Lamoria anella*.

*Tinea anella* Schiff., *Wien Vers.* p. 135 (1776); Dup., *Lép. Fr.* x, p. 261. pl. 282. f. 7; Herr. Schäff,

*Schmett. Eur.* iv, p. 113. f. 151; Rag., *Rom. Mém.* viii, p. 438; Staud., *Cat. Lep. pal.* ii, p. 2.

*Tinea sociella* Hübn., *Eur. Schmett. Tin.* f. 24 (nec Linu).

*Melia bipunctana* Curt., *Brit. Ent.* v, p. 201 (1830).

**S. Centr. and S. Europe; Egypt.**

(6) *Lamoria melanophlebia*.

*Lamoria melanophlebia* Rag., *Nouv. Gen.* p. 51 (1888); id., *Rom. Mém.* viii, p. 435. pl. 46. f. 6;

Staud., *Cat. Lep. pal.* ii, p. 2.

**Russia, Caucasus; Syria.**

(7) *Lamoria ruficostella*.

*Lamoria ruficostella* Rag., *Nouv. Gen.* p. 52 (1888); id., *Rom. Mém.* viii, p. 436. pl. 45. f. 11; Staud.,

*Cat. Lep. pal.* ii, p. 2.

**S. Russia; Japan; C. China.**

(8) \* *Lamoria caffrella*.

*Tugela caffrella* Rag., *Nouv. Gen.* p. 51 (1888); id., *Rom. Mém.* viii, p. 442. pl. 46. f. 6.

**Natal.**

(9) *Lamoria jordanis*.

*Lamoria jordanis* Rag., *Rom. Mém.* viii, p. 435. pl. 46. f. 5 (1901); Staud., *Cat. Lep. pal.* ii, p. 2.

**Tunis; Egypt; Cyprus; Syria; Palestine; Persian Gulf; Punjab; Sind; Ceylon.**

(10) *Lamoria imbella*.

† *Acrobasis imbella* Wlk., xxx, 955 (1864); Rag., *Rom. Mém.* viii, p. 437. pl. 45. f. 12.

*Melissoblaptes obscurellus* Saalm., *Ber. Senck. Ges.* 1880. p. 308; id., *Lep. Madag.* p. 511.

**N. Nigeria; Br. E. Africa; Br. C. Africa; Mashonaland; Transvaal; Natal; C. Colony; Madagascar.**

(11) *Lamoria clathrella*.

*Tugela clathrella* Rag., *Nouv. Gen.* p. 51 (1888); id., *Rom. Mém.* viii, p. 442. pl. 46. f. 1.

**Madagascar.**

(12) *Lamoria adaptella*.

*Pempelia adaptella* Wlk., xxvii, 74 (1853); Rag., *Rom. Mém.* viii, p. 434. pl. 35. f. 21.

*Lamoria planalis* Wlk., xxvii, 88 (1853).

*Crambus foedellus* Wlk., xxxv, 1757 (1866).

*Lamoria fusconerebella* Rag., *Nouv. Gen.* p. 51 (1888); id., *Rom. Mém.* viii, p. 437. pl. 45. f. 13.

*Melissoblaptes bipunctanus* Moore, *Lep. Ceyl.* iii, p. 375 (nec Haw).

*Lamoria anella* Hmps., *Moths Ind.* iv, p. 7 (nec Schiff).

**Formosa; Madras; Ceylon; Singapore; Sumatra; Java; Flores.**

(13) *Lamoria infumatella*.

† *Lamoria infumatella* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 98 (1898); id., *Rom. Mém.* viii. p. 440. pl. 53. f. 5.

**Sikhim ; Ceylon.**

(14) *Lamoria virescens*.

† *Lamoria virescens* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 97 (1898); id., *Rom. Mém.* viii. p. 440. pl. 537. f. 1.

**Sikhim ; Ceylon ; Queensland.**

GEN. *Acyperas*.

*Acyperas* Hmps., *Rom. Mém.* viii. p. 427 (1901) . . . . . Type. *aurantiacella*

Proboscis minute ; palpi in both sexes downcurved, extending about twice the length of head and moderately fringed with hair below ; maxillary palpi filiform ; frons with large tuft of hair ; antennae of male short, almost simple, the basal joint dilated, hollowed out on outer side and with tuft of hair in front. Forewing with the costa arched to beyond middle, then oblique to apex which is produced and acute, the termen evenly curved ; vein 3 from long before angle of cell ; 4, 5 separate in male, from a point in female ; the discocellulars curved ; vein 6 from upper angle ; 7, 8, 9 stalked, 7 from beyond 9 ; 10, 11 from cell ; the male with large glandular swelling at base of costa on underside, fringed with oblique hair met by a tuft of hair from median nervure. Hindwing with the cell short ; vein 3 from close to angle of cell ; 4, 5 strongly stalked ; the discocellulars acutely angled ; 6, 7 stalked, 7 anastomosing slightly with 8.

*Acyperas aurantiacella*.

*Acyperas aurantiacella* Hmps., *Rom. Mém.* viii. p. 427. pl. 53. f. 15 (1901).

**N. Guinea ; D'Entrecasteaux Is.**

GEN. *Omphalophora*.

*Omphalophora* Hmps., *Rom. Mém.* viii. p. 427 (1901) . . . . . Type. *rubrella*

Proboscis minute ; palpi in both sexes downcurved, extending about the length of head and clothed with long hair below ; maxillary palpi dilated with scales ; frons with large tuft of hair ; antennae short, almost simple, the basal joint dilated, hollowed out on outer side and with tuft of hair in front. Forewing with the costa arched, the apex produced and acute ; vein 3 from before angle of cell ; 4, 5 from angle ; the discocellulars slightly curved ; vein 6 from upper angle ; 7, 8, 9, 10 stalked in male, 7 from before 9, in female vein 10 from the cell ; 11 from cell ; the male with large glandular swelling at base of costa on underside fringed with oblique hair met by a tuft of long hair from median nervure. Hindwing with the cell short ; vein 3 from angle ; 4, 5 shortly stalked ; the discocellulars angled ; 6, 7 stalked, 7 anastomosing slightly with 8.

\* *Omphalophora rubrella*.

*Omphalophora rubrella* Hmps., *Rom. Mém.* viii. p. 428. pl. 53. f. 13 (1901).  
*Acara dohrni* Hering, *Stett. ent. Zeit.* lxiv. p. 87. pl. 1. f. 34 (1903).

**Sumatra ; Java.**

GEN. *Galleria*.

	Type.
<i>Galleria</i> Fabr., <i>Ent. Syst. Suppl.</i> p. 462 (1798) . . . . .	mellonella
<i>Cericlepta</i> Sodof., <i>Bull. Nat. Mosc.</i> x. 6. p. 20 (1837). . . . .	mellonella
<i>Vindama</i> Wlk., xxxv. 1706 (1866) . . . . .	mellonella

Proboscis slight ; palpi of male short, obliquely upturned, thickly scaled, of female downcurved and extending about the length of head ; maxillary palpi dilated with scales ; frons with large tuft of hair ; antennae of male almost simple, the basal joint somewhat dilated and with a tuft of scales below. Forewing with the costa slightly arched, the apex rounded, the termen excised to vein 2, strongly in male, the tornus obliquely excised ; the male with the cell about three-fourths length of wing ; veins 2, 3, 4, 5 given off at even distances ; the discocellulars slightly angled inwards ; vein 6 from upper angle ; 7, 8, 9 stalked from before angle, 7 from beyond 9 ; 10, 11 from cell ; a small glandular swelling at base of costa on underside and the cell clothed with androconia ; the female with the cell about two-thirds length of wing and veins 4, 5 from angle. Hindwing with vein 3 from close to angle of cell ; 4, 5 stalked ; the discocellulars angled inwards to about one-fourth from base ; 6, 7 stalked, 7 anastomosing with 8.

*Galleria mellonella*.

*Tinea mellonella* Linn., *Syst. Nat.* edit. x. p. 537 (1758) ; Curt., *Brit. Ent.* xiii. p. 587 ; Hmps., *Moths Ind.* iv. p. 9 ; Rag., *Rom. Mém.* viii. p. 448 ; Staud., *Cat. Lep. pal.* ii. p. 2.  
*Tinea cereana* Linn., *Syst. Nat.* edit. xii. p. 874 (1767).  
*Tinea cereella* Fabr., *Syst. Ent.* p. 655 (1775).  
*Galleria cerea* Haw., *Lep. Brit.* p. 392 (1811).  
*Vindana obliquella* Wlk., xxxv. 1706 (1866).  
*Galleria austrina* Feld., *Reis. Nov.* pl. 137. f. 7 (1874).

Almost universally distributed.

GEN. *Galleristhenia* nov.

Type, *G. mellonidiella*.

Proboscis fully developed ; palpi of male porrect, extending about twice the length of head and thickly scaled above and below ; maxillary palpi triangularly scaled ; frons oblique ; antennae short, simple. Forewing with veins 3 and 5 from close to angle of cell ; 6 from below upper angle ; 7 from angle ; 8, 9 stalked ; 10, 11 from cell ; the wing narrow, the termen erect from apex to vein 3 where it is strongly hooked then very oblique. Hindwing with vein 3 from near angle of cell ; 4, 5 from angle which is greatly produced ; 6, 7 from upper angle ; 8 approximated to 7 beyond the cell ; the termen slightly excurved at middle.

\* *Galleristhenia mellonidiella* n. sp.

♂. Head and thorax pale red-brown ; abdomen brownish white. Forewing pale red-brown suffused with grey and irrorated with a few dark scales ; a post-medial line obsolescent towards costa, angled at vein 5, then very oblique and formed of dark red-brown spots ; cilia dark red-brown, whitish at tips below the hook. Hindwing semihyaline white ; the costal area, termen, and base of cilia brown.

Queensland, Dawson district (Barnard), 1 ♂ type in coll. Rothschild. *Exp.* 46 mill.

GEN. *Paraphycita*.

*Paraphycita* Hmps., *Rom. Mém.* viii. p. 451 (1901) . . . . . Type.  
*epipercciella*

Proboscis fully developed; palpi of female upturned, the second joint reaching to vertex of head and rather broadly scaled in front, the third long, roughly scaled in front; maxillary palpi long and filiform; frons smooth, the vertex of head with tufts of scales; antennae of female almost simple, the basal joint rather long. Forewing long and narrow, the apex rounded, the termen erect; the cell about two-thirds length of wing; vein 3 from angle; 4, 5 stalked; 6 from upper angle; 7, 8, 9, 10 stalked, 7 from beyond 9; 11 from cell. Hindwing with vein 2 from close to angle of cell; veins 3, 4, 5 stalked; the discocellulars curved; veins 6, 7 from upper angle, 7 anastomosing with 8.

*Paraphycita epipercciella*.

*Paraphycita epipercciella* Hmps., *Rom. Mém.* viii. p. 451. pl. 53. f. 9 (1901).

**Timor, Dili I., Oinainissa I.**

GEN. *Megarthria*.

*Megarthria* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 304 (1899) . . . . . Type.  
*velutinella*

Proboscis short; palpi with the second joint perfect, extending about twice the length of head and moderately fringed with hair above and below, the third short, oblique, roughly scaled; maxillary palpi filiform; frons smooth with slight ridge of hair above; antennae of male ciliated, the basal joint very long and curved. Forewing with the costa slightly arched, the apex rounded, the termen evenly curved; veins 3 and 5 from near angle of cell; the discocellulars curved; 6 from upper angle; 7, 8, 9 stalked, 7 from before 9; 10, 11 from cell; the male with glandular swelling at base of costa on underside fringed with hair met by an oblique fringe from median nervure. Hindwing with the cell rather short; veins 3, 4, 5 from angle; the discocellulars angled; veins 6, 7 shortly stalked, 7 slightly anastomosing with 8.

*Megarthria velutinella*.

*Embryoglossa variegata* Warr., *A. M. N. H.* (6). xviii. p. 226 (1896) ♂. nec ♀.

*Megarthria velutinella* Hmps., *J. Bomb. Nat. Hist. Soc.* xii. p. 304 (1899); id., *Rom. Mém.* vii. p. 426. pl. 53. f. 12.

**Sikhim; Assam.**

GEN. *Embryoglossa*.

*Embryoglossa* Warr., *A. M. N. H.* (6). xviii. p. 225 (1896) . . . . . Type.  
*variegata*

Proboscis small; palpi perfect, the second joint extending about twice the length of head and fringed with hair above and below, the third rather long and smoothly scaled; maxillary palpi filiform; frons smooth, with ridge of hair above; antennae of male minutely serrate and with long fasciculate cilia, the basal joint with large tuft of hair in front, of female with shorter cilia; the back of head with tufts of hair. Forewing with the costa slightly arched, the apex rounded, the termen evenly curved; veins 3 and 5 from near angle of cell; the discocellulars curved; 6 from upper angle; 7, 8, 9 stalked; 10, 11 from cell. Hindwing with vein 3 from near angle of cell; 4, 5 from angle; the discocellulars curved; 6, 7 shortly stalked, 7 not anastomosing with 8.

(1) *Embryoglossa variegata*.

*Embryoglossa variegata* WARR., *A. M. N. H.* (6), xviii. p. 226 (1896); Hmpsn., *Rom. Mém.* viii. p. 424. pl. 53. f. 8.

**Assam.**

(2) *Embryoglossa bipuncta*.

*Embryoglossa bipuncta* Hmpsn., *J. Bomb. Nat. Hist. Soc.* xiv. p. 658 (1901).

**Assam.**

GEN. *Sphinctocera*.

*Sphinctocera* WARR., *Nov. Zool.* iv. p. 128 (1897). . . . . Type. *crassisquama*

Proboscis rather short; palpi downcurved, extending about three times length of head and fringed with hair below; maxillary palpi filiform; frons with large tuft of hair; antennae of male laminate with a small tooth above at one-fifth length, the basal joint long. Forewing with the costa slightly excised beyond middle, the apex rounded, the termen evenly curved; vein 3 from before angle of cell; 4, 5 from angle; the discocellulars curved; 6 from upper angle or stalked with 7, 8, 9; 7 from before 9; 10, 11 from cell. Hindwing with vein 3 from close to angle of cell; 4, 5 from angle or shortly stalked; the discocellulars curved; veins 6, 7 shortly stalked, 7 slightly anastomosing with 8 or free.

*Sphinctocera crassisquama*.

*Sphinctocera crassisquama* WARR., *Nov. Zool.* iv. p. 128 (1897); Hmpsn., *Rom. Mém.* viii. p. 425. pl. 53. f. 16.

**Transvaal; Natal; Cape Colony.**

GEN. *Archigalleria*.

*Archigalleria* REBEL, *Verh. zool.-bot. Ges. Wien*, lii. p. 570 (1902). . . . . Type. *proavitella*

Proboscis rather short; palpi of male short, upturned, thickly scaled, of female downcurved, extending about three times length of head and smoothly scaled; maxillary palpi dilated with scales; frons with conical prominence produced to a slight corneous point at extremity; antennae of male almost simple, the basal joint somewhat dilated. Forewing with the costa moderately arched, the apex rounded, the termen evenly curved; the cell in both sexes about two-thirds length of wing; vein 3 from well before angle; 4, 5 from angle; 6 from upper angle; 7, 8 stalked, 9 absent; 10, 11 from cell, 10 approximated to 7, 8 at base; the male with slight glandular swelling at base of costa on underside. Hindwing with vein 3 from close to angle of cell; 4, 5 closely approximated for about half their length; the discocellulars moderately angled inwards; 6, 7 shortly stalked, 7 not anastomosing with 8.

*Archigalleria proavitella*.

*Aphomia proavitella* REBEL, *Ann. Hofmus. Wien*, vii. p. 262 (1892); STAUD., *Cat. Lep. pal.* ii. p. 2.

**Canary Is.**

GEN. *Morpheis*.

	Type.
<i>Morpheis</i> Hübn., <i>Vers.</i> p. 196 (1827), <i>proecc. Bot. nec Zool.</i> . . . . .	<i>smerintha</i>
<i>Myelobia</i> Herr. Schäff, <i>Ausser. eur. Schmelt.</i> pp. 79. 75 (1858) . . . . .	<i>smerintha</i>

Proboscis fully developed ; palpi in both sexes obliquely upturned, extending to the extremity of the frontal prominence and thickly scaled ; maxillary palpi two-jointed, as long as the labial palpi and thickly scaled ; frons with large conical prominence ending in a small corneous beak ; antennae of male typically bipectinate with short branches to one-third length, then minutely serrate, of female with very short branches on basal third ; tibiae rather strongly fringed with hair. Forewing long and narrow, the costa highly arched towards apex which is produced and somewhat falcate, the termen obliquely curved, the inner margin rather lobed towards base ; vein 3 from well before angle of cell ; 5 from just above angle ; the discocellulars angled ; 6 from below upper angle ; 7 from angle ; 8, 9 stalked ; 10, 11 from cell ; veins 9 to 12 becoming coincident below the costa ; the cell on underside clothed with rough downturned hair. Hindwing with the termen excised above tornus ; vein 3 from near angle of cell ; 4, 5 shortly stalked or from angle ; the discocellulars angled ; 6, 7 from upper angle, 7 free or slightly anastomosing with 8.

Sect. I. Antennae in both sexes bipectinate with short branches towards base.

(1) \* *Morpheis pustulata*.

*Morpheis pustulata* Herr. Schäff, *Ausser. eur. Schmelt.* p. 75. f. 152 (1858), ♂ ; Hmps., *Rom. Mém.* viii. p. 423.

*Morpheis murina* Herr. Schäff, *Ausser. eur. Schmelt.* p. 75. f. 153 (1858), ♀.

**Brazil.**

(2) *Morpheis smerintha*.

*Morpheis smerintha* Hübn., *Samml. exot. Schmelt.* ii. pl. 195. ff. 3. 4 (1821) ; Hmps., *Rom. Mém.* viii. p. 423. pl. 54. f. 16.

**Mexico**, Yucatan ; **Brazil** (some specimens taken at sea 130 to 500 miles from land), Rio Grand do Sul.

(3) \* *Morpheis paleacea*.

*Morpheis paleacea* Herr. Schäff, *Ausser. eur. Schmelt.* p. 75. f. 150 (1858) ; Hmps., *Rom. Mém.* viii. p. 423.

**Venezuela ; Brazil.**

Sect. II. Antennae of male minutely serrate and fasciculate to base, of female ciliated.

(4) *Morpheis decolorata*.

*Morpheis decolorata* Herr. Schäff, *Ausser. eur. Schmelt.* p. 75. f. 151 (1858) ; Hmps., *Rom. Mém.* viii. p. 424. pl. 54. f. 5.

**Colombia ; Venezuela ; Brazil.**

GEN. **Schoenobiodes** nov.

Type, *S. striata*.

Proboscis aborted and small; palpi oblique, rather roughly scaled and reaching to about vertex of head; maxillary palpi nearly filiform; frons with rounded prominence; antennae of female almost simple, with tuft of scales on basal joint; anal tuft rather large. Forewing narrow, the costa arched, the apex produced and acute, the termen obliquely curved; the cell about two-thirds length of wing; vein 3 from well before angle; 4, 5 from angle; the discocellulars angled; 6, 7 strongly stalked from below upper angle; 8, 9, 10 stalked; 11 from cell. Hindwing with vein 3 from before angle of cell; 4, 5 from angle; the discocellulars angled; 6, 7 from upper angle, 7 strongly anastomosing with 8.

**Schoenobiodes striata.**

*Acara striata* Schultz, *Phil. Journ. Sci.* ii, p. 368. pl. 1. f. 11 (1907).

**Philippines**, Manila.

GEN. **Balaenifrons.**

*Balaenifrons* Hmpsn., *Moths Ind.* iv, p. 9 (1896) . . . . . Type. *homopteridia*

Proboscis short arising with the filiform two-jointed maxillary palpi from the enormous conical smoothly scaled frontal prominence, which is grooved below, well in front of the labial palpi which are upturned in front of the prominence and smoothly scaled; antennae of male almost simple. Forewing with the costa arched, the apex rounded, the termen evenly curved; vein 3 from well before angle of cell; 5 from just above angle; the discocellulars curved; 6 from below upper angle; 7 from angle; 8, 9 stalked; 10, 11 from cell, the latter curved. Hindwing with the lower end of cell produced; veins 3, 4, 5 well separated; the discocellulars angled; 6, 7 stalked, 7 connected with 8 by an oblique bar; the retinaculum bar-shaped in male, the frenulum of female single.

(1) † **Balaenifrons haematographa** n. sp.

♂. Golden yellow; head, thorax and abdomen with crimson mixed; palpi tinged with fuscous. Forewing with five ill-defined waved crimson lines with black marks suffused with silvery scales on them at costa except the subterminal line; the antemedial and medial lines confluent in the cell, the postmedial line incurved at discal fold and bent inwards below vein 3, the subterminal line bent outwards to the margin and interrupted at vein 3. Hindwing semi-hyaline ochreous, the terminal area suffused with brown with a purplish crimson patch on it below vein 3 with two yellow marks on it at vein 2.

♀. Forewing without the black marks on the lines at costa; hindwing with the terminal area suffused with crimson except towards tornus.

**Solomon Is.**, Bougainville I. (Meek), 2 ♂ type; **Queensland**, Cedar Bay, Cooktown (Meek), 1 ♀, Geraldton (Meek), ♂, ♀ in coll. Rothschild. *Exp.* ♂ 22, ♀ 28 mill.

(2) † *Balaenifrons aryrostrota* n. sp.

♂. Head, thorax and abdomen golden yellow mixed with crimson-red; palpi yellow towards base, then red; pectus, legs and ventral surface of abdomen white, the fore tibiae yellow banded with red. Forewing golden yellow with five ill-defined wavy crimson-red bands suffused with silvery purple, the antemedial and medial bands confluent except towards costa and inner margin and the postmedial and subterminal bands confluent in places; a red discoidal striga. Hindwing yellow; some crimson-red on vein 2 near base; the apical area suffused with brown; partly confluent postmedial and subterminal crimson-red bands suffused with silvery purple between discal and submedian folds.

**Ceylon**, Gampola (Green), 1 ♂, Newera Eliya (Green), 1 ♂ type. *Exp.* 16 mill.

(3) † *Balaenifrons phoenicozona* n. sp.

Head and thorax yellowish white mixed with rufous; abdomen white with dorsal rufous bands towards base and dark brown bands towards extremity; antennae yellow ringed with black-brown; pectus, legs and ventral surface of abdomen white, the fore femora blackish above, the fore and mid tibiae yellow and red with black bands at extremities and on the tarsi. Forewing golden yellow with deep red bands suffused with silver, their edges rather diffused; a subbasal band with black and silvery mark at costa; a black and silvery mark on costa near middle with the antemedial and medial bands arising from it and confluent to above inner margin where they fork; a black and silvery mark on costa above end of cell and two red discoidal points; the postmedial band with black and silvery mark at costa, and partly confluent with a terminal band ending at vein 3. Hindwing semihyaline yellow; a red mark on vein 2 at its middle; the terminal area suffused with brown, a red and purplish silver patch on it below vein 3 with a small yellow spot on it at vein 2.

**Queensland**, Cedar Bay, Cooktown (Meek), 1 ♂ type, ♂, ♀ in coll. Rothschild. *Exp.* 16 mill.

(4) *Balaenifrons homopteridia*.

† *Balaenifrons homopteridia* Hmps., *Moths Ind.* iv. p. 9 (1896); id., *Rom. Mém.* viii. p. 421. pl. 53. f. 4.

**Bengal; Burma; N. Borneo.**

(5) † *Balaenifrons ochrochroa* n. sp.

♂. Head and thorax ochreous mixed with brick-red; abdomen ochreous with a fulvous yellow band near base and some red suffusion toward extremity; pectus, legs and ventral surface of abdomen ochreous white, the tibiae and tarsi suffused with rufous. Forewing ochreous thickly irrorated with brick-red; an oblique diffused red antemedial line; a discoidal spot; a diffused postmedial line, slightly incurved below vein 4; a fine dark terminal line; cilia ochreous white. Hindwing ochreous whitish suffused with brown, the cilia ochreous white.

**Singapore** (Wood-Jones), 1 ♂ type. *Exp.* 28 mill.

## Genera auctorum.

*Homburgia unicolor* de Joan, *Bull. Soc. Ent. Fr.* 1910. p. 270, probably near *Archigalleria*. France.

## TWO NEW AMERICAN MOTHS

BY K. JORDAN, PH.D.

FAMILY *CASTNIIDAE*.1. *Eupalamides grandis* spec. nov.

♂ ♀. *E. dedalo* simillimus, pallidior, alis anticis sine maculis submarginalibus ante ramum primum radialem (costam sextam) atque infra totis squamosis.

*Hab.* French Guiana (type), Surinam, British Guiana and the Amazons. In these countries two species occur, apparently side by side. The one which I take to be *dedalus* Cram. (1775) = *cyparissias* Fabr. (1777), has one or more submarginal spots on the forewing between the first radial ( $R^1$  = vein 6) and the costa, both above and below; the forewing beneath in the male is strongly hairy from near the base to two-thirds, and glossy in the centre, and in the female is covered with narrow hair-like scales between base and oblique band. In the second species the scaling on the underside of the forewing is normal, *i.e.* there is no coat of hairs in either sex; the apical area of the forewing and the whole hindwing, beneath, are much paler than in *E. dedalus*, and there are no submarginal spots from  $R^1$  forward on the forewing. The ♂-genitalia also differ to some extent, as will be explained in another place.

*Eupalamides* Hübn. (1822 ?) is a well-defined genus, both sexes being characterised *inter alia* by the hairiness of the upperside of the hindwing and the absence of the paronychial and pulvilli.

FAMILY *SPHINGIDAE*.2. *Protoparce vestalis* spec. nov.

♂. A specie *P. florestan* dicta colore magis albescente, maculis nigris superioribus abdominis multo minoribus, alis posticis macula distincta subbasali in et sub cellula sita grisea notatis.

Long. al. ant. 58-60 mm.

*Hab.* Pará, May and June (Rev. A. Miles Moss), two ♂♂.

Much purer white than *P. florestan*, to which it is nearest. The black side-spots of the abdominal segments 2, 3 and 4 are narrow, transverse, and do not touch one another above, while beneath they are joined together by a broad black stripe; the white side-spots, therefore, are not separated from the grey dorsal surface; black side-spots of segments 5 to 8 quite small and inconspicuous, being obsolescent. Underside of body and the legs and palpi as in *P. florestan* but purer white. Wings, *upperside*: the markings of the forewing as in *P. florestan*, but the black basal stripe placed in the hindmargin broader; the distal margin more deeply incurved before anal angle. The two black discal streaks distinct, the submarginal line obsolescent, as is also the third discal dentate line; interspace between this third line and the second almost pure white; in type-specimen basal and discal areas with a distinct yellowish tint, of which there is hardly a trace in the second example, the space around the stigma between the submedian and discal lines has no yellowish or buff tint.

—On the hindwing a broad whitish grey area extends from the base to the anal angle, being divided up by three transverse black lines and two black streaks, the anterior streak reaching to the distal margin, the other being short; the proximal portion of this grey area is often vestigial in *P. florestan*, but never so distinct as in *P. vestalis*; in the type of *P. vestalis* the grey area is slightly washed with buff.

*Underside* as in *P. florestan*, but the hindwing lighter grey, the dark brown marginal band, therefore, more prominent; in the type on hindwing a double median line and dentate discal line, the latter obsolete in the paratype.

Genitalia similar to those of *P. florestan*, but the tenth sternite shorter and broader, and the harpe more coarsely dentate and dorsally notched twice (only the type examined).

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SUPPLEMENTAL NOTES TO MR. CHARLES OBERTHÜR'S  
*FAUNE DES LÉPIDOPTÈRES DE LA BARBARIE*, WITH  
LISTS OF THE SPECIMENS CONTAINED IN THE TRING  
MUSEUM.

BY LORD ROTHSCHILD, F.R.S., PH.D.

MR. CHARLES OBERTHÜR has, for many years, made a special study of the lepidoptera of N.W. Africa, and all entomologists must have been very pleased when he started to publish a connected account of the results of his investigations. Although he published the first part of his *Etudes d'Entomologie* in 1876 with his initial list of Algerian lepidoptera; it was not till March 1915 in the X° Fascicule of his *Etudes de Lépidoptérologie Comparée* that he began his complete work. In that "Fascicule" he has given us a résumé of his studies on the **Rhopalocera** and the **Grypocera** of Barbary. The commencement of the Heterocera is made on pages 179-428 of "Fascicule" XII, and includes the *Sphingidae*, *Zygaenidae*, *Amatidae*, *Heterogynnidae*, *Limacodidae*, *Notodontidae*, *Cnethocampinae*, *Liparidae*, *Lasiocampidae*, *Lemoniidae*, *Saturniidae*, *Drepanidae*, and *Megalopygidae*. The classification is, for younger students, rather perplexing, for it is neither the modern classification nor does it exactly follow that of the *Catalogue of Palearctic Lepidoptera* of Drs. Staudinger and Rebel; however, although not following Mr. Oberthür's nomenclature, I have arranged the species in the same order as he has, for easier reference, but this does not mean that I agree with it.

Although I would not wish in any way to hurt the feelings of Mr. Charles Oberthür, for he has been a kind friend to me, and his services to Entomology are very great, I cannot help making a few general remarks. In the present work Mr. Oberthür, as he always has done, maintains that descriptions of lepidoptera without good figures are useless, and he will not recognise the validity of names founded on descriptions alone. I certainly go so far as to say that figures are very useful and desirable; but a good description is often more easily understood and can be identified better than an inferior figure, and who is to be the judge if a figure is good, bad, or indifferent?! If Mr. Oberthür's rule were to be adopted, we should have to consider thousands, nay, tens of thousands of zoological names as invalid, which are in use every day and are quite understandable to the students interested. I then must draw my readers' attention to the presentation of the various species by Mr. Oberthür. We find that although in Barbary the typical form of a given species may be quite unknown; yet Mr. Oberthür heads each species with the name of the typical race and only draws attention to the various local races in the text. This is most confusing, especially as his *Etudes* have no index, an extremely regrettable circumstance. Then we find that Mr. Oberthür apparently does not understand the modern use of trinomials, for he uses them indifferently for **Subspecies** (= local and geographical races), and for **individual variations**. Mr. Oberthür even makes use of quadrinomials and quinquinomials, which are absolutely inadmissible under the International Rules. According to the International

Rules of Nomenclature, trinomials can **only** be used for **Subspecies** and **not** for **individual aberrations**. If such **individual aberrations** are named at all, the name must be preceded by **ab.** (= abbreviation for **aberration**), thus *Vanessa polychloros ab. testudo*, while the North African local form of this insect is written trinomially thus, *Vanessa polychloros erythromelas* Aust. Another undesirable nomenclatorial practice of Mr. Oberthür is within one and the same genus applying the same name to **species** or **subspecies** and to *individual aberrations* also; as an instance *Satyrus powelli* Oberth., a very distinct species, and *Satyrus fidia albivenosa powelli* Oberth., which is an aberration of an aberration of *Satyrus fidia*.

Now I know that names applied to aberrations do not come within the scope of the International Rules which only apply to "subspecies," "species," "genera," and "still higher divisions," but nevertheless it is most inconvenient and much to be deprecated if **aberrations** are given names which already belong to species in the same genus, and when Mr. Oberthür in addition writes both trinomially the practice leads to utter confusion.

It is also most startling and disconcerting to find interpolated in the midst of a **Fauna of Barbary** on pages 372-376 of "Fascicule XII" a series of descriptions of **Thibetian Drepanidae**. Although I am not guiltless of similar discrepancies (see *Wollaston Expedition* description and figures of some lepidoptera not from this expedition) myself, yet my references dealt with the same faunal area, while Mr. Oberthür cannot plead that Thibet is a part of Barbary, though within the Palaearctic area.

In addition to notes on the specimens in the British Museum, I am giving also, under each species, such references as I think of use from Mr. Ch. Blachier, Miss M. E. Fontaine, Mr. J. de Joannis, and the late Mr. A. E. Gibbs. I am adding to this a complete list of the Mauretanian specimens in the Tring Museum.

The Algerian material in the Tring Museum was principally collected by Dr. Ernst Hartert, Dr. Karl Jordan, and myself, and our energetic taxidermist Mr. C. Hilgert, between the years 1908 and 1914; and also by the professional collectors, Victor Faroult and E. Blanc, Mr. Maxime Rotrou of Sidi bel Abbès, and the pharmacist of Batna, Mr. A. Nelva. In addition to these, as appears in the lists, a certain number of things were caught by the guide Cheli Brahim and a number of other individuals. Last, but not least, I am most indebted to the genial Danish Consul at Alger, Dr. Nissen, for much good material, but still more for an amount of help and general assistance without which nothing hardly of this collection could have been brought together.

I paid in all, between 1908 and 1914, six visits to Algeria in company with Dr. Ernst Hartert and Dr. K. Jordan; on all of which, except the first, some of us were accompanied by Mr. Carl Hilgert as taxidermist and general shikaree. In 1912 Dr. Hartert together with Hilgert made the long desert trip to In-Salah, while Dr. Jordan and I explored various places north of the desert. In 1914, after spending some time at Biskra, Dr. Hartert and Hilgert went down to the Oued Nça near Ghardaïa for four weeks, while Dr. Jordan and I spent the time in the east of Algeria.

In 1908 Dr. Hartert and I arrived in Algiers on February 14th, and after four days in that town, where we caught a few *Zygaena algira* in the "Bois de Boulogne" and a few moths at night, we left for Biskra, arriving there on the 20th. We remained at Biskra till the end of April, having paid short visits to

El Kantara and Batna in between. After two or three days at Constantine, where I caught one *Zygaena zuleika* among otherwise only common insects, we returned to Alger and Dr. Hartert returned to Tring. Dr. Jordan and I spent the three latter weeks of May and early part of June in Alger, Hammam R'ihra, and Blida les Glacières, and made some good collections. It was on this occasion beyond the "Bois de Boulogne" that I first saw a living *Charaxes jasius* in a wild state, though I had taken the larvae at Hyères and bred some 20 imagines. Dr. Jordan and I chased this individual (a ♂) for twenty minutes or half an hour, but failed to catch it; we also failed to catch a large ♀ near Blida some four weeks later.

In 1909 we arrived at Alger on February 22nd; and after making preparations for our proposed journey to El Oued, we left for El Kantara, where we arrived on the 29th. We made various collections there and went to Biskra on March 11th. We made numerous excursions to Oumash, Zaatcha, Tolga, etc., and collected a certain amount. On March 25th we left Biskra in company with Dr. Nissen, the Danish Consul, on our desert trip to El Oued. On this trip very few Rhopalocera were seen, though many interesting moths, among them *Lymantria oberthüri* were added to the collection. We reached El Oued on April 7th and arrived back at Biskra on the 22nd. The two principal new species found on this trip were *Cleophana picturata* and *Eublemma deserti* Rothsch. Our friend Dr. Nissen returned to Alger, and on April 30th we went for five days to El Kantara; and then spent ten days at Batna and Lambessa, from whence we went to Hammam Meskoutine. We stayed here till early in June.

In 1911 we reached Alger on January 21st, and spent the days from February 1st to 18th at Hammam Meskoutine; from February 19th to March 17th we remained in Biskra, and from March 17th to 27th at El Kantara, and then returned to Alger. On April 1st we left Alger with Dr. Nissen for our trip by automobile to Ghardaïa. This journey was very fruitful in lepidoptera, and it was on our return journey on April 28th that we took for the first time *Euchloe tagis pechi*, which Dr. Nissen discovered while we were detained at Guelt-es-Stel by an accident. On April 30th we returned to Alger, where we were detained for a fortnight by my being ill with fever. We spent May 17th to 26th at Hammam R'ihra, where we caught much of interest; a long series of *Zygaena théryi* Joan. and a specimen of *Haemorrhagia fuciformis* being specially noteworthy. We left Alger on June 14th.

In 1912 Dr. Hartert and Carl Hilgert went to In-Salah. They left Biskra February 20th, and got back to Alger on June 21st. This trip was very fertile in new forms, *Melitaea didyma harterti*, *Anumeta major*, *Anumeta sabulosa*, *Odontelia griseola*, *Polia cinnamomeogrisea*, etc., 38 species and subspecies apparently being new to science.

In that same year Dr. Jordan and I spent March and the first half of April at Alger and Hammam R'ihra, and then the last half of April in company with Dr. Nissen at Guelt-es-Stel. The first half of May we spent at Khenchela, and then returned to Alger, reaching home early in June.

In 1913 we reached Alger on April 2nd, and arrived at Oran on April 9th. After exploring the neighbourhood we went to Tlemcen on the 18th and collected as far round as Lalla Marnia and Terni. We returned to Oran on the 29th, where we were joined by Dr. Nissen and started for Aïn Sefra, and we arrived

there on May 1st and remained till the 18th. We took large numbers of moths, many very rare, among others the true *Metapoceras codeti* Oberthür, also one solitary *Teracolus nouna*, and on the Djebel Mekter *Cigaritis allardi* and *Zygaena marcouna*. We then went to Saïda, which was not very fruitful, and on May 23rd we went to Hammam R'ihra for a week; where among a lot of good things we caught two fine *Sphinx pinastri*.

In 1914 we arrived early in March at Alger, and proceeding to Biskra, stayed there a month, getting some very welcome additions to the collection. On April 8th Dr. Hartert and Carl Hilgert set out for the Oued Nça, and Dr. Jordan and I proceeded to join Dr. Nissen at Constantine, whence we went to Souk Ahras in the extreme east of Algeria. We were considerably disappointed here, for we found we had come at least three or four weeks too early. However, we had one good haul, for we found *Zygaena zuleika* simply swarming in the old Arab graveyard above the town. In the previous five years I had only taken four specimens of this species, viz. 1 at Constantine in 1908, 2 at Hammam R'ihra, and 1 in 1913 in Mrs. Beresford's garden in Mustapha Superior. We went from Souk Ahras to Tebessa after about ten days, but here there was absolutely nothing to be found, so after three or four days we went back to Hammam Meskoutine, where we stayed, and Dr. Hartert and Hilgert rejoined us there, and we finally reached home early in June. Dr. Hartert collected a nice series of lepidoptera both on the Oued Nça and on the way back, the best things being a pair of the very rare noctuid *Anydrophila sabourodi* (Lucas), which had hitherto been known only from the unique type from Zarcime in Tunisia. I have only given above the bare outline of our journeys in Algeria; but those of my readers who want further details I must refer to NOVITATES ZOOLOGICAE, vol. xviii. pp. 456-492 (1912), vol. xx. pp. 1-27 (1913); vol. xxi. pp. 180-186 (1914), and vol. xxii. pp. 61-66 (1915).

The reader will find enumerated among the specimens a series collected by Herr Geyr von Schweppenburg on a journey to the Hoggar Mountains. Herr Geyr went with Herr Paul Spatz, and the journey was made from Biskra to Idelès via Touggourt, Ouargla, Aïn-Taïba and Timassinin; the full list will be found in the *Annals and Magazine of Natural History* (8), xvi. pp. 247, etc. (1915).

For those who have not visited Algeria, I should like to say that it is divided into three faunal regions, first the "Coastal or Tell" which lies north of the northern range of the Atlas Mountains; second, the "Hauts Plateaux," which consist of the high steppe-like country mostly some 900-1,100 metres above sea-level and is situated between the northern and southern chains of the Atlas; and third, the "Saharan or Desert region," which comprises all the country south of the second Atlas chain as far as the end of the Hoggar Mountains, i.e. about halfway between Idelès and Air. The northern or Tell Atlas has more or less the same fauna as the Coastal Plain, but its southern slopes agree more with the Hauts Plateaux; the Southern or Saharan Atlas has principally the fauna of the Hauts Plateaux. In Tunisia and the most eastern part of Algeria, owing to the mountains running up closer to the sea, the "Hauts Plateaux" region is less defined and runs more into the other two. In Morocco we know too little about the natural history of the country, except round Tangier and along the coast, i.e. Mazagan and Mogador, to say if these threefold faunal divisions are there well defined or not. Of the localities mentioned in the lists, Alger and the Forêt de Baimen are on the

littoral of the province of Alger, while the Grands Kabylic and Lella Kredidja, Yakouren, Abd-el-Kader, Oued Hamidou, Sakamudi, Tizi Ouzou, and the Forêt d'Akfadan lie in the mountains north of the Atlas range between Alger and Bougie. Blida les Glacières and Hammam R'ihra are in the foothills of the Atlas, while Teniet-el-Haad, Medea, and Boghar are in the main Atlas chain of the province of Alger. Boghari, Berrouaghia, Guelt-es-Stel, Puits Baba, Terres Blanches, Aïn-Oussera, and Bordj-bou-Arréridj are on the "Hauts Plateaux" of that province; Djelfa is in the second Atlas chain; while Bou Saada, El Hamel, Laghouat, Tilghempt, Ghardaïa, Berrian Guerrara, and the Oued Nça are in the "Desert Region" south of that province. Oran, Nemours, and Nedroma are in the littoral of the Province of Oran; while Masser Mines and Lalla Marnia are in the low mountain ranges north of the Atlas in that province. Titen Yaya, Sidi-bel-Abbés, Tlemcen, and Les Pins are on the northern slopes of the Northern Atlas range on the railway line between Sidi-bel-Abbés and Tlemcen in the west of the Oran Province. Saida and Tifrit, 25 kilometres west of it, are in the central part of the Northern Atlas chain in the Oran Province, while Ain Sefra, Ras Chergui, and Mecheria are in the Southern Atlas chain of that province. The fauna of these three places has a much more desert mixture than is the case in the Aurés districts in the Province of Constantine, and this appears due to the invasion of large and extensive sand-dunes. Colomb Bechar is at the commencement of the desert in the Oran Province.

Zoudj-el-Beghal is in Eastern Morocco, 15-20 kilometres beyond the Algerian frontier west of Oudjda. Mazagan, the Mwhoila (Orange Grove, Oumer-Rebia), Ouled Farsh, Truchan, Rabat, the Oum-er-Rebia, and Mogador are on the Atlantic west coast of Morocco. Tangier is due north opposite Gibraltar, Tamarouth, Djebel Tixa, Agūrgūr Amsmiz, Sould Jedid, Imentalla, Tizi Gourzá, Tsigidir-el-Bor, and Tsauritz Entsagauz are in the High Atlas, while the Forest of Marmora is inland from Rabat.

Batna, Lambessa, and Khenchela are on the "Hauts Plateaux" of the Province of Constantine; Menaa and El Kantara and the Gorges de Tilatou are in the Aurés Mountains = the Southern Atlas range.

El Outaya, Biskra, Hammam-es-Salahin, Oumash, Bordj Chegga, Mraier, Touggourt, Bled-et-Amar, El Oued, El Arish, Ouargla, El Golea, Igosten, In-Salah, the Oued Mya, El Hadadra, and Aïn Guettera are in the desert south of the Province of Constantine.

Aïn Taïba and Timassinin lie south-east of Ouargla, while Oued Ag'elil, Oued Ahma, Oued Tamadout, Oued Abou, and Oued Dehin are north of the Hoggar Mountains, and Idelès is in the northern part of the Hoggar Mountains, while Tamarghasset is in the main portion of these mountains. Oued Kadamellet and Oued Tidek are south of these mountains in Adrar, Oued Kadamellet is north of Aïr, and Philippeville and Bône are the two chief ports of the Province of Constantine. Constantine and Hammam Meskoutine are in the foot-hills north of the Northern Atlas chain in the Province of Constantine; while Souk Ahras is in this northern chain close to the Tunisian frontier, while Tebessa is in the Southern Atlas also near Tunisia. Aïn Draham is in the Northern Atlas in Western Tunisia, called by the French "Kroumerie." Tunis is the capital of Tunisia.

Marakesh is the capital of Morocco.

The data for specimens given under Mr. A. E. Gibbs are taken from "An Algerian Holiday" in *The Entomologist*, vol. xlv, pp. 135-140 and 170-174 (1911); those given under Joannis are taken from the *Bulletin de la Société entomologique de France*, 1908, pp. 82, 83; and those under Miss Fountaine are from *The Entomologist*, 1906, pp. 84-89 and 107-109.

I herewith give a sort of synopsis of the people named in the lists of Tring Museum material.

Dr. Nissen is Danish Consul-General for Algeria and a medical practitioner; he has a private collection of Algerian lepidoptera and a small representative one from elsewhere.

Captain Holl, who died in 1916 or the end of 1915, was a retired engineer officer of the French Army; he was an Alsatian, and had a collection of Algerian and Alsatian lepidoptera and disposed of his duplicates commercially.

Mr. A. Nelva is the principal pharmaceutical chemist at Batna; he originally collected all orders of zoological objects, but in 1909 determined to restrict himself to coleoptera. However, he could not forgo retaining small series of his local lepidoptera, but collects lepidoptera mainly for sale.

Mr. Maxime Rotrou is a coleopterist who habitually lives at Sidi-bel-Abbés, but travels about in the Province of Oran, being in Government employ. He collects lepidoptera and other orders for sale to help him with his coleoptera.

Mr. A. Théry is a merchant and commission agent of Alger, who has one of the best collections in the world of the coleopterous family of *Buprestidae*, and made also a collection of Algerian insects. Just before the war he took up a large land concession near Rabat and sent me a small collection from there.

Victor Faroult is a French professional collector who has collected for me in various parts of Algeria since 1911.

Cheli Brahim is or was the Arab guide at the Hôtel Bertrand at El Kantara.

Mr. E. Blanc is a taxidermist and dealer in Tunis.

W. Riggenbach is a Swiss zoological collector who collected for the Tring Museum in Morocco from 1900-1905, and in Senegal in 1906-1907.

Except in very few instances no insects received in 1916 could be included, as owing to the war I have not been able to get them set. I received in 1916 from Mr. Nelva, Mr. Rotrou, and Victor Faroult some five or six thousand specimens from Perrégaux, Sidi-bel-Abbés, Titen Yaya, Lambessa, Environs de Batna, Hammam R'ihra, Djebel Zaccar (above Miliana), and Aflou.

I have in the lists of specimens only used initials when quoting our own captures. E. H. signifies Dr. Ernst Hartert; K. J. signifies Dr. K. Jordan; C. H. signifies Carl Hilgert and W. R. denotes myself.

The localities are arranged from west to east and from north to south and from south to north.

#### [*Papilio machaon* Linn.]

Mr. Oberthür states quite truly that it is not very easy to define the different subspecies of this butterfly which inhabit Barbary. But I think I shall be able to make it quite clear that there are three distinct races inhabiting this area. (1) That found along the coast and down to the centre of the "Hauts Plateaux" in Central and Eastern Algeria and Tunisia; (2) that inhabiting the coastal

and northern portions of Western Algeria and the known portions of Morocco ; and (3) that inhabiting the desert areas of Algeria and probably Tunisia and running up in places into the southern portions of the " Hauts Plateaux."

The second local form presents little or no difficulty beyond the question of the priority of the two names *mauretanica* Blachier and *maxima* Verity, but the other two forms are not so simple. In my " Revision of the Papilios of the Eastern Hemisphere, exclusive of Africa," *NOV. ZOOLOG.* vol. ii. pp. 165-463, I united under *P. machaon sphyrus* Hübn. (see pp. 275-276) all the *machaon* from England, South Europe, North Africa, and Western Asia (to Cashmere).

As our knowledge of lepidoptera has advanced by leaps and bounds since then, it is not remarkable that this classification of the *machaon* forms should now prove to be out of date. The British form is distinct enough to warrant a separate designation, and the Moroccan and West Algerian and that from the desert regions of Algeria have also proved to be two distinct local races which must be separated. The consideration, therefore, only remains of the form inhabiting the northern portions of Central and Eastern Algeria and Tunisia. This involves the vexed question, " What is *sphyrus* Hübn. ? " He has given no locality for it, and the figures (ff. 775, 776) at first sight give one the impression of the British form. However, the yellow is too dark, and it agrees, I think, fairly well with Spanish, South France and Italian specimens. The North African specimens (Alger, Hammam R'ihra, Tunis, etc.) differ slightly both from Portuguese and Riviera ones in the width of the black outer one-fourth of forewing, in the more oblong and narrower red area in the anal ocellus of hindwing, in the larger yellow submarginal spots of the hindwing, and in the reduced orange spots below.

Dr. Verity has separated the Algerian and North Tunisian *machaon* as *m. mauretanica* ; and although I consider that I have not enough dated material from both sides of the Mediterranean to give a final assent to this, it is quite certain that a number of the North African specimens show characters never found in those from South Europe, so I have adopted Dr. Verity's name in the present article. The summer generation appears always to be distinguished by greater extent of yellow on the abdomen.

Mr. Oberthür states that he has never seen any account of the larvae of any of the Asiatic forms of *machaon*. I have a number of blown larvae of *machaon hippocrates* Feld. from Japan. They are exactly like the larvae of European *machaon*, but much larger.]

### 1. *Papilio machaon mauretanica* Verity.

*Papilio machaon mauretanica* Verity, *Rhopalocera Palaearctica*, p. 12. pl. ii. f. 5 (1905) (Alger).

The larvae of the Algerian *mauretanica* resembles European *machaon* larvae, but appears to have the black bands on the segments and especially those between the segments broader. We found two larvae at Khenchela in the last moult but one, May 1912, of which I prepared one that died before the last moult. The second pupated, but died at Tring. These larvae had both the segmental and intrasegmental black rings complete, so undoubtedly the Khenchela *machaon* belongs to the northern form. We found this insect fairly abundant round Mustapha and at Hammam R'ihra, but elsewhere we only came across it occasionally.

The Guelt-es-Stel unique specimen is in appearance intermediate between the northern and the desert race, but it cannot be settled what form occurs in this region till we find the larvae, and I prefer for the present to regard it as *mauretunica* on account of its northern locality. The specimens of this form in the Tring Museum number forty-one.

11 Environs d'Alger, May—October 1905–1914, W. R., E. H. and K. J., Dr. Nissen and Captain Holl.

3 Hammam R'ihra, April—September 1912–1916, W. R., K. J. and Faroult.

1 Hammam Meskoutine, May 1914, W. R. and K. J.

10 Belvedere, Tunis, August—September 1915, Blane.

1 Gafsa, Tunisia.

2 Khenchela, May 1912, W. R. and K. J.

1 Guelt-es-Stel, July 1913.

3 Saïda, May 1913, W. R. and E. H.

3 Aïn Sefra, May 1913, W. R. and E. H.

4 Djebel Mekter, near Aïn Sefra, May 1913, E. H. and C. H.

1 Les Pins, July 1915, Rotrou.

1 Sidi-bel-Abbès, August 1916.

1 larva, 1 pupa, Khenchela, May 1912, W. R. and K. J.

The specimens from the last four localities are very perplexing ; they agree with *mauretunica* in size and appearance, but ought by rights to belong to the next form ; however, as the " Hauts Plateaux " of Province Oran have a very mixed fauna, it is possible that *machaon* is an immigrant from the east and not from the north.

In the British Museum there is a single specimen from the Salvin-Godman collection labelled " Algeria " !

## 2. *Papilio machaon maxima* Verity.

*Papilio machaon maxima* Verity, *Rhopalocera Palaearctica*, p. 296. pl. lii. f. 2 (1911) (gen. vern.) (Tangier).

*Papilio machaon maxima* gen. aest. *angulata* Verity, *Rhopalocera Palaearctica*, p. 296. pl. lx. f. 14 (1911) (Tangier).

Mr. Blaehier (*Ann. Soc. Entom. France*, vol. 77. pp. 209–211. ff.) 1, 2 (1908) endeavours to show that the name *mauretunica*, originally given by Verity to the whole of the Mauretanian *machaon*, should be restricted to the form from Morocco. This is quite wrong, for Verity states distinctly that his form is **small** and figures a specimen from Alger. Therefore the name of *maxima* given three years later by Verity must stand for the Moroccan form.

This name *maxima* applies, however, only to the spring generation. The summer generation, which is larger, has the black lines somewhat reduced and the abdomen almost entirely yellow with only a black dorsal line ; this is Verity's gen. aest. *angulata*. The number of specimens at Tring are twenty-one.

2 Mazagan, April 1902, W. Riggenbach

1 Ouled Farsh, April 1901, W. Riggenbach

1 Djebel Tixa, March 1905, W. Riggenbach

} gen. vern. *maxima*.

- |  |                                     |
|--|-------------------------------------|
| 6 Mazagan, July—September 1900, W. Riggenbach      | } gen. aest.<br>} <i>angulata</i> . |
| 4 Morocco (Marakesch), October 1902, W. Riggenbach |                                     |
| 2 Cap Blanco, August 1902, W. Riggenbach           |                                     |
| 1 Onled Farsh, May 1901, W. Riggenbach             |                                     |
| 3 Masser Mines, June 1914, Faroult                 |                                     |
| 1 Titen Yaya, June 1915, Rotrou                    |                                     |

The four specimens in the Tring Museum from the north of the Province of Oran are certainly unmistakable *maxima*, in fact, one of the Masser Mines specimens is as big as many summer specimens of *machaon hippocrates* Feld. from Japan (length of forewing 52 mm., expanse 109 mm.).

Mr. Blachier (*loc. cit.*) records *maxima* from Marakesch, coll. Vaucher and Tangier, from the same source.

There are in the British Museum three specimens collected by Mr. Meade-Waldo. In the *Trans. Entom. Soc. Lond.* 1905, pp. 369–392, Mr. Meade-Waldo records Tangier January and August 1901; Amsmiz, June 1901; Imentalla, 1901; and Forest of Marmora, March 1902.

### 3. *Papilio machaon saharæ* Oberth.

*Papilio machaon* var. *saharæ* Oberthür, *Etud. d'Entom.* iv. p. 68. sub No. 192 (1879) (Laghouat).

*Papilio machaon* var. *hospitonides* Oberthür, *Etud. d'Entom.* xii. p. 21. t. 5. f. 19 (1888) (larva Biskra).

In *Novit. Zool.* vol. xx. p. 109 (1913) I kept *hospitonides* separate from *saharæ*, as my Laghouat and Bou Saada imagines were somewhat different from the desert specimens from elsewhere. Since then I have examined more material, both larvae and imagines, and I find that though the imagines represent two distinct types—viz. either very small with the yellow much reduced or somewhat larger with the submarginal yellow spots strongly developed and with a curious yellow bloom over the whole insect, giving it a mealy appearance—nevertheless all the desert *machaon* have the *hospitonides* form of larva and so represent one local race only. Therefore the name *saharæ* must be used for this subspecies, it having nine years' priority over *hospitonides*.

Of the Bou Saada series one specimen is very different from the others, being quite indistinguishable from North Algerian ones. It is, of course, well known that occasional specimens of subspecies show greater resemblances to other races of the same species than to the one to which they geographically belong, but this specimen is too much like *m. mauretunica*. Victor Faroult has the bad habit, which was equally the case with our lamented friend William Doherty and our poor collector Heinrich Kühn, of dragging about with him, when travelling, odd specimens of lepidoptera captured on previous expeditions. I therefore feel sure that this specimen in question was obtained somewhere else and included in the Bou Saada lot by mistake. The remaining 41 Bou Saada specimens vary much in size, though all are small. The smallest has the length of forewing 24 mm. and total expanse 52 mm., while largest has the forewing 40 mm. and a total expanse of 85 mm. The specimens at Tring total 65.

- 42 (41) Bou Saada, May, June, July 1912 (1 May 1911 ? ?), Faroult.
- 2 Biskra, September 1910, Faroult.
- 1 El Kantara, April 1911, Faroult.
- 3 El Outaya, March 1911, Faroult.

- 2 Laghouat, March—April 1911–1912, W. R. and E. H., Faroult.  
 5 Ghardaïa, May 1912 and 1914, E. H. and C. H.  
 1 Oued Nça, May 1914, E. H. and C. H.  
 8 El Hadadra, May 1912, E. H. and C. H.  
 1 Oued Mya, April 1912, E. H. and C. H.  
 5 larvae, 1 pupa shell, Bou Saada, Faroult.  
 2 larvae, El Hadadra, E. H. and C. H.

Mr. de Joannis records two specimens collected by Mr. M. R. Chudeau, August 1905, at Tamanghasset, Hoggar Mountains.

The larvae of *machaon saharæ* are very different from those of other forms of *machaon*. They resemble those of *Papilio hospiton* of Corsica and Sardinia in having the black segmental and intersegmental bands broken up into spots.

#### [*Papilio podalirius* Linn.]

Dr. Verity, in his *Rhopalocera Palaearctica*, p. 293 (1911), asserts that he has become convinced that *P. podalirius* and *P. feisthameli* are two distinct species, and not, as hitherto considered by himself and others, two local races of one and the same species *Papilio podalirius*. Dr. Verity further asserts that *podalirius* and *feisthameli* fly together throughout Spain and across to Tangier.

Dr. Jordan and I have been too busy with other entomological work to go carefully into this question and dissect a number of specimens; moreover, although my material at Tring is very large, the series from Spain and that from Northern and Central France are very poor. I therefore cannot at present adopt Dr. Verity's view, but consider it very doubtful indeed if *podalirius* and *feisthameli* can be considered anything more than two very distinct subspecies of one species. I have examined 536 specimens of *podalirius* and *feisthameli* in the Tring Museum and those in the British Museum and others; and out of this large number of nearly 650 specimens from the whole of its range, I only know one specimen of what could be considered true *podalirius* which has been taken within the *feisthameli* area, and this is a Tangier specimen obtained by Mr. Meade-Waldo now in the British Museum. It is quite reasonable to suppose that this specimen is a reversion to an ancestral type or else a variation from the more ancestral form to the more recent, whichever view is considered the more consistent with the known facts about *podalirius* and *feisthameli*. This specimen is quite similar to *podalirius* in every way, but is rather large even for a female.]

#### 4. *Papilio podalirius feisthameli* Dup.

*Papilio feisthameli* Duponchel in Godart's *Lépid. de France*, Supp. I, p. 7, t. 1, f. 1 (1832) (Perpignan loc. typ. fixed by Pierret).

There are two distinct seasonal generations, gen. vern. *feisthameli* and gen. aest. *latteri* Aust., in Barbary, and the latter is at once distinguishable by its great size and in being nearly always white, while the ♀ *feisthameli* is generally pale yellow.

We found this butterfly abundant in the neighbourhood of Alger and at Hammam R'ihra; but elsewhere, though not rare, was only seen singly. At Tring the series comprises 178 specimens from Mauretania.

- 3 Mauretania (Staudinger).  
 8 Saksawa, Morocco, 1905, Riggenbach.  
 2 Fenson, Morocco.  
 1 Zoudj-el-Beghal, E. Morocco, July 1914, Faroult.  
 1 Masser Mines, June 1914, Faroult.  
 1 Lalla Marnia, May 1914, Faroult.  
 1 Saïda, May 1914, W. R. and E. H.  
 25 Sidi-bel-Abbés, April 1915-1916, Rotrou.  
 1 Sidi-bel-Abbés, Astant, August 1878 (type of gen. aest. *latteri*).  
 1 Sebdu, Astant, July 1880 (also marked "type," but is evidently only a subsequent acquisition).  
 42 Environs d'Alger, March-June 1908-1914, W. R., E. H., and K. J., and Dr. Nissen.  
 2 Adrar Amellal, Gorges de Chabet, June 1905, Dr. Nissen.  
 7 Blida les Glaicières, June 1908, W. R. and K. J.  
 17 Environs de Batna, July-August 1909-1915, Nelva.  
 2 Lambessa, June 1905, L. Kuhlmann.  
 7 El Kantara, March-July 1911, W. R., E. H., Faroult, and Cheli Brahim.  
 1 Constantine, May 1908, W. R. and E. H.  
 4 Philippeville, June 1905, L. Kuhlmann.  
 31 Hammam R'ihra, April-May and August 1908-1916, W. R., E. H., and K. J., and Faroult.  
 2 Hammam Meskoutine, May 1914, W. R. and K. J.  
 3 Souk Ahras, April 1914, W. R. and K. J.  
 3 Aïn Draham, 1910, Faroult.  
 7 Djebel Zaear above Miliana, August 1916, Faroult.

In the British Museum are 2 from Mr. Meade-Waldo; 1 Lieutenant Codet, Sebdu, 1880-1882; 1 Mount Thessala, Province Oran, July 1880, Astant; 2 Mauretania ex coll. Grun-Grshimailo per Elwes; 2 Algiers, 1 Morocco, Leech coll.

Mr. Meade-Waldo gives the following data in his article: Amsmiz, June 1901; Imentala, July 1901.

The anal rufous red patch in the Spanish and Pyrenean *feisthameli* is broader than in Mauretanian ones, but is not at all like that in *podalirius*. The gen. aest. *latteri* only occurs in Mauretania.

Dr. Verity, in his "Revision of the Linnean Types," seeks to show that Linnaeus' type of *Papilio podalirius* is the Algerian ab. *latteri*, but as I am not yet quite satisfied on this point I have not adopted the change of name in this paper.

##### 5. *Thais rumina mauretunica* Schultz.

*Thais rumina mauretunica* Schulz, *Int. Entom. Zeitsch.* Stuttgart, vol. xxi. p. 267 (1908) (Morocco Algeria).

I never had any luck with this beautiful insect, for we always were too late in the places where we met with it; so that the series of specimens collected by ourselves is poor in quality and scanty in numbers. We found a few larvae at Hammam R'ihra, and I found in May 1909 two larvae at Lae Fetzara, near Bône, which were quite black.

One of the specimens collected by E. Deschanges has the black in the wings much extended, and all the red spots of the forewings are absent (except a small red dot below the vitreous patch = ab. *derubescens* Schultz. Several others have the red on the forewings much reduced. One specimen from Oran and one from Blida les Glacières are of the aberration *canteneri* Stdn. One of Faroult's Aïn Draham specimens has the curious quadrately distorted wings as figured by Mr. Oberthür. The above-mentioned *canteneri* has a rather perplexing synonymy.

In 1861 Staudinger, in Staudinger and Wocke's *Catalog der Lepidopteren Europas*, ed. i. p. 1. No. 7, thus describes it: "ab. *Canteneri* Heydenreich Catal (ab ochracea)." and has put it as an aberration under the Spanish and Portuguese race *Thais rumina rumina*, but he gives **no type locality**.

In 1864 C. and R. Felder, *Verh. K. K. Zool. Bot. Gesells.* vol. xiv. p. 330. No. 527, give a "var. *Canteneri* Heydenreich lin. litt. . . . Algeria," and quote as type figure Lucas' *T. rumina* var. in the *Expl. d'Alg. Zool.* iii. p. 346. pl. 1. f. 1. Now, it is a very moot point, as **both** Staudinger and the Felders quote as the source of the name *canteneri* the same manuscript catalogue of Heydenreich and Staudinger gives **no type locality**, while the Felders give **Algeria**, whether the name *canteneri* ought not to be used for the Mauretanian form of *rumina* instead of *mauretanica* Schultz. This can only be decided if the consensus of opinion agrees as to which of these two authors is the real author of the name, Staudinger by saying "ab. **ochracea**" and being considered to have fixed the locality by placing it under the "**forma Iberica**," or the Felders by actually quoting a **type locality "Algeria"** and by quoting a figure of an Algerian specimen of the dark orange aberration. The series at Tring number 100.

1 Algeria, Sandt coll.

22 Oran, April 1913, W. R., E. H.

1 Santa Cruz, Oran, February 1906, Dr. Nissen.

45 Environs d'Alger (Hussein Dey, Maison Carrée, Femme Sauvage), March—April 1905—1913, Dr. Nissen and Captain Holl.

8 Hammam R'ihra, 4 April 1912, W. R. and K. J., and 2 ex larva (larvae May 1908, W. R. and K. J.), 1 emerged 1909 and the other 1910 at Tring; 2 July 1916, Faroult.

3 Blida les Glacières, June 1908, W. R. and K. J.

12 Tlemcen, April 1913, W. R. and E. H.

1 larva Lac Fetzara, May 1909, W. R. and E. H.

3 larvae, Hanumam R'ihra, May 1911, W. R. and E. H.

In the British Museum are:—

1 ♂ Sebden, Dr. Codet, 1880—1882.

4 Tangier, Meade-Waldo.

1 Bubana, March 1901, Meade-Waldo.

3 Tangier, Mr. Blackmore.

1 Mogador, Leech. (This has the black markings much reduced and the yellow extended.)

Mr. Meade-Waldo in his article quotes only Tangier, February—April 1901. Miss Fountaine quotes Teniet-el-Haad, May, June 1904, in addition to Hammam R'ihra and Blida in April. Mr. Blachier gives only Tangier.

6. *Aporia crataegi mauritanica* Oberth.

*Aporia crataegi mauritanica* Oberthür, *Etud. Lepid. Comp.* Fasc. III. p. 120 (1909) (Algeria).

Personally we only came across this butterfly once in Algeria, and that at Blida les Glacières in 1908. At Tring we have 171 specimens.

- 108 Blida les Glacières, June 1908, W. R. and K. J.
- 5 Forêt de Taourirt Ighil, Kabylie, June 1906, Dr. Nissen.
- 1 Yakouren, June 1906, Dr. Nissen.
- 1 Forêt de l'Akfadou Kabylie, June 1906, Dr. Nissen.
- 4 Batna, May 1912, Nelva.
- 19 Seksawa, Morocco, April 1905, W. Riggenbach.
- 33 Titougelt, Batna, May 1914, A. Nelva.
- 1 larva, Blida les Glacières, June 1908, W. R. and K. J.

This subspecies of *Aporia crataegi* is unrepresented in the British Museum. Miss Fontaine records this insect from Teniet-el-Haad, May—June 1904.

7. *Ganoris brassicae brassicae* (Linn).

*Papilio brassicae* Linnaeus, *Syst. Nat.* I. p. 467. No. 58 (1758) (Sweden).

This butterfly is fairly abundant north of the Atlas in Algeria, but we found it much rarer to the south and never got it in any of the oases south of Biskra. The Algerian, Tunisian, and Moroccan series at Tring is 107.

- 1 Ouled Farsh, Morocco.
- 19 Mazagan, Morocco, March—April 1902, W. Riggenbach.
- 2 Mwhoila (Orange Grove, Oum-er-Rebia), Mazagan, April 1901, Hartert and Riggenbach.
- 11 Shiadma, Morocco, March 1905, W. Riggenbach.
- 3 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 3 Rabat, Morocco, 1914, A. Théry.
- 1 Morocco (Marakesh), 1902, W. Riggenbach.
- 2 Djebel Tixa, Morocco, March 1905, W. Riggenbach.
- 1 Cap Blanco, April 1902, W. Riggenbach.
- 1 Mogador, Staudinger.
- 3 Oran, April 1913, W. R. and E. H.
- 11 Environs d'Alger, February—August 1904—1913, W. R., E. H., K. J. and Dr. Nissen.
- 1 Lella Kredidja, Kabylie, July 1907, Dr. Nissen.
- 1 Blida les Glacières, June 1908, W. R. and K. J.
- 17 Hammam R'ihra, May 1908—1913, W. R., E. H., and K. J.
- 1 Biskra, March 1914, W. R. and E. H.
- 1 El Kantara, April 1908, W. R. and E. H.
- 1 Tlemcen, April 1913, W. R. and E. H.
- 2 Constantine, May 1908, W. R. and E. H.
- 21 Environs de Tunis, March and April 1915, E. Blanc.
- 4 Environs de Batna, 1914—1915, A. Nelva.

Mr. Gibbs records *brassicae* also from Tlemcen, May—June 1910.

In the British Museum the only Mauretanian *brassicae* are 7 specimens from Meade-Waldo.

Mr. Meade-Waldo in his article gives Tangier, December—August 1900—1902.

8. *Ganoris rapae mauritanica* (Verity).

*Pieris rapae mauritanica* Verity, *Rhopalocera Palaearctica*, p. 155. pl. xxiii. ff. 43, 44 (1908) (Algeria).

The name *mauritanica* is applied by Dr. Verity to the summer generation, and he states that the spring generation differs from gen. vern. *leucotera* Stefan. from Italy in having the cellular light and dark streaks on the underside of the hindwings much less strongly developed. We have a Mauretanian series of 274 at Tring.

- 5 Mogador, Staudinger.
- 4 Truchan, Morocco, April 1904, W. Riggenbach.
- 2 Seksawa, Morocco, April 1905, W. Riggenbach.
- 3 Rabat, Morocco, 1914, A. They.
- 2 Mtonga, Morocco, May 1904, W. Riggenbach.
- 27 Mazagan, Morocco, May 1902, W. Riggenbach.
- 3 Ouled Farsh, Morocco, May 1905, W. Riggenbach.
- 3 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 1 Nedroma, Prov. Oran, May 1914, Faroult.
- 4 Lalla Marnia, December and May 1914, Faroult.
- 2 Masser Mines, May 1914, Faroult.
- 1 Tlemcen, April 1913, W. R. and E. H.
- 3 Aïn Sefra, May 1913, W. R. and E. H.
- 4 Saïda, May 1913, W. R. and E. H.
- 2 Titen Yaya, May 1915, Rotrou.
- 5 Oran, April 1913, W. R. and E. H.
- 39 Environs d'Alger, February and May 1908-1911, W. R., E. H., K. J., and Dr. Nissen.
- 5 Lella Kredidja, Kabylie, July 1907-1908, Dr. Nissen.
- 10 Bida les Glacières, June 1908, W. R. and K. J.
- 28 Hammam R'ihra, May 1908-1913, W. R., E. H., and K. J.
- 4 Guelt-es-Stel, April 1913, Faroult.
- 2 Bou Saada, May 1911, Faroult.
- 1 El Golea, March 1912, E. H. and C. H.
- 1 Ouargla, June 1914, Geyr von Schweppenburg.
- 1 Bled-et-Amar, March 1912, E. H. and C. H.
- 7 Touggourt, February and April 1909 and 1912, W. R., E. H., and K. J.
- 44 Biskra, February-April 1908-1914, W. R. and E. H.
- 42 El Kantara, February-April, June, July 1908-1911, W. R., E. H., and Cheli Brahim.
- 6 Batna, May 1909-1914, W. R., E. H., and Nelva.
- 3 Constantine, May 1908, W. R. and E. H.
- 3 Hammam Meskoutine, April-May 1909-1914, W. R., E. H., and K. J.
- 1 Souk Ahras, April 1914, W. R. and K. J.
- 12 Environs de Tunis, March-April-June 1915-1916, E. Blanc.

The British Museum contains 7 specimens collected by Meade-Waldo, the 2 from the Atlas being very small; 1 Constantine, April 1882, and 1 Batna, May 1882, H. J. Elwes.

Mr. Meade-Waldo in his article gives Tangier, March 1901; Klatsa, May 1901; and Saffi, August 1901.

9. *Pieris napi atlantica*, subspec. nov.

The form found at Blida les Glacières and in the Kabylie is very distinct. It differs from European specimens by being very white above, as the veins are not marked with black or grey and the black spots on the forewing are very much larger, and below there is hardly any trace of the green on and around the nervures of the hindwing. We ourselves have only taken it at Blida les Glacières, but Dr. Nissen has taken it in the Kabylie, and I have one said to have been taken by Faroult in Tunis. My single Moroccan specimen has more pointed forewings and is more yellowish above, but I cannot judge from one specimen. Mr. Gibbs records *napi atlantica* also from Blida. We have of this 17 at Tring.

- 10 Blida les Glacières, June 1908 and 1912, W. R., K. J., and Dr. Nissen.
- 5 Col de Chrea, July 1912, Dr. Nissen.
- 1 Tamarouth, Morocco, June 1904, W. Riggenschach.
- 1 Tunis, June 15th, 1913 (*vide* Faroult).

In the British Museum there are no specimens of *napi* from North-west Africa.

Miss Fountaine records it in May both from Blida and Teniet-el-Haad. With the exception of *L. glaucome* and *Teracolus chrysonome*, this is the rarest of the North African *Pieridae*, though *G. rhamni* is not much commoner.

10. *Leucochloë glaucome glaucome* (Klug).

*Pontia glaucome* Klug, *Symb. Phys.* Fol. h. No. 12. Tab. vii. ff. 18, 19 (1829) (Mount Sinai, on *Erigerum denticulatum*).

Before Dr. Ernst Hartert obtained the two specimens enumerated below, the only Mauretanian record was the specimen obtained by the late Roland Trimen at Constantine. The two mentioned below and two from Assouan are all we have at Tring of true *glaucome*.

- 1 North of Aïn Guettara, April 1912, E. H. and C. H.
- 1 South Oued Mya, May 1912, E. H. and C. H.

11. *Leucochloë daplidice albidice* (Oberth.).

*Pieris daplidice* var. *albidice* Oberthür, *Etud. d'Entom.* Fasc. VI. p. 47 (1881) (Algérie, Prov. Constantine Sud).

Mr. Charles Oberthür, in his *Etudes de Lépidoptérologie Comparée*, Fasc. III. pp. 122-125 (1909), has pointed out that Esper and Freyer's *Pieris raphani*, which Staudinger and most of us following him accepted as being the southern race of *daplidice* Linn., and therefore having priority over Oberthür's *albidice*, is really *Belenois hellica* (Linn.). This was also known to the late Mr. W. F. Kirby, for we find in his *Catalogue of Diurnal Lepidoptera*, p. 452, *raphani* Esp. as a synonym under *hellica*.

In my article on Dr. Hartert's desert trip, *Nov. Zool.* vol. xx. pp. 110-111 (1913), and in *Nov. Zool.* vol. xxi. pp. 299-330 (1914), in the preliminary account of the fauna of Guelt-es-Stel, I most unfortunately committed another mistake; for although I did not commit the error of mistaking *raphani* for *albidice*, I used it for the form of *daplidice* inhabiting the northern and southern

borders of the Mediterranean. Now that we are all agreed that *raphani* is **not** a form of *daplidice*, it remains to be seen what the North African *daplidice* ought to be called. Mr. Oberthür rather begs the question by treating his own *albidice* in Fasc. X. of the *Etudes* as a mere aberration because it occurs sporadically in Spain, Italy, and South France. The matter cannot rest there; whereas *albidice* is only a rare aberration north of the Mediterranean, it occurs regularly in considerable numbers south of the Mediterranean, and in the desert from Biskra and Laghouat southwards by far the largest number of specimens are either *albidice* or intermediates between that and the normal Mediterranean *daplidice*. Staudinger in such cases got over the difficulty by prefixing the term **var. et ab.** before the name of such forms, which in one district appeared as individual aberrations and in others as a good local race. This we cannot do, as the "International Rules of Nomenclature" decree that local races must be named trinomially, while aberrational names must have the abbreviation **ab.** put before them. As it is a fact that a large proportion of the Algerian *daplidice* really are always *albidice*, I think it is quite clear that we must treat the Mauretanian *daplidice* as a distinct subspecies under the name *L. daplidice albidice* (Oberth.).

We personally have never met with it in any numbers north of the desert, but Dr. Hartert found it very common from Touggourt to the south, and the only place I saw it in fair numbers was at Berrian. At Tring the series from Mauretania is 271.

- 1 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 1 Mazagan, Morocco, August 1900, W. Riggenbach.
- 2 Skiadma, Morocco, March 1905, W. Riggenbach.
- 6 Mogador, Staudinger.
- 2 Lalla Marnia, December 1914, Faroult.
- 8 Aïn Sefra, May 1913, W. R. and E. H.
- 3 Saïda, May 1913, W. R. and E. H.
- 3 Tifrit, May 1913, W. R. and E. H.
- 4 Titen Yaya, June and August 1915, Rotrou.
- 7 Oran, April 1913, W. R. and E. H.
- 2 Environs d'Alger, May—June 1911, W. R. and E. H.
- 69 Guelt-es-Stel, April—September 1912—1913, W. R. and K. J. and Faroult.
- 1 Hammam R'ihra, May 1916, Faroult.
- 4 Puits Baba, May 1913, Faroult.
- 7 Berrian, April 1911, W. R. and E. H.
- 41 Ghardaïa, April—May 1911—1914, W. R., E. H., and C. H.
- 22 El Hadadra, May 1912, E. H. and C. H.
- 3 El Arich, June 1912, E. H. and C. H.
- 1 Bled-et-Amar, March 1912, E. H. and C. H.
- 4 Djebel Kerdada, May 1912, Faroult.
- 3 Biskra, March—April 1911—1914, W. R., E. H., and C. H.
- 31 El Kantara, April—June 1908—1909, W. R. and E. H. and Cheli Brahim.
- 6 Batna, April 1908—1914, W. R. and E. H. and Nelva.
- 19 Khenchela, May—June 1911—1912, W. R. and K. J. and Faroult.
- 3 Constantine, May 1908, W. R. and E. H.
- 3 Djelfa, May 1913, Faroult.
- 8 N. of Aïn Guettara, April 1912, E. H. and C. H.

2 Aïn Draham, Tunisia, March 1909.

6 Environs de Tunis, March—May 1915, E. Blanc.

The British Museum possesses 3 from the Meade-Waldo collection; 3 from Lambessa, May 1882; 1 Constantine, April 1882, J. H. Elwes; and 2 from Biskra, May 1885.

L. Bleuse ex Oberthür coll. ex Grun-Grshimailo coll. Mr. Meade-Waldo in his article quotes Wad Moorbey (nom rect. Oum-er-Rebia), June 1901; Sould Jedid and Tsauritz Entsagauz, July 1901.

## 12. *Euchloë belia* (Linn.).

*Papilio belia* Linnaeus, *Syst. Nat.* I. p. 761, No. 84 (1767) (Barbaria).

Both Mr. Oberthür and I have declared that we feel sure that the name *belia* Linn. applies to the ♀ of the insect described by him on p. 762 of the above-quoted work, namely *euphero* Linn., and therefore Cramer's application of it to another insect, which has been followed by Staudinger, Dr. Verity, and most other lepidopterists, cannot possibly be accepted.

Staudinger asserts that *belia* Linn. is unrecognisable and doubtful, and therefore is a *nomen nudum*. I have before shown (NOV. ZOOLOG. vol. xxi. p. 301 (1914)) that the name *belia* Linn. is not doubtful, and Mr. Oberthür goes even further by quoting verbatim Linnaeus' original diagnosis.

Now, apart from the fact that Brander, the Swedish Consul, who sent to Linnaeus all his Algerian insects, could not go much beyond the limits of the town of Algiers, and therefore could never have been near the haunts of *T. nauna*, the only other white butterfly with orange tips found in Algeria, *i.e.* Biskra and interior of the Province of Oran, the word in the description describing the underside of the hindwing ought to have told anyone but a wilfully obtuse person that *belia* could only apply to the *Euchloë*. This word **flavissime**, when translated into English, reads **intense yellow**, and therefore could not apply to the *Teracolus*, in which the underside of the hindwing in the spring brood is dirty pink, and in the summer brood is white, buffish white, or dirty pale buff, but **never intense yellow**.

The series at Tring principally exhibits variation in the width and presence or absence of the black borders to the orange apex of the forewings. 1 ♂ and 1 ♀ from Guelt-es-Stel have the apices of the forewings almost completely black and 1 ♀ from there has the orange patch as big as in the ♂♂, but without the black borders as in the ♀♀, of *b. androgyne* Leech. The Tring series numbers 757. The ♂ from Blidah (Faroult, 1916) is pale lemon-yellow, and the orange of the apices is replaced by very pale pink.

1 Afrique !!

1 Algérie !

1 Morocco ? ?

1 Mauretania, ex Staudinger (xanthic ♀).

35 Masser Mines, May 1914, Faroult.

8 Lalla Marnia, April 1914, Faroult.

45 Tlemcen, April 1913, W. R. and E. H.

1 Tifrit, near Saïda, May 1913, W. R. and E. H.

- 29 Oran, April 1913, W. R. and E. H.  
 63 Environs d'Alger, March—May 1908-1914, W. R., E. H., K. J., and Dr. Nissen.  
 18 Blida les Glacières, June 1908 and April 1916, W. R., K. J., and Faroult.  
 10 Hammam R'ihra, April—May 1908-1916, W. R., E. H., and K. J., and Faroult.  
 72 Berrouaghia, April 1914, Faroult.  
 310 Guelt-es-Stel, April 1913, Faroult.  
 2 Djelfa, May 1913, Faroult.  
 7 El Kantara, May 1908-1911, W. R., E. H., and Faroult.  
 17 Khenchela, May 1912, W. R. and K. J.  
 27 Lambessa, May 1909, W. R. and E. H.  
 36 Batna, May 1909-1914, W. R., E. H., and Nelva.  
 7 Constantine, May 1908, W. R. and E. H.  
 22 Hammam Meskoutine, April—May 1914, W. R. and K. J.  
 28 Souk Abras, April 1914, W. R. and K. J.  
 1 Aïn Draham, Tunisia.  
 6 Environs de Tunis, April—June 1916, E. Blanc.  
 5 Djebel Zaccar, above Miliana, June 1916, Faroult.  
 3 Djebel Mekter, Aïn Sefra, May 1913, E. H. and C. H.

The Djebel Mekter ♀, two from the Environs d'Alger, and three from Guelt-es-Stel, have almost as wide orange apices to the forewing as ♀ *b. androgyne* Leech, but are not so large, and the lemon suffusion of the hindwing is absent; these may be called ab. *intermedia* ab. nov.

The British Museum has the following specimens: 5 Algiers, Leech coll.; 2 Lambessa, April; 2 Constantine, April; 1 El Kantara, May; 1 Philippeville, May 1882, H. J. Elwes; 9 Khenchela, April—May 1906, Lord Walsingham; 7 Meade-Waldo; 4 Tangier, Druce coll. ex Salvin Godman coll.; 1 Tangier, Leech coll.; 1 Tangier, April 1896, H. J. Elwes; 4 Tangier, Mr. Blackmore.

Mr. Meade-Waldo gives in his article the following data: Tangier, March—April 1901; Hawara, May 1901.

#### 12a. *Euchloë belia androgyne* (Leech).

*Anthocharis eupheno* var. *androgyne* Leech, *P.Z.S.* 1886. p. 122 (Mogador).

This subspecies of *belia* appears to be confined to the low country and littoral of the Atlantic coast of Morocco; the ♂ is larger and has less marking on the underside of the hindwings; the ♀ is very different, having the orange tip extending inwards as far as the discoocellular stigma, and the hindwings suffused with lemon-yellow. The Tring series consists of 13 specimens (2 ♀♀).

- 10 Ouled Farsh, Morocco, February—May 1901, W. Riegenbach.  
 1 Skiadma, March 1905, W. Riegenbach.  
 2 Djebel Chedar, February 1902, W. Riegenbach.

The British Museum possesses 14 specimens from Mogador Leech coll.

Mr. Meade-Waldo quotes in his article 1 ♀ Forest of Marmora (near Rabat), March 1902.

13. *Euchloë charlonia* (Donzel).

*Anthocharis charlonia* Donzel, *Ann. Soc. Entom. France*, vol. 11, p. 197, pl. viii, f. 1 (1842) (Emsilah, Algeria).

There appear to be three generations of this species in the year, but they differ very little, that in autumn generally having the largest number of large individuals. There are in the Tring Museum 1,091 specimens from Mauretania.

- 2 Mauretania, Staudinger.
- 7 Mogador, Staudinger.
- 1 Skiadma, Morocco, March 1905, W. Riggenbach.
- 1 Djebel Tixa, Morocco, March 1905, W. Riggenbach.
- 7 Masser Mines, May 1914, Faroult.
- 18 Lalla Marnia, May and December 1914, Faroult.
- 26 Aïn Sefra, May 1913, W. R. and E. H.
- 5 Titen Yaya, November 1914—May 1915, Rotrou.
- 1 Sidi-bel-Abbés, November 1914, Rotrou.
- 12 Berrouaghia, April 1914, Faroult.
- 6 Boghari, April 1911—1913, W. R., E. H., K. J., and Faroult.
- 596 Guel-es-Stel, March—November 1912—1913, Faroult.
- 2 Djelfa, May 1914, E. H. and C. H.
- 69 Laghouat, April 1911, W. R. and E. H.
- 2 Tilghempt, April 1912, Faroult.
- 17 Berrian, April 1911, W. R. and E. H.
- 7 Ghardaïa, April 1911, W. R. and E. H.
- 58 Bou Saada, March—May 1911, Faroult.
- 3 Nça-ben-Rzig, February 1912, E. H. and C. H.
- 2 Ourir, February 1912, E. H. and C. H.
- 9 Bordj Chegga, February 1912, E. H. and C. H.
- 19 Col de Sfa, Biskra, March 1911, W. R. and E. H.
- 1 Fontaine Chaude, Biskra, April 1909, W. R. and E. H.
- 24 Biskra, March 1908—1914, W. R. and E. H. and Arab native.
- 70 El Outaya, February—March 1911, Faroult.
- 153 El Kantara, March—June 1908—1911, W. R. and E. H., Faroult, and Cheli Brahim.
- 1 Gorges de Tilatou, March 1909, W. R. and E. H.
- 9 Khenchela, May 1912, W. R. and K. J.
- 2 Environs de Batna, Nelva.

The British Museum has the following specimens from Mauretania: 6 Algeria, Crowley bequest; 2 Environs de Batna, Elwes coll.; 2 Algeria, Staudinger-Salvin-Godman coll.; 5 Biskra, February 1894, Rev. A. E. Eaton; February 1902, Lord Walsingham; 5 El Kantara, May 1882, Elwes coll.; 1 Bou Saada, R. Oberthür, 1875, Elwes coll.; 1 Oran, Elwes coll.; 1 Shietla, Tunisia, G. C. Champion; 2 North Africa, Hewitson coll.

Lieutenant Holl, son of the late Captain Holl, told me he saw this insect much south of Ghardaïa, halfway between there and El Golea.

14. *Euchloë tagis pechi* (Staud.).

*Anthocharis pechi* Staudinger, *Entom. Nachr.* vol. 11. p. 10 (1885) (Lambessa).

Till we found *pechi* at Guelt-es-Stel, it had only been obtained by Pech at Lambessa, and by Miss Fountaine and Mrs. M. de la P. Nicholl at El Kantara and Lambessa, and two or three odd specimens at El Kantara by others. It has only been obtained in addition by Faroult at Berrouaghia, so its range seems not only limited to the Hauts Plateaux of the Provinces of Alger and Constantine, but even here to be very local and sporadic in its distribution.

Mr. Charles Oberthür is of opinion that this elegant little insect is a very distinct species, while Dr. Verity is convinced that it is only the Algerian form of *tagis*. I personally agree with Dr. Verity, for I have specimens at Tring and there are in the British Museum specimens of *tagis tagis* and *tagis lusitanica* which are extremely similar to *pechi* on the underside of the hindwing, while there is one specimen in the British Museum of *tagis lusitanica* which, except for being larger, is almost identical with *pechi* both **above** and **below**. However, a careful study of the genitalia of *pechi*, *tagis*, *ausonia*, and *insularis* is the only method by which the specific relationship of these highly interesting and puzzling forms can be settled once for all. The two insects called *tagis algirica* Oberth. and *tagis mauretana* Röber remain to be noticed. Mr. Charles Oberthür is convinced they represent the West Algerian and East Algerian races of *tagis*, while Dr. Verity has put them down as aberrations of *ausonia*. I am persuaded that the latter is right, because among my huge series of *ausonia* from Guelt-es-Stel (1,363 specimens) there are specimens agreeing with *algirica* Oberthür and *mauretana* Röber, and also many intergradations.

I will further consider this question, which affects the nomenclature principally, under the next species.

The El Kantara specimens in the British Museum have entirely sooty-black apices to the forewings, which seems to show that there is a tendency to variation in the eastern localities, for Staudinger's type is also more black at the apices than any of my Guelt-es-Stel and Berrouaghia examples. There are 265 specimens at Tring.

261 Guelt-es-Stel, February—March 1911–1914, W. R. and E. H., Faroult and Dr. Nissen (some ex larva *vide* Faroult !!).

4 Berrouaghia, April 1914, Faroult.

In the British Museum are 2 specimens, El Kantara, February—March 1902, Miss Fountaine.

[*Euchloë ausonia* Hübn. (= *belia* Cram. and auct. nec Linn.).

In NOVITATES ZOOLOGICAE, vol. xxi. pp. 301–305 (1914), I gave a long explanation of the muddle into which *Euchloë ausonia* Hübn. = *belia* auct. plur. had been brought, and gave a table of the Western Palaearctic forms. In this article I divided this "species," *i.e.* group of local races, into two sections; Group I. the forms with only a single yearly generation or brood, which both in the Old World and the New are alpine and high mountain forms, and Group II. the forms with two yearly generations or broods, and in which the two seasonal forms are very distinct. As in Mauretania there are no representatives of

Group I., I will not recapitulate the names of these forms ; but as I appear to have rather carelessly followed dates pure and simple instead of going as carefully into the details given by certain authors as I ought to have done, I will here repeat the table of Group II., emphasising by the type those names which require reviewing.

## GROUP II.

**Euchloë ausonia crameri** Butl.

gen. vern. *crameri* Butl.

gen. aest. **ALHAMBRA** Ribbe.

Spain and North Algeria.

**Euchloë ausonia esperi** Kirby.

gen. vern. *kirbyi* Rothsch.

gen. aest. *esperi* Kirby.

Central and Southern France.

**Euchloë ausonia matutia** Turati.

gen. vern. *matutia* Turati.

gen. aest. *turatii* Rothsch.

Riviera from Hyères to Genoa.

**Euchloë ausonia romana** Calberla.

gen. vern. *romana* Calberla.

gen. aest. *romanides* Verity.

Tuscany and Central Italy.

**Euchloë ausonia kruegeri** Turati.

gen. vern. *kruegeri* Turati.

gen. aest. *trinacriae* Turati.

Sicily.

**Euchloë ausonia graeca** Staudinger.

gen. vern. *graeca* Staudinger.

gen. aest. *maxima* Verity.

Greece and Black Sea Coast.

**Euchloë ausonia CRAMERIA** Butl.

gen. vern. **CRAMERIA** Butl.

gen. aest. *taurica* Röber.

Asia Minor.

**Euchloë ausonia triangula** Verity.

gen. vern. *triangula* Verity.

gen. aestiv. *melisanda* Fruhst.

Palestine.

**Euchloë ausonia aegyptiaca** Verity.

gen. vern. *aegyptiaca* Verity.

gen. aest. — ?

Egypt.

**Euchloë ausonia MELANOCHLOROS** Röber.gen. vern. *algerica* Oberth.gen. aest. **melanochloros** Röber.

Central and South Algeria.

Before proceeding to rectify the three serious errors into which I had fallen I should like to point out the reason why I gave no diagnosis of the two new names given in this table. I concluded that the giving of the prefix **gen. aest.** and **gen. vern.** was sufficient diagnosis, for the difference between spring and summer generation is the same in all subspecies, *i.e.* the summer brood differs from the spring brood in all cases by larger size, more creamy upperside, and the green pattern on the underside more "run" and irregular, while the green is strongly suffused with yellow, whereas each generation of one subspecies differs from the corresponding generation of the typical race by the same differences.

Now, the first error I committed was not to read carefully Ribbe's description of his *alhambra*. If I had done so, instead of applying the name merely from the locality to summer Andalusian specimens received from Ribbe, I should have discovered that *alhambra* was applied to an aberration with reduced white spots and increased green markings of both spring and summer generations of *crameri*. This necessitates giving a name to the Spanish and North African **summer brood**, and I propose to call it *butleri*; so that this subspecies must stand in the table as follows:

**Euchloë ausonia crameri** Butl.gen. vern. *crameri* Butl.gen. aest. *butleri* Rothsch.

Spain and North Africa (north of Atlas).

The second mistake I have made is that I read too hastily the synonymy under *Euchloë crameria* in the *Catalogue of Diurnal Lepidoptera described by Fabricius*, or I should have seen that, whereas I thought Mr. Butler was here renaming Cramer's *belia* ex Asia Minor, *crameria* is only a **misquotation** of the name *crameri* given to a specimen labelled "Germany, J. J. Becker," but really from some part of the Iberian peninsula.

Thus here again the **spring brood** of the Asia Minor race (which is *belia* Cram. (type locality Smyrna)) requires a new name, and I propose the name *originalis* for it. This Asia Minor subspecies will therefore have to be altered in the key to:

**Euchloë ausonia taurica** Röber.gen. vern. *originalis* Rothsch.gen. aest. *taurica* Röber.

Asia Minor.

The greatest mistake, however, which I perpetrated is in connection with the Central and South Algerian form; and as I had been specially studying this race I consider my error most unjustifiable, even though the synonymy of the North African races was so entangled. First of all, from the fact that **most** of my **May** specimens of Algerian *ausonia* are already belonging to the **summer**

generation, I jumped to the conclusion that Röber's *melanochloros* must be an aberration of the **summer brood**. Instead of which it was founded on **very late** individuals of the **spring brood**, which were remarkable for the reduction of the white spots in the green of the hindwings; in fact, Röber gave **two names** to the same insect, viz. *belia melanochloros* to actual specimens or a description he had of Batna individuals captured in May, and *tagis mauretunica*, which he gave to the figure of *pechi* Oberth. nec Stdgr., which was captured by J. Merkl at Lambessa in April. As there are specimens of both *melanochloros* Röber and *algerica* Oberth. among the spring brood of *ausonia* from Guelt-es-Stel, and intermediates between these and the typical individuals of this race, it is quite clear that they are only extreme aberrations, and however regrettable it is, there being only these two names available for the Central and South Algerian race, and *algerica* Oberth. being the oldest, the subspecific name becomes *Euchloë ausonia algerica* Oberth. Now, as both these names were applied only to the **spring brood**, the **summer brood** is without a name, and I propose to call it *pseudonymus*, and this subspecies must be altered in the table to:

***Euchloë ausonia algerica* Oberth.**

gen. vern. *algerica* Oberth.

gen. aest. *pseudonymus* Rothsch.

Central and South Algeria.

The higher Atlas specimens of *ausonia* sometimes stand somewhat in between the two North African local races, as was to be expected.]

#### 15. *Euchloë ausonia crameri* Butl.

*Euchloë crameri* Butl., *Entom. Month. Mag.* vol. v. p. 271. No. 2 (1869) (South Europe !!).

This is the form which occurs on the littoral, in the Tell, and on the northern slopes of the Northern Atlas chain; it is quite similar to Spanish and Portuguese specimens, and does not appear to be quite so variable as the next form.

- 1 Rabat, Morocco, 1914, A. Théry.×
- 39 Moroccan Frontier, May 1914, Faroult.×
- 49 Masser Mines, May 1914, Faroult.×
- 7 Nedroma, May 1914, Faroult.×
- 27 Lalla Marnia, May 1914, Faroult.×
- 3 Tlemcen, April 1913, W. R. and E. H.
- 27 Titen Yaya, May 1915, Rotrou.×
- 4 Oran, April 1913, W. R. and E. H.
- 5 Environs d'Alger, January—February 1913, Captain Holl.
- 13 Blida les Glacières, May—June 1907—1908, Dr. Nissen and W. R. and K. J.×
- 21 Hammam R'ihra, May—June 1908—1913, W. R., E. H. and K. J.×
- 5 Constantine, May 1882 and 1908, W. R. and E. H. and H. J. Elwes.×
- 119 Hammam Meskoutine, May—June 1909—1914, W. R., E. H., and K. J.×
- 42 Souk Ahras, April 1914, W. R. and K. J.
- 29 Environs de Tunis, March—May 1908—1915, E. Blanc and Max Bartel.×

Those marked with a × after the collector's name include or consist entirely of the gen. aest. *butleri*. The Tring series ex Mauretania consists of 391 specimens.

15a. *Euchloë ausonia algirica* (Oberth.).

*Anthocharis tagis* var. *algirica* Oberthür, *Etud. Lépid. Comp.* Fasc. III. p. 145 (1909) (Mecheria, Prov. Oran).

This form is very variable, especially in the shape of the wings and in the marking of the underside. The shape varies from a quite rounded forewing to a very pointed one, and on the underside of the hindwings the white markings in the green of the hindwing vary from quite small spots and dots to large splashes or broad, irregular bands; these white marks also vary in themselves, for in some specimens they are dead white, while in others they are lustrous pearly white. The green varies also from dark dull green in some individuals to bright grass green in others.

The summer brood, gen. aest. *pseudonymus*, although characterised by the stronger admixture of yellow with the green and the greater diffusion in the bands and spots, is not nearly so different from the spring brood, gen. vern. *algirica*, as are the spring and summer broods of *crameri*.

The Tring series consists of 2,069 specimens.

- 5 Djebel Tixa, Morocco, March 1905, W. Rigggenbach.
- 1 Tamarouth, Morocco, June 1904, W. Rigggenbach.×
- 8 Mogador, Morocco, Staudinger.×
- 30 Aïn Sefra, May 1913, W. R. and E. H.×
- 18 Ras Chergui, May 1915, Faroult.×
- 3 Djebel Mekter, May 1913, E. H. and C. H.×
- 5 Saïda, May 1913, W. R. and E. H.×
- 4 Tifrit, May 1913, W. R. and E. H.×
- 315 Berrouaghia, April 1914, Faroult.
- 7 Boghari, May 1913, Faroult.×
- 1,363 Guelt-es-Stel, March—May 1911—1913, W. R., E. H., and K. J., and Faroult.×
- 5 Laghouat, March—April 1911—1912, W. R. and E. H. and Faroult.
- 2 40 kilometres south of Laghouat, April 1911, W. R. and E. H.
- 60 Bou Saada, March—June 1911—1912, Faroult.×
- 3 Biskra, March 1911, W. R. and E. H.
- 20 El Outaya, March—April 1911, Faroult.
- 130 El Kantara, March—May 1908—1911, W. R. and E. H., Faroult and Cheli Brahim.×
- 15 Khenchela, May—June 1911—1912, W. R. and K. J. and Faroult.
- 7 Lambessa, May 1909, W. R. and E. H.
- 68 Environs de Batna, April—May 1909—1915, Nelva.

Where a × follows the name of the collector it denotes that some or all of the specimens consist of the summer brood, gen. aest. *pseudonymus*.

In the British Museum are 2 Lambessa, April 1884, J. Merkl, Oberthür coll. ex Elwes coll.; 1 Lambessa, May, and 1 El Kantara, May 1882, H. J. Elwes; 2 Mogador, Leech coll. (summer brood).

The ♀ ab. *postochracea* Rothsch., which is fairly common in the present subspecies, is very much rarer in *crameri* from Algeria. I have it only from Hammam Meskoutine.

[*Euchloë falloui* (Allard).]

I divided this insect into two subspecies, naming the purely desert insect *E. falloui obsolescens*, but stated that the specimens of *obsolescens* are evidently a **second** or **summer brood**, showing the same characters differentiating it from the first brood as do the **second broods** of *ausonia* and *belemia*, as opposed to their respective **first broods**. The Ghardaia specimens of the first brood of *f. obsolescens* show very little difference from El Outaya **first-brood** specimens, but I have ten **second-brood** specimens captured at Oued Hamidou between Alger and l'Arba and eight from El Kantara which are not at all like the **second brood** from the desert. Bou Saada *second-brood* specimens are certainly not all alike, but average about 85 per cent. with fully developed green bands and about 15 per cent. either *obsolescens* or intermediates. I think, therefore, that we are justified in maintaining *obsolescens* as a distinct race and regarding those from Bou Saada as somewhat in a transitional condition.]

16. *Euchloëfalloui falloui* (Allard).

*Anthocharis falloui* Gaston Allard, *Ann. Soc. Entom. France*, Ser. 4, vol. vii, pp. 312 and 318 (1867) (Biskra).

The only difference I can see between the first brood of *f. falloui* and that of *f. obsolescens* is that the latter has the green bands more sage-green and somewhat narrow, while the former has them broad and more olive-green. (The Bou Saada ones have these bands very olive.)

34 Col de Sfa, Biskra, February—March 1908–1911, W. R. and E. H. and Staudinger (3).

8 El Kantara, August 1911, Faroult.

26 El Outaya, March 1911, Faroult.

8 Khenehela, June 1911, Faroult.

10 Oued Hamidou, June 1912, Faroult.

33 Laghounat, March—April 1911–1912, W. R. and E. H. and Faroult.

1 Aïn Draham, July 1911, Faroult.

3 Guelt-es-Stel, April 1912–1913, W. R. and K. J. and Faroult.

1 Djebel Sénia, February 1910, Faroult.

The British Museum has the following specimens: 5 Hammam-es-Salahin, April 1904, Lord Walsingham; 1 Tkout, April 1906, Lord Walsingham; 1 Biskra, May 1885, L. Bleuse ex Elwes coll.; 1 Biskra, February 1894, ex Elwes coll.; 1 Mauretania, Grun-Grshimailo coll. ex Elwes coll.

The series at Tring comprises 124 specimens.

16a. *Euchloë falloui* form. transit.

The bulk of the specimens present little variation from the typical form, though in nearly all the green bands are much shaded with brownish olive, but from 5 to 15 per cent. show either a transition to or all the characters of *f. obsolescens*.

147 Bou Saada, May—August 1911–1912, Faroult.

6 Djebel Kerdada, May 1912, Faroult.

The Tring series comprises 153 specimens; 6 larvae and 1 pupa (the latter May 1912).

In the British Museum there is of this transitional form, 1 Bou Saada, René Oberthür, 1875, ex Elwes coll.

16b. *Euchloë falloui obsolescens* Rothsch.

*Euchloë falloui obsolescens* Rothschild, *Novit. Zool.* vol. xx. p. 112. No. 6 (1913) (South Oued Mya).

Of this form I only have *second-brood* examples from places south of Ghardaïa, but *first-brood* individuals ought not to be different from Ghardaïa examples. Its chief character distinguishing it from *f. falloui* is the strong increase of yellow and the almost vanishing green bands on the underside of the hindwings.

1 Idelès, March 1914, Geyr von Schweppenburg.

1 Oued Agelil, March 1914, Geyr von Schweppenburg.

3 South Oued Mya, April—May 1912, E. H. and C. H.

1 Aïn Guettera, April 1912, E. H. and C. H.

6 north of Aïn Guettera, April 1912, E. H. and C. H.

9 Ghardaïa, March—April 1911–1912, W. R. and E. H. and Dr. Nissen.

The Tring Museum possesses 21 examples of this form.

[*Euchloë belemia* Esper.

*Euchloë belemia* from North Africa has been considered by most authors to be identical with typical Spanish and Portuguese examples. Count Turati separated the desert specimens under the name *E. belemia desertorum* on the assumption that they were all as small and pale as the specimens from Biskra he had before him. Röber described a form under the name of *distincta*, which he said was larger than the type, and had much larger square black stigmas on the forewing and which he says flies at Philippeville. In former articles I employed these names to denote respectively the desert specimens, *i.e.* Biskra, Bou Saada, Laghouat, etc.; and those north of the Southern Atlas range. Mr. Oberthür quite rightly emphasises the fact that in most places the small individuals enormously outnumber the large; but in two places, *viz.* Hammam R'ilira and Hammam Meskoutine, I found nothing but very large and heavily marked specimens. Now that I have carefully compared a much larger series of individuals than I could formerly, I have come to the conclusion that at present, although the desert form is fairly recognisable and the large Philippeville and Hammam Meskoutine specimens with their huge discoidal black patch are very conspicuous, the general run of Mauretanian *belemia* are not much different from specimens obtained north of the Mediterranean, and it will require careful examination of the genitalia and the special Pierine sealing to finally determine the different races. I therefore propose in this article to treat all the Mauretanian *belemia* under the head of the species as a whole till such times as Dr. Jordan and Professor Dixey can find time to work out the races of *belemia* over its entire range.]

17. *Euchloë belemia* Esper.*Papilio belemia* Esper, *Die Schmett.* vol. i. pt. 2. t. 110. f. 2 (1792) (?).

- 5 Tangier.  
 8 Mogador, Staudinger.  
 7 Mazagan, Morocco, March 1900, W. Riggenbach.  
 4 Djebel Chedar, Morocco, March 1901, W. Riggenbach.  
 5 Skiadma, Morocco, March 1905, W. Riggenbach.  
 4 Ouled Farsh, Morocco, May 1904, W. Riggenbach.×  
 1 Mwhoila, Morocco, ? ?, W. Riggenbach.  
 3 Rabat, Morocco. 1914. A. Théry.  
 59 Moroccan Frontier, May 1914, Faroult.×  
 3 Morocco, October 1902, ? ×  
 37 Masser Mines, May 1914, Faroult.×  
 21 Nedroma, May 1914, Faroult.×  
 221 Lalla Marnia, May 1914, Faroult.×  
 5 Ain Sefra, May 1913, W. R. and E. H.  
 19 Ras Chergui (Djebel Mekter), May 1915, Faroult.×  
 2 Saïda, May 1913, W. R. and E. H.×  
 11 Titen Yaya, May 1915, Rotrou.×  
 21 Oran, April 1913, W. R. and E. H.×  
 72 Environs d'Alger. February—June 1908–1914, W. R., E. H., and K. J.,  
 Dr. Nissen and Captain Holl.×  
 4 Blida les Glacières, June 1908, W. R. and K. J.×  
 50 Hammam R'ilra, April—May 1908–1913, W. R., E. H., and K. J.×  
 173 Berrouaghia, April 1914, Faroult.  
 21 Boghari, May 1913, Faroult.×  
 331 Guelts-Stel, April—May 1912–1913, W. R., K. J., and Faroult.×  
 1 Aïn Oussera, April 1911, W. R. and E. H.  
 8 Puits Baba, May 1913, Faroult.×  
 8 Bou Cedraia, May 1913, Faroult.×  
 6 Laghouat, March 1912, Faroult.  
 34 Bou Saada, March—April 1912–1913, Faroult.  
 1 Bled-et-Amar, March 1912, E. H. and C. H.  
 1 Nça-Ben-Rzig, February 1912, E. H. and C. H.  
 3 Bordj Chegga, February 1912, E. H. and C. H.  
 1 Col de Sfa, Biskra, February 1911, W. R. and E. H.  
 47 Biskra, March—April 1908–1914, W. R. and E. H.  
 22 El Outaya, March—August 1910–1911, Faroult.  
 33 El Kantara, March—June 1882–1911, W. R., E. H., Faroult, Cheli  
 Brahim, and H. J. Elwes.×  
 8 Kheuchela, May 1912, W. R. and K. J.×  
 1 Lambessa, May 1909, W. R. and E. H.×  
 20 Environs de Batna, June 1909–1913, Nelva and Faroult.  
 80 Hammam Meskoutine, May 1909–1914, W. R., E. H., and K. J.  
 15 Souk Ahras, April 1914, W. R. and K. J.  
 4 Aïn Draham, Tunisia, Staudinger.  
 1 Tozeur, Tunisia, Staudinger.  
 22 Environs de Tunis, March—April 1915, E. Blanc.

1 Kebili, March 1907, Staudinger.

1 Djebel Zaccar, June 1906, Faroult.

The Tring Museum series from Mauretania consists of 1,361 specimens.

The British Museum has the following Mauretanian *belemia*: 7 Meade-Waldo; 8 Mogador, Leech coll.; 10 Tangier, 7 ex Druce coll., 2 ex Bates, and 1 J. J. Walker, all ex Salvin Godman coll.; 1 Biskra, May, 1 El Kantara, May 1882, H. J. Elwes.

The  $\times$  after the name of the collector denotes that some or all of the specimens consist of the summer brood *glauce*. Miss Fountaine records the summer brood *glauce* from Teniet-el-Haad, May—June 1904.

#### *Euchloë belemia* $\times$ *ausonia* *algirica* ? ?

These six specimens and some eight or ten others taken by Dr. Nissen are very remarkable; they are undoubtedly in appearance exactly intermediate between *belemia* and *ausonia*, and as I consider a specimen taken by myself in April 1912 to agree in pattern with them, I treat them as hybrids; but if, on examination of its genitalia, this specimen should turn out to be only an aberrant *ausonia*, it is quite possible that we have here an example of a third brood occurring occasionally among the normally double-brooded *belemia*.

6 Guelt-es-Stel, April—November 1912–1913, W. R. and K. J. and Faroult.

#### 18. *Teracolus evagore nouna* (Luc.).

*Anthocharis nouna* Lucas, *Expl. Scient. de l'Alg.* Zool. III. *Lépid.* p. 350. pl. i. ff. 2. a, b, etc. (1849) (Oran).

Hitherto this beautiful little butterfly has been placed as a subspecies of *daira*, Klug, but it agrees better with that author's *evagore*, which I think is distinct from *daira*.

It has two broods, which differ mostly on the underside, that in spring having a dirty pink colouring of the underside of the hindwing. Monsieur Blachier has separated the spring brood from Biskra as var. *biskrensis*. I have only one specimen from the Province of Oran, namely, one taken by myself at Aïn Sefra, and this certainly differs from all the other ♀♀ in the Tring Museum by having the orange apex much reduced; but until an equally large series of both broods from Morocco and Oran can be placed side by side with my 325 from East and Central Algeria for comparison, I feel unable to decide this point, and shall record all specimens under *nouna* Lucas.

1 Djebel Tixa, Morocco, March 1905, W. Riegenbach.

1 Aïn Sefra, May 1913, W. R. and E. H.

48 Ghardaïa, April—May 1911–1914, W. R., E. H., and C. H., and Dr. Nissen.

6 Biskra, Staudinger.

1 Col de Sfa, ex larva (larva April 1908, emerged May 8th, 1908), W. R. and E. H.

14 El Outaya, May 1911, Faroult.

244 El Kantara, May—July 1911, Cheli Brahim.

12 Environs de Batna, Nelva.

The Tring series thus amounts to 327 specimens. The British Museum as 1 Hammam-es-Salahin ex larva, Lord Walsingham.

Miss Fontaine records a single specimen from Sebdou, June 1904.

Mr. Blachier records a specimen from Inmentala, Morocco.

Mr. Joannis records this species from Oued Kadamellet, north of Air, September 1905, M. R. Chudeau.

#### 19. *Teracolus liagore* (Klug).

*Pontia liagore* Klug, *Symb. Phys. fol. g. p. 1. pl. vi. ff. 5-8* (1829) (Ambukohl).

This insect is recorded by M. de Joannis, *Bull. Soc. Entom. France* 1908, p. 82, as having been collected by M. R. Chudeau, Oued Kadamellet, north of Air, September 1905.

#### 20. *Teracolus chrysonome* (Klug).

*Pontia chrysonome* Klug, *Symb. Phys. fol. g. p. 2. No. 9. pl. vii. ff. 9-11* (1829) (Ambukohl).

In the *Ann. Mag. Nat. Hist.* (8), xvi, p. 247. No. 3 (1915) I quite correctly enumerated Herr G. von Schweppenburg's four Idelès specimens as *Teracolus helvolus* Butl. Professor Aurivillius in Seitz places *helvolus*, however, as the dry-season form of *chrysonome*, and I believe he is right, and that in absolute desert areas like Somaliland and the Hoggar Mountains the wet-season form *chrysonome* does not occur.

In the Idelès specimens the mauve bands and spots are not quite so much obliterated as in 5 ♂♂ I have from Jubilando, British East Africa, but they are not at all golden yellow with bright mauve bands as in typical *chrysonome* collected by my brother N. Charles Rothschild at Shendi, and which I have also from Suakim and the Nandi country in British East Africa.

4 Idelès, Hoggar Mountains, March 1914, Geyr von Schweppenburg.

This species should stand thus:

***Teracolus chrysonome*** (Klug).

gen. vern. *chrysonome* Klug.

gen. aest. *helvolus* Butl.

These four specimens in the Tring Museum are, I believe, the only known Mauretanian examples of this species, except those recorded by Joannis as collected by M. R. Chudeau, viz. Oued Tessamak, Adrar, June 1905; Oued Tidek and Oued Kadamellet, north of Air, September 1905.

#### 21. *Colias hyale* (Linn.).

*Papilio hyale* Linnaeus, *Syst. Nat.* I. p. 469. No. 71 (1758) (Europe, Africa).

I have never seen any Mauretanian *hyale*; in fact I have never seen true *hyale* from any part of Africa; the subspecies *hyale marnoana* Rogenh., however, occurs in Abyssinia and the Soudan. Mr. Oberthür, when he says that *hyale* as we understand it to-day is not the *hyale* of Linnaeus, quotes the twelfth edition of the *Systema Naturae*, in which is added the habitat "America Septentrionali." In the tenth edition only Europe and Africa are given, and the quotation of the Fauna Svecica is not included; I therefore think, despite the discrepancies of the diagnosis, we can quite conscientiously assume that we are applying Linnaeus' name *hyale* to the butterfly he gave it to in his tenth edition.

22. *Colias electo eroceus* (Geoff.).

*Papilio eroceus* Geoffroy Foureroy's *Entom. Par.* vol. ii. p. 250 (1785) (Paris).

Although this insect was seen by us practically everywhere we went, it was never very abundant.

- 8 Mazagan, Morocco, April—July 1900–1902, W. Riggenbach.
- 2 Truchan, Morocco, May 1904, W. Riggenbach.
- 3 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 7 Ouled Farsh, Morocco, June 1901, W. Riggenbach.
- 1 Fenson, Morocco, May 1903, W. Riggenbach.
- 1 Cap Blanco, Morocco, May 1902, W. Riggenbach.×
- 11 Mogador, Morocco, Staudinger.
- 2 Zoudj-el-Beghal, Morocco, July 1914, Faroult.
- 4 Aïn Sefra, May—July 1913–1915, W. R. and E. H. and Faroult.×
- 1 Djebel Mekter, Aïn Sefra, May 1913, E. H. and C. H.
- 8 Masser Mines, May 1914, Faroult.×
- 2 Tlemcen, April 1913, W. R. and E. H.×
- 3 Saïda, May 1913, W. R. and E. H.
- 3 Tifrit, near Saïda, May 1913, W. R. and E. H.×
- 12 Titen Yaya, May 1915, Rotrou.
- 2 Ras Chergui, May 1915, Faroult.
- 3 Oran, April 1913, W. R. and E. H.×
- 15 Environs d'Alger, March—June 1908–1912, W. R., E. H., and K. J.,  
Dr. Nissen and Captain Holl.×
- 1 Yakouren, Kabylie, June 1906, Dr. Nissen.
- 2 Taourirt-Ighil, Kabylie, June 1906, Dr. Nissen.
- 4 Lella Kredidja, Kabylie, July 1907, Dr. Nissen.
- 2 Pic Abd-el-Kader, July 1905, Dr. Nissen.×
- 7 Blida les Glacières, June 1908, W. R. and K. J.×
- 25 Hammam R'ihra, April—May 1908–1913, W. R., E. H., and K. J., and  
August—September 1916, Faroult.×
- 18 Guelt-es-Stel, April 1912–1913, W. R. and K. J., Faroult.×
- 1 Forêt de Djelfa, June 1913, Faroult.×
- 4 Djelfa, June 1913, Faroult.×
- 2 Laghouat, April 1911, W. R. and E. H.
- 1 Bou Saada, May 1911, Faroult.
- 6 Ouargla, June 1914, Geyr von Schweppenburg.×
- 1 Oued Mya, April 1912, E. H. and C. H.
- 1 Bled-et-Amar, March 1912, E. H. and C. H.
- 2 Touggourt, February 1912, E. H. and C. H.
- 2 Bordj Chegga, February 1912, E. H. and C. H.
- 20 Biskra, March 1908–1914, W. R. and E. H.
- 2 El Outaya, March—August 1910–1911, Faroult.
- 23 El Kantara, March—June 1909–1911, W. R. and E. H., Faroult, and  
Cheli Brahim.×
- 4 Khenehela, May 1912, W. R. and K. J.
- 14 Environs de Batna, April 1908–1914, W. R., E. H., and Nelva.
- 2 Oued Hamidou, June 1912, Faroult.

- 4 Hammam Meskoutine, May 1914, W. R. and K. J. ×  
 1 Aïn Draham, Tunisia, June 1909, Faroult. ×  
 6 Environs de Tunis, August—September 1915, E. Blanc.

The × after the collector's name denotes that one or more specimens belong to the ♀ forma *helice*. I have never seen nor do I possess a single Mauretanian example of the ♀ forma *helicina* Oberth. (= intermediate ♀ form between *helice* and normal ♀), and considering the large series I have from Mauretania, the number of pale yellow ♂♂ (3) is very small.

The British Museum has the following specimens from Mauretania: 7 Meade-Waldo; 2 Tangier and 2 Mogador, January 1881, Lecch coll.; 2 Biskra, May 1882, H. J. Elwes; 2 Philippeville, May 1882, H. J. Elwes.

Mr. Meade-Waldo in his article quotes Tangier, December—January; Interior, May—June. The Tring series from Mauretania consists of 243 specimens.

### 23. *Gonepteryx rhamni meridionalis* Röber.

*Gonepteryx rhamni meridionalis* Röber in *Seitz Grossschmetz. der Erde*, vol. i. p. 67 (1907) (Algeria and S. Asia Minor).

Mr. Charles Oberthür states that two subspecies of this insect occur in Algeria, the large *meridionalis* and a small form indistinguishable from typical *rhamni*, and he records two such small specimens in his collection taken at Alger by the late Lieutenant Mathieu. Now *Gonepteryx rhamni* is very rare indeed in Algeria, and almost as rare in Tunisia and Morocco, so, as Mr. Oberthür truly remarks, we require much fuller material before deciding finally on this question; but I would like to point out that *rhamni meridionalis* could under any circumstance only be treated as a subspecies or local race, and we frequently find that among such local races individuals appear sporadically which are indistinguishable from the type, although 75 per cent. or more of the individuals exhibit all the distinguishing characters of the local race. This being the case, I do not consider these small Algerian *rhamni*, of which I have two from Batna, at all invalidate the subspecific value of the race *rhamni meridionalis*. South Portuguese specimens (Monchique, Dr. K. Jordan) are **not** *meridionalis*.

- 3 Environs d'Alger, March and June 1908, W. R., E. H., and K. J.  
 1 Blida les Glacières, June 1908, W. R. and K. J.  
 1 Hammam R'ihra, May 1908, W. R. and K. J.  
 4 Batna, Nelva.  
 2 Tunis.  
 2 Aïn Draham, July 1911, Faroult.

The Tring series consists of 13 specimens.

The British Museum has 2 from Meade-Waldo.

Mr. Meade-Waldo in his article gives the following data: Tangier, March 1901, December 1902.

### 24. *Gonepteryx cleopatra* (Linn.).

*Papilio cleopatra* Linnaeus, *Syst. Nat.* edit. xii. vol. i. part 2. p. 765. No. 105 (1767) (Barbaria).

It is very curious, as Mr. Oberthür remarks, what a comparatively large number of gynandromorphous specimens occur in this species; of the three

Algerian ones in the Tring Museum, the one I took near Alger myself has only some broad whitish bands on the right hindwing, but the Khenchela specimen is very remarkable. The abdomen appears to be equally divided, left half ♂, right ♀; there is only one very thick antenna in the middle of the frons; the left pair of wings are ♂ with a few patches of ♀ colouring; the right pair of wings are ♀ with only three or four very small splashes of ♂ coloration.

83 Masser Mines, May 1914, Faroult.

20 Nedroma, May 1914, Faroult.

1 Lalla Marnia, May 1914, Faroult.

3 Sidi-bel-Abbés, June 1915, Rotrou.

10 Titen Yaya, March—June 1915, Rotrou.

1 Oran, April 1913, W. R. and E. H.

1 Santa Cruz, Oran, February 1906, Dr. Nissen.

44 Environs d'Alger, March—June 1908—1913, W. R., E. H., and K. J.

15 Blida les Glacières, June 1908, W. R. and K. J.

18 Hammam R'ihra, May 1908—1913, W. R., E. H., and K. J.

14 Guelt-es-Stel, April—May 1913, Faroult.

3 Bou Saada, May 1911, Faroult.

10 El Kantara, March—June 1911, W. R. and E. H., Faroult and Cheli  
Brahim.

1 Khenchela, June 1911, Faroult.

1 Lambessa, May 1909, W. R. and E. H.

12 Environs de Batna, Nelva.

2 Oued Hamidou, June 1912, Faroult.

23 Hammam Meskoutine, May 1909—1914, W. R., E. H., and K. J.

1 Souk Ahras, April 1914, W. R. and K. J.

1 Aïn Draham, July 1911, Faroult.

3 Djebel Zaccar above Miliana, June 1916, Faroult.

10 Environs de Tunis, April—June 1915—1916, E. Blanc.

Of these the following are gynandromorphous:

1 Environs d'Alger.

1 Khenchela.

1 Aïn Draham.

The British Museum has the following Mauretanian examples: 5 Meade-Waldo; 3 Tangier and 3 Mogador, Leech coll.; 1 Tangier, Druce coll. ex Salvin Godman coll.

Mr. Meade-Waldo gives the following data in his article: Tangier, January 1901; Fedulla, May 1901; Wad Moorbey (rect. Oum-er-Rebia), June 1901; Sould Jedid, July 1901.

Miss Fountaine records this species from Teniet-el-Haad, June 1904. The Tring Museum has 277 Mauretanian specimens.

## 25. *Catopsilia florella* (Fabr.).

*Papilio florella* Fabricius, *Syst. Entom.* p. 479. No. 159 (1775) (Sierra Leone).

The only Mauretanian records I can find of this insect are by Mr. de Joannis, Oued el Ghessour and Oued Kadamellet, September 1905 (north of Air), M. R. Chudeau.

26. *Danais (Limnas) chrysippus* (Linn.).

*Papilio chrysippus* Linnaeus, *Syst. Nat.* edit. x. vol. i. p. 471. No. 81 (1758) (Egypt, America !).

With the exception of the record by Mr. Joannis, Oued Kadamellet, September 1905, M. R. Chudeau, Dr. Hartert's three specimens are the only other Mauretanian specimens. While Mr. Chudeau's is the ab. *alcippus* with white hindwings, all three of Dr. Hartert's are typical *chrysippus*.

- 1 north of Aïn Guettera, April 1912, E. H. and C. H.
- 1 Igosten, In-Salah, April 1912, E. H. and C. H.
- 1 South Oued Mya, May 1912, E. H. and C. H.

27. *Charaxes jason* (Linn.).

*Papilio jason* Linnaeus, *Syst. Nat.* edit. xii. part i. p. 749. No. 26 (1767) (Barbaria).

I have seen this insect alive in Algeria on two occasions, and both times failed to catch it, first a ♂ near Alger, which we chased up and down a cutting for nearly half an hour, and secondly a large ♀ near Blida les Glacières. Dr. Hartert also saw one near Mustapha. My servant Harmon Drury saw one of these insects at Hammam R'ihra, but missed it. Dr. Nissen has several Alger specimens.

- 2 Aïn Draham, Victor Faroult.
- 1 Environs d'Alger, ex. coll. Nelva.
- 2 Hammam R'ihra, August—September 1916, Faroult.

In the British Museum there is one specimen, Sebduou 1880—1882, Dr. Codet ex Elwes coll.

28. *Pyrameis atalanta* (Linn.).

*Papilio atalanta* Linnaeus, *Syst. Nat.* edit. x. vol. i. part ii. p. 478. No. 119 (1758) (Sweden).

The only time I ever saw this insect in any numbers in Algeria was in 1913, in Mrs. Beresford's garden in Mustapha Superior, Alger. Two large masses of the creeper *Buddleia madagascariensis* were in full flower, and the "Red Admirals" were in large numbers sucking honey from the long spikes of orange flowers.

- 13 Mazagan, Morocco, March—December 1900—1902, W. Riggenbach.
- 2 Oran, April 1913, W. R. and E. H.
- 19 Environs d'Alger, March—June 1908—1913, W. R., E. H., and K. J.
- 1 Blida les Glacières, June 1908, W. R. and K. J.
- 3 Hammam R'ihra, April—June 1911—1912, W. R., E. H., and K. J.
- 2 El Kantara, June 1911, Cheli Brahim.
- 1 Constantine, May 1908, W. R. and E. H.
- 1 Hammam Meskoutine, May 1914, W. R. and K. J.
- 4 Environs de Tunis, March—April 1915, E. Blanc.

Mr. Gibbs reports *atalanta* from Tlemcen, May 1910.

There are no specimens from Mauretania in the British Museum.

Mr. Meade-Waldo gives Tangier, February—March 1901; Amsmiz, June 1901; and Imentalla, July 1901, in his Moroccan article.

29. *Pyrameis cardui cardui* (Linn.).

*Papilio cardui* Linnaeus, *Syst. Nat.* edit. x. part i. p. 475. No. 107 (1758) (Europe, Africa).

We found this insect everywhere in Algeria, though one never saw very many on the wing at one time.

- 9 Mazagan, Morocco, March—June 1900, W. Riggenbach.
- 2 Seksawa, Morocco, April 1905, W. Riggenbach.
- 1 Ouled Farsh, May 1901, W. Riggenbach.
- 2 Rabat, Morocco, 1914, A. Théry.
- 8 Masser Mines, May 1914, Faroult.
- 1 Lalla Marnia, December 1914, Faroult.
- 7 Aïn Sefra, May 1913, W. R. and E. H.
- 1 Saïda, May 1913, W. R. and E. H.
- 1 Tlemcen, April 1913, W. R. and E. H.
- 12 Titen Yaya, April 1915, Rotrou.
- 5 Oran, April 1913, W. R. and E. H.
- 3 Environs d'Alger, March 1908–1912, W. R., E. H., and K. J.
- 1 Lella Kredidja, July 1907, Dr. Nissen.
- 2 Blida les Glacières, June 1908, W. R. and K. J.
- 11 Hammam R'ihra, May 1908–1913, W. R., E. H., and K. J.
- 4 Guelt-es-Stel, June—September 1913, Faroult.
- 1 Djelfa, June 1913, Faroult.
- 2 Oued Nça, April 1914, E. H. and C. H.
- 1 north of Aïn Guettera, April 1912, E. H. and C. H.
- 4 Timassinin, January 1914, Geyr von Schweppenburg.
- 1 Amgid, February 1914, Geyr von Schweppenburg.
- 3 Aïn Tahart, February 1914, Geyr von Schweppenburg.
- 2 Idelès, March 1914, Geyr von Schweppenburg.
- 1 Ouargla, June 1914, Geyr von Schweppenburg.
- 1 Bordj Chegga, February 1912, E. H. and C. H.
- 1 Col de Sfa, Biskra, March 1911, W. R. and E. H.
- 3 Biskra, March 1908—1911, W. R. and E. H.
- 23 El Kantara, May—June 1911, W. R., E. H., and Cheli Brahim.
- 3 Environs de Batna, Nelva.
- 1 Bordj Saada, April 1908, W. R. and E. H.

The Mauretanian series in the Tring Museum comprises 118 specimens.

Mr. Meade-Waldo in his article says he found *cardui* on the wing all the year round everywhere he went, and that the late autumn brood was very small and dark. There are no Mauretanian *cardui* in the British Museum.

Mr. de Joannis records Tamangasset, Hoggar Mountains, August 1905, M. R. Chudeau.

30. *Vanessa polychloros erythromelas* Aust.

*Vanessa polychloros* var. *erythromelas* Austaut, *Le Naturaliste*, vol. vii. p. 142 (1885) (Sebdu).

In the drawer in which is contained *polychloros* and the Mauretanian form *erythromelas* in the British Museum is a note in Mr. H. J. Elwes' handwriting saying he cannot acknowledge the validity of Austaut's name as he cannot

make out any differences. If Mr. Elwes placed my two drawers of *erythromelas* next to a drawer full of typical *polychloros* he would at first sight consider them more distinct from *polychloros* than is *xanthomelas*, which everyone acknowledges is a distinct species, for the deep fulvous red colour in *erythromelas* is in striking contrast to the often dirty fulvous yellow of *polychloros*.

As, however, occasional yellower specimens occur in Mauretania (about 1 in 350 specimens), we cannot treat *erythromelas* as anything but a very distinct subspecies = local race. We never found this insect very plentiful anywhere in a perfect state, though the larvae here and there were very abundant, and in consequence there are only 7 in the Tring Museum captured by ourselves.

1 Fenson, Morocco, April 1903, W. Riggenbach.

1 Sebdoou, June 1888, Astant (type of *erythromelas*).

1 Magenta, Prov. Oran, June 1915, Rotrou.

6 Environs d'Alger, May—June 1911–1912, W. R., E. H., and K. J., and Captain Holl.

3 Blida les Glacières, June 1908, W. R. and K. J.

1 Hammam R'ihra, May 1908, W. R. and K. J.

194 Environs de Batna, Nelva and Taillefer.

4 Khenchela, July 1911, Faroult.

1 El Kantara, March 1911, Madame Faroult.

1 Djebel Taya, February 1911, W. R. and E. H.

16 Grand Kabylie, July 1909, Dr. Nissen.

4 Lella Kredidja, August 1907, Dr. Nissen.

1 Aïn Draham, Tunisia, July 1911, Faroult.

4 Djebel Zaccar, above Miliana, June 1916, Faroult.

The Tring series comprises 238 specimens.

The El Kantara specimen, which I saw alive directly after Madame Faroult caught it at the foot of the Djebel Metlili, is, I believe, the most southern specimen hitherto captured.

The British Museum has 2 Mauretania, Grum-Grshimailo coll. ex Elwes coll. ; 1 Alger, Lieutenant Mathieu ex Elwes coll.

### 31. *Polygonia c. album* (Linn.).

*Papilio c. album* Linnaeus, *Syst. Nat.* edit. x. vol. i. p. 477. No. 115 (1758) (Sweden).

We have only seen this insect once in Algeria; and although Dr. Nissen maintains that it is fairly common round Alger, I feel sure it is not nearly as common as it has been considered to be, or else Mr. Oberthür and I would have been able to have procured more than fourteen specimens between us in forty years.

1 Environs d'Alger, March 1912, W. R. and K. J.

2 Djebel Zaccar above Miliana, July—August 1916, Faroult.

1 Hammam R'ihra, May 1916, Faroult.

1 Aïn Draham, Tunisia, Faroult.

There are no specimens of this species in the British Museum from Mauretania. Mr. Meade-Waldo in his article records it as follows: Tizi Gourzá, July 1901.

32. *Polygonia egea* (Cram.)

*Papilio egea* Cramer, *Pap. Erot.* vol. i. part vii. p. 124, pl. lxxviii. ff. C. D. (1775) (Constantinople, Smyrna).

This insect also must be extraordinarily scarce in Mauretania, for I have heard of no others except Mr. Oberthür's single specimen and my own two.

- 1 Hussein Dey, Alger, Captain Holl.
- 1 Fenson, Morocco, April 1903, W. Riggenbach.

Captain Holl sold the Hussein Dey example to me as *c. album*, and it was only when I was writing this article that I found out it was an *egea*.

33. *Argynnis maja seitzi* Fruhst.

*Argynnis maja seitzi* Fruhstorfer, *Intern. Entom. Zeitschr. Guben*, vol. ii. p. 69 (1908) (Alger!!!).

I feel sure Fruhstorfer's type locality rests on an error, for I have no knowledge of *maja seitzi* having been taken nearer to Alger than Blida, Hammam R'ihra, and the Kabylie (Dr. Seitz states positively in *Grossschm. der Erde*, vol. i. that the type specimens were taken by himself in the Aurés Mountains).

We have only taken two specimens ourselves; of these the Hammam R'ihra individual was taken by our taxidermist, Carl Hilgert.

- 1 Mazagan, Morocco, May 1902, W. Riggenbach.
- 1 Cap Blanco, Morocco, May 1902, W. Riggenbach.
- 4 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 15 Zoudj-el-Beghal, Morocco, July 1914, Faroult.
- 21 Masser Mines, June 1914, Faroult.
- 3 Titen Yaya, June 1915, Rotrou.
- 1 Magenta, June 1915, Rotrou.
- 1 Sidi-bel-Abbés, June 1915, Rotrou.
- 12 Lella Kredidja, Kabylie, July 1906-1907, Dr. Nissen.
- 7 Blida les Glacières, June-August 1906-1912, W. R. and K. J., Dr. Nissen and Captain Holl.
- 1 Hammam R'ihra, May 1913, W. R. and E. H.
- 3 Teniet-el-Haad, June-July 1905, Dr. Nissen.
- 5 Guelt-es-Stel, July 1913, Faroult.
- 3 Khenchela, July 1911, Faroult.
- 2 Djebel Zaccar, above Miliana, June 1916, Faroult.

The Tring series numbers 88 individuals. The five labelled by Faroult Guelt-es-Stel, July 1913, did not, I feel sure, come actually from Guelt-es-Stel; from what I know of his movements between May and August 1913, they must have been taken somewhere considerably to the south-cast of Guelt-es-Stel, nearer the Forêt de Djelfa.

The British Museum has no specimens of *maja seitzi*.

Mr. Meade-Waldo gives in his article Sould Jedid, July 1901, and Tizi Gourzá, July 1901, and he remarks that in the north of Morocco he only saw two worn specimens, while in the High Atlas it was abundant.

Miss Fountaine records this species from Teniet-el-Haad, June 1904, and Sebdu, June and July 1904.

Mr. Gibbs records it from Oran, May 1910, and Tlemcen, May 1910.

The specimens of Captain Holl are labelled Environs d'Alger, but Blida les Glacières was formerly included by him in that term; though he later specified the actual places when he found it advantageous to do so.

### 34. *Argynnis paphia dives* Oberth.

*Argynnis paphia* var. *dives* Oberthür, *Bull. Soc. Entom. France*, p. 26 (1908) (Kabylie, Yakouren).

We have not found this species ourselves, as we never remained in Algeria late enough, for it is not on the wing before the end of June at the earliest.

11 Lella Kredidja, July 1907, Dr. Nissen.

13 Environs de Batna, Nelva.

2 Lambessa, July 1912, Nelva.

Of these 26 specimens in the Tring Museum, 1 ♂ from Batna and 1 ♀ from Lella Kredidja have silver stripes on the underside of the hindwing (= ab. *argyrea* Oberth.).

No specimens of *paphia dives* are in the British Museum.

### 35. *Argynnis auresiana* Fruhst.

*Argynnis adippe auresiana* Fruhstorfer, *Intern. Entom. Zeitschr. Guben*, vol. ii. p. 69 (1908) (Aurès Mountains).

This also flies much later in the year than we ever stayed in Algeria, so that Tring Museum has none of our own collecting. There appear to be no differences perceivable between specimens from the Kabylie Mountains and those from the Aurès Mountains.

Mr. Charles Oberthür considers *auresiana* a good distinct species and cites Dr. Reverdin as witness; the latter having compared the ♂ genitalia and found them very distinct from *adippe*. I think under the circumstances it is advisable to accept this view, until Dr. Jordan can confirm or disprove it by the examination of a number of specimens of both.

11 Lella Kredidja, Kabylie, July 1907, Dr. Nissen.

95 Environs de Lambèze, June 1912-1914, Nelva.

### 36. *Argynnis lathonia* (Linn.).

*Papilio lathonia* Linnaeus, *Syst. Nat.* vol. i. p. 481. No. 141 (1758) (Europe).

We only once found this insect at Mustapha Superior, when Dr. Hartert caught a fine specimen with his hat. This is accounted for by the fact that the insect is never out in its full numbers till later in the year than we have been in Algeria; but it is strange that I have only received three other specimens during the last nine years.

1 Zoudj-el-Beghal, Morocco, July 1914, Faroult.

1 Titen Yaya, June 1915, Rotrou.

1 Environs d'Alger, May 1913, W. R. and E. H.

1 Djclfa, June 1913, Faroult.

The British Museum has 2 Algerian specimens; 1 Lambessa, May 1882, H. J. Elwes; 1 Alger, Leech coll.

Mr. Meade-Waldo in his article records Sould Jedid and Tsauritz Entsa-gauz, July 1901.

37. *Melitaea desfontainii desfontainii* (Godart).

*Argynnis desfontainii* Godart, *Encycl. Method. Hist. Nat. Entom.* vol. ix. p. 278. No. 46 (1819) (Barbarie).

This insect I do not possess, there being in the Tring Museum only a series of *desfontainii boetica* taken by Dr. Jordan in Portugal. In the British Museum are 3 specimens: 1 Sebdu, 1880-1882, Dr. Codet ex Elwes coll.; 2 Algeria, Crowley bequest. I have 3 labelled *desfontainii* from my brother's former collection, but I do not know what they are as they are without locality, and instead of being redder than *boetica* are much duller.

38. *Melitaea cinxia* (Linn.).

*Papilio cinxia* Linnaeus, *Syst. Nat.* vol. i. p. 480. No. 137 (1758) (Sweden).

We never came across this insect, and I know of no other Mauretanian specimens except the two taken by Harold Powell.

39. *Melitaea dejone nitida* Oberth.

*Melitaea dejone* forma *nitida* Oberthür, *Etud. Lépid. Comp.* Fasc. III. p. 254 (1909) (Tlemcen, Sebdu).

Of this insect I have no specimens and there are none in the British Museum. When we were at Tlemcen we visited the Waterfall more than once, but being the month of April we were too early for *dejone nitida*.

40. *Melitaea aetherie algerica* Rühl.

*Melitaea aetherie* var. *algerica* Rühl, *Palaearkt. Grossschm.* p. 389 (1892-1895) (Algeria).

We have taken this species in various places and have a fairly large series at Tring, but the ♀ form which is all rufous like the ♂ is much rarer than the parti-coloured ♀. The Tring series consists of 157 specimens.

10 Masser Mines, May-June 1914, Faroult.

1 Saïda, May 1913, W. R. and E. H.

2 Tifrit, May 1913, W. R. and E. H.

14 Hammam R'ihra, May-August 1913-1916, W. R. and E. H. and Faroult.

1 Berrouaghia, April 1914, Faroult.

73 Khenchela, May-June 1911-1912, W. R. and K. J. and Faroult.

55 Batna, Nelva.

1 Aïn Taya, May 1914, W. R. and E. H.

The British Museum has 7 specimens of this insect: 2 Lambessa, April-May 1882, H. J. Elwes; 4 Lambessa, June 1885, L. Bleuse ex Elwes coll.; 1 Algeria, Crowley bequest. Miss Fountaine records it from Teniet-el-Haad, May-June 1904.

41. *Melitaea phoebe punica* Oberth.

*Melitaea phoebe* var. *punica* Oberthür, *Etud. Entom.* Fasc. I. p. 25. pl. 1. f. 3 (1876) (Lambèze).

I do not consider we are justified in considering this Algerian insect as anything more than a very well marked race of *phoebe*, unless the study of the

genitalia of a large series of examples should hereafter show it to be worthy of specific rank. We found it much rarer at Khenchela than *aetheriae algerica*, and in the west of Algeria it seems to become still rarer. We have at Tring 61 specimens.

- 2 Masser Mines, May 1914, Faroult.
- 1 Titen Yaya, May 1915, Rotron.
- 1 Bou Cedraïa, May 1913, Faroult.
- 1 Berrouaghia, April!!! 1914, Faroult.
- 17 Khenchela, May—June 1911–1912, W. R., K. J., and Faroult.
- 39 Batna, Nelva.

The specimen from Faroult from Berrouaghia **may be** an early freak, but I expect it was a Khenchela one dragged about and finally put in by mistake.

The British Museum possesses 12 specimens: 6 Lambessa, May 1882, H. J. Elwes; 4 Lambessa, June 1885, L. Bleuse ex Elwes coll.; 2 Algeria, Leech coll.

There seems to be little or no variation in this insect.

#### 41a. *Melitaea phoebe leechi* subsp. nov.

Differs from *phoebe punica* in being very much larger, deep rufous **not** fulvous yellow or rufous yellow as in *p. punica*, and the black markings are narrower and thinner. They are as large almost as Chinese examples or the largest European forms.

*Habitat.* Mogador. 14 specimens collected by J. H. Leech in the British Museum ex Leech coll., Salvin Godman coll., and Elwes coll.

These are all the specimens recorded so far as I know.

#### [*Melitaea didyma* Ochs.

This is the most variable butterfly almost that exists, and is certainly the most widely spread *Melitaea*, extending as it does from Portugal, Spain, and France to the Pacific, and from the Moroccan coast to Abyssinia, while from north to south it reaches in the west from Germany to the Central Sahara, and in the east from North-east Siberia to South China. It is not only variable individually, but splits up into an unusually large number of local races, and it is often difficult to define what is individual and what is local variation.

It is in insects such as this that, once more, it is apparent that for adequate study of species and subspecies of living creatures it is almost impossible to have too large a series of specimens, not only in regard to localities, but also from each individual locality.

In 1876, when describing for the first time *didyma deserticola* as an aberration, Mr. Oberthür cites *didyma didyma* as occurring in Philippeville, Oran, Collo, etc., in examples similar to Pyrenean examples, while from Aïn Khala he had a very distinct ♀ all fiery red. In 1909 Mr. Charles Oberthür designated the **Spanish and Algerian** *didyma* as forma *mauretunica*, stating that Staudinger's names *occidentalis* and *meridionalis* had been applied each to such a conglomeration of local races that they could not stand, and a new nomenclature was required, in order that a name could be applied to each **well-characterised ASIATIC RACE**.

Now, the names *occidentalis* and *meridionalis* were given by Staudinger in his *Catalog der Lepidopteren Europas*, p. 8. No. 198. vars. b. and c. 1861. *M. d. occidentalis* was given to Hübner's figures 869-70 (*cinxia*) and Herrich Schaeffer's fig. 133 (*didyma* var.) and figs. 324-7 (*trivia* var.). The latter, ff. 324-7, are definitely stated by their author to have come from Mount Ararat, while his No. 131 called by Staudinger under var. d. "*dalmatina (araratica)*," has no locality given to it by the author; from the name given to Herrich Schaeffer's No. 131, viz. "*dalmatina (araratica)*," it is evident that Staudinger inverted the numbers by mistake, and that he really meant to call Herrich Schaeffer's ff. 324-7 "var. *dalmatina (araratica)*," while intending to place that author's f. 131 under *occidentalis*.

As, however, Hübner's ff. 869-70 stand first, we must accept these ff. as the type of Staudinger's *occidentalis*, and as they evidently represent a Spanish *didyma*, the name must stand for the **Spanish form**. Staudinger gives as the **habitat** of his *meridionalis* **Sicily** and **Turkey**, and quotes no previous author. As Sicily stands first, it is obvious that that is the type locality, and that *meridionalis* will have to stand for the **Sicilian form**.

This rules out Oberthür's contention that both these names must be rejected, and moreover fixes the localities of the types. It does not, however, finally end our difficulties, for there appear to be at least five if not six distinct local races in Algeria which have all very well defined areas of distribution **except** *interposita* Rothsch., which appears to be found in a number of more or less isolated places in many **Mauretanian** districts surrounded by other forms. This would point to its being an **ABERRATION** only, but it is **constant** in these isolated localities, so it would appear that *didyma* is a species very rapidly affected by local conditions, and that wherever the local factors which cause evolutionary activity are of the kind necessary to produce *interposita*, there that form appears, and becomes fixed though it may be only in a small area completely surrounded by territory inhabited by other local races. Unfortunately I have no **Spanish** *didyma* for comparison, only **Pyrenean** examples, but Hübner's figure shows a very brilliant red insect with rather small spots and of a large size. Moreover, it has pointed, extended forewings not rounded at the apices as in Algerian specimens. I have shown that this Spanish race must be called *occidentalis* Stdgr., therefore the name *mauretanica* Oberth. can only be applied to **Mauretanian** examples; but here we are again met by a difficulty, for the Moroccan specimens collected by Mr. Meade-Waldo are **not**, as stated by Mr. Elwes, *didyma deserticola*, but **belong** to my *interposita*, while the West Algerian specimens **generally** belong to Mr. Oberthür's *mauretanica*, and the extreme East Algerian and West Tunisian specimens belong to another race which is much smaller, and which I described as *didyma nisseni* (type **Ain Draham**).

The specimens from the Northern Atlas Range in the Province of Oran (Seb dou), the Kabylie (Djurjura), and the Aurés Mountains all belong to my *interposita* (type **Batna**), and which very often so closely approximate to *didyma deserticola* Oberth. (type **Biskra**) that it is hard to distinguish them on the upper side; below, the heavier black markings of *deserticola* are at once apparent. The form *harterti* from the Central Sahara is so distinct as to be at once distinguishable from *deserticola* above and below, and is unlike any other Mauretanian form.

As stated before, in 1876 Mr. Oberthür declared a series of Philippeville

specimens to be identical with Pyrenean individuals, while he remarks that his Aïn Khala ♀ was quite unlike the dull olive Pyrenean ♀♀ in being bright red. I unfortunately do not possess Philippeville specimens, but I can say that out of the 464 Algerian *didyma* (of five races) I possess, 146 are ♀♀, and that in all cases they are either red or sandy-yellow, according to the subspecies, like the ♂♂. They only differ in being generally slightly paler. The Pyrenean ♀♀, on the other hand, vary from slate-grey suffused with rufous on costal half of hindwing, to deep olivaceous slate colour suffused with gallstone yellow, and with rufous hindwings; while Sicilian ♀♀ (*meridionalis*) vary from mouse-grey with rufous hindwings, to sandy rufous, the forewing slightly washed with olive. Algerian ♂♂, both of the western *mauretunica* form and the eastern *nisseni* form, have the rufous colouring less brilliant and more of a sandy tone than either Spanish *occidentalis*, Sicilian *meridionalis*, or Pyrenean examples of *didyma*.]

#### 42. *Melitaea didyma mauretunica* Oberth.

*Melitaea didyma* forma *mauretunica* Oberthür, *Etud. Lépid. Comp.* Fasc. III. p. 243 (1909) (Algeria, Spain).

This form differs from my *nisseni* in its larger size, and in the postmedian rufous band on the underside of the hindwing being farther away from the antimedial band. The Tring series numbers 153 specimens.

3 Hammam R'ihra, August 1915, Faroult.

145 Masser Mines, June 1914, Faroult.

1 Tlemcen, April 1914, W. R. and E. H.

2 Titen Yaya, May 1915, Rotrou.

2 ? (labelled Bou Saada, May 1912, Faroult, but evidently not from there).

Miss Fontaine gives Teniet-el-Haad, June 1904.

#### 42a. *Melitaea didyma nisseni* Rothsch.

*Melitaea didyma nisseni* Rothschild, *Novit. Zool.* vol. xx. p. 115 (1913) (Aïn Draham).

149 Aïn Draham, July—August 1911, Faroult.

#### 42b. *Melitaea didyma interposita* Rothsch.

*Melitaea didyma interposita* Rothschild, *Novit. Zool.* vol. xx. p. 115 (1913) (Batna).

This race of *didyma* is not only remarkable from its irregular and widely separated areas of occurrence; but also for its subspecific characters! For while the ♂♂ resemble more nearly *d. mauretunica* and never approach very close to *d. deserticola*, the ♀♀ are much nearer to *d. deserticola*, some being so close to the latter on the upper surface that should the locality ticket be absent, only the examination of the underside can determine which are which.

16 Environs de Batna, Nelva.

3 Lambessa, June 1912, Nelva.

4 Oued Hamidou, June 1912, Faroult.

The Tring series comprises 23 individuals. The British Museum possesses 8: 6 Meade-Waldo; 2 Djurjura, July 1884, J. Merkl ex Elwes coll. Mr. Meade-Waldo in his article gives the following data: Rabat, May 1901; Agurgur, July 1901; Tsaouritz Entsaagauz, July 1901.

Miss Fontaine records this form from Sebdou, June—July 1904.

42c. *Melitaea didyma deserticola* Oberth.

*Melitaea didyma* ab. *deserticola* Oberthür, *Etud. Entom.* Fasc. I. p. 25. pl. iii. f. 1 (1876) (Biskra).

The characteristic differences of *d. deserticola* from *d. mauretana* and *d. nisseni* are in the large size paler sandy-rufous colour above, with fewer though larger black spots, and in the increased size of the black spots below and the great reduction of the yellow bands below on the hindwings.

The antennae also are very curious in the Algerian *didyma*; in *d. mauretana* and *d. nisseni* the club of the antenna is black above with a small maroon tip; in *interposita* the tip is larger, more rufous, and this colour invades the blade of the club; in *d. deserticola* and *d. harterti* the club is entirely rufous, scaled more or less with white or grey scales mostly at the basal portion.

1 El Outaya, March 1909, W. R. and E. H.

23 Biskra, March 1909–1914, W. R. and E. H.

1 Zaatcha, 40 kilometres south-west of Biskra, March 1909, W. R. and E. H.

30 Bordj Chegga, 65 kilometres south of Biskra, February 1912, E. H. and C. H.

The British Museum has 6 specimens of this race: 2 Biskra, March 1902, Mrs. M. de la B. Nicholl; 4 Biskra, May 1885 and March 1886, L. Bleuse and Lieutenant Lahaye, ex Elwes coll.

42d. *Melitaea didyma harterti* Rothschild.

*Melitaea didyma harterti* Rothschild, *Novit. Zool.* vol. xx. p. 115. No. 13 (1913) (El Hadadra).

This is the most distinct form of *didyma* and is unlike any other *Melitaea* in the pale sandy-yellow ground colour which approximates to that of *M. acraeina* Stdgr. In fact 2 ♀♀ specimens which have the bands of black spots on the hindwings absent and much reduced on the forewings so much resemble this species that I here name them ab. *pseudoacraeina* ab. nov.; I also here name a ♀ specimen, which has the black spots absent on the hindwings and the post-median band of black spots on the forewing strongly increased, ab. *nigrofasciata* ab. nov.

4 S. Oued Mya, April–May 1912, E. H. and C. H.

57 El Hadadra, May 1912, E. H. and C. H.

7 north of El Golea, May 1912, E. H. and C. H.

15 Ghardaïa, May 1912–1914, E. H. and C. H.

1 Oued Nça, June 1912, E. H. and C. H.

1 Oued Segrir, June 1912, E. H. and C. H.

1 Sands of El Arich, June 1912, E. H. and C. H.

1 65 kilometres east of Ghardaïa, June 1912, E. H. and C. H.

43. *Satyrus (Nytha) ellena* Oberth.

*Satyrus alcyone* var. *ellena* Oberthür, *Etud. Entom.* Fasc. XIX. p. 19. pl. vii. f. 57 (1894) (Bône).

Under this insect in his *Etud. Lépid. Comp.* Fasc. III. pp. 260–261, Mr. Oberthür cites various statements by Fruhstorfer on the subject of the names *hermione*, *alcyone* and *fagi*, and says that he does not propose to accept the name *fagi* Scopoli because it is pre-Linnaean (Scopoli's *Entomologia Carniolica* is

dated 1763, while Linnaeus described *hermione* first *Mus. Lud. Ulr.* p. 281. No. 99 (1764) (Portugal), and afterwards *Syst. Nat.* edit. xii. vol. i. part ii. p. 773, No. 149 (1767) (Germany), but I should like to point out that Mr. Oberthür is entirely mistaken in saying that Scopoli is pre-Linnaean, for zoologists date the commencement of zoological nomenclature from Linnaeus' *Systema Naturae* editio x. 1758, and **not** from the editio xii. 1766-1767.

However, this has little bearing, at present, on the insect under consideration, for I agree with Mr. Oberthür that *ellena* is more likely to be a distinct species, and I am treating it as such, till the examination of the genitalia in comparison with those of *hermione* and *alcyone* shall have settled the question.

My Batna and Blida examples are considerably smaller than the Aïn Draham ones as a rule, but the Alger ones are intermediate.

6 Environs d'Alger, Captain Holl.

7 Blida les Glacières, August 1906-1912, Dr. Nissen and Captain Holl.

77 Environs de Batna, August 1912-1914, Nelva.

1 Aumale, August 1912, Faroult.

3 Aïn Draham, July 1909-1912, Faroult.

The Tring series comprises 94 specimens.

#### 44. *Satyrus (Chazara) briseis major* Oberth.

*Satyrus briseis* var. *major* Oberthür, *Etud. Entom.* Fasc. I. p. 27 (1876) (Boghari).

We never found this insect, as it flies from end of June to October. In fact the only two species of the larger *Satyridae* we have taken personally in Algeria are *Satyrus (Chazara) priouri*. Pierret, and *Satyrus (Eumenis) semele* (Linn.), as all the rest are on the wing later than the middle of June. It is true that *S. abdelkader lambessanus* Stdgr. flies in April and May, but we have only twice been in its neighbourhood, and then failed to see it.

50 Environs de Batna, July-August 1908-1914, Nelva and Taillefer.

#### 45. *Satyrus (Chazara) priouri* Pierret.

*Satyrus priouri* Pierret, *Ann. Soc. Entom. France*, vol. vi. p. 304 (1837) (Bougie).

We have taken this insect at Aïn Sefra in May, but it was only just commencing to appear. Mr. Oberthür in 1909 remarks that he did not know this species to have occurred outside the Province of Oran, and Mr. Harold Powell only obtained it in that province. Dr. Nissen and Faroult, however, found it abundant at Guelt-es-Stel. It does not appear to vary very much. The Tring series numbers 530 specimens.

10 Aïn Sefra, May 1913, W. R. and E. H.

10 Titen Yaya, June 1915, Rotrou.

1 Les Pins, July 1915, Rotrou.

24 Smila, Oran, June 1914, Faroult.

295 Guelt-es-Stel, June-August 1913, Faroult.

118 Djelfa, June 1913, Faroult.

69 Forêt de Djelfa, June 1913, Faroult.

The British Museum has 3 from Meade-Waldo. Mr. Meade-Waldo gives in his article Tizi Gourzá, July 1901.

Miss Fontaine gives Terney, near Tlemeen and Sebdo, July 1904.

46. *Satyrus (Eumenis) semele algerica* Oberth.

*Satyrus semele* var. *algerica* Oberthür, *Etud. d'Entom.* Fasc. I. p. 27 (1876) (Daya, etc.).

This insect appears to be extraordinarily abundant in some localities in Algeria.

- 1 Masser Mines, May 1914, Faroult.
- 2 Aïn Sefra, May 1913–1915, W. R. and E. H., Faroult.
- 1 Ras Chergui, July 1915, Faroult.
- 7 Saïda, May 1913, W. R. and E. H.
- 37 Titen Yaya, June 1915, Rotrou.
- 1 Abd-el-Kader, July 1905, Dr. Nissen.
- 70 Blida les Glacières, June 1908, W. R. and K. J.
- 370 Guelt-es-Stel, May—June 1913, Faroult.
- 41 Environs de Batna, 1912–1914, Nelva.
- 6 Lambessa, June 1912, Nelva.

The Tring series comprises 535 individuals.

The British Museum possesses 8 specimens: 1 Meade-Waldo; 2 Algiers, Leech coll.; 1 Algeria, Crowley bequest; 1 Lambessa, June 1885, L. Bleuse ex Elwes coll.

Mr. Meade-Waldo gives in his article: Imentalla and Tsaouritz Entsaour, July 1901.

47. *Satyrus (Satyrus) powelli* Oberth.

*Satyrus powelli* Oberthür, *Bull. Soc. Entom. France*, 1910, p. 333 (Djebel Amour).

This insect has hitherto been taken only in the Djebel Amour and at Guelt-es-Stel. It varies much in size: the largest ♂ has the forewing 27 mm. in length and a total expanse of 59 mm., and the smallest ♂ has the forewing 21 mm. in length and a total expanse of 46 mm. The largest ♀ has the forewing 28 mm. long and a total expanse of 61 mm., and the smallest ♀ has the forewing 23 mm. long with a total expanse of 49 mm.

This species is also variable in other respects: in the males above, the ocelli sometimes have a white central dot and sometimes not; one very small ♂ shows no ocelli on the upper surface, and one rather large ♂ has the upper of the two ocelli ringed strongly with buff as in the ♀; two other ♂♂ have both ocelli with buff rings. In the ♀♀ the ocelli vary much in size, and I have two with enormous black patches with buff rings in place of ocelli. Then in the ♀♀ the buff rings vary also, and I have one ♀ in which they have spread so much that the outer half of the wing above is buff, as in *mniszehi*, and two or three others more or less intermediate. It is curious, however, that although so variable above, the hindwing pattern below is so very constant.

250 Guelt-es-Stel, September—October 1912–1913, Faroult.

3 Region d'Aflou, October 1911, Harold Powell.

[*Satyrus hansii* Aust. and *Satyrus sylvicola* Aust.]

These two *Satyrids* are extremely puzzling and in consequence have been treated in many different ways by those Lepidopterists who have written about them. The only final and reliable test will be when the genitalia of these insects are studied comparatively with those of *statilinus* and *fatua* (= *allionii*).

In the British Museum Mr. Elwes has lumped all these insects together under *statilinus*, which is absolutely wrong. Dr. Seitz, in his *Grossschmetterlinge der Erde*, places *hansii* as the Mauretanian representative of *statilinus*, and *sylvicola* as that of *fatua*; but remarks in parenthesis that they are probably good species, though our knowledge (*i.e.* really Dr. Seitz's) was too scanty to decide this. One thing is certain, the larvae of *hansii* and *sylvicola* only show the same differences as *statilinus* and *fatua*, *viz.* the much larger head of *hansii*, but they are otherwise as imagos so different, both from each other and the two forms from north of the Mediterranean, that till we have dissected them I prefer to treat them as distinct species, especially as *sylvicola* occurs in Algeria in several distinct races.]

#### 48. *Satyrus (Satyrus) hansii* Aust.

*Satyrus hansii* Austant, *Le Naturaliste*, vol. i. p. 138 (1879) (Daya).

The Tring Museum has no specimens of this species. The British Museum has 9 specimens: 5 Algeria, Crowley bequest; 3 Mauretania, Grum-Grshimailo coll., ex Elwes coll.; 1 Seb dou, 1880-1882, Dr. Codet ex Elwes coll.

Miss Fountaine records it from Seb dou, July-August 1904.

#### 49. *Satyrus (Satyrus) sylvicola sylvicola* Aust.

*Satyrus sylvicola* Austaut, *Le Naturaliste*, vol. ii. p. 284 (1880) (Seb dou).

This race is the darkest of the four races of *sylvicola* described from Algeria.

4 Titen Yaya, August 1915, Rotrou.

20 Les Pins, August 1915, Rotrou.

The British Museum has 9 specimens, all without data: 3 Mauretania, Grum-Grshimailo coll. ex Elwes coll.; 1 Algeria, purchased Janson; 5 Algeria, Crowley bequest.

#### 49a. *Satyrus (Satyrus) sylvicola oberthuerei* subsp. nov.

*Satyrus sylvicola* var. *lambessanus* Oberthür, *Etud. d'Entom. Comp.* Fasc. X. p. 170 (1915) (Lambèse).

Mr. Oberthür gave to this race of *sylvicola* the name *lambessanus*, but Staudinger in *Cat. Lepid. Palæar. Faung.* Stdgr. and Reb. p. 58. No. 377 a. (1901) gave to the Eastern race of *Satyrus abdelkader* the name of *lambessanus*, and one cannot have two identical subspecific names in the same genus; therefore I rename this race *oberthuerei*.

It stands exactly intermediate between *s. sylvicola* and *s. cinerea*.

95 Environs de Batna, August 1912-1914, Nelva.

The British Museum has 2 Environs de Batna, August 1910, Rev. A. E. Eaton.

#### 49b. *Satyrus (Satyrus) sylvicola cinereus* Oberth.

*Satyrus fauna* var. *cinerea* Oberthür, *Bull. Soc. Entom. France*, 1907. p. 344 (Yakouren).

I do not possess this form, and possibly the only other man who may have it besides Oberthür is Dr. Nissen.

49c. *Satyrus (Satyrus) sylvicola hollii* Oberth.

*Satyrus sylvicola* var. *hollii* Oberthür, *Etud. de Lépid. Comp.* Fasc. III. p. 275. pl. xvi. ff. 36-37 (1909) (Blida les Glacières).

This race is much the smallest and palest found in Algeria. Several of the specimens from Captain Holl are labelled "Environs d'Alger," but I believe he never got it elsewhere than at Blida.

29 Blida les Glacières, August 1911-1912, Dr. Nissen and Captain Holl.

50. *Satyrus (Satyrus) fidia fidia* (Linn.).

*Papilio fidia* Linnaeus, *Syst. Nat.* edit. xii. vol. i. part ii. p. 770. No. 138 (1767) (Barbary).

This species occurs in three distinct races in Algeria. The typical *fidia fidia* is very large, of a blackish slate-grey above with a bluish lustre; in between the ocelli on the forewing above are two largish white spots. On the underside the pattern is very strongly marked. The ocelli are hardly, if at all, marked with yellow in the ♀ above.

2 Lella Kredidja, August 1907, Dr. Nissen.

11 Djebel Zaccar above Miliana, August 1916, Faroult.

3 Oued Hamidou, August 1912, Faroult.

55 Sakamudi, August 1912, Faroult.

22 Aïn Draham, Tunisia, September 1911, Faroult.

42 Environs de Batna, August 1912-1914, Nelva.

The Batna specimens are slightly smaller than all the other typical *fidia*, but cannot be separated from them.

The British Museum has 6 Mauretanian specimens: 3 Algeria, Leech and Hewitson colls.; 1 Constantine Hm. ex Elwes coll.; 2 N. Africa, Salvin Godman coll.

50a. *Satyrus (Satyrus) fidia hebitis* subsp. nov.

Mr. Oberthür described his *fidia minor* from Sierra Alta Albaracin, Spain, and the figures (*Etud. de Lépid. Comp.* Fasc. III. pl. cxxv. ff. 1108, 1109) show it to be a very dark insect with no yellow round the ocellus of the ♀. On the same plate Mr. Oberthür figures a much larger ♀ from Géryville, Sud Oranais, which has large orange rings to the ocelli and is much paler; this he also places under his *f. minor*. There are in the Tring Museum 91 specimens from Guelt-es-Stel which at once strike the eye as being very distinct from the large *fidia fidia* of the coast regions. While being smaller than *f. fidia*, they are much larger than Spanish *f. minor*, and are not only paler in colour, but appear much duller in shade; these I propose to separate as a subspecies as above and include in it the Géryville form.

♂. Differs from *f. fidia* in being considerably smaller and above much paler, more brownish, and much duller, the bluish lustre being entirely absent and replaced by a dull bronzy wash. The two white spots between the ocelli are much smaller and even absent in some specimens; below the pattern is less sharply marked, and the greys are less pure, more brownish.

♀. Differs above in being as a rule smaller and brownish mouse-grey, not blackish slate-grey, while the ocelli have large yellow wings not found in coastal

*f. fidia*; below they are very distinct, the whole forewing being suffused with yellow and the hindwings being much browner in tint and the white veins being much exaggerated. The size is very even, only two ♀♀ being markedly smaller than the rest.

Length of forewing.	Expanse.
♂ <i>fidia fidia</i> , 35 mm. . . . .	74 mm.
♂ <i>fidia hebitis</i> , 30 mm. . . . .	64 mm.
♂ <i>fidia minor</i> , 24 mm. . . . .	51 mm.
♀ <i>f. fidia</i> , 38 mm. . . . .	81 mm.
♀ <i>f. hebitis</i> , 26-35 mm. . . . .	56-74 mm.
♀ <i>f. minor</i> , 24 mm. . . . .	52 mm.

*Habitat.* Hauts Plateaux and southern chain of the Atlas of Provinces of Alger and Oran (type ♀, Guelt-es-Stel).

91 Guelt-es-Stel, August—October 1913, Faroult.

50b. *Satyrus (Satyrus) fidia intermedia*, subsp. nov.

This is the form of *fidia* from the Northern Atlas Range in the Province of Oran.

♂ differs from *f. fidia* in its much darker, almost black upperside without blue lustre, smaller size, and smaller, often almost absent white spots between the ocelli.

♀ differs in its smaller size, darker colour, and below in the very large and strong yellow rings to the ocelli.

Length of forewing: ♂ 31 mm.; ♀ 33 mm. Expanse: ♂ 66 mm.; ♀ 70 mm.

*Habitat.* Les Pins, Sebdou (type ♂, Les Pins).

14 Les Pins, Prov. Oran, August 1915, Retrou.

Miss Fontaine found this insect at Sebdou, July—August 1904.

[*Satyrus abdelkader* Pierret.

Mr. Charles Oberthür has published such an exhaustive history of this famous insect, as well as such a wealth of observation and study carried out by Messrs. Powell and Le Cerf, that nothing remains for me to say on the general subject; but I cannot help disagreeing with Mr. Oberthür about some of his conclusions in regard to the status of the three forms, *abdelkader*, *lambessanus*, and *nelvai*.

Mr. Oberthür says that he considers *abdelkader* and *nelvai* as forms of one species, while he regards *lambessanus* as a separate species. In this I cannot follow him at all, for among my Batna-Lambessa specimens are some ♂♂ indistinguishable from ♂♂ from Titen Yaya in the Oranais. I consider all three forms as **subspecies** of a single **species** *abdelkader*, but I agree so far with Mr. Oberthür that I think *lambessanus* has become more differentiated from the other two than they have from each other. It is most strange that while in the Oranais *abdelkader abdelkader* flies in June and July, this same form at Guelt-es-Stel flies in September and October. The form *lambessanus* flies in April and May, while *a. nelvai* is on the wing from end of August throughout September.]

51. *Satyrus (Cercyonis) abdelkader abdelkader* Pierret.

*Satyrus abdelkader* Pierret, *Ann. Soc. Entom. France*, vol. vi. p. 19. pl. i. ff. 5, 6 (1837) (Oran).

4 Sidi-bel-Abbés, Staudinger.

31 Titen Yaya, June—July 1915, Rotrou.

261 Guelt-es-Stel, September—October, Dr. Nissen and Faroult.

The British Museum has 7 specimens of this form: 4 Algeria, Crowley bequest; 1 Algeria (Heyne), ex Leech coll.; 1 Algeria purchased from Janson; 1 Sebdoou, 1880—1882, Dr. Codet ex Elwes coll.

The Tring Museum series comprises 296 specimens.

Mr. Meade-Waldo in his article records this insect from Tizi Gourzà, July 1901.

51a. *Satyrus (Cercyonis) abdelkader nelvai* Seitz.

*Satyrus abdelkader nelvai* Seitz, *Soc. Entom.* vol. xxvi. p. 49 eum. fig. ♂♀ (1911) (Aurès Mountains).

Dr. Seitz in above description states that the exact point whence the types of this form were brought to Mr. Nelva was unknown. Mr. Nelva, who furnished me with the four specimens I have, informs me, however, that his Arab "Chasseurs" captured them on the Djebel Menaa. Mr. Harold Powell, who sent to Mr. Oberthür several hundreds of this fine insect, states that it is comparatively very rare on Menaa, and that its principal stronghold is the Djebel Methili and the adjacent peaks to the west of El Kantara.

4 Djebel Menaa, Aurès Mountains, Nelva coll.

The British Museum has no specimen.

51b. *Satyrus (Cercyonis) abdelkader lambessanus* Stdgr.

*Satyrus abdelkader* var. *lambessanus* Staudinger, in Stdgr. and Rebel, *Cat. Lepid. Palaear. Faun.* p. 58. No. 377 a. (1901) (Lambessa).

This form is now the best known and the commonest in collections, for very few entomologists go to West Algeria.

79 Environs de Batna, April—May 1908—1914, Nelva and Taillefer.

The British Museum has 5 specimens: 1 Mauretania!! Grum-Grshimailo coll. ex Elwes coll.; 1 Lambessa, Hewitson coll.; 1 Lambessa, May 1882, J. H. Elwes; 1 Lambessa, 1875, R. Oberthür ex Elwes coll.

52. *Satyrus (Minois) actaea* (Esp.).

*Papilio actaea* Esper, *Schmett.* vol. i. part ii. t. 57. ff. 1 a. b. (1780) (Europe?).

This species has only been recorded from Mauretania, and in his article he gives Tsauritz Entsagauz and Tizi Gourzà, July 1901.

53. *Satyrus (Eumenis) atlantis* Aust.

*Satyrus atlantis* Austaut, *Int. Entom. Zeitsch. Guben*, vol. xix. p. 29 (1905) (Tsauritz Entsagauz, Meade-Waldo).

This species was unfortunately described a few months before Mr. Meade-Waldo's article appeared from specimens collected by him, or rather by Mr. Vaucher travelling with him; so that his name *moroccana* must give way to *atlantis* Aust.

I have no specimens of this species, but I consider it is quite a distinct species and **not** a subspecies of *mniszehi*.

The British Museum has no specimens.

[Genus *Satyrus*. This genus in its conventional sense is very large and unwieldy, and many authors have tried to split it up into several genera. In 1819 Hübner in his "**Verzeichnis bekannter Schmettenlinge**" placed a number of species of the family **Satyrinae**, which at the present time stand under *Satyrus*, in three of his **Coiti = genera**, viz. *Hipparchia*, *Minois*, and *Eumenis*. W. F. Kirby in his *Catalogue of Diurnal Lepidoptera* (1871-1876) has used *Satyrus* Latr. (1810) for Hübner's two **Coiti** *Pararge* and *Dira*, and has placed under *Hipparchia* Fabr. a mixture of *Hipparchia* and *Satyrus* (conv.) and one or two other things. Fruhstorfer has used *Eumenis* Hübn. for a number of species, and retains *Satyrus* for *actaea*, *cordula*, *abdelkader*, etc. Fabricius, who was the first to establish *Hipparchia*, placed in it 119 species, of which he enumerates 10, the only ones now retained in *Satyrus* being *hermione* and *fauna*. *Satyrus*, established in 1810 by Latreille in his *Considérations Générales*, was used by its author for a curious mixture; he divided it into two sections—Sect. I. consisting of *Brassolidae Amathuriinae*, etc., and Sect. II., which consisted of Fabricius' genus *Hipparchia*. Passing over a number of other attempts at reconstructing the genus *Satyrus*, I will confine myself to the system adopted in the British Museum. There the genus is divided up into 9 genera: *Nyctas* containing *circe*, *hermione*, and their allies; *Philareta*, containing *anthe*, etc.; *Karanasa*, with *huebneri* and allies; *Kanetisa*, with *digna*; *Chazara*, consisting of *briseis* and neighbouring species; *Eumenis*, containing *semele*, *fidia*, etc.; *Minois*, consisting of *actaea* and others; and *Cercyonis*, consisting of *abdelkader* and its races. As at present these genera have not to my mind been sufficiently established by careful anatomical study of **all** the elements composing them, I prefer to place them in brackets after *Satyrus*, but this must **not** be understood to mean that I consider them **subgenera** or that I **acknowledge** subgenera.]

#### 54. *Melanargia galathea lucasi* (Ramb.).

*Argé lucasi* Rambur, *Cat. Syst. Lépidop. Andal.* p. 20 footnote (1858) (Bougie).

Mr. Oberthür considers this form so distinct that it should be treated as a distinct species; I cannot see in it anything more than a very well defined subspecies of *galathea*. In his article on Moroccan lepidoptera, Mr. Meade-Waldo says he found this insect very abundant in the Great Atlas; but of course the insect collected by him was the following subspecies. He also mentions a very large and pale form; this will be dealt with later on when I give a list with criticisms of Mr. Meade-Waldo's Mauretanian material.

- 1 Saïda, May 1913, W. R. and E. H.
- 7 Tifrit, May 1913, W. R. and E. H.
- 2 Environs d'Alger, Captain Holl.
- 7 Bei Bara, Gr. Kabylie, July 1910, Dr. Nissen.
- 35 Lella Kredidja, July 1906-1912, Dr. Nissen.
- 1 Teniet-el-Haad, July 1905, Dr. Nissen.
- 152 Environs de Batna, May 1912-1914, Nelva.
- 25 Khenchela, May 1912, W. R. and K. J.

We never found this insect in the east of Algeria except at Khenchela, and in the west it was far from common.

The Tring series comprises 230 specimens.

The British Museum possesses 10 individuals of this form: 5 Algeria, Crowley bequest; 1 Algiers (Heyne), Leech coll.; 1 Lambessa ex Elwes coll.; 3 Lambessa, June 1885, L. Bleuse ex Elwes coll. In addition to the above 10 specimens the Museum has 2 purchased from Heyne through Janson and labelled "Morocco." They appear to me not to be *lucasi* and certainly **never** came from **Morocco**.

Miss Fontaine records it from Teniet-el-Haad, May and June 1904.

#### 54a. *Melanargia galathea meade-waldoi* subsp. nov.

This form differs from *g. lucasi* by the black markings on the upperside being much wider and more pronounced, thus bearing the same relation to *lucasi* as *procida* does to *galathea*. It shows the same differences from *procida* as *lucasi* does from *galathea*. Type ♂, Tamarouth.

1 "Maroc Méridional" ex coll. Bethune Baker.

2 Tamarouth, Morocco, June 1904, W. Riggenbach.

The British Museum has 6 specimens, Meade-Waldo. Mr. Meade-Waldo records Tsauritz Entsagauz and Imentalla, July 1901.

#### 55. *Melanargia syllius pelagia* Oberthür.

*Melanargia syllius pelagia* Oberthür. *Etud. Lépidop. Comp.* Fasc. VI, p. 188, pl. lx. f. 547 (Sebdu, Géryville).

We never came across this species, and Mauretanian examples are absent from the British Museum collections. It is apparently a rare species in Mauretania.

1 Titen Yaya, June 1915, Rotrou.

2 Guelt-es-Stel, April 1913!! Faroult.

23 Djelfa, May 1913, Faroult.

#### 56. *Melanargia ines ines* (Hoffm.).

*Papilio ines* Hoffmannsegg, *Ill. Mag.* vol. iii. p. 205 (1804) (nom. nov. pro *Papilio thetis* Hübner, *Samml. Eur. Schmett.* vol. i. pl. 47. ff. 196-197 (1779) (nom. praeoe. *Papilio thetis* Rottenburg, *Naturf.* vol. vi. p. 24. No. 11 (1775)).

This insect is one of the commonest *Satyrids* throughout Algeria, and my series of 630 specimens is only the pick out of some 1,600-1,800 specimens collected in Algeria during the years 1909-1914. Herr Fritz Wagner, *Intern. Entom. Zeitsch. Guben*, vol. vii. p. 111. cum fig. (1913), has described as *ines* var. *fathme*, a series of *ines* taken by him at Tunis close to the seashore. He characterises his supposed new form by stating that the black is strongly reduced, and therefore considers the insect to be intermediate between *ines* and *arge* Sulz., which he consequently considers to be subspecies of one species.

Before considering the claims to distinction of *fathme* Wagn., I must point out here that Herr Wagner is in error concerning *arge* and its relationship to

*ines*. In *ines* the vein 1 along the abdominal area of the hindwing is single, while in *arge* it is double, and forms a loop like in *syllius* Herbst., and in fact I should at once say it was only a local race of that species if it were not for the nervures on the underside being black instead of rufous as in *syllius*; anyhow, it is certainly **not** a subspecies of *ines*. As to the distinctness of *fathme* from *ines*, at first sight, and compared with most Algerian and Spanish specimens in collections, they are certainly much whiter, but when comparing a series of 8 Tunisian specimens with 1,600–1,800 Algerian and 10 Spanish, I confess that I cannot uphold the subspecific distinctness of the Tunis examples. I find in the 1,000–1,500 Guelt-es-Stel specimens and in the El Kantara series quite half which are as white as Tunisian specimens, though the Spanish ones are certainly all dark, but not so dark as a number of Algerian ones. I therefore must reluctantly come to the conclusion that Herr Wagner's *fathme* can only be considered as an aberration and must stand as ab. *fathme* Wagn.

It is quite otherwise with the form from the west coast of Morocco: this form is quite as white as if not whiter than Herr Wagner's *fathme*, but it is not small, like the Tunisian examples, but has developed to a gigantic size. This is described further on.

The total series selected for the Tring Museum of Algerian and Tunisian *ines* is 638.

- 3 Moroccan Frontier, May 1914, Faroult.
- 65 Masser Mines, May 1914, Faroult.
- 4 Lalla Marnia, May 1914, Faroult.
- 12 Ras Chergui, Djebel Mekter, May 1915, Faroult.
- 50 Oran, April 1913, W. R. and E. H.
- 2 Berrouaghia, May (April ?) 1913, Faroult.
- 2 Boghari, May 1914 (April ?), Faroult.
- 374 Guelt-es-Stel, April—June 1913, Faroult.
- 1 Djelfa, May 1913, Faroult.
- 2 Bon Saada, May 1911, Faroult.
- 17 Djebel Kerdada, May 1912, Faroult.
- 74 El Kantara, May 1909–1911, W. R., E. H., and Cheli Brahim.
- 12 Khenchela, May 1912, W. R. and K. J.
- 14 Environs de Batna, May 1912, Nelva.
- 8 Environs de Tunis, April—June 1916, E. Blanc.

The British Museum has 8 specimens of this species: 2 Algeria, Elwes coll.; 1 Oran, Elwes coll.; 1 Constantine (Heine), ex Elwes coll.; 4 El Kantara, March 1902, Mrs. M. de la P. Nicholl and Lord Walsingham. Miss Fountaine records it from Teniet-el-Haad, May—June 1904.

56a. *Melanargia ines colossea* subsp. nov.

♂ ♀. Differs from *ines ines* in the great reduction of the black pattern and in its large size.

	Length of forewing.	Expanse.
<i>ines ines</i> (Spain), ♂ 23–27 mm., ♀ 26–29 mm. . . . .		♂ 50–58 mm., ♀ 56–62 mm.
<i>ines ines</i> (Algeria), ♂ 22–27 mm., ♀ 24–27 mm. . . . .		♂ 48–58 mm., ♀ 52–58 mm.
<i>ines ines</i> (Tunis), ♂ 26 mm., ♀ 27.5 mm. . . . .		♂ 56 mm., ♀ 59 mm.
<i>ines colossea</i> , ♂ 30 mm., ♀ 33 mm. . . . .		♂ 65 mm., ♀ 71 mm.

*Habitat.* West Coast, Morocco (Mazagan, Tamarouth, Rabat, Mogador).  
*Type:* ♀, Rabat.

- 5 Rabat, 1914, A. Théry.
- 1 Orange Grove, Oum-er-Rebia, April 1901, E. H.
- 7 Mazagan, April 1902, W. Riggenbach.
- 1 Tamarouth, June 1904, W. Riggenbach.
- 2 Morocco? (Barrett coll., labelled Cape Colony).

The specimen from the Oum-er-Rebia collected by Mr. Hartert is absolutely a freak, as it is the smallest *ines* I have seen, and evidently a starved dwarf; length of forewing 21 mm., expanse 45 mm. The British Museum has 3 specimens: 1 Mogador, Leech; 2 Meade-Waldo. Mr. Meade-Waldo's ♂ is a melanistic specimen. In his article he gives only Tsauritz Entsa gauz, July 1901; but the ♀ in the British Museum is labelled south of Estat.

57. *Pararge maera meade-waldoi* subsp. nov.

♀ differs from ♀ *P. maera* in the fulvous orange of the forewing being replaced by deep rufous somewhat yellower round the ocellus; and on the hindwing in the black of the ocellus being reduced and the white increased, while the orange round ocellus is replaced by deep rufous.

*Habitat.* Tizi Gourzá, 10,000 ft. (July 1901).

The British Museum has 1 specimen, the type of this description, from Mr. Meade-Waldo.

58. *Pararge megera megera* (Linn.).

*Papilio megera* Linnaeus, *Syst. Nat.* edit. xii. vol. i. part ii. p. 771. No. 142 (Austria, Danemarsh).

We found this insect widely spread in Algeria, but never very numerous. The Tring series from Mauretania consists of 131 specimens.

- 1 Ouled Farsh, Morocco, May 1901, W. Riggenbach.
- 1 Mazagan, Morocco, June 1900, W. Riggenbach.
- 1 Truchan, Morocco, May 1901, W. Riggenbach.
- 4 Djebel Tixa, Morocco, March 1905, W. Riggenbach.
- 4 Zoudj-el-Beghal, Morocco, May 1914, Faroult.
- 14 Masser Mines, June 1914, Faroult.
- 1 Nedroma, June 1914, Faroult.
- 1 Lalla Marnia, December 1914, Faroult.
- 1 Djebel Mekter, Aïn Sefra, May 1913, E. H. and C. H.
- 2 Ras Chergui, May 1915, Faroult.
- 3 Titen Yaya, June—August 1915, Rotrou.
- 1 Saïda, May 1913, W. R. and E. H.
- 4 Oran, April 1913, W. R. and E. H.
- 6 Environs d'Alger, April—May 1908–1912, W. R., E. H., and K. J.
- 2 Lella Kredidja, July 1907, Dr. Nissen.
- 4 Blida les Glacières, June 1908, W. R. and K. J.
- 13 Hammam R'ihra, May 1908–1913, W. R., E. H., and K. J.
- 1 Boghari, April 1911, W. R. and E. H.
- 25 Guelt-es-Stel, March—June 1912–1913, W. R., K. J., and Faroult.

- 1 Djelfa, June 1913, Faroult.
- 1 Djebel Kerdada, May 1912, Faroult.
- 7 Biskra, April 1908, W. R. and E. H.
- 19 El Kantara, March—July 1908—1911, W. R., E. H., and Cheli Brahim.
- 12 Environs de Batna, May—June 1909—1914, A. Nelva.
- 2 Lambessa, June 1912, Nelva.
- 4 Khenchela, May 1912, W. R. and K. J.
- 1 El Hamel, May 1912, Faroult.
- 3 Constantine, May 1908, W. R. and E. H.
- 2 Souk Ahras, April 1914, W. R. and K. J.

The British Museum has 6 specimens of this insect: 2 Meade-Waldo; 1 Mogador, Lecch; 2 Lambessa, April—May 1882, H. J. Elwes; 1 Biskra, May 1882, H. J. Elwes.

Mr. Meade-Waldo in his article says not abundant, but throughout the year.

#### 59. *Pararge aegeria meone* (Cram.).

*Papilio meone* Cramer, *Pap. Exot.* vol. iv. part xxvi. p. 51. t. cccxiv. ff. E. F. (1780) (Alger).

This insect is plentiful everywhere in the Tell and Atlas, but becomes rarer on the "Hauts Plateaux," and it is only incidentally found along the edge of the desert and ceases within 15–20 miles of Biskra altogether. The form from Mauretania is certainly brighter and more rufous in the ♂, and the fulvous yellow of the ♀ is more extended than in the typical *aegeria aegeria* from Southern Europe. The series of Mauretanian examples at Tring consists of 148 specimens.

- 1 Ouled Farsh, near Mazagan, Morocco, May 1901, W. Rigggenbach.
- 3 Tamarouth, Morocco, June 1904, W. Rigggenbach.
- 8 Mazagan, Morocco, June 1900, W. Rigggenbach.
- 3 Truchan, W. Morocco, May 1901, W. Rigggenbach.
- 1 Rabat, 1914, A. Théry.
- 2 Tlemcen, April 1913, W. R. and E. H.
- 1 Ras Chergui, May 1915, Faroult.
- 1 Aïn Sefra, May 1913, W. R. and E. H.
- 2 Saïda, May 1913, W. R. and E. H.
- 1 Tifrit, May 1913, W. R. and E. H.
- 1 Titen Yaya, June 1915, Rotrou.
- 2 Oran, April 1913, W. R. and E. H.
- 46 Environs d'Alger, February—May 1908—1912, W. R., E. H., and K. J.
- 2 Lella Kredidja, July 1907, Dr. Nissen.
- 9 Blida les Glacières, June 1908, W. R. and K. J.
- 36 Hammam R'ihra, April—June 1908—1913, W. R., E. H., and K. J.
- 2 Guelt-es-Stel, June 1913, Faroult.
- 3 Djebel Kerdada, May 1912, Faroult.
- 3 Biskra, March 1908—1911, W. R. and E. H.
- 6 El Kantara, March—July 1908—1911, W. R., E. H., and Cheli Brahim.
- 2 Khenchela, May 1912, W. R. and K. J.
- 3 Environs de Batna, 1909—1914, Nelva.
- 9 Constantine, May 1908, W. R. and E. H.
- 1 Hammam Meskoutine, May 1909, W. R. and E. H.

The British Museum has 14 specimens from Mauretania : 4 Meade-Waldo ; 5 ex Leech coll., Salvin Godman coll., and Mr. Blackmore ex. Elwes coll. ; 1 Tetuan, Morocco, J. B. Fletcher, June 1901 ; 1 Philippeville, May 1882, H. J. Elwes ; 1 Constantine, April 1882, H. J. Elwes ; 1 Algiers, Leech coll. Mr. Meade-Waldo in his article has left this species out.

60. *Epinephele lycaon mauretunica* (Oberth.).

*Satyris eudora* var. *mauretunica* Oberthür, *Etud. d'Entom.* liv. vi. p. 58 (1881) (Sebdou, Lambèze).

We have never taken this insect ourselves.

- 22 Titen Yaya, June 1915, Rotrou.
- 1 Sidi-bel-Abbés, June 1915, Rotrou.
- 13 Guelt-es-Stel, May—June 1913, Faroult.
- 12 Djelfa, June 1913, Faroult.
- 36 Forêt de Djelfa, June 1913, Faroult.
- 1 Djebel Kerdada, May 1912, Faroult.
- 4 El Kantara, June 1911, Faroult.
- 5 Khenchela, June 1911, Faroult.
- 9 Lambessa, June 1912, Nelva.
- 53 Environs de Batna, June 1909–1914, Nelva.

The Tring series numbers 156 specimens. There are none in the British Museum. Miss Fontaine records it from Teniet-el-Haad, June 1904. Mr. Meade-Waldo in his article gives Tsauritz Entsagauz and Imentalla, July 1901.

61. *Epinephele jurtina jurtina* (Linn.).

*Papilio jurtina* Linnaeus, *Syst. Nat.* edit. x. vol. i. part ii. p. 475. No. 104 (1758) (Europe, Africa. Type. Africa).

This species is fairly common everywhere in the Tell and Atlas, but gets rarer in the " Hauts Plateaux " ; it does not reach the edge of the desert proper, though it still occurs at Bou Saada, where a piece of desert runs into the " Hauts Plateaux."

- 2 Rabat, 1914, A. Théry.
- 3 Zoudj-el-Beghal, Morocco, July 1914, Faroult.
- 80 Masser Mines, June 1914, Faroult.
- 13 Nedroma Oranais, June 1914, Faroult.
- 18 Saïda, May 1913, W. R. and E. H.
- 5 Tifrit, May 1913, W. R. and E. H.
- 34 Titen Yaya, June 1915, Rotrou.
- 19 Environs d'Alger, May 1905–1912, W. R., E. H., K. J., and Dr. Nissen.
- 2 Forêt de Bainen, June 1908, W. R. and K. J.
- 5 Lella Kredidja, July 1908, Dr. Nissen.
- 1 Tala Rana, Gr. Kabylie, July 1907, Dr. Nissen.
- 1 Yakouren, July 1906, Dr. Nissen.
- 1 Forêt d'Akfadou, July 1906, Dr. Nissen.
- 1 Palestra, May 1906, Dr. Nissen.
- 1 Beni Amran, June 1906, Dr. Nissen.
- 2 Sakamudi, August 1912, Faroult.

- 3 Blida les Glacières, June 1908, W. R. and K. J.  
 67 Hammam R'ihra, May 1908-1913, W. R., E. H., and K. J.  
 4 Guelt-es-Stel, May-June 1913, Faroult.  
 8 Djelfa, June 1913, Faroult.  
 2 Forêt de Djelfa, June 1913, Faroult.  
 2 Bou Saada, May 1912, Faroult.  
 5 Environs de Batna, 1908-1909, Nelva.  
 2 Oued Hamidou, June 1912, Faroult.  
 16 Hammam Meskoutine, May 1914, W. R. and K. J.  
 9 Aïn Draham, Tunisia, July 1911, Faroult.  
 6 Environs de Tunis, May-June 1915-1916, E. Blanc.

The Tring series comprises 312 specimens. The British Museum has 12 specimens: 5 Meade-Waldo; 1 Collo, Constantine, Frey coll.; 1 Mauretania! Leech coll.; 3 Philippeville, June 1882, H. J. Elwes (♀ dwarf); 1 Bône, J. Merkl, June 1884, ex Elwes coll.; 1 Lambessa, June 1884, J. Merkl ex Elwes coll.

Mr. Meade-Waldo in his article gives Klatsa, May 1901; Ras Doura, May 1901; Tsaouritz Entagauz, July 1901. Miss Fountaine records this species from Teniet-el-Haad, June 1904.

#### 62. *Epinephele janiroides* Herr. Schaeff.

*Epinephele janiroides* Herrich Schaeffer, *Schmett. Europ.* vol. i. Tab. 111. ff. 533, 534 (1851) (?).

We only came across this insect on one occasion. The Tring Museum possesses 57 specimens.

- 27 Forêt de Bainen, near Alger, June 1908, W. R. and K. J. and Dr. Nissen.  
 1 Environs d'Alger, June 1908, W. R. and K. J.  
 29 Aïn Draham, July 1911, Faroult.

The British Museum has 10 specimens of this species: 4 Algiers, Frey coll. and Crowley bequest; 2 Mauretania, Staudinger ex Zeller coll.; 1 Collo, 1 Constantine, ex Elwes coll.; 1 Bône, J. Merkl, June 1884, ex Elwes coll. Mr. Oberthür figures a large ♀, Fasc. X. *Etud. d'Entom. Comp.* pl. cclxxxvii. f. 2330, length of forewing 27 mm., expanse 58 mm.; my largest ♀ from Aïn Draham has a length of forewing of 30 mm. and an expanse of 64 mm.

#### 63. *Epinephele pasiphae philippina* Aust.

*Epinephele pasiphae* var. *philippina* Austaut, *Pet. Nouv. Entom.* vol. ii. p. 149 (1877) (Nemours).

The specimens of this form are very variable; above, the ♂♂ vary from one with nearly the whole upperside rufous orange and the ocelli on both wings obsolescent, to almost entirely fuscous brown, and the rufous orange on both wings reduced to a narrow band while the ocelli are very pronounced, some also have the rufous orange as if smoked and almost as brown as the ground colour, and others have the rufous orange replaced by deep rufous; below, there is every gradation from a sharply defined narrow white band to the uniform brown hindwings of ab. *tessalensis* Aust.; ♀♀ show less variation above, but the same variation below.

- 3 Hammam-bou-Grara, July 1914, Faroult.  
 510 Masser Mines, May—June 1914, Faroult.  
 21 Nedroma Oranais, June 1914, Faroult.  
 2 Nemours, Austaut (types of *pasiphae philippina*).  
 1 Djebel Tessala, Austaut (type of ab. *tessalensis*).  
 1 Djebel Mekter, May 1913, E. H. and C. H.  
 6 Titen Yaya, June 1915, Rotrou.  
 11 Saïda, May 1913, W. R. and E. H.  
 6 Tifrit, May 1913, W. R. and E. H.  
 22 Oran, April 1913, W. R. and E. H.  
 3 Djelfa, May 1913, Faroult.

The British Museum has 3 specimens : 2 Oran, Dr. Codet ex Elwes coll. ; 1 ? ex. Leech coll. (labelled erroneously "Morocco").

Miss Fountaine records this insect from Teniet-el-Haad, May 1904. The Tring series consists of 586 specimens.

### 63a. *Epinephele pasiphae pasiphae* (Esper).

*Papilio pasiphae* Esper, *Schmett.* vol. i. part ii. t. 67. f. 4 (1777) (?).

There are four specimens of this form in the British Museum, only all the characters are exaggerated ; they are very large, and the white band on the hindwings below is very wide and pure white.

Four Meade-Waldo. Mr. Meade-Waldo in his article gives El Mediar and Klatsa, May 1901, and states he never saw it in the south.

### 64. *Epinephele ida* (Esper).

*Papilio ida* Esper, *Schmett.* vol. i. part ii. t. 92. f. 2 (1777) (?).

The Tell and North Atlas specimens have been separated as *i. cecilia* Val. and the El Kantara specimens as *lapidepeta* Seitz, but as I have specimens from various localities agreeing with both these and typical European specimens, I do not consider these names to apply to anything more than aberrations and that *ida* from N. Africa is the same form as *ida* from Europe.

The Tring Museum possesses 351 Mauretanian examples.

- 1 Ouled Farsh, Morocco, May 1901, W. Riggenbach.  
 127 Zoudj-el-Beghal, Morocco, July 1914, Faroult.  
 6 Hammam-bou-Grara, July 1914, Faroult.  
 48 Masser Mines, June 1914, Faroult.  
 8 Nedroma Oranais, June 1914, Faroult.  
 3 Environs d'Alger, June 1908, W. R. and K. J. and Dr. Nissen.  
 3 Forêt de Bainen, June 1908, W. R. and K. J.  
 10 Lella Kredidja, July 1908, Dr. Nissen.  
 3 Sakamudi, August 1912, Faroult.  
 2 Oued Hamidou, June 1912, Faroult.  
 2 Hammam R'ihra, May 1913, W. R. and E. H.  
 1 Bou Saada, July 1912, Faroult.  
 38 El Kantara, June 1911, Faroult and Cheli Brahim.  
 22 Environs de Batna, June 1909–1914, Nelva.  
 27 Aïn Draham, Tunisia, August 1912, Faroult.  
 28 Environs de Tunis, April—June 1915–1916, E. Blane.

We left Algeria always too early in the summer to be able to catch this insect in any numbers. The British Museum has 9 specimens: 6 Meade-Waldo; 1 Tetuan, Morocco, June 1901, J. B. Fletcher; 2 Algiers, Leech coll. Mr. Meade-Waldo in his article gives Tangier, September 1901; Rabat, May 1901; and Tsanritz Entsagauz, July 1901. Miss Fontaine records it from Tlemcen, July 1904.

65. *Coenonympha arcanioides* (Pierret).

*Satyrus arcanioides* Pierret, *Ann. Soc. Entom. France*, vol. vi, p. 306 (1837) (Oran).

This insect occurs in two seasonal forms, gen. vern. *arcanioides* Pierret, and gen. aest. *holli* Oberth. (*Etud. Lépid. Comp. Fasc. IV<sup>1</sup>*, p. 20 (1910) (Maison Carrée). The summer form *holli* is distinguished by the fulvous or rufous being reduced, the general colour being darker and the insect much smaller.

gen. vern. *arcanioides*.

- 15 Masser Mines, May 1914, Faroult.
- 5 Oran, April 1913, W. R. and E. H.
- 4 Blida les Glacières, June 1908, W. R. and K. J.
- 20 Hammam R'ihra, May 1908–1913, W. R., E. H., and K. J.
- 2 Bou Saada, May 1912, Faroult.

gen. aest. *holli*.

- 12 Environs d'Alger, July 1909–1910, Captain Holl and Dr. Nissen.
- 2 Lella Kredidja, July 1907, Dr. Nissen.
- 42 Aïn Draham, July–August 1909–1912, Faroult.

Dr. Seitz, believing the type of *arcanioides* to have been a specimen of the summer generation, renamed the spring generation *major*, but that not being the case this name cannot stand.

The British Museum has 21 specimens of both seasonal forms: 7 Algiers, Leech coll.; 1 Algiers, October 1874, Hering; 1 Phillipeville, April–May 1882–1884, H. J. Elwes and J. Merkl ex Elwes coll.; 3 ? ? ? ex Elwes coll.; 1 Collo, Constantine Frey coll.; 1 Gibraltar, 1 Tangier, 3 Benzus Bay, Commander Walker ex Salvin Godman coll.; 3 Meade-Waldo. Mr. Meade-Waldo says in his article that he only saw this insect in the north, and quotes Hawara, April 1901, and El Mediar, May 1901. The Tring series of both generations consists of 103 specimens.

*Coenonympha* spec. ?

This ♀ is a most curious insect, and I should at once describe it as new only above it is exactly like a **very pale** *arcanioides*. Below it differs very much: the ground colour of forewing is orange **not** rufous, the buffy yellow line before ocellus has become a broad band reaching to vein 2, and the costal region, apex, and termen to vein 2 are greenish buff; there is also no metallic subterminal line on either wing, only an indistinct silvery line of dots; the ground colour of the hindwings is bright golden olive tinged with brown **not** maroon washed with dark olive; the white band is washed with buff and very broad; and the ocelli are so minute as to be almost absent.

- 1 ♀ Forêt del Akfadou, June 1906, Dr. Nissen.

66. *Coenonympha dorus austauti* Oberth.

*Coenonympha dorus* var. *austauti* Oberthür, *Etud. d'Entom.* livr. vi. p. 59 (1881) (Nemours).

Mr. Oberthür remarks that the ♀♀ are as dark and highly coloured as the ♂♂. I have some certainly which are like ♂♂ in coloration, but also I find there are quite as many females as pale and with the buff quite as much extended over the wings as in *C. fettigii holli*. Mr. Oberthür also remarks that he does not know of any other examples in collections than those of Mr. Austaut from Nemours. This is not wonderful, for no one has since then collected in the coastal districts of Western Oranais till I sent Victor Faroult there in 1914.

63 Zoudj-el-Beghal. E. Morocco, July 1914, Faroult.

37 Masser Mines, June 1914, Faroult.

5 Nedroma, Oranais, June 1914, Faroult.

The Tring series numbers 105 examples. The British Museum possesses 2 specimens: 1 Nemours, June—July, Austaut. and 1 labelled "Algeria" but also Nemours, Austaut ex Elwes coll.

1 ♂ at Tring is almost entirely pale buff on the upper surface.

67. *Coenonympha fettigii fettigii* Oberth.

*Coenonympha fettigii* Oberthür, *Pet. Nouv. Entom.* vol. i. p. 412 (1874) (Oran).

We never found this insect or its eastern subspecies, for it appears later in the year than we ever stayed in Algeria. It appears, moreover, to be very rare, as we have received only 5 of the western and 15 of the eastern form at Tring between 1908 and 1916.

1 Masser Mines, June 1914, Faroult.

4 Les Pins, July—August 1915, Rotrou.

The British Museum has 7 specimens: 4 Meade-Waldo; 2 Morocco, Leech coll.; 1 Seb dou, 1880—1882, Dr. Codet ex Elwes coll. Miss Fountaine records this form from Seb dou, June—July 1904.

Mr. Meade-Waldo in his article gives Imentalla, July 1901, and says that was the only place he saw it at. One of the Les Pins specimens is a curious aberration: the fulvous colour is replaced by dull deep rufous above; below, on the hindwings all markings have disappeared except the submarginal metallic line, and the colour is uniform olive wood grey; I propose to call this ab. *infra-simplex* ab. nov.

All my 5 examples are ♀♀.

67a. *Coenonympha fettigii holli* Oberth.

*Coenonympha fettigii* var. *holli* Oberthür, *Etud. Entom. Comp.* Fasc. IV<sup>1</sup>, p. 42. pl. xlvii. ff. 396, 397 (1910) (Blida les Glacières).

I have nothing new concerning this insect; but I should like to say that I know of no previous record of this insect from the neighbourhood of Alger; all hitherto recorded have been from Blida les Glacières.

6 Environs d'Alger, 1908, Captain Holl and Dr. Nissen.

9 Blida les Glacières, July—August 1912, Captain Holl and Dr. Nissen.

68. *Coenonympha pamphilus lyllus* (Esper).

*Papilio lyllus* Esper, *Schmett.* vol. i. part ii. t. 122. f. 1 (1777) (?).

In the Mediterranean Region the form *lyllus* is the summer generation, the spring generation being practically indistinguishable from typical *pamphilus*. It is a fact, however, that in typical *pamphilus* (type locality, Sweden) of North and Central Europe, the form with sandy buff hindwings below never occurs; so that we must apply the name *lyllus* to the whole form from the Mediterranean Basin, not merely to the third generation.

Mr. Oberthür says he is much interested in *pamphilus* and its forms; in fact, he says that there is often much more of interest connected with very common insects than with many very rare and high-priced species. I heartily associate myself with him, and wish once more to insist that the only way to study the Natural History of the various creatures in the world is not only to try to collect specimens of each from the largest possible number of localities, but also to get together as many as possible from each one of these localities. Thus only shall we be able to determine not only the status of each species, but also the various local races and individual aberrations, seasonal and sexual differentiations, the effect of heat, cold, damp, or dryness, and the host of other influences which determine the amount of variation within each species. Mr. Oberthür points out that in Algeria *pamphilus* even in February shows the grey on the hindwings below slightly more washed with yellow than in Central European examples. In June there is already a mixture of *pamphilus*-like specimens and true *lyllus*, as well as complete intermediates, while in July and August only *lyllus* and intermediate specimens occur. The aberrations *thyrsoides* Stdgr. and *marginata* Stdgr. occur most frequently in the ♀♀; I have never come myself across a ♂ *thyrsoides*, though among Faroult's Masser Mines specimens are several ♂ *marginata*.

The Tring series of Mauretanian examples of *p. lyllus* numbers 287.

- 1 Tamarouth, Morocco, June 1904, W. Riggenbach.
- 1 Truchan, Morocco, May 1904, W. Riggenbach.
- 3 Rabat, Morocco, 1914, A. Théry.
- 26 Zoudj-et-Beghal, Morocco, July 1914, Faroult.
- 18 Masser Mines, June 1914, Faroult.
- 17 Tlemcen, April 1913, W. R. and E. H.
- 4 Titen Yaya, May 1915, Rotrou.
- 1 Les Pins, July 1915, Rotrou.
- 13 Oran, April 1913, W. R. and E. H.
- 5 Lella Kredidja, July 1907, Dr. Nissen.
- 10 Hammam R'ihra, April—May 1908—1912, W. R., E. H., and K. J.
- 1 Djebel Zaccar above Miliana, July 1916, Faroult.
- 1 Teniet-el-Haad, July 1905, Dr. Nissen.
- 2 Berrouaghia, April 1914, Faroult.
- 1 Boghar, July 1905, Dr. Nissen.
- 76 Guelt-es-Stel, April 1913, Faroult.
- 1 Puits Baba, May 1913, Faroult.
- 1 Djelfa, May 1913, Faroult.
- 1 Bou Saada, May 1912, Faroult.
- 27 Khenchela, May—June 1911—1912, W. R., K. J., and Faroult.

- 18 Batna, April—May 1908–1909, W. R., E. H., and Nelva.  
 5 Lambessa, May 1909, W. R. and E. H.  
 8 Constantine, May 1908, W. R. and E. H.  
 3 Sakamudi, August 1912, Faroult.  
 2 Tizi Ouzu, June—July ? 1914, Faroult.  
 1 Oued Hamidou, June 1912, Faroult.  
 5 Hamman Meskoutine, April 1914, W. R. and K. J.  
 8 Souk Ahras, April 1914, W. R. and K. J.  
 18 Aïn Draham, Tunisia, July 1911, Faroult.

The British Museum possess 15 Mauretanian examples of *p. lyllus*: 8 Meade-Waldo; 2 Lambessa, 1 Philippeville, and 1 Batna, May 1882, H. J. Elwes; 1 Collo, Constantine Frey coll.; 2 Kenchela, April—May 1906, Lord Walsingham.

Miss Fountaine records this form from Tlemcen and Sebdou, June—July 1904. Mr. Meade-Waldo says he found the spring brood (*pamphilus* as he calls it) in May in North Morocco and in March near Rabat, and the summer brood (*lyllus*) in South Morocco and up to 10,000 ft. in the Great Atlas.

I break off here, because Mr. Bethune Baker has been working at *Lycaenidae* and has made some important discoveries about Algerian species, which I want to include. The next portion of this supplement therefore will commence the *Heterocera*; the *Lycaenidae* and *Hesperidae* will follow as soon as Mr. Bethune Baker's paper is published.

The following two species were by an oversight omitted from their right order—

#### 69. *Coenonympha vaucheri* Blach.

*Coenonympha vaucheri* Blachier, *Bull. Soc. Entom. France*, 1905, p. 213 (Moroccan Atlas).

This species has only been taken by Mr. Meade-Waldo and Mr. Henri Vancher in the High Atlas of Morocco.

There are no specimens at Tring or in the British Museum.

Mr. Meade-Waldo obtained it on Tsaouritz Entsagauz and Tizi Gcurzá in July 1901, but never below 8,500 feet, as recorded in his article.

#### 70. *Teracolus physadia* (God.).

*Pierisphysadia* Godart, *Encyclop. Method. Hist. Nat. Entom.* vol. ix. p. 132. No. 40 (1819 (1824)) (?).

The only record for this species is that of M. de Joannis, who informs us it was taken by M. R. Chudeau in September 1905 at Oued-el-Ghessour (south of Taman-Gasset) and Oued Kadamellet.

To avoid confusion I would state that where after Tring Museum specimens the origin Staudinger is placed, it infers that the specimens were purchased from Messrs. Staudinger & Bang-Haas of Dresden.

(To be continued.)

## CHALCIDIDAE OF THE SEYCHELLES ISLANDS.

By L. MASI.

WITH AN APPENDIX BY J. J. KIEFFER.

(75 Figures.)

[NOTE.—The material dealt with in this paper forms part of the collections of the Percy Sladen Trust Expedition to the Western Indian Ocean in 1905 and 1908–9. The results of this Expedition have hitherto been published all together in one work, consisting of certain special volumes of the *Transactions of the Linnean Society of London*: five of these are already complete (Ser. 2, Zool., vols. xii–xvi), while a sixth (vol. xvii) is in course of publication. Circumstances have, however, rendered it impossible for all the reports to appear in the Linnean Society's publications, and it is owing to the kindness of the Editors of *Novitates Zoologicae* that the report on Chalcididae is printed here.

With the exception of two specimens, the entire collection of Chalcididae was obtained in 1908–9 in the mountainous granitic islands of the Seychelles. In most of the groups of insects from those islands hitherto investigated, the bulk of the species and specimens collected by the Expedition were taken in the very peculiar endemic forests which remain in the highest mountains at elevations between 1,000 and 3,000 feet, in which by far the greater part of the collector's time was spent. Among the Chalcidids, however, a strikingly large proportion was found among non-endemic vegetation at lower levels, particularly in the narrow cultivated plains and small marshes which fringe the coasts of the islands in certain places. The only Chalcidids taken in any of the other archipelagoes visited by the Expedition are the two examples referred to above, *i.e.* the types of *Hockeria testaceitarsis* Cameron, from the coralline Cargados Group, and of *Stilbula insularis* Cameron, from an atoll in the Chagos Group: both are referred to below. A first set of the material, including the TYPES of all new genera and species, has been placed in the British Museum.—HUGH SCOTT.]

## INTRODUCTION.

The collection of Chalcididae described in this work was made by Mr. Hugh Scott in the Seychelles Islands during the second half of 1908 and the early part of 1909; it consists of nearly 550 examples, belonging to 69 genera and 93 species. The genera new to science are 22 in number, and the species which I have been able to distinguish as new are 77\*; but there are 3 species of which the determination is doubtful, and 7 that remain undetermined, either because

\* The description and diagrams of one of the new species, *Centrobria mahensis*, were made some years ago by Professor Dr. J. J. Kieffer. They have not previously been published, but now appear in an appendix at the end of this work (p. 230).

they are represented by imperfect specimens or because they belong to genera which seem to me to demand a complete revision. Six of the species were certainly known previously from other countries: they are *Ilockeria testaceitarsis* Cameron, discovered in the Cargados Islands (about 150 miles north-east of Mauritius), *Coccophagus eleaphilus* Silvestri, from the colony of Eritrea, *Melittobia hawaiiensis* Perkins, *Tetrastichus hagenowii* (Ratz.), *Euplectrus bicolor* (Swed.) Hal., and *Eucomys infelix* Embleton.

Hitherto only two species of Chalcididae were known from the Seychelles, a *Chalcis* and a *Tetrastichus*. The former was collected by Alluaud in 1892 and was referred by Pérez with some hesitation to *Chalcis amenoecles* Walker; it does not seem to me to differ from the species which I describe below under the name *Chalcis sodalis*. The *Tetrastichus* is *T. hagenowii* (Ratz.), a parasite of the eggs of cockroaches, very widely distributed; it is represented in the material under review by numerous examples, and the original types of the species also came from the Seychelles.

Mr. Scott's collection, containing many new genera, and genera represented by a single species, forms the material for a valuable contribution to our knowledge of the Chalcididae, and I much regret having been unable to illustrate all the forms in a suitable manner: those which are represented by few examples, or by a single example, have not allowed of all their characteristic parts being figured; moreover, the condition of international relationships has increased the difficulties of my study and prevented my making comparisons with the types of certain forms.

The restricted nature of our knowledge of the Chalcididae of the African fauna, and our still more inadequate acquaintance with those of the Asiatic fauna, do not at present admit of our drawing conclusions from the results of my work. There are in the collection three species which are undoubtedly common to the faunas of the Seychelles and of Europe, namely, *Eucomys infelix*, *Euplectrus bicolor*, and *Tetrastichus hagenowii*; the same appears to apply also to two others, *Tetrastichus inunctus* (Nees) Thoms., and *Leptomastix histrio* Mayr, but I am very doubtful as to the exactitude of the specific determination of these latter.

I may here express my indebtedness and my thanks to all who have helped me in this work, and especially to Messrs. Hugh Scott, of Cambridge University, Waterston, of the Imperial Bureau of Entomology (at the British Museum), Silvestri and Grandi, of the School of Agriculture at Portici, and Bouvier and Lesne, of the Museum of Natural History at Paris. I may also express my gratitude to the Editors of NOVITATES ZOOLOGICAE, who have permitted the publication of my report in their well-known periodical.

MUSEO CIVICO DI GENOVA.

20th September, 1916.

FAM. CHALCIDIDAE.

SUBFAM. AGAONINAE.

GEN. *Allotrioazon* Grandi.

*Boll. Labor. Zool. gen. e agr. Portici, vol. x, 1916. p. 182.*

1. *Allotrioazon seychellense*, sp. n. (figs. 1, 2).\*

*Femina.* Fulva, dorso et antennarum scapo plus minus obscurioribus, capite brunneo-aeruginoso, vertice fronteque brunneis, flagello ultra dimidium articuli septimi infuscato, alarum nervis brunneo-griseis.

Caput antice visum modice elongatum, latitudine dimidiam longitudinem proportione 11 : 19 superante; vertice setis paucis longis instructo, oculis glabris, diametro orbitali maiore  $\frac{2}{5}$  capitis longitudinis aequante; faciei area media marginibus fere parallelis limitata; lobis oralibus submedianis apice extus incisus; lobi clypealis parte prominente longitudine latiore, lateribus parallelis; processu frontis clypeo imposito acute triangulari.

Mandibulae superne bicostulatae, dente validiore armatae, prope huius basim denticulis in margine orali circa 7. minimis, instructae, quibus 4 vix maiores in dimidio basali dentis sequuntur; processus laminaris latitudine sua magis quam septies longior, latere interiore conspicue dentato-spinoso, superficie ventrali denticulis in serie transversa 8-9, seriebus denticulorum circa 30.

Scapus latitudine duplo longior, postice sat fortiter curvatus, antice pilis nonnullis instructus ultraque medium longitudinis brevi spatio recte marginatus. Flagelli articulus tertius lobum formans conspicuum, apice rotundatum, quam articulum praecedentem sesquilogiorem; articulus quartus secundo fere aequilongus; quintus et sextus latitudine sesquilogiores; septimus brevior;

\* Nomenclatura, qua in descriptionibus utar, ab illa Thomsoni ("Hymenoptera Scandinaviae") parum differens, eadem est quae in descriptionibus meis jam ante editis. (Vide in *Boll. Labor. Zool. gen. e agr.*, Portici, vol. i. 1907. p. 231—et *Ann. Museo Civ. Genova*, vol. vii. (3.) 1916. p. 55.) Pars praeaxillaris mesonoti = mesonotum auctorum quorundam, id est pars mesothoracis dorsae, acapularum sulcis carens, in scapulas et scutum non est divisa. Metanotum = prosoma, id est tergum segmenti primi abdominalis. Praestigma = proalarum subcostae para ascendens, quae nervum marginalem attingit, quo a nervo stigmatico separatur. Nervus stigmaticus = n. radialis.

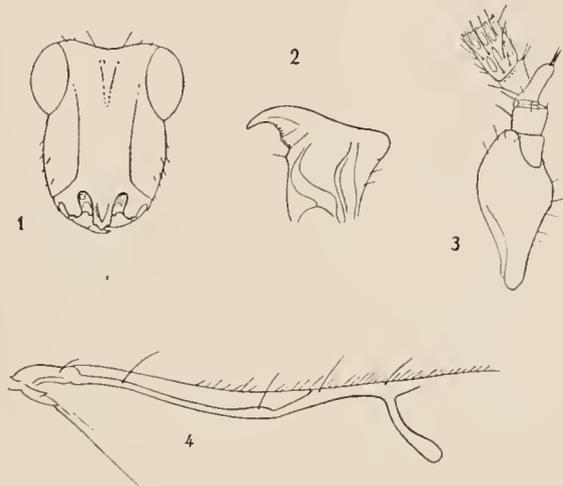


FIG. 1.—*Allotrioazon seychellense*, ♀.

1, caput antice visum (x 35); 2, mandibulae (sine lamina) latus dorsale (x 100); 3, antennae scapus et flagelli articuli 1.-5. (x 88); 4, prothoracis nervi (x 50—pili in superficie non delineati).

nonus et decimus, clavae pertinentibus, subquadrati; ultimus praecedente fere duplo longior.

Proalae duplam latitudinem longitudine vix attingentes, angulo posteriore late rotundato, fere truncato, margine externo subrecto; cellula costali quam nervo marginali triplo longiore et huius longitudinem cum postmarginalis rudimento simul sumptam duplo superante. Alae metathoracis latere postico

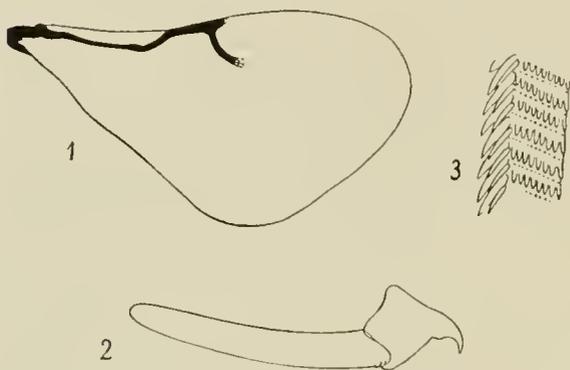


FIG. 2.—*Allotriozoon seychellense*, ♀.

1, proala ( $\times 17$ ); 2, mandibula ( $\times 58$ ); 3, dentes laminae mandibularis ad mediam huius longitudinem ( $\times 112$ ).

angulum obtusissimum vix rotundatum fingentes, latitudine maxima ad hamulos, hanc fere quintuplo longitudine superantes, scilicet proportione 9:2; pilis marginis anteriori dimidio quam posteriori brevioribus.

Tarsus pedum anteriorum duplam tibiae longitudinem superans proportione 5:2, articulo primo, itemque articulis tribus sequentibus simul sumptis, tibiae aequilongis, his ultimis latere interiore

dimensis. Pedes postici tibia magis quam dupla eius latitudine longiore, denteque apicali obtuso munita; tarso duplam tibiae longitudinem superante, articulo primo secundo cum tertio, itemque tibiae, aequilongo.

Oviductus abdominis longitudinem aequans.

Long. 1,4–1,6 mm.

*Mas* ignotus.

*Habitat.* Mahé: Cascade Estate.—Silhouette: “Mare aux Cochons, about 1,000 ft.; some of the specimens came to the lamp at night, in the hut where I camped during part of August and September, 1908” (H. Scott).\*

Specimina tredecim, pauca integra.

*Adn.* Generi *Allotriozonti*, quod Grandi (*l.c.*) nuper instituit, species duae, eiusdem auctoris, *A. prodigiosum* et *heterandromorphum*, pertinebant, quas Silvestri in regionibus litoralibus Africae occidentalis septentrionalis invenit: his species seychellensis nunc intermedia quasi accedit, *prodigioso* tamen affinium. A quo praecipue differt capite minus angustato, lobo clypeali aliter formato et *A. heterandromorpho* similiore, mandibula sicut in hac specie uncinato-dentata, lamina mandibulari denticulorum seriebus minus numerosis, circa triginta, instructa (in *prodigioso* 48–52, in *heterandromorpho* 20–22), proalis latioribus

#### GEN. *Blastophaga* Gravenhorst.

(*Kradibia* Saunders.)

##### 2. *Blastophaga*, sp.

*Femina.* Piceo-brunnea, antennis, pectore pedibusque flavo-griseis, alis decoloribus at parum diaphanis, nervis brunneis; pronoto grosse, confertim,

\* See *Trans. Linn. Soc.* xiv. 1910, bottom of p. 26.

punctato, pilosulo; oviductu dimidiam abdominis longitudinem fere aequante. Long. 1,4 mm.

Specimen unicum ad Mahé captum (Mare aux Cochons). Antennarum articuli usque ad quintum tantum extant.

*Adn.* Species haec, cui propter colorem et nervum postmarginalem valde elongatum, similitudo est quaedam *Kradibiae cowani* Saund., non amplius describere potui, quum sit specimen unicum, antennarum flagello toto carens, corpore deformato.

### GEN. *Crossogaster* Mayr.

#### 3. *Crossogaster atratus*, sp. n. (fig. 3).

*Femina.* Nigra, nitida; oculis nigro-brunneis; scapo ac pedicello fulvis; funiculo cum clava, subcostae parte ascendente, nervo marginali et stigmatico versus apicem, flavo-fuscis; nervi marginalis basi, stigmatici parte angustiore et alarum lamina hyalinis; metanoti margine postico, pedibus cum coxis, abdominisque latere ventrali, fulvis; abdominis dorso leniter cupreo, basi subviridi; oviductu nigro.

Caput antice visum subquadratum, latitudine longius proportionem 21:19, ad os paulum minus quam in vertice latum, angulis, praecipue inferioribus, rotundatis, ocellis externis spatio duplo quam ab oculis inter se remotis, genis sulco impressis margini laterali capitis parallelo, clypeo retracto, 1/3 faciei latitudinis aequante, extus recte terminato, in medio margine inciso. Faciei superficies punctis nonnullis sparsim impressa.

Antennae in linea oculari ad mediam capitis longitudinem insertae, scapo ocellum haud attingente, pedicello triplo longiore quam latiore, anello minimo, articulo primo funiculi fere annuliformi, quam sequentibus dimidio brevior, his aequalibus, vix transversis, dimidiam pedicelli longitudinem aequantibus, clava quam articulis duobus praecedentibus paulum longiore, distincte in articulos tres subaequales divisa.

Thorax capite longior proportionem 9:7, vix angustior, depressus, pilis nonnullis perlongis instructus quam verticis magis elongatis; scuto 2/5 thoracis latitudinis haud longiore; suleis scapularum et axillarum vix conspicuis; scutello semielliptico, quadrisetosus, eius margine anteriore quam posteriore scuti parum latiore; dorsello arcuato lineari; metanoto haud brevi, medio sulcato; metapleura subtiliter sulcato-reticulata, callo parce at longe pilosulo.

Proalae postcosta 4-5-setosa, nervo marginali plurisetoso haud tenui, latitudine 1/8 longitudinis aequante, quam cellula costali brevior proportionem 3:8, quam nervo stigmatico fere duplo longiore; hoc subarcuato; postmarginali fere nullo; lamina linea obliqua pilorum, ad medium nervi stigmatici incipiente, in partem basalem glabram et apicalem parce pilosam divisa.

Femora antica et postica aequaliter dilatata; tibiae posticae prope calcar spina brevi, crassa, instructae.

Abdomen, praeter oviductum, paulum thorace longius, haud angustius,

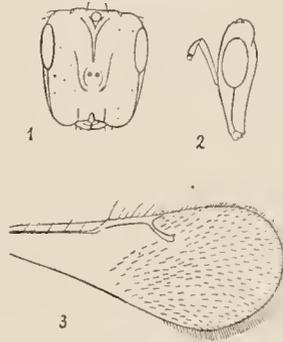


FIG. 3.—*Crossogaster atratus*, ♀.  
1, caput antice visum; 2, idem de latere;  
3, ala anterior; ( $\times 27$ ).

latitudine fere duplo longius, ellipticum, depressum, segmentorum marginibus dorsalibus aspectu crenulatis et medio haud profunde angulatim incisus; valvula ventrali setosa; oviductu haud curvato,  $2/9$  abdominis longitudinis aequante.

Long. 1,9 mm.

*Habitat.* Mahé: "among scrubby endemic forest vegetation, at top of Mount Sebert, nearly 2,000 ft. i.-1909," ubi *Pandani* frequentes.

Specimen unicum.

*Adn.* Huic generi duae species pertinebant, *C. triformis* Mayri et *C. silvestrii* Grandii, illa in Sokotra insula, haec in Senegal inventa et ab auctore nuper descripta (*Boll. Labor. Zool. gen. e agr.*, Portici, x. 1916. p. 253). *C. triformis* a specie seychellensi facile dignoscas capite thoraceque obscure viridibus, abdomine fere toto brunneo, flagelli articulo tertio sequentibus conformi, oviductu longiore. *C. silvestrii* praecipue differt corporis colore castaneo-fuligineo, capite, antice inspecto, ad os angustato, pedicello crassiore, nervo stigmatico magis attenuato, oviductu brevior.

#### SUBFAM. TORYMINAE.

##### GEN. *Sycoryctes* Mayr.

#### 4. *Sycoryctes sebertianus*, sp. n.

*Femina.* Aenea, thoracis lateribus et capite leniter auratis, hoc infra antenarum radículas pallide flavo, vertice subviolaceo; thoracis dorso cuprescente; terebrae valvis nigris; scapo obscure aeneo, flagello nigro-brunneo; coxis atque femoribus fuscis, tarsis omnibus tibiisque anticis totis fulvis, tibiis posterioribus basi fulvis versus apicem sensim infuscatis; vertice transversim strigoso; antennis ab ore  $1/4$  capitis longitudinis remotis, scapo ocellum attingente, pedicello conico, latitudine vix longiore, anello brevissimo, funiculi articulis aequilongis, primo quam pedicello parum crassiore, aequae longo atque lato, ultimo longitudine latiore proportione 5:3, clava distincte triarticulata, articulis duobus praecedentibus aequilonga; mesonoti parte praeaxillari minute reticulata, pronoto atque scutello etiam magis minute inculptis, episternis laevibus, politis, metapleura subtiliter, confertissime, transversim striata.

Long. 2,6 mm., oviductus 3 mm.

*Habitat.* Mahé: "from scrubby endemic forest vegetation at summit of Mount Sebert, about 1,800 ft., i.-1909."

Specimen unicum.

##### GEN. *Podagrion* Spinola.

#### 5. *Podagrion terebrator*, sp. n. (fig. 4).

*Femina.* Capite thoraceque viridibus, oculis ocellisque rufo-brunneis, genis fronteque plus minus auratis, mesothoracis lateribus pro parte cyaneis, metapleurae, coxis posticis, femorum posticorum latere interiore, abdominis latere dorsali, obscure cyaneo-viridibus, parte reliqua abdominis, pedibus anticis mediisque, femoris postici basi et apice, antenarum scapo et pedicello, fulvis, hoc ultimo fusco-maculato, funiculo flavo-brunneo, clava fusca, proalis fere limpida, nervis fuscis, tegulis brunneis.

Caput minute reticulatum, areolis temporum maioribus. Annellus duplo latior quam longior; funiculi articulus primus latitudine sua fere sesquilongior,

sequentes sensim erassiores atque breviores, ultimi duo tamen aequilongi, articulus quintus quadratus, sextus longitudine parum latior, septimus huius latitudinem conspicue superans. Clava longitudinem articulorum quinque praecedentium aequans, de supra inspecta quam articulus sextus latior.

Mesosternum et mesopleura strigis notata reticulum formantibus, in parte posteriore mesopleurae fere obsoletum. Meta-pleura subtiliter reticulato-sulcata, prope latus ventrale anteriusque areolis minoribus, suleis fortius impressis limitatis, inculpata. Metanotum carinis duabus ex puncto medio anteriore divergentibus, ramulos duos emittentibus parallelos, quorum externus ad partem lateralem, internus ad dorsalem abdominis basis, desinentes.

Femur posticum longitudine duplam altitudinem paullo superans (proportione 20 : 9) dentibus circa septem munitum.

Segmentum abdominale primum laeve, secundum sparsim atque minutissime punctatum, tertium et quartum suleis tenuissimis minute reticulata, quintum sculptura etiam reticulata, at areolis transversis.

Long. 3.5 mm., oviductus 3 mm.

*Habitat.* Mahé : Cascade Estate, etc.—*Silhouette* : Marc aux Cochons. "At elevations of about 1,000 ft."

Specimina quatuor.

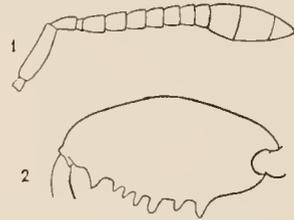


FIG. 4.—*Podagrion terebrator*, ♀.  
1, antenna ( $\times 27$ ); 2, femur posticum de latere interiore inspectum ( $\times 23$ ).

#### SUBFAM. CHALCIDINAE.

#### GEN. *Chalcis* Fabricius.

#### 6. *Chalcis lepida*, sp. n. (fig. 5).

*Femina.* Nigra, scapo rufo-brunneo versus apicem lutescente, pedicello obscure luteo, funiculi articulis ultimis, clava pro parte, labro et mandibulis rufis; interdum his partibus totis nigris. Femora antica dimidio basali vel fere tota, intermedia praeter apicem, plus minus nigricantia, reliquo spatio lutea; tibiae anteriores fere omnino luteae vel rufae, interdum nigrae; femur posticum apice extus luteo, vel rufo et luteo maculato; tibiae posticae latus exterius, praeter partem tertiam basalem et maculam apicalem lateri posteriori propinquam luteas, grisescenti-rufum, saepius tamen in tertio medio nigrum, latus anterius semper nigrum, interius rufum et basi interdum flavescens. Tarsi flavo-albidi, apice brunnei. Tegulae flavae. Alae limpidae, nervis fuscis.

Altitudinis capitis ad latitudinem proportio 7 : 10, latitudinis frontis ad capitis 1 : 2. Oculi magni, valde convexi, ex latere inspecti ovoides, lati, diametro verticali spatium interorbitalem fere aequante. Ocelli posteriores ab anteriore magis quam ab oculis remoti. Carina praeorbitalis praesens. Faciei alveoli contigui, quam dorsi minores. Antennae nonnihil sub linea oculari insertae, a clypeo parum remotae; flagello altitudinem capitis longitudine vix superante; anello bene discreto, duplo latiore quam longiore; funiculi articulo primo latitudine sua sesquilingiore, 4. et 5. quadratis; clavae articulo secundo quam primo maiore, aequae longo atque lato, apice obtuso, saepe post mortem immerso.

Thorax brevis, altus, de latere inspectus dorso plano, scutello vix prominente,

metanoto dimidio angulo recto declivi. Scutelli margo apicalis integer. Metathoracis latera haud dentata; metapleurae antice linea verticali limitatae. Alveoli dorsi, praecipue super scutum, haud contigui, in dimidio posteriore scutelli sensim versus apicem maiores; spatia interposita scabra.

Femora secundi paris pedum item atque primi ad medium crassiora. Femora postica fere duplo longiora quam latiora, interne tuberculo instructa, margine ventrali dentibus decem vel duodecim, apice obtusis, minuto, quorum sex primi spatio inter se remoti eorum latitudinem aequante, primusque ceteris maior; superficiei interna externaque haud nitidis, hac quum satis vitro aucta, sulcis subtilibus minutissime reticulata, in angulis reticuli punctis satis conspicuis impressa, sat dense pilosula. Coxae posticae superficiei externa nitida, lineolis tantum sulcata subtilibus, undulatis, quibus reticulum efficitur; superficiei inferiore crebre foveolis rotundis impressa, quarum distantia ipsarum diametrum paulum superat.

Abdominis segmenta praeter basale minutissime granulosa, punctis piliferis sparsis; tergitem sextum foveis rotundis fere totum insculptum. Pili in segmentis 3.-6., nec non in lateribus segmenti secundi, frequentes.

Long. 3-3,5 mm.

*Mas* feminae similis.

*Habitat.* "Seychelles, mostly from cultivated country at low elevations. Silhouette: coconut-planted coast at Pointe Étienne, ix, 1908.—Mahé: from Port Victoria and other localities in the low country, also from Cascade Estate at 1,000 ft.—Anonyme Island (a cultivated islet near Mahé).—Dennis Island (an outlying coral-island)."

Specimina: ♀♀ quindecim, ♂ unus.

*Adn.* Diagnosin invenire quae huic *Chalcidi* bene conveniat nequeo, quare pro nova habeo. Species femorum posticorum colore atque sculptura scutellique apice non inciso similis est *Chalcidi vicinae* Walk., at differt femorum denticulis; colore autem speciei cuidam syriacae, ineditae, accedit, nec non *Chalcidi* quam dr. Mori *Cassidae vittatae* parasitam in Italia invenit.\*

#### 7. *Chalcis sodalis*, sp. n. (fig. 6).

*Chalcis amenocles* Pérez, *Ann. Soc. ent. Fr.* vol. lxiv. 1895. p. 211, 212 [forte].

*Femina.* Nigra, scapo in dimidio inferiore grisescenti-luteo macula alba oblonga notato; proalis haud infumatis, subcosta usque ad praestigma grisea, nervis reliquis brunneis; pedibus nigro, albo et rubro variis; femoribus anticis in dimidio basali, mediis fere totis, nigris, colore hoc ab albido partis reliquae linea obliqua distincte separato; tibiis anticis in tertio medio vel paulo amplius rufis, parte basali et apicali albis linea marginis anterioris etiam alba coniunctis; tibiis secundi paris in tertio medio nigris, reliquo spatio albis; pedibus posticis coxis nigris, femoribus rubris, horum macula apicali alba 1/4 longitudinis occupante, tibiis albis, in tertio medio fere toto et basi nigro-maculatis, vel in his partibus rubris, in latere anteriore nigris; tarsis omnibus fulvis, apice fuscis, tegulis et pilis albis.

\* In femoris figura dens quartus structura anomala duplicatus apparet.

Caput carinis genali, praeorbitali atque temporali continuis, faciei dimidio inferiore genisque dense argenteo-pilosis, spatio frontis inter orbitam et foveam antennalem articulum primum funiculi aequante. Articulus hic et sequens quadrati, septimus longitudine sua fere duplo latior. Flagelli pili frequentes, in latere ventrali articularum haud longiores.

Thorax sat robustus. Scutellum apice bilobatum. Metathorax de latere inspectus dorso parum declivi, dente laterali posteriore modice elevato, obtuso. Epicnemium juxta latus anterius seriatim alveolata, reliquo spatio laevia.

Sculptura capitis dorsique praeter scutellum et dimidium scuti apicale, minuta, foveolis confertis constans; scuti pars dimidia posterior et scutellum totum foveolis notata magnis, interdum inaequalibus, nec satis contiguis.

Coxarum posticarum latus inferius fortiter punctatum, foveolis minore spatio quam ipsarum diametro inter se remotis. Femoris postici longitudo duplam eius altitudinem vix aequans; superficies externa minute reticulato-suleata, profunde punctulata; dentes 10-11, quorum sex primi longiusculi, acuti, 3., 4. et 5. spatio eorum altitudinem haud superante inter se remoti, tres, vel quatuor, ultimi parvi, coalescentes.

Abdominis segmentum primum politum, segmenta reliqua confertim et minute reticulato-squamosa; tergum sextum foveolis insculptum inter se remotis, quarum 3-4 in linea longitudinali numerantur. Segmentum secundum pilis paucis ornatum, tertium et sequentia pilis, praecipue in lateribus, numerosis.

Long. 5,5 mm.

*Mas.* Pedibus anticis mediisque magis quam in femina nigro pictis, tibia antica in latere externo nigro-maculata, apice flavo-brunnea; femoris postici 2/3 anterioribus nigro-maculatis; abdominis tergito sexto confertim foveolato, sternitis coxisque aequae punctulatis, sternito secundo inter foveolas minute granuloso.

Long. 3,5 mm.

*Habitat.* Mahé: Cascade Estate.—*Silhouette:* Mare aux Cochons. "At elevations of about 1,000 ft."

*Adn.* Haec una est ex multis *Chalcidum* speciebus nigro, rubro et albo pictis, Africae pertinentibus, quae, meo iudicio, non possunt dignosci nisi femoris postici altitudo ac longitudo, huiusque et tergiti sexti sculptura examinentur; quod auctores in eis describendis neglexerunt. Specimen seychellense ab Alluand apud Mahé captum, a Pérez *Chalcidi amenocli* Walk. non sine haesitatione relatam, quod ex Museo Parisiensi dr. Bouvier mihi liberaliter misit, cum mare nunc descripto comparavi et eidem speciei attribuendum aestimavi, quamquam maiori statura, femoribus posticis haud nigro-maculatis, anterioribus vero usque ad 1/3 apicalem nigris, differret.

Specimina duo ♀♀, unum ♂.

#### GEN. *Anacryptus* Kirby.

(*Chalcitella* Westwood?).

#### 8. *Anacryptus insidiosus*, sp. n. (fig. 7).

*Femina.* Castaneo-rufa, brunneo et nigro varia, oculis brunneis, alis hyalinis, nervis pallide flavo-griseis. Plerumque his partibus nigrificantibus: occipite,

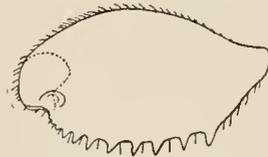


FIG. 6.—*Chalcis sodalis*, ♀.  
Femur posticum (× 16).

scuto et scutello, scapulis totis vel tantum prope scutum, axillis, mesothoracis lateribus, metapleuræ parte inferiore, metanoto, coxis posticis superne, petiolo et abdominis dorso. Tegulis, genubus anterioribus, interdum pedibus anterioribus totis, scapo punctoque in parte postica metapleuræ, obscure luteis; funiculi articulis, nec non clavæ articulo primo, apice nigro-annulatis. raro clava tota et funiculo fere toto nigris.

Caput aequè longum atque latum, facie leniter convexa, scrobe fere nulla. Antennæ flagello quam scapo fere duplo longiore, hæc  $2/3$  capitis longitudinis æquante, anello quadrato, funiculi articulo primo quam anello duplo latiore, reliquis longitudine parum latioribus, clava apice acuto, longitudine articulos  $2\frac{1}{2}$  præcedentes æquante; sensillis articulis æquilongis.

Dorsum pilis subtilioribus ornatum, scuto superficie tota alveolato. Scutellum apice rotundato-truncato. Metapleura alveolis impressa contiguas, magnis, fundo scabris, forma hexagona vel pentagona, pilis instructis eorum diametro æquilongis.

Coxarum posticarum latus dorsale fere totum transverse et concinne strigulosum, strigis interdum confluentibus, extus et in parte basali foveolis magnis rotundatis impressum; latus exterius toto spatio foveolis notatum rotundis, æqualibus. Femora antica subclavata, intermedia dimidio basali etiam magis attenuata, dimidio apicali conspiciue incrassata.

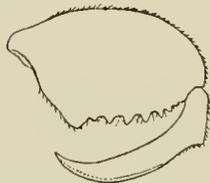


FIG. 7.—*Anacryptus insidiosus*, ♀.

Femur posticum cum tibia  
( $\times 15$ ).

Petiolum scapo æquilongus.  $2/3$  coxarum longitudinis vix superans, dimidium abdominis fere æquans, in latere superiore minutissime sulcato-reticulatus et carina instructus longitudinali mediana parum conspicua, carinis submedianis fere obsoletis; de latere inspectus carinas quinque ostendens.

Abdomen altitudine  $3/5$  longitudinis æquans, segmento primo  $4/5$  totius longitudinis occupante, superficie minutissime et confertim punctulata.

Long. 3–4,5 mm.

Mas feminae similis.

*Habitat.* Mahé: Cascade Estate ("at about 1,000 ft.").

Specimina duodecim.

#### GEN. *Hockeria* Walker.

##### 9. *Hockeria fulvipes*, sp. n. (fig. 8).

*Femina.* Nigra, capite thoracque subnitidis, abdomine nitido; antennis usque ad articulum secundum funiculi, tegulis ac pedibus præter coxas, fulvis, parte reliqua flagelli nigra apice grisescente; proalis flavo-griseis, macula albida antice mox pone nervum stigmaticum ornatis, pene  $2/5$  longitudinis usque ad  $1/5$  apicalem fuscis, spatio hoc tamen versus marginem posticum minus obscuro; metapleura inferne et metanoto versus apicem pilis albis, sericeis, sat longis, instructis; pedum posteriorum coxa interdum apice rufa, femore præter basim et latus dorsale plus minus nigricante, tibia in latere anteriore nigra.

Capitis longitudo  $3/4$  latitudinis æquans, latitudo frontis diametro maiori orbitalium æquilonga. Oculi glabri. Ocelli ab oculis distantes spatio quam eorum diametro paullo maiore. Lobus inter antennarum insertiones com-

pressus semicircularis, conspicue prominens. Forma capitis ex latere inspecti ovata, erassitie longitudini orbitae aequilonga. Genae haud curvatae, vestigio carinae longitudinalis. Sculptura totius capitis foveolis constans contiguus. Fovea antennalis  $1/3$  frontis occupans, fundo minutissime sulcato-reticulato, areolis transversis. Scapus haud robustus, subrectus, vix perspicue reticulatus, in dimidio basali minime incrassatus, apice leniter compresso-dilatatus; pedicellus latitudine magis quam duplo longior; annellus vix longior quam latior et longitudine dimidium pedicelli aequans; funiculi articulus primus pedicello aequilongus, ceteri gradatim breviores, septimus latitudine sua parum longior, quam clava fere duplo brevior; haec articulis constans tribus subaequalibus, vix discretis.

Scutelli pars postaxillaris in dimidio anteriore marginibus acutis rectis parallelisque limitata, in posteriore margine etiam acuto, semicirculari, apice dentibus duobus plus minus obtuse triangularibus munito. Sculptura dorsi foveolis constans satis regulariter ordinatis, interstitiis angustis separatis; superficies tota sulcato-reticulata, sulcis foveolarum fundum et interstitia occupantibus. Metathorax lateribus omnino inermibus, metanoti area mediana rhomboidali valde elongata, eiusque partibus externis reticulato-rugosis, rugis versus costam transversam anteriorem crebris, obliquis, areolas elongatas limitantibus. Epicnemium margine anteriore et posteriore nitidis; spatium reliquum mesothoracis lateris in parte superiore foveolis nonnullis rotundatis ante marginem metapleurae impressum, in parte inferiore laeve, nitens.

Pedes haud robusti. Femur posticum crassum, longitudine duplam frontis latitudinem aequans, altitudine dimidiam longitudinem suam paullum superans, dentibus parvis munitum, primo nonnihil post medium prominente, altero huic mox sequente fere obsoleto. Tibiarum posticarum diametrus apicalis  $1/3$  femoris altitudinis aequans. Tarsi postici robusti, articulo primo quam secundo haud longiore.

Petiolus longitudine latior.

Abdomen ellipticum, apice acuminato, segmento basali  $1/3$  longitudinis occupante, reliquis minutissime reticulatis, areolis subrotundis.

Long. 2,3-3 mm.

*Mas.* Scapo, pedicello, anello, trochanteribus tarsisque, sicut in femina, fulvis, funiculo et clava ochraceo-griseis, tegulis, coxis mediis, coxarum posticarum apice, petiolo et abdominis segmento basali nigro-ferrugineis, femoribus tibiisque praeter extremitates nigris, proalae area fusca et maculis albidis fere obsoletis. Oculi glabri. Lobus antennarum insertiones dividens minus conspicuus. Flagellum crassum, valde elongatum, retrorsum flexum, abdominis medium attingens, pedicello cyathiformi, anello brevissimo, funiculi articulo primo orbitis aequilongo, ceteris vix conspiciendi gradatim longioribus, clava indivisa et longitudinem praelavae parum superante. Scutellum extremo apice obtruncatum. Mesopleurae spatium ante metapleuram, inferius minuto et parce punctulatum. Coxae intermediae squamula curvata apicali antice instructae (an etiam femina!), coxae posticae dente lateris dorsalis destitutae. Femur posticum sculptura reticulata minuta fortius impressa, dentibus etiam minus quam in femina conspicuis, anteriore mediae longitudini minus propinquo.

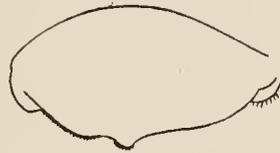


FIG. 8.—*Hockeria fulvipes*, ♀.  
Femur posticum ( $\times 40$ ).

Abdominis petiolus maior, de supra inspectus quadratus, de latere fere aequè altus atque longus et in limite posteriore magis quam in anteriore obliquo. Abdomen segmento basali dimidiam longitudinem arcu sericeirculari marginis superante et tertiam partem posticam totius longitudinis attingente; segmento secundo margine apicali minus curvato, item atque sequentibus sparsim et minute punctulato.

*Habitat.* "Silhouette: from low coconut-planted country at the coast (Pointe Étienne), and from Mare aux Cochons at about 1,000 ft.—Mahé: from stunted endemic forest at summit of Mount Sebert, about 1,800 ft."

Specimina duo ♀♀, unum ♂.

#### 10. *Hockeria testaceitarsis* Cameron (fig. 9).

*Trans. Linn. Soc. London*, vol. xii. 1907. p. 86.

Species a præcedente præcipue differens corporis colore plerumque minus obscure, antennis feminae usque ad articulum secundum funiculi et pedibus maxima parte rufo-testaceis. Specimina obscuriora, partibus rufescentibus fere nullis, *Hockeriae bispinosae* Walk. sunt similia.

*Femina.* Nigra, capite thoraceque parum nitidis, scapo, funiculi articulis duobus primis, tegulis, trochanteribus, femorum basi, genubus, tibiaram apice tarsisque rufo-testaceis vel castaneo-rufis; prothoracis margine prope scapulas, axillis in latere exteriori, metanoti latere postico, metapleuræ et epienemii parte inferiore, confertim pilis albis, sericeis, instructis; proalis leniter grisescentibus, antice, mox pone nervum stigmaticum, macula albida ornatis, post  $2/5$  longitudinis usque ad  $1/5$  apicalem fuscis, spatio hoc tamen versus marginem posticum vix infuscato.

Variat funiculi articulo tertio pedibusque fere totis rufo-testaceis, excepto tamen femore postico ad medium lateris exterioris; tegulis nigris; partibus, quæ plerumque sunt rufescentes, quam maxime infuscatis et corpori fere concoloribus.

Oculi glabri. Scapus minutissime reticulatus. Scutellum in dimidio anteriore partis postaxillaris marginibus haud rectis neque parallelis limitatum, apice late truncatum vel leniter concavum, vel lobis duobus rotundatis haud contiguis terminatum. Sculptura totius dorsi fortiter impressa, foveolis irregulariter dispositis. Metanotum carinis medianis instructum duabus, parallelis, suleum latum limitantibus, ad medium sæpe costa transversa coniunctis; superficie dorsali reliqua grosse et distincte alveolata, arcolis quadrangularibus, minute granulosis, in utroque latere sulci mediani duplici ordine dispositis. Metathoracis latus prominentia trapezoidali parum conspicua instructum. Femur posticum plerumque crassum, altitudine ad longitudinem sicut 55 : 100, interdum minus

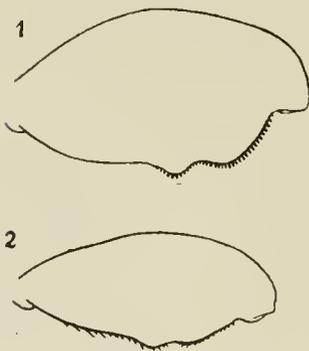


FIG. 9.—*Hockeria testaceitarsis*, ♀.  
1, femur posticum typicum; 2, idem exemplaris gracilioris; ( $\times 40$ ).

dilatatum, scilicet altitudine ad longitudinem proportionè 47 : 100, superficie reticulata sat fortiter insculpta. Abdomen ovato-ellipticum, segmentis 1. et 2. supra laevibus, raro sparsim et parè punctulatis.

Long. 2-3,5 mm.

*Mas* statura paullo minor, abdomine brevior, scapo infuscato et flagello toto nigro. hoc apicem coxæ posticæ tantum attingente; alarum area fusca minus obscura, oculis glabris.

*Habitat.* "Cameron's type was taken in the coral-islands of the Cargados Group, at Establishment Island, 28. viii. 1905 (H.M.S. *Sealark* Expedition). In the Seychelles the species appears to be widely distributed, many of the specimens being found in cultivated places near the coast, but some also in the endemic forests at high altitudes. Silhouette: coast near Pointe Étienne, and Mare aux Cochons.—Mahé: Port Victoria, marshy coastal plains near Anse Royale, high forest of Morne Blanc, etc.—Anonyme Island."

*Adn.* Hanc speciem recognovi comparatione typi, qui ab auctore non satis quidem neque apte descriptus, mas est pedibus antennisque pro parte rufis.

Specimina seychellensia plurima.

### GEN. *Anthrocephalus* Kirby.

#### 11. *Anthrocephalus mahensis*, sp. n. (figs. 10, 11).

*Femina.* Nigra, pubescentia albo-sericea; proalis macula tantum fusca trapezoidali, parva, infra nervum marginalem ornatis, nervis nigro-brunneis; tibiis anterioribus rufescenti-nigris; his partibus testaceo-rubris; antennis praeter anulum fuscum juxta apicem articulorum funiculi, lobo radicales antennales separante, mandibulis, alarum tegulis, abdominis latere ventrali segmentisque totis post quartum, trochanteribus et tarsis omnibus, pedum anteriorum genubus, pedum posteriorum coxa ad apicem femorūque basi et apice nec non latere ventrali ad basim, tibiaeque tota.

Caput antice visum triangulare, longitudine parum latius; oculis prominulis, orbitis paullum infra divergentibus  $\frac{2}{3}$  capitis longitudinis diametro maiore extensis, serie singula alveolorum a serobe separatis; hac, modice vitro aucta, laevi, at 50 diam. magnificata minute granulosa; tuberculis antennalibus quam flagelli anello vix maioribus; genis limbo crasso nec multo prominente postice marginatis, sulco tenuissimo, recto, impressis, ex orbita inferiore incipiente; earina postorbitali ac praeorbitali mox infra oculus ex sulco genali ortis, praeorbitali brevissima, serobis limbum attingente. Caput de latere inspectum diametro antero-posteriore  $\frac{2}{3}$  longitudinalis aequante, margine orbitali postice multo magis quam antice curvato.

Antennae 13-articulatae, clava minus distincte divisa, scapo subrecto  $\frac{3}{4}$  serobis longitudinis occupante, quam flagello dimidio brevior; pedicello dupla eius latitudine paullum longiore; articulo sequente, id est anello, haud angustato, aequae longo atque lato, reliquis usque ad 6. funiculi latitudine sesquialongioribus, 3. et 4. crassioribus, 7. vix latitudine longiore; clava articulis duobus praecedentibus aequilonga. Articulorum superficies, 50 diam. inspecta, vix conspicue granulosa, sensillis instructa tenuissimis, pilorum instar, series transversas tres formantibus, numero 6-10 in quaque serie quum antenna de latere exteriori inspicitur, super clavam in articulo basali biseriatis, in articulo medio in serie singula dispositis.

Thoracis dorsum sparsim ac profunde foveolis impressum, superficie his interposita reticulata, foveolis in sento vix quam in proncto et scutello minoribus

spatioque duplo vel sesqui-maiore quam earum diametro remotis. Tegulae minute punctulatae. Scutellum per totam fere longitudinem exeavatum, in  $1/3$  media marginibus rectis parallelis limitatum, apice lobis duobus rotundatis, contiguis, instructo. Metanotum fovea media subelliptica et alveolis magnis 5 vel 6 in utroque latere, excavatum, omnibus forma haud regulari, fundo inaequali. Mesothoracis latera rugis transversis 15 insculpta.

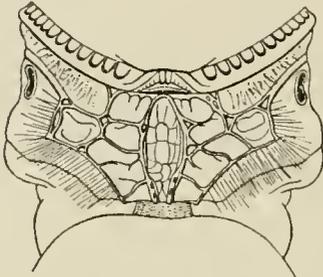


FIG. 10.—*Anthrocephalus mahensis*, ♀.  
Metathorax ( $\times 45$ ).

Proalae subeostae parte ascendente conspicue incrassata, nervo marginali  $1/3$  cellulae costalis fere aequante et postmarginali aequilongo, at duplo crassiore, nervo stigmatico brevissimo.

Pedes robusti, anteriores tibiis costulatis, postici coxae superficie ventrali item atque femore punctulata, foveolis spatio ipsarum diametro aequali remotis, femore longitudine paulum minus duplae altitudinis aequante, supra valde, infra modice convexo, margine ventrali ultra  $1/3$  denticulis numerosis pectinis instar munito et tubercula duo valde obtusa in dimidio apicali formante, quorum primum ad  $6/11$  totius longitudinis, secundum ad  $8/11$  prominens. Tibia postica latere anteriore apiculo terminato quam calcaribus aequilongis paulum brevior, de latere inspecta margine apicali in dimidio posteriore lobum obtruncatum formante.

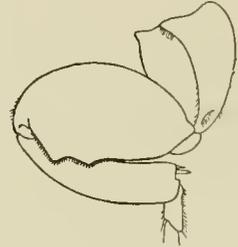


FIG. 11.—*Anthrocephalus mahensis*, ♀.  
Coxa, femur et tibia postica  
( $\times 15$ ).

Abdomen conicum, quam thorax et caput simul sumpta parum longius, thorace angustius, segmento basali  $1/3$  dorsi formante, segmentis 2.-5. aequalibus tertium medium occupantibus, tergito sexto absque eius  $1/4$  apicali areolis setiferis insculpto, quincunciali ratione dispositis ac fere contiguis, series sex transversas formantibus, spatio eis interposito minute punctulato, tergito 7. reticulo insculpto arcolis rhombicis transversis, 50 diam. conspicendis.

Long. 11 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

#### GEN. *Hybothorax* Ratzeburg.

##### 12. *Hybothorax frater*, sp. n. (fig. 12).

*Femina.* Nigra, oculis castaneo-brunneis, his partibus rufescenti-ochraceis: scapo ac pedicello, pedibus anterioribus praeter coxas, pedibus posticis basi et latere inferiore femoris, tibiaeque dimidio apicali, tarsi totis.

Caput thorace haud latius, antice visum fere triangulare aequilaterum, longitudine  $4/5$  latitudinis vix superans, vertice inter ocellos recto; oculis sat magnis, convexis pilisque haud confertis et satis longis ornatis; genis rectis, peristomio angusto, fovea antennali ad ocellum anteriorem extensa, inferne rugis nonnullis transversis striata, superne minute strigulosa; antennis 13-

articulatis, ad os insertis, radiulis tubereolo separatis, scapo leniter curvato ocellum anteriorem attingente, flagello thoraci aequilongo, pedicello duplo longiore quam latiore et basi vix constricto, articulo sequenti subquadrato, quarto latitudine sua sesquialongiore, quinto hoc paullo longiore, reliquis articulo quarto aequilongis, sensim crassioribus; clava cylindro-conica, longitudinem articulorum trium praecequentium aequante, segmento ultimo minus discreto sensillis destituto.

Dorsum antice fortiter curvatum, sculptura item atque in capite umbilicata, foveolis constans marginatis, super scutellum parum maioribus, ad huius apicem fere contiguas, in reliquis partibus interstitiis reticulatis separatis. Pronotum, scutum et scutellum fere aequilonga, hoc ultimum elongate triangulare, apice attenuato,  $1/3$  longitudinis suae supra metathoracem prominens itaque dorsellum obtegens. Metanotum vix declivum, latum, 4-carinatum, tecti instar coxas

posticas tegens, margine externo perlongo, recto, ex basi alarum metathoracis ad basim abdominis extenso et in dentem triangularem desinente. Mesothoracis latera minute alveolata-rugosa, epimeris inferne politis.

Proalae segmentum abdominis tertium attingentes, subcostae parte ascendente crassiore, nervis marginali, postmarginali et stigmatico nullis.

Pedes haud longi, robusti, anteriores coxis parvis, femoribus clavatis; posteriori coxis magnis, politis, in latere anteriore pilosis, femoribus ovatis, compressis, conspicue reticulatis et in latere inferiore denticulis frequentibus munitis nec non dente robusto, cuius altitudo latitudini tibiae aequalis, eius distantiam ab apice femoris haud superat; tibiae posticae obtruncatae, calcaribus brevibus, crassis, instructae. Tarsi anteriores haud incrassati, postici robustiores.

Abdomen sessile, thoraci aequilongum, de supra visum ellipticum, de latere autem dorso recto, ventre leniter curvato, parte postica oblique sinuosa inferne in tuberculum desinente, segmentis constituta 4. et 5. brevibus, 6. his simul sumptis aequali. Pars abdominis antea lateralis versus metathoracis latera auriculas formans strigulosas, quae metathoracis angulis oppositae, horum continuationem simulant. Segmentum secundum magnum,  $3/4$  dorsi occupans, areolis notatum ellipticis, marginatis, haud excavatis; pars eius pone coxas areolis omnino destituta. Segmenti 6. superficies aspera.

Pili perlongi, albi, thoracis dorsum et superficiem abdominis fere totam ornantes.

Long. 2,6 mm.

*Mas.* Colore feminae similis, antennis totis brunneo-luteis, femoribus anterioribus tibiisque omnibus leniter pro parte infuscatis. Flagelli longitudo  $2\frac{1}{2}$  scapi aequans, annellus brevissimus, reliqui articuli subaequales, clava apice minus acuto. Foveolae dorsi magis quam in femina adproximatae, in scutello fere contiguae. Metapleura et abdomen longe pilosa; hoc thoraci aequilongum, lateribus superiore et inferiore rectis, parte postica rotundata inferne tuberculata. Superficies segmenti secundi areolis insculpta quam in

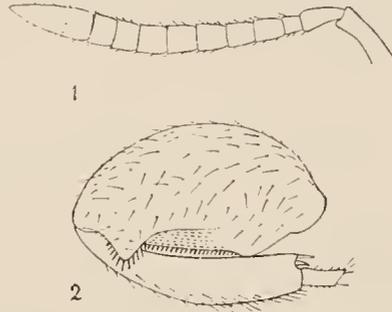


FIG. 12.—*Hybothorax frater*, ♀.  
1. antena; 2. femur posticum cum tibia; ( $\times 45$ ).

femina parum maioribus, spatio polito nullo. Dens fentoralis apice rotundatus. Long. 2 mm.

*Habitat.* Mahé: "Caseade Estate, about 800 ft."—Anonyme Island ("a cultivated islet near Mahé").

Specimina duo, ♂ et ♀.

*Adn.* Species haec seychellensis pedum colore ab europaeo *Hybothorace graffii* Ratz. distinguitur, qui unus generi pertinebat, in Germania Galliaque inventus, ubi parasita est *Myrmeleonis formicarii*.

## SUBFAM. EURYTOMINAE.

### GEN. *Eurytoma* Illiger.

#### 13. *Eurytoma*, sp.

*Mas.* Niger, oculis concoloribus, scapo toto nigro, macula ante collare parva flavo-grisea; alarum nervis, genubus, tibiis posterioribus basi et apice, tarsisque omnibus, flavo-albidis, interdum flavis; tibiis primi paris pedum in latere anteriore et posteriore fusco-lineatis; pilis argenteis.

Oculi parum convexi; faciei zona depressa, marginem orbitalem anteriorem formans, a reliqua superficie sculptura haud diversa; ocelli posteriores ab anteriore magis quam ab oculis remoti, distantiae proportione 3:2; pedicellus globosus; articulus primus funiculi dimidiam scapi longitudinem fere aequans, articuli secundi nodus vix duplo longior quam latior, isthmi  $1/3-1/4$  nodorum longitudinis aequans; pili quam articuli sesquilingiores; clava pedunculata, quam articulus praecedens sesquilingior.

Thorax, de latere inspectus, dorso plano, metanoto parum obliquo. Axillarum pars dimidia interior alveolis elongatis recte marginatis insculpta. Metanotum supra abdominis insertionem area depressa sublaevi instructum, quae autem fortiter vitro aucta superficiem ostendit scabram propter areolas sat profunde excavatas, confertas, marginibus reticulum formantes. Callus, etiam fortiter vitro auctus, minute reticulatus. Mesosternum superne vix conspicue reticulatum, inferne foveolis et eminentiis transversis nonnullis insculptum; mesopleura scabra.

Nervus stigmaticus marginali aequilongus, postmarginalis vix longior.

Petiolus coxis posticis sesquilingior.

Long. 2,2 mm.

*Femina.* Scapus basi flava, pedicellus quam articulus primus funiculi parum brevior, articulus hic latitudine sua fere sesquilingior, sequentes sensim breviores et crassiores, quintus latitudine paullo longior, clava  $2\frac{1}{2}$  praeclavae longitudinis aequans, in parte tertia apicali conica, reliquo spatio cylindrica; pili funiculum ornantes articulis aequilongi. Nervus marginalis stigmatico sesquilingior, hic postmarginali duplo brevior. Abdomen latere dorsali segmenti tertii quam secundi sesquilingiore, quarti quam tertii magis quam duplo longiore, superficie tota dorsali minute squamoso-punctata, lateribus autem ventreque in segmentis 4. et 5. areolis hexagonis, aequalibus, conspicuis, insculptis, segmento sexto toto ruguloso. Long. 2,7 mm.

*Habitat.* Silhouette: "Mare aux Cochons, and forest near by, about 1,000 ft., and from the coast at Pointe Étienne."

Specimina quatuor ♀♀, sex ♂♂.

14. *Eurytoma*, sp.

*Femina*. Nigra, scapo, mandibulis pedibusque cum coxis luteis; pedicello, anello, macula ante collare, epipygio ad basim et hypopygio obscure luteis; proalis leniter infuscatis, nervis praeter postcoastam brunneis; pilis albis.

Caput antice visum genis modice curvatis, strigis a clypeo radiantibus nullis; ex latere inspectum oculis magnis, rotundatis, vertice lato, genarum sculptura fere obsoleta. Antennae scapo ad medium leniter incrassato, pedicello longitudine et latitudine aequali, funiculi articulis tribus primis latitudine sesquilongioribus, quarto et quinto vix longioribus, elava his paullo minore.

Thorax brevis, altus, dorso modice curvato, pronoto longitudine sua sesquialtiore, axillis sculptura aequali ab illa reliqui dorsi non distinguenda; metanoto fere verticali, medio serie duplici alveolorum quadrangulorum impresso, partibus lateralibus irregulariter alveolatis, alveolis minoribus nullis; epicnemio haud curvato et mesosterno, superne minute reticulato-alveolatis.

Proalae nervo marginali duplo quam postmarginali longiore, stigmatico  $\frac{3}{4}$  huius aequante.

Coxae posticae crebre reticulato-alveolatae.

Petiolus duplo longior quam latior,  $\frac{2}{5}$  coxarum longitudinis haud superans.

Abdomen altitudine duplo longius, dorso valde curvato, punctoque maxime elevato ad  $\frac{1}{4}$  totius longitudinis sito, latere ventrali parum convexo et curvae apice ad mediam longitudinem; diametro transverso longitudinem segmentorum 1.-5. fere aequante. Segmentum tertium in eius latere dorsali quam secundum duplo longius, quartum duplam tertii longitudinem paullo superans, quintum perbreve pilisque paucis longis ornatum. Tergitum tertium lateribus, excepta parte tertia postica, subtilissime reticulatis, quartum ad basim segmenti fortius insculptum areolisque maioribus; reliqua segmentorum superficies laevis, nitens. Epipygium et hypopygium elongata, hoc ultimum  $\frac{1}{4}$  abdominis longitudinis ultra segmentum quintum prominens.

Long. 2 mm.

*Habitat*. Silhouette: Mare aux Cochons.

Specimen unicum.

GEN. *Eurytomidia* n. (?).

Specimen unicum, parvum, masculinum, cuius descriptio sequitur, habitu *Eurytomae* simile, tamen nervo postmarginali valde elongato et parte mesonoti praeaxillari brevissima diversum, etsi amplius ac diligenter examinare non potuerim, generi novo pertinere mihi visum est. Id tibiis posticis bicalcaratis a *Phylloxeroxeno* distinguitur, cum quo tamen convenit nervo postmarginali elongato.

15. *Eurytomidia dubia*, sp. n. (fig. 13).

*Mas*. Niger, oculis coneoloribus, genubus, tiliarum apice tarsisque obscure luteis, his apice fuscis, alis hyalinis nervis pallide flavo-griseis.

Caput oculis haud prominulis, glabris, ex latere inspectis subrotundis, spatio interorbitali  $\frac{5}{6}$  latitudinis aequante, antennis supra medium faciei insertis, fovea antennali profunda, nitida, ocello anteriore extra foveam sito. Scapus longitudinem orbitalium fere aequans, ocellum attingens, haud com-

presso-dilatatus sed apice attenuatus, superficie scabra. Flagellum longitudinem thoracis superans, pedicello fere globoso, anello parvo, funiculi articulo primo  $\frac{3}{4}$  scapi longitudinis haud superante, isthmis  $\frac{2}{3}$  nodorum aequantibus, his forma trapezoidali, ad medium non angustatis, secundo et tertio altitudine paulum longioribus. Pili verticillati articulis aequilongi vel paulum maiores.

Sculptura capitis et thoracis fere ubicumque umbilicato-punctata, at paene obsoleta, axillarum in dimidio exteriore minutissime reticulata, areolis rectangularibus, in interiore alveolata; tegulae minute at fortiter sulcato-reticulatae.

Pronotum quam scutum duplo longius. Scapulae sulco leniter impresso discretae.

Proalae angulo posteriore prominente, cellula costali lata, nervo stigmatico  $\frac{3}{4}$  marginalis aequante, hoc quam postmarginali dimidio brevior.

Femur posticum conspicue reticulatum, areolis minutis, rhombicis; tibia in latere interiore setis rigidis munita, calcari maiore dimidium metatarsi vix superante, altero brevissimo.

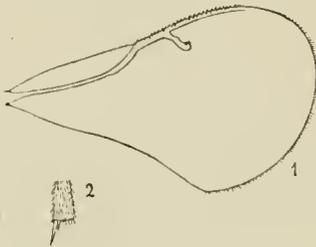


FIG. 13.—*Eurytomidia dubia*, ♂.  
1, proala ( $\times 32$ ); 2, tibiae posticae apex ( $\times 27$ ).

Petiolus coxas posticas haud superans.

Abdomen superne inspectum aequae longum atque latum, de latere visum triangulare. Segmenti secundi latus dorsale dimidiam femoris longitudinem parum superans, superficie subtiliter reticulata, areolis quam femoris multo majoribus.

Long. 1,5 mm.

*Habitat.* Silhouette: Mare aux Cochons, "from the marshy plateau at about 1,000 ft."

Specimen unicum.

#### GEN. *Decatoma* Spinola.

(*Eudecatoma*, Ashmead — ?).

#### 16. *Decatoma kestraneura*, sp. n.

*Mas.* Flavus, vertice, excepto margine orbitali, dorso, exceptis pronoti lateribus, petiolo, abdomine, maculaque in latere superiore femoris postici, brunneis; proalarum nervo marginali, praeter eius limbum anteriorem atque exteriorem, nigro, lamina tota hyalina.

Linea ocularis inferior in media faciei longitudine decurrens; antennae in hac linea insertae. Clypeus margine lenissime concavo. Ocellus anterior lineae posteriores tangenti fere contiguus. Pedicellus pyriformis, latitudine sua parum longior; funiculi articulus primus pedicello sesquilongior, scapo sesquibrevior; articuli sequentes curtantes, ultimus pedicello aequilongus.

Superficies capitis et dorsi, praeter metanotum, aspectu sublucis, 90 diam. magnificata minute reticulata, areolis subrotundis; pronotum vero quasi transverse strigulosum apparet. Dorsellum punctis duobus impressum contiguis et in eius linea media longitudinali dispositis. Metanoti fovea media sat lata, lateribus parallelis, transverse quadricostata; superficies reliqua reticulo

insculpta, 50 diam. magnificato vix perspicendo; plicae longitudinales in dimidio posteriore tantum determinatae.

Proalae cellula basali parce ac breviter pubescente, infra praestigma et prope nervum marginalem speculo nullo setisque longioribus. Nervus marginalis crassissimus, longitudine sua haud angustior, extus non oblique truncatus, postice linea convexa terminatus; postmarginalis quam marginalis vix brevior; stigmaticus huius longitudinem aequans, manifeste obliquus, clavae angulo posteriore et unco fere aequaliter prominentibus, mallei figuram fingentibus.

Setae in latere posteriore tibiae posticae huius latitudini subaequales, numero octo in specimine.

Petiolus triplo longior quam lator, coxas posticas non superans, sculptura minutissime granulosa, 50 diam. magnificata vix conspicua.

Abdomen forma haud globosa, at lateribus in 1/3 media subparallelis; segmento 2. brevi, 1. 3. et 4. subaequalibus, 1. 2. et 4. laevibus, ceteris 100 diam. magnificatis leniter reticulato-sulcatis, areolis transversis, his in segmento 3 maioribus.

Long. 1,5 mm.

*Habitat.* Silhouette: Mare aux Cochons plateau.

Femina ignota.

Specimen unicum.

*Adn.* Genus *Eudecatoma* Ashm. dubium et non satis definitum mihi videtur. Species quam descripsi, pedicello brevi, proalis hyalinis et speculo nullo, nervo marginali latitudine haud longiore, praecipue est distingnenda.

GEN. *Isosoma* Walker.

17. *Isosoma insularum*, sp. n. (fig. 14).

*Mas.* Niger, subnitidus, prothorace praeter pronotum, coxis anticis, interdum mediis, femoribus anticis mediisque in parte dimidia apicali, tibiis omnibus et tarsis, antennarum radícula, scapo ac pedicello, flavo-griseis; pedicelli latere superiore et scapi dimidio inferiore infuscatis; tibiarum atque tarsorum latere anteriore plerumque obscuro vel brunneo; alis decoloribus nervis pallide flavo-griseis.

Caput antice visum longitudine 3/4 latitudinis vix superans, vertice arcuato, orbitis parallelis, peristomio 3/5 spatii interorbitalis aequante. Genae haud compressae, subtiliter sulcatae, spatio triangulari juxta oculos nitido.

Facies minute reticulata, areolis rhombicis, spatioque infra antennarum radículas confertim et minute punctulato. Scapus in latere inferiore valde curvatus, latitudine, ad medium, 1/3 longitudinis aequante. Funiculi articuli partibus attenuatis latitudini nodorum aequilongis; isthmi, his partibus binis compositi, in articulatione biannulati. Pili haud articulis breviores. Articuli primi

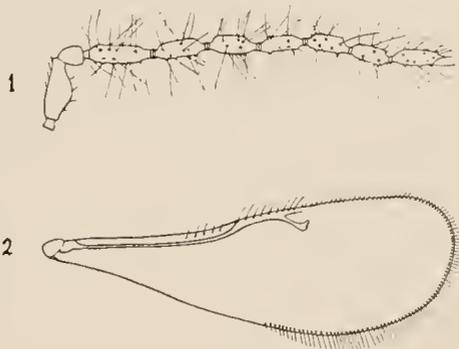


FIG. 14.—*Isosoma insularum*, ♂.  
1, antenna (× 40); 2, proala (× 32).

longitudo quadruplam latitudinem aequans, sexti triplam. Clava articulo praecedenti longitudine et latitudine aequalis, mucrone parvo terminata, indistincte articulata.

Prothorax bis latior quam longior, lineis subtilibus reticulatus; scutellum apice rotundatum, item atque pronotum reticulatum; areolae in scuto maiores, minus regulares, in scapulis minores. Metanotum reticulato-alveolatum, arcolis irregularibus minutis insculptum, medio fovea elliptica, extremitatibus truncata, leniter impressa, notatum, huius areolis vix minoribus. Mesosterni sculptura ab illa prothoracis haud dissimilis, episterni magis minuta; epimerum in dimidio posteriore laeve.

Nervus stigmaticus dimidiam marginalis longitudinem attingens, quam postmarginalis sesquilingior.

Petiolus coxis posticis aequilongus, latitudine  $3/5$  longitudinis aequans, sculptura haud a metanoto dissimilis.

Abdomen cylindricum, nitidum, segmento primo quam secundo magis quam duplo longiore, secundo tertioque aequalibus, quarto et quinto his parum longioribus, quinto autem forma et sculptura a praecedente dissimili, sexto parvo, subtiliter reticulato.

Long. 2 mm.

*Habitat.* Mahé: Cascade, "from cultivated country near sea-level" (specimina plurima), Port Victoria (specimen unum).

Specimina plurima.

#### GEN. *Aximopsis* Ashmead.

##### 18. *Aximopsis elegans*, sp. n.

*Femina.* Nigro et rufo varia, tibiis tarsisque albis. Capite nigro, oculis rubris; antennarum scapo in dimidio basali griseo-luteo, in dimidio apicali brunneo, pedicello fusco-maculato, articulo quinto funiculi vel quarto et quinto luteis, clava nigra et articulo ultimo sensillis albidis obsito, ceteris antennarum partibus obscure rufis; prothorace, praeter maculam dorsi nigricantem, scapulis, tegulis, praesterno et angulo anteriore mesosterni, obscure rufis, reliquis thoracis partibus et petiolo nigris; abdomine rufo dorso fusco; coxis anticis rufis in latere anteriore nigris, mediis totis rufis vel antice nigro-maculatis, posticis omnino nigris; femoribus flavo-rufis; alarum nervis flavo-fuscis.

Caput thoracis latitudinem proportionem 100:87 superans, prothoracis proportionem 100:77; antice visum latum, oculis magnis,  $3/4$  tertius longitudinis extensis, glabris; de latere inspectum ovato-triangulare, parum longius quam latius, latitudine maxima ad medium oculorum, oculis rotundatis. Ocelli externi ab anteriore et ab oculis aequo spatio remoti. Facies latitudine sua parum longior, versus oculos abrupte terminata, marginibus orbitarum vix divergentibus, inferne radiatim strigosa, reliqua superficie alveolata, pubescentia ornata sat longa sed haud conferta, aequaliter distributa. Fovea antennalis in eius dimidio supero margine elevato limitata, inter antennarum radieulas lamina prominente divisa. Antennae supra medium faciei insertae; pedicellus breviter conicus, funiculi articulus primus longitudine triplam latitudinem, secundus duplam latitudinem, aequantes, tertius secundo aequalis, quartus quam tertius parum crassior et vix brevior, quintus subquadratus, quam primus

fere sesquilateralior; clava basi obtruncata, quam articuli praecedentes paulum brevior.

Thorax de latere inspectus dorso parum curvato, metanoto secundum curvam totius dorsi disposito. Mesosternum valde retrorsum vergens, margine exteriori fere horizontali. Metanotum medio late sulcatum, in parte anteriore sulci alveolis duobus impressum elongatis, contiguis, quibus nonnulli succedunt subquadrati in serie singula dispositi.

Nervus marginalis et postmarginalis aequilongi, stigmaticus his dimidio brevior.

Coxae anticae haud dentatae, facie laterali cum anteriore in dimidio supero angulum formante. Coxae posticae in dimidio inferiore longitudinaliter et confertim strigulosae.

Petiolus coxis posticis fere sesquilongior, abdominis lateri ventrali post  $1/3$  longitudinis affixus, ad basim mucrone dorsali peracuto instructus, superficie dorsali scabra, lateribus longitudinaliter confertim sulcatis.

Abdomen deorsum flexum, ovatum, compressum, latitudine dimidiam fere longitudinem, altitudine ad petioli insertionem  $2/3$  longitudinis aequante, apice attenuato, segmento quarto in latere dorsali quam tertio fere sesquilongiore, quinto hoc dimidio brevior, sexto et septimo subaequalibus, quam quinto fere sesquilongioribus. Segmenta 1.-5. laevia, nitida, 6. atque 7. sculptura reticulata minutissima, vix conspicua.

Long. 3-3,5 mm. Longitudo capitis cum thorace, abdomini cum petiolo subaequalis.

*Habitat.* Silhouette: Mare aux Cochons—Fraslin: Côtes d'or Estate.

Specimina duo, ♀♀.

*Adn.* Haec est species tertia generis. *Aximopsis morio* Ashm. Brasiliae pertinet, *tricolor* Gir. Queenslandiae.

#### SUBFAM. EUCHARIDINAE.

##### GEN. *Stilbula* Spinola.

##### 19. *Stilbula lissoma*, sp. n.

*Mas.* Capite thoraceque viridibus, pro parte auratis vel cyanescentibus vel etiam purpureis; oculis ocellisque castaneis; antennis obscure luteis, funiculi nodis pilisque nigricantibus; coxis, alarum nervis, petiolo abdomineque brunneis; pedibus pallide stramineis; proalis flavo-griseis.

Facies inter clypeum et antennarum insertionem obtuse angulata, clypeo plerumque transverse at parce striguloso. Antennae corpori toto aequilongae, scapo latitudine sua parum longiore, quam articulo primo funiculi conspicue crassiore et  $1/4$  diametri orbitalis maioris aequante; anello quam scapo plus dimidio brevior; articulis decem huic sequentibus valde elongatis, tenuibus et nodis apicalibus in dorso magis prominulis, superficie tota hirta, pilis articulorum diametro aequilongis, sed haud confertis; articulo primo funiculi quam scapo quintuplo longiore et latitudine  $1/9$  longitudinis suae aequante; articulo secundo quam primo brevior pro portione 3 : 4, ultimo pro portione 4 : 7.

Scapulae in dimidio interiore callosae, id est laeves atque nitidae punctisque nonnullis tantum impressae.

Petiolus quam abdomen haud longior, distantiam ab angulo anteriore

pronoti ad basim processu scutellaris longitudine aequans, propter tenuitatem magis elongatus apparens. Long. 3-4 mm.

*Femina* differt funiculo longitudinem dorsi fere aequante, articulis quam scapo haud crassioribus et basi fortiter constrictis, a latere inspectis angulo apicali superiore magis quam inferiore prominente; articulo primo quadruplam scapi longitudinem, secundo duplam longitudinem aequante; clava parum longiore quam latiore, scapo aequilonga; petiolo longitudinem metanoti et dorselli paullo superante, quam thorace, itemque abdomine, dimidio brevior.

*Habitat.* "Silhouette: from Mare aux Cochons, about 1,000 ft., 1♂—Mahé: 2♀ from forest of the endemic 'Bois-de-Fer' (*Vateria seychellarum*) in the Mare aux Cochons district at an elevation of over 1,500 ft., and 1♀ from Cascade Estate at about 800 ft."

Specimina quatuor.

*Adn. Stilbulae insularis* Cam.\* typum in Egmont Atoll (Insulis Chagos) collectum examinavi, quod specimen est masculinum flagellis carens, non eis coloribus vero ornatum quos in descriptione auctor indicavit, ab illis *Stilbulae* nunc descriptae etiam differentibus. Cameronis species a seychellensi strigis tota parte inferiore faciei extensis, dorso minus regulariter insculpto, callo humerali nullo, alis et petiolo nonnihil brevioribus, distinguitur.

#### SUBFAM. ENCYRTINAE.

#### GEN. *Eucomys* Förster.

#### 20. *Eucomys infelix* Embleton, et var. *albiscapus* n. v. (figs. 15-17).

*Comys infelix*, Embleton, *Tr. Ent. Soc. London*, ii. 1902. pp. 219-229.

*Comys infelix*, Embleton, *Tr. Linn. Soc. London*, v. 1904. pp. 231-254, Pl. 11, 12 (♂♀).

Hanc *Eucomydem* Embleton in Anglia, prope Cambridge, primum invenit, *Lecanii hemisphaerici* var. *flicum* parasitam, deque eius forma, anatomica structura et biologia pertractavit. Species similis est *Eucomydi bicolori* How., et forsan etiam *Eucomydi lecaniorum* Mayri, nec non speciebus nonnullis Australiae a Girault descriptis. Ego exemplaria plurima huic speciei pertinentia observavi, quae sunt:

1. exemplar Musei Zoologici Cantabrigiensis, nomine manu doctoris Sharp scripto, in Cambridge collectum, cum auctoris prima descriptione (*l.c.*, 1902, p. 223) bene conveniens, quod quasi cotypus haberi potest;

2. exemplaria nonnulla in Insulis Seychellensibus collecta, a praecedente haud differentia;

3. exemplaria plurima seychellensia antennae coloribus praecipue diversa, varietati novae attribuenda;

4. exemplaria huius varietatis in Italia prope Genuam inventa;

5. exemplaria nonnulla ex Insulis Seychellensibus, inter formam typicam et varietatem intermedia.

*Forma typica*, ♀.

Mihi ex paucis exemplaribus nota, forsan colore varians sicut var. *albiscapus*, qua de re huius descriptioni conferatur. Genarum setae pilique in parte posteriore axillarum prope scutelli suturam, pauci sunt vel nulli, quod etiam in varietate

\* *Trans. Linn. Soc. London*, xii. 1907. p. 85.

occurrit. Formae typicae characteres praecipui hi sunt: scapus stramineus, margine posteriore apice tantum brunneo maculato; flagellum ochraceo-aeruginosum at funiculi articulo quinto ad apicem, sexto et clava totis, nigris. Femur medium albidum, apice superne macula brunnea, inferne semper macula flavo-ochracea, notatum. Tibia media ad basim et pulvillus tarsalis brunnei, reliquum tibiae, calcar et tarsus luteo-aeruginosa.

*Var. albiscapus*, ♀.

Capite thoraceque fere toto luteo-aeruginosis, at capite saepe nonnihil obscuriore. dorso nitore quodam subaureo; abdomine nigro-brunneo, violaceo nitente, inferne saepius aenco; antennae radícula flavo-brunnea, scapo albo, supra fusco-limbato, infra ad basim macula parva brunnea notato, flagello, item atque oculis ocellisque, nigro-brunneis; carina genarum nigra, setis concoloribus; pronoto partim, sed praecipue in eius angulis infero-posterioribus, et propectore, infuscatis; mesonoti parte praeaxillari antice nigro-limbata, disco vel dimidio posteriore macula fusca, latera non attingente, pilisque albis, ornatis; pilis etiam albis sed plerumque raris in margine posteriore axillarum nec non super scutellum prope suturam; nonnullis in scutelli disco flavis, sericeis; aliis in reliquis partibus dorsi nigris; axillulis etiam nigris; mesopleura ochracea vel obscure lutea, interdum rosea, scilicet nitore pallide purpureo, raro violacea; coxa antica et postica albis, media brunnea; femoribus anterioribus albidis supra et infra fusco-limbatis, femore medio interdum superne macula apicali brunnea notato; femore postico flavescenti-brunneo, margine dorsali obscuriore; tibia antica femori postico concolore, intermedia usque ad dimidium longitudinis grisescenti-brunnea, reliquo flavida vel albida; postica tota brunnea; tarso antico obscuro, medio tibiae apici concolore, postico albo, excepto dimidio basali articuli primi ac pulvillo; proalis in parte dimidia exteriori cellulae basalis fere tota, itemque spatio ultra praestigma infuscatis, apicem versus tamen pallidioribus, fascia nervorum apices tangente hyalina, setis spiniformibus cellulae costalis et prope nervum basalem nigris, subcosta nervisque marginali, postmarginali ac stigmatico flavo-brunneis, praestigmate fere hyalino.

Capitis forma subhemisphaerica, fere lenticularis, dimidio superiore crassiusculo; margo occipitalis acute limbatus antice inspectus aream ocellarem superans; faciei pars dimidia inferior depressa, a superiore, sive fronte, margine sinuoso separata, qui super antennarum insertiones utrinque inferius vergens, oculum prope imam orbitam attingit; genae sat fortiter curvatae, de latere inspectae carinatae, carina longe nigro-setosa superne retrorsum flexa et certo spatio pone orbitam producta, ab hac sulco conspicuo separata; vertex, in specimine exsiccato, 1/3 capitis latitudinis superans, ocellis angulum obtusum formantibus, margine occipitali ab area ocellari tota spatio depresso separato, hac autem inter ocellos posteriores linea convexa limitata. Superficies fere tota sulcato-reticulata, areolis transversis, super verticem atque frontem punctis sat conspicuis sparsim impressa; genae pone carinam conspicue reticulatae areolis longitudinaliter elongatis, excavatis.

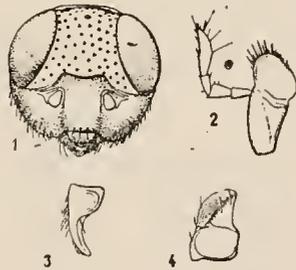


FIG. 15.—*Eucomys infelix*, var. *albiscapus*, ♀.

1, Caput antice visum ( $\times 30$ ); 2, maxilla, sive cardine ( $\times 58$ ); 3, mandibula ( $\times 58$ ); 4, eadem de latere, sursum reversa.

Mandibulae fortiter curvatae, postice laminato-productae, margine apicali inermi, rotundato; maxillarum lacinia spinis sex instructa, palpi articulis 1.-3. subaequalibus, quarto duplo longiore.

Pedicellus  $1/3$  scapi longitudinis paullum superans, latitudine sua duplo longior; funiculi articuli valde compressi, pilis mediocribus hirti, articulatione lateri ventrali magis propinqua, primus pedicello fere aequilongus et vix latior, sequentes gradatim breviores atque latiores, ultimus longitudine sua sesquialior, fere duplam primi latitudinem et  $3/4$  huius longitudinis attingens. Clava item atque articuli praecedentes compressa, breviter elliptica,

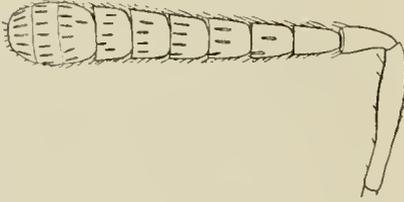


FIG. 16.—*Eucomys infelix*, var. *albiscapus*, ♀.  
Antenna ( $\times 65$ ).

apice minus curvato, quam praeclava vix latior, articulo basali quam reliquis aequalibus nonnihil longiore.

Thorax brevis. Mesopleura minute et callus grosse, conspicue, reticulati.

Praestigma longum, ab humero late separatum; nervus marginalis latitudine sua haud longior, postmarginalis ac stigmaticus aequales, hic basi et apice magis curvatus.

Long. media, 1,6 mm.

*Habitat.* Silhouette, Mahé, passim: "from cultivated places near sea-level, and from some of the highest endemic forests." Etiam in Italia (Liguria).

Specimina plurima.

*Adn.* Huius speciei marem non vidi.

Eum raro occurrere Embleton affirmat (*l.c.* 1904, pp. 234 et 250): "... disproportion of the sexes in *Comys infelix* is very great, perhaps a thousand females to one male." Is colore est nigro, pedibus albo-pictis, antennis etiam totis nigris, pilis concoloribus, alis immaculatis, iridaceis.

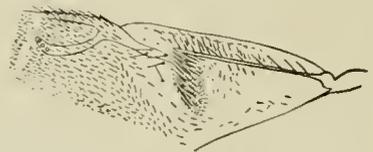


FIG. 17.—*Eucomys infelix*, var. *albiscapus*, ♀.  
Prothorax pars ( $\times 30$ ).

## GEN. *Leptomastix* Förster.

### 21. *Leptomastix histrio* Mayr (?).

*Verh. zool. bot. Ges. Wien*, xxv. 1875. p. 729.

Exemplaria duo, apud Mahé, in Anonyme Island collecta, cum Mayri descriptione italicae *Leptomastix histrio* satis congruentia, his notis tantum differre videntur: clava paullum brevior, quam praeclava haud magis quam sesquilongior; scutello nec minute rugoso, nec sculptura a parte praeaxillari mesonoti diverso, subtiliter reticulato; pronoto et mesopleura haud nigropictis; tarsis posterioribus minori spatio obscuratis; vertice tantum, nec mesonoti disco, aurantiacis. An exemplaria haec seychellensia illi speciei pertineant, dijudicari non potest sine typi comparatione. Mentionem Mayr non facit de maculis fuscis areae ocellaris, quae in exemplaribus ita sunt dispositae: una ocellum anteriorem posteriori sinistro adjungens, duo aliae minores ocellis posterioribus, potius ad sinistram partem, contiguae.

GEN. *Philoponectroma* Brèthes.22. *Philoponectroma incongruens*, sp. n. (fig. 18).

*Femina*. Nigra, oculis obscure rubris, ocellis brunneis, antennis scapo et flagello flavis, vel hoc griseo et scapo tantum flavo, radícula pilisque nigris; femoribus anticis ac posticis in parte tertia apicali, intermediis apice, tibiis omnibus tarsisque mediis praeter articulum quintum, flavis, ceteris pedum partibus brunneis; alarum nervis griseis; pilis capitis ac dorsi albis.

Caput sublenticulare, haud thorace latius, vix transversum, latitudinis proportione ad longitudinem sicut 8 : 7, vertice  $\frac{3}{5}$  latitudinis aequante; de latere inspectum longitudine duplam latitudinem aequans, facie aequaliter curvata, fronte atque vertice haud separatis; hoc antrorsum fortiter declivi, margine occipitali subacuto. Ocelli in angulum parum obtusum dispositi, externi ab orbitis spatio remoti quam ipsorum diametro fere duplo maiore, a margine occipitali spatio diametrum vix superante. Oculi glabri, de latere inspecti elliptici, diametro longitudinali quam transverso sesquolongiore. Linea ocularis inferior paullum infra medium faciei; genae sat fortiter curvatae et compresso-acutae; clypeus angustus margine externo concavo, labrum ellipticum non obtgens; mandibulae bidentatae. Facies inter antennarum insertiones vix elevata, haud carinata, scrobibus nullis, infra ocellum anteriorem fovea parva impressa, spatio interorbitali quam vertice haud latiore,  $\frac{2}{3}$  capitis latitudinis aequante. Superficies capitis pilis longis, haud crebris, sparse ornata, sculptura minutissime granulosa, quum fortiter vitro aucta confertim sulcato-reticulata, foveolis rotundatis sat magnis, haud profunde excavatis, super verticem ac frontem triseriatis.

Antennae in linea oculari insertae, radícula tenui, elongata,  $\frac{1}{3}$  scapi aequante; hoc subfusiformi, leniter compresso, latitudine ad  $\frac{2}{3}$  longitudinis maxima; flagello filiformi, longissimo, abdominis apicem superante pilisque instructo articulorum latitudine paullum maioribus, aequaliter distributis; pedicello parvo, conico, vix longiore quam latiore, funiculi articulis bene discretis, omnibus crassitiae aequalibus, primo latitudine  $\frac{1}{6}$  longitudinis aequante, reliquis gradatim brevioribus, sexto quam primo proportione 10 : 17 brevioribus; clava indivisa, quam articulo praecedente fere duplo longiore et primo subaequali.

Mesothoracis pars praeaxillaris brevis, transversa, latitudine triplam longitudinem aequans, quam scutellum dimidio brevior, sculptura item atque capitis reticulata, foveolis rotundatis piliferis sparsis, sulcis autem reticulum formantibus fortiter sinuatis. Axillae conniventes, sculptura magis minuta, minus fortiter impressa. Scutellum scuto longius, triangulare aequilaterum, foveolis rotundatis carens, areolis reticuli quam in scuto haud maioribus et secundum lineas rectas longitudinales in superficie fere tota dispositis. Meso-

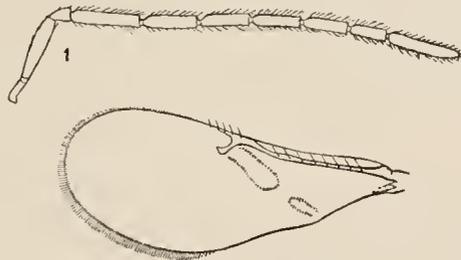


FIG. 18.—*Philoponectroma incongruens*, ♀.  
1, antenna; 2, proala; (× 30. Areae speculares sunt punctis circumscriptae).

pleura reticulata, areolis quam dorsi minutioribus. Tegulae subtiliter strigulosae. Metathoracis spiracula reniformia. Pili capitis et dorsi aequales.

Proalae ciliatae, cellula costali angusta, nervo marginali latitudine sua magis quam duplo longiore, stigmatico quam hoc sesquolongiore, postmarginali incerte limitato, versus apicem attenuato, marginalem longitudine haud superante; speculo quam nervi stigmatici longitudine haud latiore, ad medium latitudinis alae terminato; areola prope radiculae aliaque inter speculum et marginem posticum glabris. Alae metathoracis cellula costali usque ad hamulos extensa.

Calcar tibiae mediae metatarso paululum brevius, tibiae posticae dimidio brevius.

Abdomen thoraci aequilongum, fortiter curvato-depressum, triangulare, apice truncato, lateribus rectis, tergito penultimo medium fere attingente, spiraculis basi fere contiguis, valvula ventrali spatio  $\frac{1}{3}$  latitudinis basalis aequante prominula, superficie perspicue at minute reticulata.

Long. 1.5 mm.

*Mas.* Differt scapi latere inferiore pallide griseo, latere superiore cum flagello toto brunneis, pilis articularum griseis; tegulis, prothoracis lateribus et mesopleuris ochraceo-rufis; pedibus pallide flavo-griseis, intermediis tarso praeter articulum basale fulvescente, posticis femoris dorso, tibia fere tota tarsoque infuscatis; pedicello etiam brevior, funiculi articulo primo magis elongato et quam sexto duplo longiore, flagelli pilis dimidiam articularum longitudinem attingentibus.

*Habitat.* Mahé: "country above Port Gland, 500-1,000 ft.; Mare aux Cochons district, 1,000-2,000 ft." (specimina ♀♀); Cascade Estate (♂).

Specimina quatuor.

*Adn.* Haec species propter antennarum structuram et proalae setarum dispositionem, nec non habitum, cum *Philoponectromate pectinato* Brèth. in uno eodemque genere convenire videtur, ab eo tamen differt oculis glabris, antennis longioribus, scuto longitudinem scutelli haud superante, abdomine magis elongato,

#### GEN. *Zeteticontus* Silvestri.

##### 23. *Zeteticontus xanthopus*, sp. n.

*Mas.* Capite, metanoto abdomineque nigro-aeneis, dorso ante scutellum obscure cyaneo-viridi, scutello olivaceo, rubro et aureo nitente, antennis pedibusque praeter coxas ochraceis, proalis leniter infumatis, nervis brunneis; genis interdum cyanescentibus, antennarum radícula pilisque nigris, coxis anticis in dimidio apicali plus minus ochraceis, tarsis anticis atque posticis infuscatis.

Vertex dimidiam capitis latitudinem occupans, pilis longiusculis sparse ornatus, margine occipitali acuto, sculptura item atque frontis minutissime reticulata, foveolis impressis rotundatis, biseriatis, externis margini oculorum contiguis seriem formantibus ad angulum inferiorem orbitae desinentem. Ocelli in triangulum fere aequilaterum dispositi, externi ab oculis spatio remoti quam eorum diametro dimidio brevior. Oculi de latere inspecti margine infero-posteriore minus curvato, superficie pilis tenuibus, longiusculis, haud crebris instructa. Clypeus recte marginatus. Labrum margine etiam recto. Man-

dibulae longae, fortiter curvatae. Scrobes antennales semicirculum formantes inferne orbitis fere contiguum.

Antennae mox infra lineam ocularem insertae, ab hac multo minus quam a clypeo remotae, carina obtusa separatae, pilosulae, scapo brevi subfusiformi, flagello quam thorace aliquantulum longiore, pedicello aequae longo atque lato, funiculi articulis crassis, iuncturis lateri ventrali magis propinquis, articulo primo longitudine duplam latitudinem vix superante, quam pedicello fere duplo et dimidio longiore, sequentibus gradatim paulum brevioribus, vix angustioribus, ultimo  $\frac{4}{5}$  longitudinis primi aequante, quam clava sesquibreviore, huiusque articulo basali aequilongo, latitudine etiam aequali.

Pronotum et pars praecoxillaris mesonoti sculptura reticulata minuta, pilis ordine dispositis, longiusculis, quam scutelli tamen brevioribus. Axillae haud conniventes, sculptura etiam reticulata, sed minus conspicua, quae versus angulum internum lineis transversalibus confertissimis tantum constat. Scutellum superficie laevi, nitida, pilis paucis longis instructum, longitudine et latitudine aequali, quam scutum proportionem  $\frac{5}{4}$  longius, apice late rotundatum, transverse fortiter curvatum et secundum lineam longitudinalem medianam teeti instar angulum obtusissimum, vix conspicuum, formans.

Proalae cellula costali lata, nervo marginali quam latitudine sua triplo longiore, quam cellulae costalis latitudine paulum breviorae; nervo stigmatico longitudinem marginalis vix superante, versus apicem gradatim incrassato, haud dentato, cum marginali angulum parum obtusum formante; nervo postmarginali dimidio quam marginali breviorae; cellula basali glabra, excepta setarum serie juxta nervum humeralem decurrente, serieque altera ex puncto hyalino subcostae usque ad marginem posteriorem oblique disposita et versus aream specularem cellulam limitante; speculo magno, lato, extus linea recta seriei setarum basalium parallela limitato, serie autem setarum ex angulo nervi marginalis cum stigmatico producta in duas partes aequali latitudine diviso, quarum exterior pilis nonnullis instructa, aliis non longe a nervo stigmatico ordine singulo oblique dispositis, aliis, numero 3-4, juxta eundem nervum uniseriatis. Alae metathoracis cellula costali ad hamulos extensa.

Abdomen aequae longum atque latum, quam scutum duplo longius.

*Femina* differt antennis ad os insertis, magis clypeo quam lineae oculari propinquis, scapo longo flavo-fusco, flagello nigro-brunneo quam thorace aliquantulum breviorae, duplam scapi longitudinem nonnihil superante, pilis crebris quam articulis longioribus instructo; pedicello latitudine sua longiore, funiculi articulis gradatim crassioribus et brevioribus, primo pedicello fere aequilongo, ultimo longitudine primi latiore et latitudine sua sesquibreviorae; clavae articulo basali quam praeclava parum longiore, secundo parum breviorae, apice, quem articulus tertius totus format, obtuso, rotundato, post mortem immerso. Mandibulae (item atque maris?) elongatae, fortiter curvatae, dentibus duobus externis sat longis, acutis, interno brevissimo.

Long. 1,7 mm.

*Habitat.* Silhouette: "endemic forest near Mont Pot-à-eau, at about 1,500 ft."

*Adn. Zeteticonto abili* quod Silvestri in Guinea Gallica invenit atque descripsit, unicae generis speciei hucusque notae, species haec seychellensis nunc annectitur, quae colore viridi-aeneo, antennis pedibusque omnino luteis, facile dignosci potest. In clava maris vestigium suturae articuli tertii recognovi, in

feminae autem articulum apicale membrana tantum apicis, quae exsiccatione immergitur, constare observavi.

Specimina duo ♂♂, unum ♀.

GEN. *Euryrhopalus* Howard.

24, *Euryrhopalus diaphorocerus*, sp. n. (figs. 19, 20).

*Femina*. Capite obscure viridi, subnitido, vertice nigricante; antennis praeter clavam fuscam obscure luteis; thorace vix nitente cum pleuris abdominisque basi nigro-cyaneis; abdomine reliquo capiti concolore; coxis et femoribus nigris, tibiis cum calcaribus brunneis, tibiarum secundi paris latere anteriore in dimidio apicali testaceo; tarsis omnibus rufis; proalis ad radieulam infuscatis, spatio pone cellulam basalem usque ad dimidium longitudinis castaneo-umbrato, linea pallida longitudinali, post medium duplicata, diviso, in latere exteriori zona albida arcuata limitato; subcosta flavo-fusca, nervis marginali et stigmatico brunneis.

Caput magnum, lenticulare, postice excavatum, antice visum subtransversum, rotundatum; oculis permagnis, latis, glabris; vertice angusto  $1/5$  capitis latitudinis aequante, postice acute marginato, antrorsum declivi, versus frontem haud limitato; ocellis in triangulum subaequilaterum dispositis, externis oculis contiguis; antennarum scrobibus recte linearibus, superne convergentibus sed tamen separatis; spatio inter antenas transverse curvato, haud carinato; superficie tota reticulo insculpta minutissimo, sat fortiter impresso, areolis genarum elongatis, fere linearibus; foveolis rotundis in parte inferiore faciei excavatis, secundum lineas transversas sat regulariter dispositis, in vertice quadriseriatis, seriebus externis orbitae contiguis, internis in fronte duplicatis itaque series quatuor formantibus.

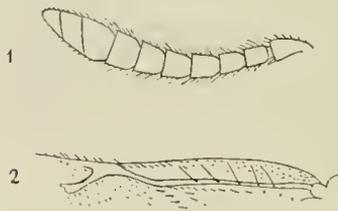


FIG. 19.—*Euryrhopalus diaphorocerus*, ♀.  
1, flagellum ( $\times 45$ ); 2, prothoracici nervi ( $\times 40$ ).

Antennae ad os insertae, inter lineam ocularem et marginem oralem aequo spatio remotae; scapus in scrobe fere totus receptus, longitudine  $3/4$  latitudinis oculi fere aequans, dimidio quam flagellum brevior; pedicellus latitudine sesquialongior; funiculi articuli tres primi parvi, subquadrati, quatuor sequentes conspicue maiores, aequae

longi atque lati, bene discreti, omnes pilis sat longis ornati; clava articulis praecedentibus duobus et dimidio aequilonga, suturis obliquis divisa.

Thorax brevis, altus, gibbosus. Scutum margine antico obtuse angulato, postico leniter arcuato, vestigio sulci scapularis nullo. Axillae costa longitudinali coniunctae. Scutellum triangulare, aequae longum atque latum, convexum, apice rotundatum. Sculptura totius dorsi reticulata, quam capitis minus fortiter impressa, areolis subrotundis illis capitis plerumque maioribus, in parte anteriore scutelli conspicuis, versus apicem et super axillas minoribus. Mesopleura minute, confertissime, in longitudinem striata. Metapleura reticulata.

Proalae nervo marginali brevissimo parum latitudine sua longiore, postmarginali fere nullo, stigmatico quam marginali triplo longiore; margine apicali breviter ciliato; cellula costali lata setisque instructa secundum lineam dis-

positis longitudinalem dimidium eius apicale dividens superque nervum marginalem desinentem; cellula basali fere tota glabra.

Abdomen thorace brevius, depressum, politum. Terebra apice crasso, fusiformi.

Pili haud frequentes, super caput ac thorax ordinati, in apice scutelli paulum longiores, super faciem brevissimi, ad marginem segmenti primi abdominalis uniseriati.

Long. 1,5 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

*Adn.* Huic generi, *Bothriothoraci* affini, una tantum species pertinebat, *Eu. schwarzi* How., in Florida capta, a seychellensi praecipue differens funiculi articulis multo brevioribus, clava latiore et funiculo fere aequilonga. Verisimile mihi videtur has species, etsi flagelli structura diversas, eidem generi esse attribuendas, nam in *Bothriothorace* funiculi articulorum et clavae forma ac proportio valde variant.



FIG. 20.—*Euryrhopalus diaphorocerus*, ♀.  
Pedis intermediæ tibiae apex cum tarso (× 43).

#### GEN. *Symphycus*, n.

Species quam sum descripturus, secundum Mayri monographiam *Encyrtopotius* adscribenda, *Aphyco* affinis est antennarum feminae structura. Ab hoc autem genere setarum nervorumque in proalis dispositione, nec non antennis maris ab illis feminae valde differentibus, facile distingui potest.

#### 25. *Symphycus aphycoides*, sp. n. (figs. 21, 22).

*Femina.* Nigra, oculis tegulisque concoloribus, capite et dorso subopacis interdum nigro-aeneis; ocellis et scapo flavo-brunneis, funiculo nigro, clava versus apicem gradatim pallidior, in articulo apicali griseo-albida; pedibus fere totis brunneis, tibiis flavo-fuscis, mediis obscure luteis, tarsis omnibus colore hoc dilutiore et apice infuseato; alis leniter fumatis, nervis flavo-griseis, marginali et postmarginali quam ceteris obscurioribus, stigmatico grisescente pallido; pilis dorsi griseo-fuscis, antennarum nigris.

Caput vix thorace latius, longitudine et latitudine subaequalibus (proportione 100:112) vertice postice marginato 1/3 fere latitudinis formante; ocellis in triangulum aequilaterum dispositis, externis ab oculis remotis spatio ipsorum diametro aequali; oculis hirtis; genis orbitis fere aequilongis, infra magis incurvis; peristomio sat lato, clypei margine leniter convexo, mandibulis parvis acute tridentatis dentequae medio longiore; facie immersa, inferne subbearinata; insertione antennarum labro magis quam lineae oculari propinqua. Caput de latere inspectum crassum, semiovale, oculis late ovalibus, genis perspicue recte sulcatis.

Antennae inter se magis quam ab ore distantes, sat longe rigido-pilosae. Scapus subfusiformi-compressus, latere ventrali magis arcuato; pedicellus conicus, latitudine sesquilingior; articulus primus funiculi parvus fere aequae longus atque latus; sequentes bene discreti, basi rotundati, apice truncati, gradatim longiores et crassiores, conspicue magnitudine crescentes; articulus secundus pedicello latitudine aequalis, sextus longitudine sua fere duplo lator, triplam latitudinem articuli primi fere aequans, longitudinis pedicelli 3/4 tantum

attingens. Clava magna, quam funiculus dimidio brevior, subcompressa, apice truncato-rotundata, praeclavae latitudinem paullo superans, basi suturisque valde obliquis, pilis quam funiculi brevioribus et versus apicem curvantibus.

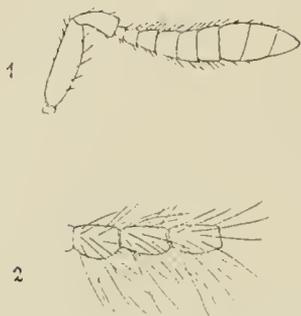


FIG. 21.—*Symphycus aphycoides*.  
1, feminae antenna ( $\times 80$ ); 2, maris ( $\times 87$ ).

Thorax brevis, gibbus, dorso pilis subtilibus sat longis usque ad apicem scutelli ornato. Pars praeaxillaris mesonoti desuper inspecta trapezoidalis, lateribus rectis. Axillae haud conniventes. Scutellum triangulare, aequae longum atque latum, apice haud rotundatum, quam mesonotum sesquilongius. Scutum sculptura reticulata; areolae axillarum parum minores, haud elongatae, omnes aequales; areolae scutelli quam mesonoti et axillarum paulum minores. Mesopleura subnitida, minute et subtiliter reticulato-sulcata. Metapleura striato-rugosa.

Proalae magnae, cellula costali sat lata, nervo marginali ad  $1/3$  longitudinis incipiente, fere duplo longiore quam latiore. stigmatico huic aequilongo, postmarginali sesquibreviore; pilis super cellulam basalem et infra nervum marginalem raris, quam ceteris multo longioribus; area speculari haud determinata. Alae metathoracis cellula costali ad hamulos extensa.

Pedes intermedii tarso infra rigido-setoso, calcari acuminato apicem metatarsi vix attingente; tibiae posticae calcari parvo.

Abdomen cordiforme, spiraculis basi propinquis, valvula paulum prominente.

Long. 1 mm.

*Mas* differt thorace abdomineque supra nitidis, dorso obscure griseo-viridi, scutello in dimidio anteriore vitta longitudinali cuprescenti-fusca; antennis flavo-fuscis haud incrassatis, pilis obscurioribus, haud verticillatis, et super clavam atque funiculum quam huius articulis duplo longioribus. pedicello brevi, articulis funiculi cylindricis omnibus crassitie aequalibus, ultimis latitudine sesquilongioribus; clava inarticulata (?) quam praeclava fere duplo longiore; oculis de latere inspectis latioribus, subrotundis; mesopleurae sculptura magis obsoleta, vix conspicua; nervo stigmatico nonnihil longiore; abdomine elongate triangulari, quam thorace paulum brevior. Long. 1,25 mm.

*Habitat.* Silhouette: Mare aux Cochons.—Mahié: Cascade Estate. "At about 1,000 ft."

Specimina tria ♀♀, unum ♂.

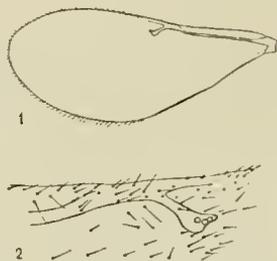


FIG. 22.—*Symphycus aphycoides*, ♀.  
1, proala ( $\times 50$ ); 2, eiusdem nervi ( $\times 96$ ).

#### GEN. *Blastothrix* Mayr.

##### 26. *Blastothrix*, sp. (fig. 23).

*Femina.* Capite aurantiaco, mesonoti parte praeaxillari, axillis et scutello aeruginosis, vel interdum leniter infuscatis, vel capiti concoloribus, mesopleuris

ochraceis, abdomine brunneo, pedibus albidis; oculis, ocellis, antennarum radícula, seapo, excepto annulo articulari et macula lateris anterioris ad basim fasciæque arcuata ad apicem, pedicello non ultra  $2/3$  eius longitudinis, et funiculi articulo primo toto, nigris, reliquis antennæ partibus pilisque omnibus albis; pronoto præter humeros flavescentes, mesonoti margine anteriore, axillarum suturis, linea media scutelli usque ad dimidium longitudinis, nec non metanoto, etiam nigris; pilis dorsi albis; sutura freni inconspicua interdum maculis fumatis indicata; tegulis, axillulis et alarum nervis brunneo-griseis; metapleuris abdominisque basis lateribus brunneo-luteis; margine femorum superiore, tibiæ exteriori, fusco-lineatis, tibiæ basi extus fusco-maculata, tarsis apice brunneis; alis leniter fumatis.

Habitus sicut in figuris *Bl. subproximæ* Silvestri (*Boll. Labor. Zool. gen. e agr.* Portici, ix. 1915. p. 346. figs. vii. viii.).

Vertex  $1/3$  capituli latitudinis occupans (in uno specimine proportione 10 : 28,5, in alio 10 : 29,5). Ocelli triangulum subaequilaterum formantes, posteriores ab oculis remoti spatio eorum diametrum nonnihil superante. Scapus valde laminato-compressus, duplo longior quam latior, latitudine maxima ad mediam longitudinem, latere ventrali fortiter curvato; pedicellus latitudine scapi paulum brevior; funiculi articuli aequilongi, ultimus pedicello haud, primus vix angustior; clava articulos præcedentes duos et dimidium longitudine æquans, latitudine parum superans. Verticis, mesopleuræ abdominisque sculptura, nisi magis quam 100 diam. magnificata, inconspicua, confertissime punctulata, abdominis foveolis paulum elongatis; sculptura dorsi etiam magis minuta. Nervus postmarginalis et stigmaticus aequilongi, quam marginalis nonnihil longiores.

Long. 1,15–1,18 mm.

*Habitat.* Mahé: "found near Morne Blanc and at Cascade Estate, but only in dense beds of the introduced fern *Gleichenia dichotoma*." \*

Specimina sex.

*Adn. Blastothrix insolitus* How. (Chalcididae of the Isle of Grenada: *Journ. Linn. Soc.* xxvi. 1898. p. 150) huic speciei colore aliisque characteribus similis, nervo postmarginali brevissimo præcipue differre videtur.

#### GEN. *Scotteus*, n.

Huius generis femina tantum mihi nota est, eiusque mandibulas et abdominis segmenta examinare non potui. Antennis atque proalis similitudo est *Bothriothoraci oleæ* et *B. minori* Silv., qui tamen a typicis *Bothriothoracibus* satis differunt. Characteres qui præcipui videntur, hi sunt: caput crassum, transverse ellipticum, scrobibus confluentibus, profundis, vertice angusto, sparsim punctato;

\* Dense patches of this fern are numerous in the mountain-forests of the Seychelles. Another insect found exclusively, and in large numbers, in them, was *Semidalis africana* Enderlein, the only Coniopterygid found in the Seychelles (see *Trans. Linn. Soc.* xiv. 1910. pp. 28, 57).—HUGH SCOTT.

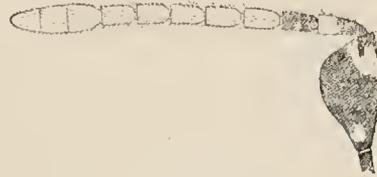


FIG. 23.—*Blastothrix* sp., ♀.  
Antenna (× 58).

thorax brevis, scutello longitudine latius, setis paucis sparsis instructo, in disco et basi confertissime punctato, reliqua superficie laevi. nitida; abdomen latitudine brevius, etiam semicirculare; femora subcompressa, curvata; tibiae apice latae.

Clarissimo viro Hugh Scott hoc genus dicatur.

27. *Scotteus ochroleucus*, sp. n. (fig. 24).

*Femina*. Capite viridi, aureo-nitente, ad marginem oralem obscure cyaneo, oculis, ocellis, scapo et pedicello nigro-brunneis, hae apice, itemque funiculi articulis, brunneis, clava pallide flavo-grisca; corpore pedibusque maxima parte flavo-ochraceis, coxis et femoribus posticis abdomineque ad brunneum colorem vergentibus, mesonoti parte praeaxillari nitore subviridi, metallico, scutelli partibus in sculptis, id est basi et disco, aeneis, reliquis politis aureo vel purpureo nitentibus.

Caput latitudine metathoracem vix superans, antice inspectum transverse ellipticum, diametro minore  $\frac{3}{4}$  maioris, vertice angusto  $\frac{1}{4}$ , aequantibus; oculis magnis haud prominulis, pubescentia brevi at satis conferta, orbita faciali valde divergente; linea oculari inferiore  $\frac{2}{5}$  capitis longitudinis ab eorum remota; torulis superne hanc lineam tangentibus, inferne inter eam et marginem oralem aequae remotis; scrobibus profunde excavatis, extus marginatis atque orbitis fere contiguis, superne confluentibus et arcum formantibus ultra mediam orbitarum altitudinem verticem fere attingentem; area triangulari scrobibus interposita elevata. Ocelli in triangulum subaequilaterum dispositi, posteriores oculos tangentes, a margine occipitali acuto spatio eorum diametro aequali,

inter sese spatio duplo remoti. Caput do latere visum subtriangulare, latum, genis vix obtuse carinatis, conspicue sulcatis et reticulo minuto in sculptis, arcolis angustis elongatis, ita ut eae striatae appareant. Reliqua capitis superficies nitida, minute ac fere inconspicue reticulato-sulcata; vertex etiam punctis sparsis, in linea transversa 4-5, impressus; fovea antennalis reticulo fortius in sculpto.

Scapus scrobem superans, compresso-claviformis, in dimidio apicali lateris ventralis carinatus, apice tamen constrictus; pedicellus duplo longior quam apice latior,  $\frac{1}{3}$  scapi et articulos duos sequentes longitudine aequans; funiculi articuli sensim, at modice, maiores, subquadrati; clava dimidiam longitudinem funiculi cum pedicello aequans, compressa, quam praeclava fere duplo latior, in dimidio apicali lateris

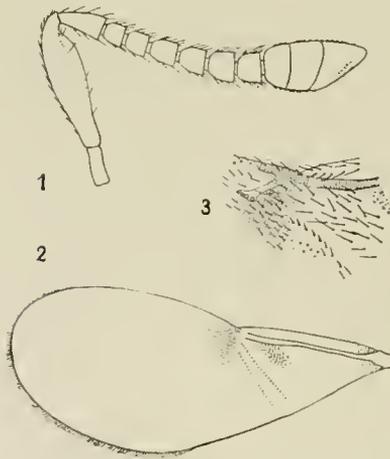


FIG. 24.—*Scotteus ochroleucus*, ♀.

1, antenna ( $\times 45$ ); 2, proala ( $\times 45$ , areas obscuras et lineam specularem demonstrat); 3, eiusdem pars stigmatica ( $\times 85$ ).

ventralis oblique truncata, margine articuli secundi paullum pone medium longitudinis oblique disposito, curvato.

Thorax latus; pronoto brevissimo; mesonoti parte praeaxillari longitudine sesquialtiore, minute reticulato-sulcata arcolis transversis, setis sparsis, 4-5

secundum lineam longitudinalem dispositis; tegulis magnis; axillis angulo interiore contignis; scutello convexo, lato, margine fere semicirculari, disco et parte basali usque ad medium lateris posterioris axillarum confertissime punctulato, reliqua superficie laevi, nitida, setis paucis sparsis; mesopleura subtiliter reticulato-suleata areolis rhombicis. Metanotum haud parvum, planum. Metathoracis latitudo = 29; distantia inter angulos anteriores axillarum 22; scutelli longitudo 15.

Proalae nervo marginali ante medium sito, punctiformi; postmarginali brevissimo et stigmatico duplo longiore non bene determinatis; linea glabra speculari nervum marginalem fere attingente. Alae metathoracis cellula costali paullum ante medium nervi marginalis terminata.

Pedes femoribus compressis, curvatis. Tibia media apice dilatato quam basi sesquialtore, calcari crasso metatarso aequilongo; hic articulo sequente duplo longior. Tibia postica calcari unico munita eius latitudini apicali aequilongo.

Abdomen breve, latum, depressum, fere semicirculare, terebrae valvis vix prominulis, superficie reticulato-sulcata. Basis latitudo, in specimine exsiccato, = 28, longitudo 18; oviductus prominentia 2,5.

Long. 0,9 mm.

*Habitat.* Mahé, apud Morne Blanc.

Specimen unicum.

#### GEN. *Encyrtus* Dalman.

##### 28. *Encyrtus ventralis*, sp. n.

*Femina.* Faciei dimidio inferiore temporibusque viridibus, fronte atque vertice aeneis, punctis nitentibus aureis vel rubris; oculis nigris, ocellis brunneis; pronoto nigro, mesonoto in parte praeaxillari laete viridi pilisque albis ornato; axillis nigro-viridibus; scutelli apice violaceo, parte reliqua abdominisque dimidio posteriore obscuris, leniter purpureo-nitentibus; abdominis dimidio basali supra et infra aurantiaco; mesopleuris violaceis, metapleuris griseo-viridibus; antennis, tegulis et alarum nervis flavo-griseis; pedibus luteis, coxis tantum basi, tarsisque apice, infuscatis.

Caput subtransversum. Vertex  $\frac{1}{4}$  capitis latitudinis occupans, margine occipitali subacuto, ocellis angulum fere rectum formantibus, externis ab oculis spatio ipsorum diametro vix brevioribus remotis. Oculi glabri. Facies post mortem profunde immersa, minute reticulata, fronte etiam reticulata, modice vitro aucta granulosa. Sculptura verticis minute granulosa apprensens, foveolis nonnullis parum profundis, sparsis, quam areolis reticuli vix maioribus, difficulter conspiciendis. Antennae ad os insertae, flagello quam capitis latitudine paullum maiore, funiculi articulis 1.-3. subaequalibus, parvis, longitudine paullum angustioribus, simul sumptis quam pedicello vix longioribus; articulo 4. et 5. quam primo fere sesquilongioribus ac maiori latitudine, articulo sexto quam primo fere duplo longiore; clava magna, longitudinem articulorum funiculi 3.-6. aequante, quam praeclava vix latiore, in articulos subaequales divisa.

Mesonotum reticulatum, areolis aequalibus quam verticis granulis maioribus; axillae haud conniventes, sculptura minutissima, vix conspicienda; scutellum nitidum, latitudine sua brevius proportione 10:13, in  $\frac{1}{4}$  apicali laeve, reliquo spatio reticulatum, areolis prope axillas illis mesonoti aequalibus,

versus apicem sensim minoribus. Mesopleurae reticulatae, arcolis quam scuti vix maioribus.

Proalae sat longe ciliatae, nervo marginali aequae longo atque lato, nervo stigmatico quam marginali parum longiore, postmarginali fere nullo, incerte terminato, setis super cellulam basalem raris, brevioribus, speculo lato, extus bene limitato et secundum lineam mediam setis nonnullis instructo.

Abdomen thoraci aequilongum, reticulatum, aspectu subgranulosum.

Long. 0,95 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

#### GEN. *Parageniaspis*, n.

Huic generi affinitas est *Encyrto* sensu lato, sed magis *Ageniaspidi*. Characteres eius praecipui hi sunt: flagellum crassiusculum, forma in maribus atque feminis vix diversa; funiculi articuli sex bene discreti, primus quam secundus haud conspicue minor, omnes in mare subquadrati; clava utriusque sexus ovata, distincte articulata.

#### 29. *Parageniaspis macrocerus*, sp. n. (figs. 25, 26).

*Femina.* Capite pro parte et thoracis lateribus nigris, vertice, fronte, mesonoti parte praeaxillari abdomineque nigro-aeneis, subnitidis; scutello obscure viridi, metallico, lateribus et apice auratis magis nitentibus; metapleura interdum his partibus concolore; oculis griseo-rufis, antennis, tegulis, coxis omnibus, femoribus anticis in dimidio basali, posterioribus praeter apicem vel totis, tibiis posticis praeter apicem vel etiam praeter latus anterius, brunneis; tarsorum articulo ultimo vittaque in latere anteriore tibiae anticae fuscis, reliquis pedum partibus obscure luteis; proalis grisescentibus, nervo marginali brunneo, stigmatico pallido.

Caput vertice haud lato  $1/3$  totius latitudinis occupante; ocellis in triangulum fere aequilaterum dispositis, externis spatio ab oculis remotis quam ipsorum diametro dimidio brevioris; oculis sat magnis, hirtis; genis subrectis his fere aequilongis; clypei margine arcuato; antennis inter os et lineam ocularem insertis, eminentia parva separatis.

Flagellum crassum, pilis longiusculis usque ad medium clavae instructum, funiculi articulis et clava isthmo tenui, brevissimo, coniunctis; pedicello latitudine

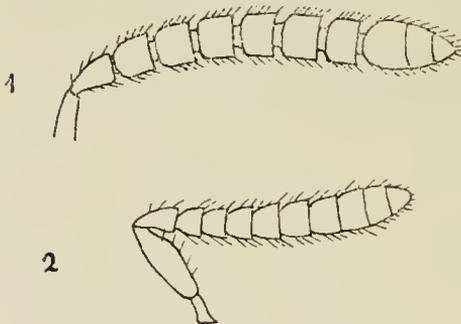


FIG. 25.—*Parageniaspis macrocerus*.

1, maris; 2, feminae antenna; ( $\times 80$ ).

sua sesquilingiore; articulo primo funiculi quam pedicello brevioris, sequentibus gradatim latioribus, vix brevioribus, sexto longitudine sua paululum latiore; clava divisa, articulis praecedentibus duobus et dimidio aequilonga, nonnihil crassiore

Sculptura capitis reticulata, minuta, vix conspicua, super verticem et frontem areolis maioribus constans, punctis piliferis paucis sparse impressis.

Dorsum ante scutellum reticulatum, foveolis piliferis sat magnis sparsis; scutellum subtriangulare, in longitudinem conferte et subtiliter striato-reticulatum, lateribus et apice glabris sculptura fere obsoleta, reliquo spatio pilis paucis longis seriatis ornatum. Axillae haud conniventes, reticulo quam in scutello magis minuto. Mesopleurae fortiter vitro auctae ( $\times 150$ ) scabrae, sculptura haud conspicua

Proalae fere duplo quam abdomen longiores, sub nervo stigmatico latissimae, costa usque ad mediam longitudinem extensa, nervo marginali fere triplo longiore quam latiore, stigmatico huic aequilongo dente acuto terminato, nervo postmarginali incerte limitato, quam marginali haud brevior; cellula costali pilis instructa brevissimis, sparsis, aliisque in dimidio exteriori marginis longis uniseriatis; cellula basali et area speculari usque ad marginem posticum etiam longe at parae pilosis; margine exteriori pilis haud brevibus ornato quorum maximi nervo marginali fere aequilongi.

Pedes satis elongati, intermedii tarso indentato, spinis tenuibus munito nec non calcar longitudinem articuli tarsalis primi aequante; tibiae posticae apice haud compresso-dilatatae, calcar parvo instructae.

Abdomen subtriquetrum, thorace vix longius, apice acuto, superficie reticulata, sculptura minus perspicua, areolis tamen quam in scuto maioribus.

Long. 1,3 mm.

*Mas* differt vertice, fronte, dorso abdomineque viridi-acneis, facie inter antennarum insertiones violacea, pedibus nigro-brunneis, genibus, tibiis apice, mediis totis, tarsisque omnibus obscure luteis, horum apice fusco; funiculi articulis subquadratis fere aequalibus, sicut in femina breviter pedunculatis, articulo sexto aequae longo atque lato, clava quam hoc duplo longiore, articulis subdiscretis, basali quam praelava nonnihil longiore; sculptura verticis reticulata perspicua foveolis rotundatis magnis, numerosis, juxta oculos fere contiguis; mesopleura confertim et minute striato-suleata; abdomine triangulari, apice truncato, quam in femina brevior, latitudine paulum longiore, dorso immerso, segmentis subaequalibus.

*Habitat.* Mahé: Cascade Estate.—Silhouette: Mare aux Cochons.

Specimina duo ♀♀, unum ♂.

#### GEN. *Geniaspidius*, n.

Species cuius descripto sequitur, generi novo *Ageniaspidi* affini attribuenda, ab eo differt funiculi articulis in mare omnibus aequilongis, scutelli superficie tota pilosa, alae metathoracis cellula costali nervi marginalis initium attingente, calcar secundi paris pedum quam in *Ageniaspide* minore ac minus robusto, tibiis posticis bicalcaratis, aliisque etiam characteribus, qui an in feminis quoque occurrant mihi est ignotum. Verticis et frontis sculpturam nervique stigmatici formam pro generis characteribus sumere non aestimavi.

#### 30. *Geniaspidius viduus*, sp. n. (fig. 27).

*Mas.* Niger, seapo coneolore, flagello, alarum nervis, thoracis abdominisque latere ventrali, pedibusque cum coxis flavo-griseis, femoribus autem omnibus et tibiis posticis obscurioribus, tibiis mediis interne et apice, cum tarsis, pallidis.

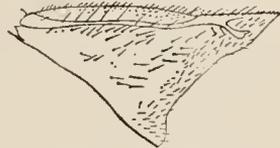
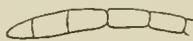


FIG. 26.—*Parageniaspis macrocerus*, ♂.  
Proalae pars dimidia basalis ( $\times 53$ ).

Vertex  $1/3$  capitis latitudinis occupans, ocellis in triangulum subaequilaterum dispositis, posterioribus ab oculis atque margine occipitali spatio eorum diametrum fere aequante remotis. Oculi pubescentes, ex latere inspecti subrotundi; genae sulco subtili at profundo notatae; peristomium angustum, clypei margine arcuato; mandibulae parvae, tridentatae; facies inter antennis obtuse carinata.

Scapus ad medium crassior; pedicellus latitudine et longitudine aequalibus; articuli sex sequentes omnes bene discreti, subaequales, quam pedicellus sesquilingiores sed haud crassiores; clava articulis duobus praecedentibus paulum longior, suturis parum conspicuis.



1



2



3

FIG. 27.—*Geniaspidius viduus*, ♂.

1, antennae apex; 2, proalae nervi; 3, pedis intermedii tibiae apex cum tarso; ( $\times 80$ ).

Sculptura capitis minute reticulata, leniter impressa, foveolis nonnullis in fronte quadriseriatis seriebusque externis orbitis contiguis.

Mesonoti pars praecaxillaris itemque scutellum in longitudinem confertim et minutissime striata, pilis sat magnis, crebris, ordine dispositis, instructa. Pleurae minute reticulatae.

Proalae magnae, apicem abdominis valde superantes, latitudine longiores proportionem  $2:7$ ; cellula basali in dimidio interiore fere omnino glabra, in exteriori pilis nonnullis sat longis ornata; pubescentia brevior, satis conferta, sub nervo marginali incipiente, speculo inter hanc et cellulam basalem incerte limitato; pilis fimbriae longiusculis; nervo marginali latitudine sua sesquilingiore, stigmatico quam marginali fere dimidio brevior denteque parvo ad medium lateris anterioris instructo, nervo postmarginali quam stigmatico haud longiore. Alae posteriores apicem abdominis vix superantes, cellula costali super nervum marginalem non elongata.

Calcar medium satis tenue, acuminatum, metatarsum haud superans. Tibiae posticae calcaribus duobus parvis, subaequalibus, munitae.

Abdomen thorace haud longius, basi angustum, elongate triangulare, non longe a basi prope spiracula setis instructum eius apicem fere attingentibus.

Long. 0,9 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

#### GEN. *Habrolepis* Förster.

##### 31. *Habrolepis aeruginosa*, sp. n.

*Femina.* Aeruginosa, oculis ocellisque brunneis, vertice iridescente; scapo, femoribus tibiisque in latere inferiore nigro lineatis; calcaris medio et tarsorum apice fuscis; mesonoto et scutello subnitidis, cyaneomicantibus; proalis fere totis infumatis at his partibus hyalinis: fascia sub nervo humerali, area infra huius medium, alia, subrotunda, ad angulum alae posteriorem, alia forma semicirculari, apicem occupante, aliaque circum extremitatem nervi marginalis, incerte limitata.

Vertex reticulatus, punctis setigeris irregulariter in longitudinem dispositis, in margine orbitali tantum uniseriatis; spatio inter oculos aequo longo atque

lato; ocellis angulum obtusum formantibus, posterioribus margini occipitali acuto et orbitae fere contiguis. Superficies ocularis pubescens. Scapus laminato-compressus, margine inferiore conspicue arcuato. (Reliquae antennarum partes in specimine desunt.) Mesonoti pars praeaxillaris reticulato-squamosa, areolis quam verticis maioribus. Axillae et scutellum sculptura reticulata minus conspicua, in apice scutelli fere obsoleta. Scutellum latitudine sua parum longius, forma semielliptica, setis nonnullis longis, tenuibus, instructum. Procalae nervo stigmatico marginali aequilongo; fascia glabra speculari incerte limitata, setis super cellulam basalem infraque nervum marginalem, item atque in nervis omnibus, longioribus.

Long. 1,3 mm.

*Habitat.* Silhouette: Mare aux Cochons plateau.

*Adn.* Proalarum maculae fumatae eodem modo sunt in hac specie dispositae quo in *Habrolepide dalmanni* Westw. et *H. oppugnati* Silv. Ab his et ab *Habrolepide zetterstedtii* Westw. species seychellensis, de qua ampliolem descriptionem facere nequeo, facile distingui potest colore aeruginoso. Setas lamellares in margine occipitali vel in scutelli apice non inveni.

Specimen unicum.

#### GEN. *Mahencyrtus*, n.

Huius generis femina non est reperta, mas ab uno tantum specimine hic describitur. Generi relatio est cum *Cerapterocero* et *Chiloneuro*, nec non cum *Diversinervo* Silv.: ab hoc autem differt antennis in linea oculari insertis, metathoracis alis minus latis et in margine postico minus curvatis, abdomine magis elongato, segmento basali minore: a *Chiloneuro* flagelli pilis non verticillatis, clavae fere omnibus elongatis, funiculi articulis medio haud constrictis, scuto pilis argenteis nullis, scutello apice glabro: a *Cerapterocero* denique antennis infra lineam ocularem insertis, funiculi articulis valde elongatis, scutello foveolis fere linearibus et contiguis insculpto, haud nitido, nervo marginali et postmarginali angustioribus ac longioribus.

#### 32. *Mahencyrtus occultans*, sp. n. (figs. 28, 29).

*Mas.* Capite, mesonoti parte praecaxillari, metanoto cum metapleuris et abdominis basi aureo-viridibus, nitidis; abdomine reliquo, prothorace axillisque nigro-aeneis; scutello flavescenti-aeneo, subopaco; mesopleuris, tegulis et oculis nigris; carina super clypeum cuprescente, hae fere nigro; antennis obscure luteis, funiculi juncturis, pilis et clavae apice fuscis; pedibus maxima parte luteis, coxis, femoribus anticis in dimidio basali, mediis brevi spatio in latere anteriore, posticis praeter basim et apicem cum tibiis prope basim, nec non tarsorum omnium apice, etiam fuscis; alis hyalinis, nervis flavo-brunneis, marginali et postmarginali obscurioribus.

Caput antice visum rotundatum, vertice dimidium latitudinis occupante, oculis magnis, glabris, genis fortiter curvatis, clypeo medio recte marginato, antennis in medio faciei insertis, ab oculis paullum magis quam inter se remotis; linea oculari inferiore inter antennis et marginem clypei aequo spatio distante; facie circum antennarum insertiones excavata, inter has elevata, obtuse carinata. Caput de latere inspectum ellipticum, oculis ovatis at postice margine recto, obliquo, limitatis; genis haud compresso-acutis, sulco perspicuo notatis. Vertex

postice haud marginatus. Ocelli in angulum obtusum dispositi, externi ab oculis remoti spatio ipsorum diametrum aequante. Superficies sulcato-reticulata, areolis super verticem transversis, foveolis nonnullis rotundatis etiam in dimidio inferiore faciei impressis.

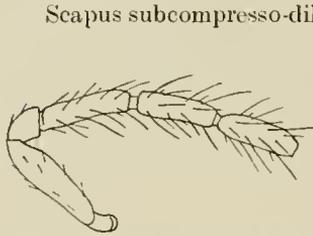


FIG. 28.—*Mahencyrtus occultans*, ♂.  
Antennae pars ( $\times 80$ ), ex specimine  
exsiccato delineata.

Scapus subcompresso-dilatatus, supra medium latissimus, ocellum anteriorem attingens; flagellum tenue, valde clongatum, longitudinem thoracis cum capite superans, pilis instructum sparsis, etiam super clavam praeclavae aequilongis, articulis aequali latitudine; pedicello aequae longe atque lato, funiculi articulo primo fere sesquibrevis, clava longitudinem articuli primi cum pedicello aequante, indivisa.

Pars praeaxillaris mesonoti scutello longior, reticulata, foveolis rotundatis sparse impressa; axillae separatae, reticulo minus conspicuo axillae minoribus; scutellum triangulare, areolis elongatis, fere linearibus fortiter insculptum, apice tantum sculptura obsoleta areolisque subrotundis. Mesopleura leviter atque minute reticulata, in dimidio anteriore areolis minoribus, elongatis. Metathoracis latera pilis paucis prope stigma tantum ornata; dorsum pilis subtilibus, nusquam confertis.

Proalac nervo marginali quam eius latitudine duplo longiore, stigmatico ac postmarginali huic subaequalibus, cellula basali in dimidio posteriore pubescente, speculo infra praestigma bene limitato, antice curvato, infra nervum marginalem extenso. Alae metathoracis elongatae, angustae, margine postico vix arcuato, cellula costali hamulos attingente.

Pedes longiusculi, calcari dimidio metatarso aequilongo.

Abdomen thoraci aequilongum, clongate ovale, segmentis 5. et 7. longioribus, ultimo in specimine exsiccato ad  $2/3$  alae anterioris desinente, omnibus margine postico valde curvato.

Long. 1,5 mm.

*Habitat.* Mahé.

Specimen unicum.

attingens; flagellum tenue, valde clongatum, longitudinem thoracis cum capite superans, pilis instructum sparsis, etiam super clavam praeclavae aequilongis, articulis aequali latitudine; pedicello aequae longe atque lato, funiculi articulo primo fere sesquibrevis, clava longitudinem articuli primi cum pedicello aequante, indivisa.

Pars praeaxillaris mesonoti scutello longior, reticulata, foveolis rotundatis sparse impressa; axillae separatae, reticulo minus conspicuo

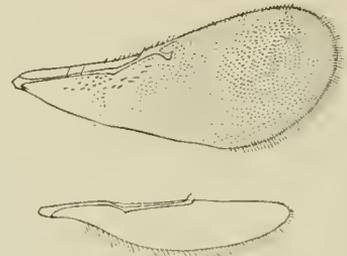


FIG. 29.—*Mahencyrtus occultans*, ♂.  
Alae ( $\times 37$ —pili in superficie alae posterioris  
non sunt delineati).

### GENUS ?.

Specimen unicum, masculinum, cuius descriptio sequitur, notis quibusdam simile est praecedenti, sed in eodem genere non convenit fronte fovea magna non excavata, nervo marginali longiore, speculo lineari, aliisque etiam characteribus. An sit hoc exemplar generi novo attribuendum mihi dubium est.

### 33. Genus et sp. ?.

*Mas.* Capite et dorso cum metapleuris aureo-viridibus; facie infra antenarum insertionem usque ad marginem elypei violaceo-purpurea; oculis fere nigris; antennis flavo-griseis, clavae apice, radícula pilisque obscurioribus;

pilis mesonoti albidis; scutello in dimidio apicali cuprescente; mesopleuris nigris, leniter violaceo-nitentibus; tegulis brunneis; alarum nervis flavo-griseis; pedibus cum coxis anticis atque posticis luteis, coxis mediis fere totis brunneis, tarsis anticis totis, posterioribus apice tantum, infuscatis; abdomine viridi-aeneo, purpureo vel aureo nitente.

Caput hemisphaericum, antice visum rotundatum, fere aequae longum atque latum; vertice  $1/3$  latitudinis aequante, antrorsum haud declivi, postice acute marginato, confertim et minutissime punctulato, in eius parte postica tantum fere obsolete insculpto, foveolis rotundatis paucis ad marginem orbitalium aliisque nonnullis sparsis impresso; ocellis in triangulum aequilaterum dispositis, externis fere oculis contiguis. Orbitae inferne valde divergentes, genis parum longiores; oculorum superficies glabra; facies reticulata, areolis frontis minoribus, spatio inter marginem clypei et insertiones antennarum arcuatim striguloso, obtuse carinato; scrobibus profunde excavatis, non ultra dimidium orbitalium altitudinem extensis, medio confluentibus; clypei margine concavo, limbato; labro item curvato, margine rigide piloso. Mandibulae tridentatae.

Antennae in linea oculari insertae, ab ore  $1/4$  capitis longitudinis et magis quam inter se remotae, longitudinem corporis aequantes, flagello quam scapo quadruplo longiore, pedicello, funiculi articulis et clava crassitie aequalibus, pilis saltim pedicello aequilongis, aequaliter distributis; articulis funiculi omnibus anello perspicuo coniunctis; articulo primo latitudine sua sesquilongiore et pedicello aequilongo, secundo duplam, sexto triplam latitudinem longitudine aequantibus; clava articulis 5. et 6. simul sumptis fere aequilonga, elongate ovato-acuminata, articulis subdiscretis, basali  $2/5$  eius longitudinis aequante.

Mesonoti pars praeaxillaris reticulata, pilis satis numerosis ornata. Axillae haud conniventes, areolis quam in scuto minoribus. Areolae scutelli fere lineares, in longitudinem dispositae, prothoracis lateris et mesothoracis ante mesopleuram magnae, rhomboidales, sulcis limitatae; in mesopleura fere tota elongatae, confertae, in longitudinem dispositae, in eius parte supero-posteriore subrotundae, in parte anteriore leniter excavatae. Callus pilis nonnullis albis instructus.

Proalae sat longe ciliatae, nervo marginali longo, stigmatico brevissimo, postmarginali fere nullo, speculo lineari ex nervo stigmatico valde oblique producto.

Calcar tibiae posticae dimidium articuli primi tarsalis non attingens.

Abdomen paullum thorace brevius.

Long. 0,88 mm.

*Habitat.* Mahé: Cascade, "from marshy ground near sea-level."

Specimen unicum.

#### SUBFAM. EUPELMINAE.

#### GEN. *Eupelmus* Dalman.

#### 34. *Eupelmus malgascius*, sp. n.

*Femina.* Obscure olivaceo-viridis, fronte, in specimine, praeter aream orbitae contiguam, nigro-violacea, pilis faciei et dorsi albis, antennis scapo ac pedicello nigro-viridibus, submetallicis, funiculo et clava nigris; abdomine basi superne cyanea, reliquo dorso subaeneo; pedibus pro maxima parte fulvo-ochraceis, coxis anticis atque posticis, femore antico praeter basim et apicem, postico in

dimidio basali, corpori concoloribus; femore medio in margine superiore infuscato; tibia antica et postica dimidio basali nigris, tibia media basi obscura, spinulis apicis, item atque tarsi, nigris; tarsorum apice fusco; alis dilute flavo-griseis, nervis paullum obscurioribus; oviductu in  $1/3$  basali nigro-viridi, in  $1/3$  apicali fusco, spatio reliquo ochraceo.

Antennae articulis funiculi 5.-6. latitudine manifeste longioribus.

Proalarum speculum linea glabra indicatum.

Pedes antici femore subtus laminato-compresso; pedes intermedii spinulis tibiae apicis sex, spinulis articuli tarsalis primi 12 in utraque serie, quarum 3-4 ultimae in lineam externam dispositae, secundi 5, tertii 2, quarti 1.

Abdomen tergitis 1.-4. profunde angulatum incisum. Oviductus dimidiam tibiae posticae longitudinem vix superans.

Long. 2,5 mm.

*Habitat.* Mahé: "country above Port Gland, 500-1,000 ft"

Specimen unicum.

*Adn. Species* *Eupelmo urozo* Dalm. affinis, colore alarum, tibiarum et coxae mediae facile distinguenda, ab *Eupelmo afro* Silv. praecipue differens alis obscuris, spinarum numero maiore in apice tibiae mediae.

#### GEN. *Eupelmoides*, n.

Speciei huius generis typicae femina tantum est nota. *Eupelmo urozo* thoracis structura nec non corporis forma similis, at abdominis valvula vomeriformi, huius apicem attingente, et alarum characteribus praecipue differens.

Haec est generis diagnosi:

*Femina.* Caput vix transversum, vertice perangusto, terete, ocellis omnibus superioribus, oculis magnis, aspectu glabris, linea oculari inferiore in  $3/4$  capitis longitudinis, mandibulis bidentatis, id est dente medio atque posteriore connatis. Antennae inter lineam ocularem et clypeum insertae, scapo verticem non superante, flagello elongato, tenui, anello et praeclava subquadratis, funiculi articulis 1.-4. longis, clava dilatata, ovata. Axillae haud remotae; metanoti pars pone scutellum brevissima, antice atque postice concava et marginibus medio fere contiguus. Proalae nervo postmarginali quam stigmatico duplo longiore, superficie confertim pubescente, speculo nullo. Abdomen longum, tergito basali profunde diviso, secundo angulatum inciso, 4.-6. convexo-marginatis, hoc ultimo septimum obtegente, sternitis valvulam formantibus vomeris ad instar, abdominis apicem fere attingentem; terebrae valvis in specie typica tergito sexto subaequilongis.

*Mas* ignotus.

#### 35. *Eupelmoides obscuratus*, sp. n. (figs. 30-32).

*Femina.* Obscure violacea, facie, scapo ac pedicello, dorso partim, viridibus, metallicis, scutello saepe aureo-nitente; funiculo et clava totis nigris; oculis griseo-rufis; tibiis nigricantibus, posticis in latere posteriore macula oblonga alba ornatis non ultra medium longitudinis extensa; tarsis omnibus apicem versus sensim infuscatis, anticis articulo 1. et 2. flavo-griseis, mediis atque posticis articulo 1. albidis; proalis cellula basali, costali et area sub nervo marginali albidis, reliquo spatio fuscis, in dimidio anteriore etiam obscurioribus; metathoracis alis fere hyalinis; oviductu apice flavescente.

Caput antice visum subrotundum, longitudine latius proportione 5 : 4, vertice angusto, oculis magnis, aspectu glabris, verum pilis paucis brevibus subtilibus instructis, orbitis valde obliquis et in linea oculari spatio quadruplo quam in vertice distantibus (spatio hoc inter sulcos genarum dimenso), genis fortiter arcuatis, peristomio lato, clypeo indistincto, angusto; linea oculari inferiore in  $\frac{3}{4}$  capitis longitudinis, scrobibus antennarum longis, in dimidio inferiore bene determinatis, superne prope ocellum confluentibus et orbitis tangentibus. Caput de supra inspectum vertice quam diametro antero-posteriore saltim dimidio angustiore; oculorum prominentia verticis latitudinem superante proportione 9 : 4; ocellis posterioribus orbitis fere contiguus spatioque diametrum eorum vix aequante separatis, medio a posterioribus spatio parum maiore remoto. Faciei superficies scabra, verticis inter ocellos sublaevis; superficies pone hos itemque oculos et sulcos genarum leniter reticulo insculpta. Mandibulae ambae eadem forma, tridentatae, aspectu bidentatae, id est dente anteriore tantum bene discreto, acuto, reliquis obtusis et vix incisura minima separatis, quasi dentem unum latum formantibus. Facies pilis ornata crassiusculis, inter se spatio eorum longitudinem aequante, interdum etiam duplo, remotis.

Antennarum radicae inter lineam ocularem inferiorem et os aequaliter, inter se duplo quam ab oculis, remotae, itemque spatio duplice quam verticis latitudine; flagellum tenue, longitudinem thoracis paullo superans; pedicellus duplo longior quam latior; annellus vix discretus, quadratus; articulus primus funiculi pedicello sesquilongior, ceteri gradatim breviores et crassiores, sextus fere quadratus, septimus latitudine sua vix brevior et quam primus duplo latior; clava longitudinem articuli primi cum anello aequans, post mortem interne profunde immersa, propter deformationem quam praeclava fere sesquialior.



FIG. 30.—*Eupelmoides obscuratus*, ♀.  
Antenna ( $\times 27$ ).

Sculptura partis praeaxillaris mesonoti minute reticulata, areolis antice atque postice paulum maioribus. Prothorax brevis, de supra inspectus subtriangularis, longitudine  $\frac{1}{3}$  thoracis latitudinis fere aequans. Mesonoti pars praeaxillaris sulco tenui lateribus limitata, carinis longitudinalibus submedianis nullis, in parte postica tantum eminentia obtusa indicatis, area inter carinas antice triangulum subconvexum formante, breviter pilosula, interdum glabra. Axillae triangulares, latitudine, id est basi, fere sesquilongiores, spatio remotae earum basis dimidium aequante, a scutello sulco lenissime sinuato separatae, superficie aspectu minute granulosa. Scutellum postice truncatum, dorsulo confertim longitudinaliter strigoso-sulcato, freno autem fere transverso-lineari et valde declivi, subdiscreto, minute reticulato. Dorsellum fere lineare. Metanotum medio brevissimum, longitudine maxima in eius partibus lateralibus dimidium lateris anterioris scutelli aequante, margine antico et postico leniter concavis aequaliter curvatis, superficie scabra. Spiracula sat magna, obliqua. Mesothoracis latera ante sulcum mesosternum et mesopleuram separantem reticulata, praesterni areolis magis minutis; pili infra hoc sat longi sed haud conferti.

Proalae praestigmate crasso, nervo marginali quam postmarginali triplo longiore, hoc quam stigmatico duplo longiore; cellula basali sat dense pilosa,

costali margine glabra, speculo nullo, superficie reliqua confertissime pilis brevibus vestita, nervo cubitali pilorum dispositione vix indicato ad mediam alae latitudinem decurrente.



FIG. 31.—*Eupelmoides obscuratus*, ♀.  
Proala ( $\times 23$ —macularum dispositionem ostendens).

Femur anticum posterioribus minus validum, at in eius dimidio apicali latius, marginibus posticis laminatis foveam ad tibiae excipiendam formantibus. Tarsus anticus et posticus tenues, ille tibia sesquilingior, hic aequilongus, interne spinis in articulo 1. circa 25 instructus, in 2. decem, in 3. septem, in 4. sex; tarsus medius haud elongatus,  $3/4$  tibiae aequans, crassus, articulo primo seriebus denticulorum 16–18 munito. Pedes postici coxis pubescentibus, calcari minore latitudinem metatarsi vix superante, maiore sesquilingiore.

Abdomen thorace sesquilingius, saepe in speciminibus hians, id est sternitis valvulam eius apicem fere attingentem, nec in longitudinem divisam, vomeris ad instar, formantibus; tergito primo profunde diviso, secundo manifeste, tertio vix, angulatim incisus, quinto et sexto subaequalibus arcuatoconvexis, septimo fere occulto. Superficies fere tota sat conspicue reticulata, in parte anteriore segmenti basalis areolis minoribus insculpta. Oviductus tergito sexto subaequilongus.

Long. 4 mm.

Specimina sex.

*Habitat.* Silhouette: Mare aux Cochons—Mahé: Cascade Estate; Morne Blanc; “country above Port Glaud.”

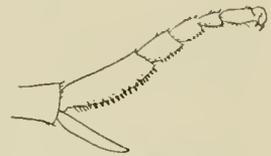


FIG. 32.—*Eupelmoides obscuratus*, ♀.  
Pedis intermedii tibiae apex cum tarso ( $\times 40$ ).

#### GEN. *Pseudanastatus*, n.

Hoc genus sequenti simile et affine, differt faciei area interantennali et epistomate linea lyrata circumdatis, spatio, hac linea limitato, depresso; flagello versus apicem gradatim et conspicue latiore, prealis in specie typica paullum ultra praestigma terminatis. Maris characteres non sunt adhuc noti. Praeter speciem seychellensem, cuius descriptio sequitur, aliam observavi, in Italia prope Genuam inventam, structura valde similem, eolore praecipue diversam.

*Femina.* Caput crassum, vix transversum, vertice  $1/3$  totius latitudinis aequante antrorsum declivi et cum fronte continuo, ocellis in declivio locatis; oculis fere glabris; antennis prope lineam ceularem insertis, scrobibus nullis; facie linea lyrata, torulis extus tangente et ad mediam orbitarum altitudinem arcum formante, in duas partes divisa, quarum una, id est spatium interantennale cum epistomate, magis depressa, interdum etiam colore distincta. Mandibulae dente apicali et intermedio instructae, basali nullo. Antennarum scapus verticem non superans, flagellum versus apicem gradatim et conspicue crassius. Scutellum angustum, basi lateri anteriori axillarum subaequilonga; dorsellum atque metanotum parva. Proalae fere atrophicae, rotundato-truncatae, cellula costali et praestigmate latis, nervo marginali brevissimo apicem attingente,

nervo stigmatico nullo, superficie fere tota setis spiniformibus instructa. Abdomen breve, depressum, prope apicem latum, tergitorum margine haud inciso, terebrae valvis haud vel vix prominentibus.

*Mas* ignotus.

36. *Pseudanastatus crassicornis*, sp. n. (figs. 33, 34).

*Femina*. Flavescenti-brunnea, oculis, scapo ac pedicello concoloribus, funiculo brunneo-nigro, clava tarsisque omnibus albis; proalis brevissimis, inter dimidium cellulae basalis et praestigma hyalinis, reliquo spatio leniter infuscatis, nervis haud obscurioribus; callo dense albo-pilosulo; abdomine violascente brunneo, segmento basali albedo; oviductu vix prominente pallide flavo.

Caput transversum, longitudine  $5/7$  latitudinis aequans, vertice antrorsum declivi tertiam partem latitudinis occupante; ocellis in declivio anteriore, triangulum aequilaterum formantibus, posterioribus spatio ab oculis remotis quam ipsorum diametro parum brevioribus; oculis setis perpaucis brevibus instructis; distantia orbitali inferiore dupla quam superiore; linea oculari  $2/7$  capitis longitudinis ab ore remota; genis sulcatis, ad os fortius curvatis; peristomio sat lato; clypeo subquadrato extus recte marginato; antennis vix infra lineam ocularem insertis et carina brevi obtusissima fere inconspicua separatis; scrobibus nullis, facie linea lyrata torulis extus tangente et ad mediam orbitarum altitudinem arcum formante, in duas partes divisa, quarum interior, id est spatium inter antennis cum epistomate, magis depressa. Palpi maxillares 4-articulati, articulis 1.-3. subaequalibus. Mandibulae dente exteriori parvo, medio vix prominulo late rotundato, interiore nullo.

Superficies tota capitis minute reticulata, aspectu granulosa, pubescencia haud frequenti aequaliter distributa.

Antennae scapo robusto, flagello versus apicem gradatim et conspicue crassiore; anello quadrato, articulo primo funiculi quam pedicello haud longiore neque crassiore, articulo quarto latitudine sua vix longiore, tribus sequentibus paulum brevioribus, ultimo duplam pedicelli latitudinem aequante, longitudine  $2/3$  latitudinis suae haud superante; clava quam articulis duobus praecedentibus paulo longiore.



FIG. 33.—*Pseudanastatus crassicornis*, ♀.  
Antenna ( $\times 45$ ).

Pronotum, mesonoti pars praeaxillaris et axillae, nec non scutellum juxta eius latus anteriorius, reticulo minute inculpta, areolis regulariter polygonis super pronotum minus conspicuis. Mesonoti pars praaxillaris area media depressa, indivisa et lateribus costis subrectis fere parallelis bene terminata. Axillae duplo longiores quam basi latiores, dimidiam scutelli longitudinem attingentes. Scutellum angustum, duplo longius quam latius, latere anteriore axillarum basi vix aequilongo, latitudine maxima quam hoc spatio sesquilongiore, superficie confertim in longitudinem striato-sulcata, strigis per totam longitudinem fere continuis, numero ad medium circa viginti; setis paucis sparsis. Dorsellum et metanotum brevia.

Alae fere atrophicae; anteriores longitudine, praeter radiculam, triplam latitudinem aequantes, longitudinem funiculi haud superantes, non ultra abdominis basim elongatae, apice rotundato-truncatae, superficie setis crassis,

in parte basali minus confertis, vestita; praestigmate lato cum nervo marginali rudimentali continuo, hoc apicem attingente, nervum stigmaticum haud emitte-

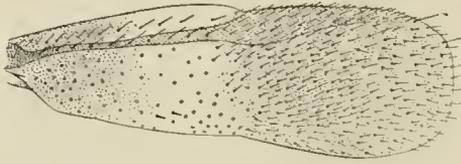


FIG. 34.—*Pseudanastatus crassicornis*, ♀.  
Proala (sine radícula— $\times 85$ ).

Abdomen depressum, thorace paulo longius, latitudine maxima prope spiracula, apice valde obtuso, oviductu vix prominente; superficie minute reticulato-squamosa, areolis aequalibus; tergitis apice integris, quinto concavo, sexto convexo-marginato.

Long. 2 mm.

*Habitat.* Mahé: "Cascade Estate and forest above."—Silhouette: "high forest above Mare aux Cochons, 1,000–2,000 ft."

Specimina tria.

#### GEN. *Paranastatus*, n.

Species duae huic novo generi pertinentes, forma capitis de latere inspecti similes, nec non totius corporis figura, tamen characteribus nonnullis valde differunt. Ego autem genus praecipue propter capitis formam institui, quam fig. 36<sub>2</sub> ostendit. Forsan species sunt, nomine *Anastato*, vel alio, ab auctoribus descriptae, quas huic meo generi adscribere liceat. Maris characteres in diagnosi, quae sequitur, ex una tantum specie deduxi.

*Femina.* Caput fere aequè longum atque latum, de latere inspectum obtuse triangulare, angulo obtuso foramini occipitali fere contiguo, itaque vertice non antrorsum sed retrorsum declivi; ocellis, si caput antice inspiciatur, pone summam faciem occultatis, in angulum acutum dispositis, posterioribus fere oculis contiguis; antennis in linea oculari vel inter hanc lineam et marginem ocularem insertis; mandibulis bidentatis, vel etiam 4-dentatis dentibus alternis maioribus. Dorsellum atque metanotum brevia, metathoracis partes laterales triangulares, in planum dispositae. Proalae normales, nervo postmarginali duplo quam stigmatico longiore. Abdomen haud elongatum, post mediam longitudinem latius, segmentis praeter basale subaequilongis, margine integris; terebrae valvis non prominentibus.

*Mas.* Vertice, de latere inspecto, haud retrorsum declivi, ocello anteriore in medio eius sito, scapularum sulcis in parte dimidia anteriore tantum indicatis, metanoto normali, superne inspecto rectangulari, carinato, proclis totis pubescentibus, tarso medio spinulis denticulorum loco munito, abdomine elliptico.

Huius generis species hic descriptae his characteribus inter sese valde differunt et facile dignosci possunt:

*Paranastatus egregius.* Antennae in linea oculari insertae, clava dilatata. Mandibulae bidentatae. Caput viride, thorax pedesque fulvi, abdomen brunneum basi pallida, proclae fumatae.

*Paranastatus violaceus*. Antennae inter lineam ocularem et marginem oralem insertae, elava quam articulis praecedentibus haud latiore. Mandibulae 4-dentatae, dentibus alternis (1. et 2.) minoribus. Violaceus, flagelli dimidio apicali albo, vel obscure oeliraeo elava brunnea, precalis flavo-griseis.

37. *Paranastatus egregius*, sp. n. (fig. 35).

*Femina*. Capite smaragdino vel aurato-viridi, oculis rufescenti-brunneis, articulis tribus elavae praecedentibus albis, reliquis funiculi et elava brunneis, hae vero minus obscurata; seapo eum pedicello, thorace pedibusque fulvis, tegulis, mesonoti dimidio posteriore et scutelli apice virescentibus; proalis infra praestigma atque nervum postmarginalem fortiter, apice tamen minus, infuseatis, ad medium fascia incerte limitata subalbida ornatis; abdomine violaeo-brunneo, segmentis, praecipue ultimis, viridi-nitentibus, segmento basali et lateris ventralis dimidio posteriore oeliraeis.

Caput antice visum haud longitudine latius, subrotundum, oculis parum convexis, inferne duplo quam in vertice remotis, pilis perpauca brevissimis instructis, genis  $2/3$  orbitalum longitudinis fere aequantibus, fortiter curvatis, profunde sulcatis; de latere visum subtriangulare, vertice non antrorsum sed retrorsum declivi, ocellis in hoc declivio pone faciem locatis; de supra inspectum vertice perangusto, ocellis posterioribus ab oculis vix separatis, inter se parum distantibus, anteriore ab aliis magis remoto. Scrobes antennales longae, superne confluentes, at haud marginatae, spatio modice elevato separatae. Faciei pars inferior neque depressa neque a superiore linea arcum formante discreta. Clypeus margine vix prominente, recto. Mandibulae bidentatae. Verticis sculptura minutissime granulosa, frontis reticulata, non satis vitro aueta aspectu minute granulosa; faciei, infra lineam ocularem, genarum temporumque, etiam reticulata, areolis maioribus, super tempora maximis; dimidium capitis inferius foveolis nonnullis impressum rotundatis, haud profundis, prope genarum suleos magis confertis.

Antennarum insertio in linea oculari; flagelli articulus secundus dimidium pedicelli longitudinem vix superans, latitudine sua fere sesquilingior; articuli sequentes gradatim crassiores, 4. et 5. pedicello aequilingi, 6. praecedente multo brevior, aequo longus atque latus, quam pedicellus sesquilateral; articuli reliqui etiam quadrati, subaequales; elava articulis duobus praecedentibus aequilinga, suturis obliquis.

Sculptura totius dorsi minute reticulata. Mesonoti pars praemaxillaris per totam longitudinem medio depressa, fovea lateribus earinis parallelis limitata.

Proalae normales, abdominis apicem paullo superantes, nervo postmarginali fere duplo quam stigmaticeo longiore, pilis satis confertis in tota superficie fere aequaliter distributis.

Tarsus medius articulo primo seriebus denticulorum 9-11 munito.

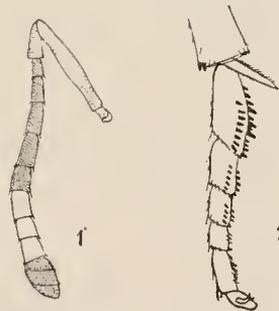


FIG. 35.—*Paranastatus egregius*, ♀.  
1, antenna ( $\times 40$ ); 2, pedis intermedii  
tibiae apex cum tarso ( $\times 80$ ).

Abdomen post medium latius, in speciminibus exsiccatis spatulatum, segmentis subaequilongis, primo tamen paullo longiore; terebra valvis omnino retractis.

Long. 1,5 mm.

*Mas.* Colore a femina haud differens nisi est proalis leniter tantum fumatis, zona ad medium decolore, nec albida. Caput de latere inspectum vertice haud declivi, ocello anteriore in medio huius, posterioribus occipitem versus locatis. Flagellum quam in femina nonnihil crassius, funiculi articulo primo non annuliformi, quinto ac sexto (septimo et octavo antennae) aequae longis atque latis, clava 3-articulata quam praeclava haud latiore, suturis sat conspicuis. Scapularum sulci in dimidio anteriore tantum indicati; axillae triangulares subaequilatae, remotae. Scutellum apice fortius insculptum. Dorsellum atque metanotum fere aequilonga, hoc medio carinatum. Praesternum magnum, triangulare subaequilaterum. Proalae speculo nullo. Tarsus medius denticulorum loco spinulis instructus. Abdomen subellipticum. Characteres reliqui sicut in femina.

*Habitat.* Mahé: Mare aux Cochons district—Silhouette. "All the examples are from the endemic forests, 1,000–2,000 ft."

Specimina duo ♂♂, unum ♀.

### 38. *Paranastatus violaceus*, sp. n. (fig. 36).

*Femina.* Obscure violacea; antennis usque ad articulum septimum (quartum post anellum) nigris, articulis 8.–10. et clava flavescenti-albidis, clavae apice vix grisescente, vel articulis 8.–10. obscure ochraceis clava brunnea; scutello cum axillis aeneis; proalis flavo-fuscis nervis concoloribus pilisque nigris; alis metathoracis fere limpidis; coxis posticis violaceis, mediis, cum trochanteribus omnibus, albidis, anticis et reliquis pedum partibus flavo-fuscis; abdominis segmentis usque ad 5. nigris, leniter cuprescentibus, reliquis viridibus.

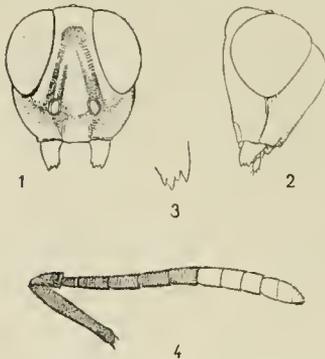


FIG. 36.—*Paranastatus violaceus*, ♀.  
1, caput antice visum; 2, de latere ( $\times 30$ );  
3, mandibulae apex, paulum oblique inspectus  
( $\times 58$ ); 4, antenna ( $\times 30$ ).

Caput antice visum latitudine longitudinem aequante, orbitis et genis parum obliquis, distantia orbitali superiore  $1/3$  capitis latitudinis vix aequante, genis quam orbitis sesquibrevioribus; ore lato, truncato. Oculi fere glabri, pilis brevissimis; linea ocularis inferior  $2/5$  capitis longitudinis ab ore distans; genae modice curvatae, sulcatae; clypeus rectangularis lateribus bene limitatus; toruli subrotundi, inter sese spatio verticis latitudini fere aequilongo remoti; linea torulos inferne tangens ab ore et linea oculari aequae distans; scrobes antennarum haud terminatae, rectae, superne coniunctae et verticem fere attingentes.

Forma capitis de latere subtriangularis, facie plana, latitudine maxima paulum supra mediam longitudinem,  $3/4$  huius attingente; ocellis in declivio posteriore, in triangulum dispositis; oculis rotundato-triangularibus, aequae latis atque longis. Caput superne inspectum longitudine  $2/3$  latitudinis aequans, oculis  $1/4$  circuli fingentibus, id est margine

frontali et occipitali angulum rectum formantibus, vertice inter oculos angusto fere triplo longiore quam latiore, pone orbitas nonnihil longiore quam inter oculos latiore.

Mandibulae validae, 4-dentatae, dentibus secundo et quarto maioribus, acutioribus. Palpi maxillares et labiales crassiusculi.

Flagellum tenue, funiculo quam scapo duplo longiore, anello latitudine sua sesquolongiore, articulis quatuor sequentibus longitudine subaequalibus, sensim latoribus, primo ter longiore quam latiore; articulis funiculi 5.-7. latitudine paulum longioribus, etiam subaequalibus; clava quam articulo praecedente sesquolongiore, suturis minus distinctis, vix obliquis.

Mesonoti pars praeaxillaris minute, aequaliter, reticulata, aspectu granulosa, glabra, lateribus suleis angustis limitata, carinis longitudinalibus obtusis, area triangulari anteriore modice elevata. Axillae spatio angusto separatae, modice elongatae, dimidium scutelli longitudinis vix superantes, latere exteriori sub-sinuato; earum et scutelli dorsuli superficies foveolis minutis, rectangularibus, contiguis, inculpta. his super dorsulum sicut in primore digito curvatim concentricae dispositis. Dorsellum planum, in parte dimidia posteriore semiellipticum; frenum fere verticale, laeve, nitidum. Dorsellum parvum, planum. Metathorax partibus lateralibus fere in planum dispositis, de supra inspectis sicut in *Calosotere* et *Metacalosotere* triangularibus, angulo anteriore externo recto, posteriore rotundato, spiraculo oblique disposito breviter elliptico; partibus lateralibus isthmo antice et postice curvatim marginato, in medio dorso vix ullo, coniunctis. Mesopleura in angulo anteriore reticulata, reliqua superficie minute in longitudinem striata.

Proalae latitudine longiores proportionem 15:38, praestigmate lato, nervo postmarginali dimidiam marginalis longitudinem non attingente (proportione 3:7) et stigmatici duplam aequante; nervo hoc recurvo, clava indistincta; superficie tota pubescente pilis brevibus, conicis, acutis sat dense vestita, pilis fimbriae apicalis fere triplo longioribus. Alae metathoracis latitudine ad medium maxima 7/24 longitudinis aequante.

Pedes normales; intermedii tarso brevi, calcari 2/3 metatarsi attingente, huius spinulis 9-11 in utraque serie, articuli sequentis 5, tertii 3, quarti 1; tibia postica calcari maiore eius latitudini apicali aequilongo et 1/4 metatarsi attingente, calcari minore setas apicales haud superante. Articulorum tarsalium proportio: tarsi antici, 10:7:5:3:6—medii, 12:5:4:3:7—postici, 20:11:8:5:7.

Abdomen thoraci subaequilongum, latitudine maxima in margine segmenti 5. dimidiam longitudinem paulo superante, extremo apice de supra inspecto rotundato, ventre (in specimine) subcarinato; tergitis 1.-5. recte marginatis, integris, sexto convexo; segmentis 2.-7. aequilongis, primo duplo longiore. Terebrae valvae abdominis apicem haud superantes.

Long. 2 mm.

Specimina tria, unum abdomine carens.

*Habitat.* Silhouette: Mare aux Cochons et foresta super hunc locum.

#### GEN. *Metacalosoter*, n.

Hoc genus a *Calosotere* Walk. facile distinguitur scapo compresso, lato, feminae valde laminato-producto et pedicellum, scuti ad instar, interne obte-

gente; nervo marginali quam cellula costali longiore; setis longis, lamellaribus, frontem feminae de utroque latere ornantibus.

39. *Metacalosoter frequens*, sp. n. (figs. 37, 38).

*Femina.* Capite viridi, genis cupreis vel purpureis, interdum etiam pro parte auratis, ore cupreo vel aureo; setis frontalibus niveis; antennis nigris, pilis funiculi concoloribus, scapi lamina purpurco-nitente, clava grisea; mandibulis brunneo-ferrugineis; palpis pallide flavis; thorace abdomineque vix nitidis, submetallicis, hoc toto nigro, illo lateribus et metanoto nigro-violaceis, reliquo dorso fere toto nigro-aeneo; pedibus trochanteribus, femorum posteriorum apice, tibiae anticae margine apicali, mediae dimidio apicali, cum tarsis omnibus, flavo-griseis vel obscure luteis, reliquis partibus et tarsorum pulvillo etiam nigris; tibiis posticis interdum brunneis; proalis flavescenti-griseis, limite posteriore cellulae basalis et nervis brunneo-griseis.

Caput thorace latius proportionem 6 : 5, antice visum transversum, longitudine 72% latitudinis aequans, vertice angusto in linea ocellari posteriore 1/4 totius latitudinis baud superante; orbitis divergentibus; oculis magnis, convexis, breviter pilosis; linea ocellari inferiore 4/15 capitis longitudinis ab ore remota; fronte cum vertice continua et antrorsum declivi, in utroque latere setis longis lamellaribus, facile deciduis, ornata; genis rectis, obliquis, quam diametro orbitali maiore fere duplo brevioribus; ore late truncato; torulis eminentia parva subtriangulari separatis, inter sese spatio fere duplo quam ab orbita remotis, superne vix ultra lineam ocularem terminatis, inferne ab hac linea et margine orali aequo spatio distantibus; media facie superne leniter concava et margine arenato, dimidiam orbitarum altitudinem non superante, incerte limitata; scrobibus parvis, vix determinatis, medio coniunctis, valde obliquis et lineam ocularem paulum superantibus. Caput de latere subtriangulare, oculis fere eadem forma at margine posteriore obliquo. Ocelli in triangulum subaequilaterum dispositi, ab oculis et inter sese spatio eorum diametro minore distantes. Mandibulae parvae, 3-dentatae.

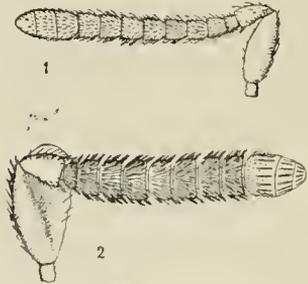


FIG. 37.—*Metacalosoter frequens*.  
1, maris antenna (× 58); 2, antenna feminae  
(× 50) de latere exteriori inspecta.

Antennae scapo laminato-compresso, lamina eius apicem superante duplo longiore quam latiore, pedicellum, scuti ad instar, in latere interiore obtegente. Pedicellus crassiusculus, dimidiam scapi longitudinem non aequans. Annellus funiculi articulis conformis at minor; articuli sequentes subaequales, compressi, fere duplo latiores quam longiores, et pedunculo brevissimo, vix conspicuo, coniuncti, pilis crassis, sat longis, instructi. Clava etiam compressa, quam praeclava haud latior et duplo longior, articulo basali vix pilosulo dimidium parum superante, apicali quam secundo brevior.

Mesonoti pars praeaxillaris area media deplanata, nec carinis limitata, at sculptura magis conspicua distincta, subtiliter et parce pilosula. Tegulae parvae, triangulares. Axillae fere nullae. Axillulae acute triangulares, lineam scutelli suturae fere attingentes. Scutellum basi lata, suturis axillarum brevibus vix obliquis, axillarum, latera eius formantibus, parallelis; apice rotundato;

pubescentia sicut in mesonoti parte praeaxillari. Dorsellum medioere. Metanotum antice et postice ad dorsellum atque petiolum excipienda semicirculariter excavatum, parte media dorsello aequilonga in longitudinem minute strigulosa. Partes laterales metathoracis fere laminares, in planum dispositae, subtriangulares, margine exteriori vix curvato, apice rotundato, spiraculis earum parti interiore magis propinquis, subrotundis, sat magnis; sculptura reticulata versus lineam mediam dorsi gradatim minutiore. Sulcus mesosternum et mesopleuram dividens conspicuus. Mesosternum parce pilosulum. Superficies partis praemaxillaris mesonoti et scutelli minute reticulata, aspectu granulosa; mesopleura in angulo supero-anteriore conspicue reticulata, reliquo spatio minutissime striata.

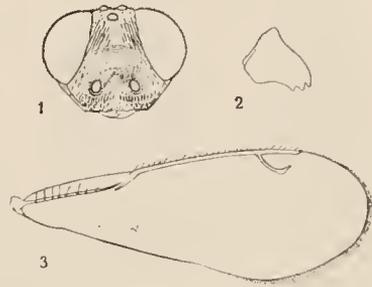


FIG. 38.—*Metacaloster frequens* ♀.  
1, caput antice inspectum ( $\times 23$ ); 2, mandibula ( $\times 58$ ); 3, proala ( $\times 40$ : fasciam glabram punctorum linea indicat).

Proalae abdominis apicem attingentes, latitudine maxima infra basim nervi stigmatici, paullum ante  $3/4$  totius longitudinis sita; cellulae costalis, nervi marginalis et postmarginalis proportione sicut  $83 : 100 : 27$ ; nervo postmarginali truncato apicem stigmatici vix superante; hoc nervo tenui, leniter curvato, clavam formante parum dilatata, vix discretam, apice acuto ad marginem alae reverso; pilis fimbriae apicalis quam illis in disco fere triplo longioribus; superficie superiore fere tota pilis sat dense vestita, his infra nervum marginalem omnibus antrorsum plus minus vergentibus, in limite posteriore cellulae basalis angustae divergentibus; superficie inferiore pilis nonnullis sparsis prope nervum marginalem instructo; nervo eubitali linea glabra dimidiam alae longitudinem non superante indicato. Alae posteriores apicem segmenti sexti attingentes, pilis in margine posteriore brevibus,  $1/8$  earum latitudinis aequantibus.

Pedes normales, intermedii calcari apice mucronato medium metatarsi non superante, articulo tarsali primo spinis 8, interdum 6 vel etiam 10 in utraque serie, munito, secundo spinis 5, tertio 3, quarto 1. Pedes postici calcari minore dimidium maioris non attingente.

Abdomen thorace fere duplo longius, angustum, apice acutum, terebrae valvis vix prominentibus; tergitis tota superficie dorsali in sculptis, 1. et 2. brevibus profunde angulatim incis. tertio emarginato, hoc et duobus sequentibus subaequalibus. Superficies fere tota fortiter reticulato-insculpta, areolis impressis, transversis.

Long. 2,6–3,7 mm.

*Mas.* Capite minus nitido, areis cuprescentibus nullis; thorace plerumque nigro-violaceo, interdum dorso nigro-viridi vel mesopleura aenea.

Caput thorace latius proportione  $5 : 4$ ; antice inspectum subcordiforme, longitudine  $75\%$  latitudinis non superans; vertice minus angusto,  $2/5$  totius latitudinis aequante, antrorsum parum declivi, cum fronte hand continuo; linea oculari inferiore a margine clypei  $2/7$  capitis longitudinis remota; genis subrectis; ore haud lato, latitudini verticis aequali; clypeo fere duplo longiore quam latiore, forma trapezoidali, interne haud discreto, lateribus carinis obtusis limitato; torulis in linea oculari dispositis, spatio eorum diametro aequali ab oculis remotis, inter sese spatio fere sesquolongiore; scrobibus haud deter-

minatis, fronte immersa. Forma capitis de latere subtriangularis, latitudine  $\frac{3}{4}$  longitudinis fere aequans, vertice subplano, orbita rotundate-triangulari latitudinem capitis totam occupante; ocellis posterioribus in medio vertice sitis, hoc cum fronte in angulum fere rectum coniuncto. Caput superne visum vertice subquadrato et latitudine prominentiam oculorum aequante, ocellis magnis in tuangulum aequilaterum dispositis, posterioribus spatio ab oculis remotis quam eorum diametro sesquialongiore. Sculptura fere ubicumque reticulata, areolis in dimidio inferiore faciei inter clypeum et torulos minutis, latera versus duplo maioribus, conspicuis; frons laevis, nitida; genae postice et tempora minute in longitudinem striata; areolae verticis sicut in epistomate.

Antennae scapo dilatato, crasso, fere triplo longiore quam latiore, de latere viso forma elliptica, basi transversim, apice oblique truncato, verticem non superante; pedicello quam scapo dimidio brevioris; articulo sequente annuliformi, longitudine sua parum latiore, reliquis septem subaequalibus, aequae longis atque latis, bene discretis; clava elliptica, articulis tribus praecedentibus aequilonga suturisque vix obliquis in articulos aequales divisa. Pili totius antenae sat frequentes, crassi, funiculi articularum longitudinem fere attingentes, leniter curvati. Scapi sculptura reticulata conspicua.

Mesonoti pars praeaxillaris superficie fere aequaliter et modice convexa, in exemplaribus exsiccatis medio tantum leniter immersa, carinis et sulcis nullis; pilis aequaliter distributis, spatio inter se remotis quam eorum longitudine paulum brevioris. Metathorax fere eadem forma quae in feminis, medio carina instructus brevi, lateribus sulcis limitata et pone mediam longitudinem bifurcata, incisuram posticam amplectente; partibus lateralibus minus versus apicem angustatis. Sulcus mesosternum et mesopleuram dividens conspicuus; sutura epimeri cum episterno vix indicata; praesternum triangulare. Latera mesothoracis areolis illis dorsi fere aequalibus; pars postica pleurae minutissime striata, sculptura 100 diam. magnificata vix conspicua. Pili mesosterni sicut in dorso, mesopleura glabra.

Proalae ultra abdominis apicem elongatae, nervo postmarginali lineam apicis nervi stigmatici non superante. Alae metathoracis abdominis apicem attingentes, pilis in margine posteriore longis,  $\frac{1}{4}$  earum latitudinis vix aequantibus, cellula costali ad hamulos extensa.

Pedes intermedii calcari medium metatarsi paulo superante, hoc autem in parte dimidia basali inermi, reliquo spatio denticulis 5 in utraque serie munito; articulo tarsali secundo denticulis 4, tertio 2, quarto 1. Pedes postici femoris apice marginem segmenti 4. abdominalis attingentes, calcari maiore latitudinem tibiae apicis non aequante, minore  $\frac{2}{3}$  maioris attingente.

Abdomen thorace paulum longius et angustius, lateribus a segmento 2. ad 4. rectis, parallelis; petiolo parvo, medio transverse carinato, parte dimidia posteriore in fovea abdominis, anteriore in incisura metathoracis recepta; segmentis margine apicali recto, haud inciso, longitudine subaequalibus, exceptis primo quam secundo sesquialongiore, sexto brevi. Pili sparsi, spatio remoti dimidiam ipsorum longitudinem paulum superante.

Long. 1,75 mm.

*Habitat.* Silhouette: Mare aux Cochons et foresta super hunc locum; "coast at Pointe Étienne."—Mahé: "Mare aux Cochons district; forest above Cascade Estate; high forest of Morne Blanc."—Praslin: Côtes d'Or Estate.

Specimina: ♀♀ viginti, ♂♂ septem.

## SUBFAM. PTEROMALINAE

(incl. *Miscogasterinae*).GEN. *Leodamus*, n.

(Miscogasterinae).

De femina huius generis nihil constat. Maris characteres qui genericae rationis esse mihi videntur, hi sunt: funiculi articuli contigui, pilis sat dense vestiti, primus quam pedicellus longior; clava triarticulata; collare discretum; metathorax carina et plicis instructus, spiraculis magnis, ellipticis, plicis et postscutello propinquis, nuca nulla; abdomen ovatum longitudine ac latitudine subaequalibus. Genus in tribu *Trydminorum*, subtribu *Metastenororum*, adscribere licet.

40. *Leodamus onustus*, sp. n. (fig. 39).

*Mas.* Niger, facie cyanescente, scapo, alarum nervis pilisque dorsi griseo-luteis, flagello et oculis brunneis, pedibus testaceis, tarsorum apice infuscato, abdomine brunneo-aeruginoso in dimidio anteriore dorsi testaceo-maculato.

Caput thorace parum latius, proportione 6 : 5, latitudine sua sesquibrevius; antice visum vertice vix curvato, oculis glabris magnis,  $\frac{2}{3}$  longitudinis extensis, clypeo subdiscreto, margine leniter concavo, antennis in media facie insertis; de supra inspectum diametro longitudinali  $\frac{1}{3}$  transversi paullum superante, ocellis fere in lineam dispositis, posterioribus spatio duplo quam ab oculis inter se remotis; de latere forma subelliptica, diametro transverso longitudini oculi aequilongo, hoc ovato-elliptico, latitudine  $\frac{3}{4}$  eius longitudinis aequante; genis latis, teretibus, profunde sulcatis. Superficies lineis elevatis subtilibus reticulata, super verticem et occiput potius punctato-reticulata, clypeo radiatim striguloso.

Antennae scapo ocellum vix superante, flagello quam latitudine capitis parum longiore; pedicellus pyriformis longitudine  $\frac{3}{4}$  articuli primi funiculi aequans; anelli duo, parvi; funiculus articulis adpressis, sat dense hirtis, pilis dimidiam eorum latitudinem superantibus, articulo primo duplo longiore quam latiore, sequentibus gradatim brevioribus, haud crassioribus, ultimo pedicello aequilongo et latitudine sua sesquilongiore. Clava vix discreta, articulo tertio conico, articulis praecedentibus  $2\frac{1}{2}$  aequilonga.

Thorax sat robustus, latitudine  $\frac{3}{4}$  longitudinis aequans, collari bene discreto et margine anteriore acuto, postice arcuato, antice recte truncato; sulcis scapularum post  $\frac{2}{3}$  scuti longitudinis terminatis; scuto valde convexo; scutello elevato, quam scuto proportione 5 : 6 brevior, lateribus leniter sinuosis, freno haud discreto, fortiter declivi; axillis longis freni suturam attingentibus, axillulis fere verticaliter dispositis; metanoto  $\frac{1}{3}$  scutelli longitudinis haud superante, carina postice bifurcata, plicis modice arcuatis,

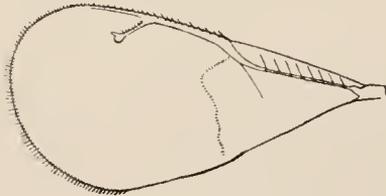


FIG. 39.—*Leodamus onustus*, ♂.  
Proala ( $\times 45$ , limite partis glabrae basalis punctis indicato).

spatio inter plicam et earinam subquadrato, nucha nulla. Spiraeula magna elliptica, postseutello tangens, plicis fere contigua. Sculptura dorsi, praesterni, mesosterni atque epimeri eadem quae capitis; episternum et metapleura minute reticulato-sulcata, nitida. Callus pilis paucis longis instructus; dorsum pilis nonnullis sparsis, tenuibus.

Proalae abdomen superantes, huius apicem stigmatibus attingentes, latae, breviter ciliatae, cellula basali et speculo omnino glabris, cellula costali pilis paucis in dimidio exteriori tantum instructa, quam nervo marginali proportione 16:11 longiore; nervo hoc quam postmarginali duplo longiore, stigmatibus 1/3 eius longitudinis nonnihil superante, et quam postmarginali fere sesquibreviore.

Calcar maius tibiae posticae huius apicis latitudinem fere attingens, calcar minus dimidio brevius.

Abdomen sessile, cordiforme, thoracis latitudini aequilongum, paulum latitudine sua longius (9:8), segmentis recte marginatis, subaequalibus, fere glabris, superficie reticulato-sulcata.

Long. 1,8 mm.

*Habitat.* Silhouette: Mare aux Cochons.

Specimen unicum.

#### GEN. *Dinarmolaelaps*, n.

(Miscogasterinae).

Quae sit huius generis ad cetera *Miscogasterinarum* relatio difficile est decernere. Species cuius descriptio sequitur *Dinarmo* characteribus nonnullis accedit, at metathorace differt, cui structura est *Lelapinorum*: hi vero seapulis plane discretis distinguuntur. Schulz (*Spolia Hymenopterologica*, Paderborn, 1906. p. 144) nomen *Lelaps* in *Dilaelaps* mutavit, itaque *Laelapinos* vel *Dilaelapinos* scribere oportet.

Genus subtribui *Metasteninorum* satis convenit, eiusque characteres praecipui hi sunt: clypeus obtuse bidentatus; antennae 13-articulatae, feminae 3-annulatae; pronoti collare subdiscretum; scapularum sulci in 1/3 posticae obsolete; metanotum plicis sinuatis, earina destitutum, at secundum lineam mediam obtusissime plicatum; proalae cellula costali angusta, nervo marginali huius dimidium vix aequante, postmarginali quam stigmatibus duplo longiore. Tibiae posticae bicalcaratae. Abdomen feminae longitudinem thoracis eum capite superans, maris spatulatum, breviter petiolatum.

#### 41. *Dinarmolaelaps protus*, sp. n.

*Femina.* Nigra, abdominis dorso basi viridi, reliquo eurescente; oculis rubris, seapo, tibiis tarsisque fulvis, flagello, coxis, femoribus et alarum nervis brunneo-luteis, alis leniter infuseatis.

Caput magnum, crassum, thoracis sesquialtius. antice visum latitudine quam longitudine latiore, proportione 9:7, vertice convexo, oculis glabris, horum diametro maiore 5/7 longitudinis aequante, linea oculari infra 1/3 longitudinis sita; clypeo incerte limitato, lateribus tantum impressione laevi subdiscreto, in medio margine externo bidentato, dentibus brevibus, obtusis et fovea sat profunda separatis; facie convexa, antennis ad medium huius insertis,

fere contiguus. Forma capitis de latere, elliptica, latitudine  $5/7$  longitudinis aequante; genae haud compressae. Vertex superne inspectus teres,  $2/3$  latitudinis occupans, ocellis in angulum valde obtusum dispositis, externis ab anteriore et ab oculis aequo spatio remotis. Superficies minute at perspicue reticulata, inferius strigis ab ore ultra clypeum radiantibus sulcata.

Scapus tenuis, ocellum anteriorem attingens; flagelli longitudo latitudinem capitis paullum superans; pedicellus latitudine sua fere sesquilongior; articuli tres sequentes annuliformes, simul sumpti  $2/3$  pedicelli longitudinis extensi, primus vix conspicuus, tertius quam secundus paullum maior; articuli quinque funiculi bene discreti, primus pedicello aequilongus at latitudine huius sesquialior, reliqui gradatim crassiores, ultimus quadratus; clava articulis praecedentibus  $2\frac{1}{2}$  aequilonga, latitudinem praeclavae paullo superans.

Pronotum collari subdiscreto; sulci scapulares leniter impressi, in  $1/3$  postica obsoleti; scutum aequae longum atque latum, quam scutellum vix longius; hoc basi angusta dimidium eius latitudinis maximae aequante; axillae longae, in angulo anteriore externo fovea rotundata excavatae; pars media metanoti etiam elongata, scutello sesquibrevior, latitudinem suam longitudine superans, lateribus plicis leniter sinuatis limitata, secundum lineam mediam longitudinalem angulum obtusissimum formans, postice obtruncata, prominens, collari angusto terminata, fovea rotunda antice in angulis externis impressa. Sculptura dorsi, mesosterni ac episterni illi capitibus similis; metanoti reticulato-squamosa magis conspicua; collare metathoracicum fere laeve, punctis minutissimis inculptum; episternum nitidum; metapleura fere nitida, subtiliter ac minute reticulata.

Proalae magnae, breviter ciliatae, cellula costali angusta, nervo marginali  $3/7$  costae aequante, quam stigmaticeo magis quam duplo longiore, proportione  $22:9$ , hoc versus apicem sensim latiore in clavam desinente rotundatam, dente brevi instructam; nervo postmarginali quam stigmaticeo duplo longiore, cellula basali glabra extus serie setarum nervum indicantium limitata, area speculari secundum nervum marginalem et paullum infra hunc elongata. Alae metathoracis cellula costali dimidium nervi marginalis attingente.

Pedes haud robusti, postici coxis in latere exteriori fortiter compresso-acutis et pilis paucis in dimidio inferiore instructis, tibia calcareibus duobus munita, altero  $3/4$  metatarsi aequante, altero quam hoc dimidio brevior.

Abdomen quam thorax eum capite fere sesquilongius, acuminatum, in specimine exsiccato triquetrum; segmentis, praeter basale maius, subaequalibus, valvis apice prominentibus segmento ultimo aequilongis; superficies fere tota concinne ac minute striato-reticulata, segmentum basale tamen dorso laevi, nitido.

Long. 2.5 mm.

*Mas* oculis, scapo, femoribus, tibiis posticis alisque obscurioribus, coxis nigris, abdominis dorso basi haud virescente; oculis ex latere inspectis ellipticis; antennis annellis duobus brevibus arete contiguus, articulo primo funiculi quam latitudine sua duplo- et quam pedicello sesquilongiore, sexto parum latitudine longiore, clava conica articulos duos praecedentes longitudine vix superante, haud crassiore; abdomine spatuliformi, quam thorace paullum longiore, pedunculo subcylindrico, aequae longo atque lato.

*Habitat.* Silhouette: Mare aux Cochons.—Mahé: "cultivated country at about 1,000 ft."

Specimina duo ♂♂, unum ♀.

GEN. *Habrocytus* Thomson.

Species *Habrocyti* generis habitu tantum esse similes, natura vero haud affines, Kurdjumow demonstravit, neque ego eo nomine utar nisi species quas sum descripturus non alio generi convenire nec novo nunc adscribendas judicarem. Harum mandibulae sunt ambae 4-dentatae, verum non desunt inter *Habrocytos* species nonnullae quibus dentes mandibulares eodem sint numero in utroque latere, sicut Kurdjumow recognovit: hic autem auctor dentium numerum in *Chalcididum* generibus definiendis etiamque in speciebus recognoscendis, parvi momenti esse opinatur.

42. *Habrocytus morio*, sp. n.

*Femina*. Nigra, oculis concoloribus, abdominis dorso vix cuprescente, pro parte eyanescente; scapo pallide flavo-griseo, versus apicem obscuriore, flagello usque ad medium articuli quinti flavo-rufo, reliquo spatio nigro; proclis pone cellulam basalem umbra flavescenti-grisea, sub stigmati macula rotundata eisdem coloris, parum conspicua, ornatis, nervis griseo-fuscis; femoribus brunneis, tibiis tarsisque pallide flavo-griseis, illis ad medium, his apice infuscatis.

Caput magnum, crassum, thoracem latitudine superans proportione 7 : 5; antice visum longitudine sua latius proportione 4 : 3, oculis magnis, glabris, sat prominulis; linea oculari inferiore ad 4/5 eapitis longitudinis sita; genis brevibus, obliquis, clypeo apice bidentato, dentibus triangularibus contiguis; mandibulis 4-dentatis, dentibus duobus internis haud acutis; antennarum torulis fere contiguis, ad medium faciei in lineam post 3/4 oculorum longitudinis sitam dispositis. Vertex teres, sed inter ocellos minus rotundatus, ocellis posterioribus eodem spatio ab oculis quam inter se remotis, anteriore lineae posterioribus tangenti contiguo. Forma capitis de latere elliptica, latitudine 5/8 longitudinis aequante; oculis longe ovatis, in diametro longitudinali quam in transverso sesquilingioribus (37 : 25); genis bene rotundatis, vix conspicue sulcatis. Superficies fere tota lineis elevatis reticulum formantibus insculpta, areolis frontis elongatis, plerumque rhombicis; strigae a clypeo radiantes valde tenues atque confertae.

Scapus subrectus, ocellum anteriorem fere attingens; flagellum latitudini capitis aequilongum, crassiusculum, subclavatum, articulis adpressis, ultimis funiculi et clava fere duplo quam pedicello crassioribus. Anelli subaequales, cylindrici, sat conspicui. Funiculus articulo primo quam pedicello fere sesquilingiore, sequentibus usque ad quintum sensim brevioribus et latioribus, ultimo magis dilatato, aequae longo atque lato, quam pedicello haud longiore. Clava articulis tribus praecedentibus aequilonga, quam praeclava paulum latior, apice acuto.

Thorax sat robustus, latitudine 3/5 longitudinis attingens. Cellare supra angustum, lateribus dilatatum et secundum lineam margini anteriori parallelam elevatum. Metanoti area media cordiformis, haud carinata, superficie leniter convexa et lateribus immersa, ita ut partes laterales externae metathoracis margine elevato plicae sinuosas efficiunt; foveolae huius areae prope dorselli extremitates amplae at parum profundae et incerte limitatae; zona nitida postscutelli foveis rotundis inter se remotis, ternis in utroque latere, impressa; nuca magna, subcylindrica, fere duplo latiore quam longiore. Spiracula elliptica, sat magna. Callus pilis paucis longis. Mesothoracis dorsum reticulatum,

modice vitro auctum punctatum, scabrum; areolis fere omnibus aequalibus, nusquam elongatis, fundo haud polito. Metathorax reticulo magis minuto insculptus, nucha tantum transverse rugosa. Episternum reticulo fere inconspicuo.

Proalae nervo marginali quam cellula costali fere sesquibreviore, stigmatico  $\frac{2}{5}$  eius aequante, postmarginali quam hoc longiore, proportione 5 : 3, quam marginali brevior, proportione 5 : 7; cellula costali in  $\frac{1}{3}$  ultimo pilis brevibus instructa, cellula basali tota parce pilosa, speculo huius altitudinem non superante formaque rhomboidali, angulo anteriore externo nonnihil producto; pilis apicalibus brevibus. Alae metathoracis cellula costali sat lata, nervo marginali confertim rigido-setoso. Coxae posticae pilis quibusdam longis ad medium lateris posterioris instructae.

Abdomen longitudinem thoracis cum capite vix superans, in dimidio anteriore triquetrum, de supra inspectum  $\frac{3}{4}$  thoracis latitudinis aequans, forma lanceolata, versus basim et apicem aequaliter angustatum, extremo apice acuto; segmentis praeter secundum subaequilongis, hoc  $\frac{1}{4}$  longitudinis primi non superante. Superficies haud polita, sed sculptura inconspicua (?), basi tantum brevi spatio nitida, in segmentis tribus apicalibus breviter pilosula.

Long. 3,5 mm.

*Mas.* Differt flagello fusco, abdominis dorso in dimidio anteriore macula brunneo-lutea notato, tibiis anterioribus luteis, posticis praeter basim et apicem brunneis; funiculo articulis aequae latis, usque ad quartum longitudine subaequalibus, duobus ultimis quam primo sesquibrevioribus, simul sumptis clavae aequilongis; abdomine thoraci aequilongo, superficie reticulato-sulcata, inter segmentum primum et sextum lateribus rectis, segmento quinto latissimo.

Long. 1,5-1,7 mm.

*Habitat.* Praslin: Côtés d'Or Estate.

Specimina duo ♂♂, unum ♀.

#### 43. *Habrocytus cyanescens*, sp. n.

*Femina.* Obscure cyaneo-grisea, vertice episterno et metapleura virescentibus, subauratis; abdomine nitido segmento basali et lateribus viridibus, dorso eupresenti-nigro; oculis brunneo-rufis, scapo cum pedicello ferrugineis, funiculo et clava fuscis; alarum nervis griseis; pedibus flavo-rufis, femoribus ad medium fusco-maculatis vel umbratis, tarsis pallidis apice infuscatis.

Caput magnum, thorace latius proportione 14 : 11, antice visum longitudine  $\frac{5}{7}$  latitudinis aequante, vertice vix arcuato, oculis  $\frac{4}{5}$  fere longitudinis extensis, glabris, sat prominulis; genis brevibus in dimidio inferiore immersis; clypei parte media concavo-marginata prope marginem impressa; mandibulis 4-dentatis, dente basali magno rotundato-truncato, ceteris acutis, apicali evidenter quam ceteris longiore; antennis in media facie ad  $\frac{1}{3}$  altitudinis orbitalium insertis. Forma capitis de latere inspecti elliptica, inferne truncata, latitudine sesquilongior, oculis ovatis diametro transverso  $\frac{3}{4}$  latitudinis et  $\frac{5}{7}$  eorum diametri longitudinalis aequante; genis subtiliter sulcatis. Caput de supra inspectum compressum, diametro longitudinali  $\frac{1}{4}$  transversi haud superante, ocellis sat magnis, anteriore lineae posterioribus tangenti contiguo, his ab orbitis minus quam inter se remotis (proportione 7 : 10). Superficies lineis elevatis minute reticulata, glabra, areolis fere ubicumque aequalibus, fundo nitidis, infra lineam

ocularem et super tempora tantum elongatis; strigis clypeum parum superantibus.

Scapus rectus, ocellum anteriorem attingens; anelli aequales, simul sumpti dimidiam pedicelli longitudinem aequantes; articulus primus funiculi pedicello inconspicue longior, sequentes sensim breviores, parum latiores, ultimus  $5/8$  longitudinis primi aequans, vix latitudine sua longior. Clava articulis duobus praecedentibus aequilonga, paullum latior.

Thorax latitudine sesquolongior, collari angusto, de supra inspecto lateribus haud parallelis sed fortiter retro convergentibus et cum parte antica prothoracis angulum acutum formantibus; dorso inter scutum et scutellum valde depresso; scutello quam scuto vix brevior et quam metanoto, absque dorsello, duplo longiore. Area media metanoti cordiformis late truncata, id est trapezoidalis angulis anterioribus rotundatis; latitudine sua latior proportione  $5:3$ ; parte tertia postica nucham formans incerte antrorsum limitatam; carina vix elevata; foveis prope dorselli extremitates rotundis, magnis, diametro  $1/5$  arcae latitudinis aequantibus; plica utriusque lateris post foveam recto-lineari, super nuchae latus desinente, in angulo huius anteriore cryptam profunde excavatam extus limitante. Spiracula magna, elongata. Superficies dorsi item atque capitis reticulata, glabra; metanoti area media sculptura magis minuta; episternum et metapleura nitida.

Proalae basi glabrae, cellula costali quam nervo marginali longiore, proportione  $5:3$ , pilis uniseriatis, nervo postmarginali  $2/3$  huius haud superante, stigmatico  $3/5$  postmarginalis et  $1/2$  marginalis aequante, speculo extus recte limitato, pilis marginis apicalis brevissimis.

Coxae posticae ad medium lateris posterioris longe pilosae.

Abdomen thoraci cum capite aequilongum, latitudine  $4/5$  thoracis vix aequans, basi triquetrum; de supra inspectum elongate ovato-acutum, segmentis 2. et 3. aequalibus, simul sumptis basali convexo-marginato aequilongis, segmentis 4.-6. huic subaequalibus; apice parce pilosulo, superficie subnitida, sulcato-reticulata, in segmento basali tantum laevi et magis nitente.

Long. 3 mm.

*Habitat.* Mahé: "near Morne Blanc."

Specimen unicum.

#### GEN. *Bruchobius* Ashmead.

#### 44. *Bruchobius medius*, sp. n.

*Femina.* Griseo-viridis, metallica, fere chalcea, capite thoraceque subnitidis, abdomine fere toto obscuriore, nitido; oculis obscure rubris, scapo, pedicello annellisque duobus primis griseo-luteis, anello ultimo, funiculo et clava brunneis, alarum nervis pallidis, grisescentibus, femoribus brunneis, genubus, tibiis tarsisque flavo-albidis, his articulo apicali infuscato.

Caput magnum, crassum, thorace paullum latius, antice visum rotundatum et longitudine  $5/6$  latitudinis aequans, oculis glabris, antennis in media facie paullum supra lineam ocularem insertis, clypeo truncato; de supra inspectum duplo latius quam in medio longius, ocellis in angulum acutum dispositis, externis inter se remotis spatio duplo quam distantia ab oculis, hac distantiae ab oculo anteriore aequilonga; de latere inspectum vertice aliquantulum angustato, bene rotundato, facie inferius magis elevata, oculis subellipticis, id est supra

et infra minus late curvatis et diametro maiore oblique disposito, hoc latitudini capitis fere aequali. diametro autem transverso  $\frac{3}{5}$  longitudinalis haud superante.

Antennae scapis fere contiguis, rectis; flagello latitudinem capitis vix aequante; annellis tribus, ultimo duplo latiore quam longiore; funiculo sat crasso articulisque sensim latioribus, primo quam pedicello paullum longiore, secundo  $\frac{3}{4}$  primi haud superante et pedicello aequilongo, sexto vix latitudine longiore; clava articulis duobus praecedentibus aequilonga; articulorum sensillis linearibus paucis, nusquam pluriseriatis.

Sculptura dorsi confertim, profunde et sat grosse punctata, super metathoracem item atque super caput magis minuta, punctis etiam minus fortiter impressis. Pili dorsi et capitis breves, rigidi, albi.

Thorax robustus, dorso in dimidio anteriore planiusculo, collari lato,  $\frac{1}{3}$  longitudinis scuti attingente, bene discreto, in parte media haud acute marginato; sulcis scapularum non ultra  $\frac{2}{3}$  scuti longitudinis extensis, hoc quam latitudine sua maxima sesquibreviore et scutello aequilongo; freno haud discreto; latitudine et longitudine scutelli aequalibus; metanoto dimidiam scutelli longitudinem paullum superante, carina et plicis destituito, foveolis duabus rotundatis parvis at satis profundis prope dorselli extremitatibus excavatis; nucha parum prominente, antice impressione laevi incerta limitata; spiraculis mediceribus latitudine sesquilongioribus; angulis posticis metathoracis sat longe pilosis. Praesternum parvum.

Proalae cellula costali quam nervo marginali longiore, proportione  $\frac{4}{3}$ , hoc et postmarginali incerte limitato subaequilongis, stigmatico quam marginali fere sesquibreviore, proportione 11:17, clava sat magna haud rotundata terminato; pilis apicalibus brevibus. Alae metathoracis in parte basali fortius angustatae, latitudine maxima ad  $\frac{1}{3}$  longitudinis, cellula costali lata.

Abdomen longitudinem thoracis cum capite aequans, quam thorax minus latum, de supra inspectum ovali-acutum, segmento basali  $\frac{1}{4}$  longitudinis formante, secundo brevior, tertio primo aequilongo, quarto et quinto, simul sumptis, secundum itemque sextum aequantibus. Superficies laevis, nitida, in segmento sexto tamen reticulato-sulcata.

Long. 1,9 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

#### GEN. *Micromelus* Walker.

##### 45. *Micromelus affinis*, sp. n.

*Mas.* Niger, abdomine cuprescente, pedibus eum coxis, scapo, pedicello annellisque flavis, funiculo et clava flavo-fuscis, oculis brunncis, ocellis pulchre rubris, vertice cyanescente-nigro, facie cum genis totis, metanoto abdominisque basi obscure viridibus, alarum nervis flavo-griseis.

Caput magnum, crassum, thorace latius, oculis glabris, haud prominulis, dimidium longitudinis extensis, de latere inspectis subrotundis; genis perspicue sulcatis; vertice in longitudinem et latitudinem sat curvato, superne viso  $\frac{4}{5}$  latitudinis capitis aequante; ocellis in angulum obtusum dispositis, posterioribus ab anteriore et orbitis aequo spatio, inter se spatio duplo quam ab orbitis, remotis; occipite concavo, haud limitato.

Flagellum latitudinem capitis aequans ; pedicellus latitudine sua fere duplo longior ; anelli tres simul sumpti dimidium pedicelli vix superantes, duo primi aequales, tertius fere duplo longior ; funiculi articuli quinque pedicello aequilongi et latitudine paulum latiores, sensillis linearibus pilisque longis instructi ; clava articulis praecedentibus  $2\frac{1}{2}$  aequilonga.

Thorax  $\frac{4}{5}$  latitudinis capitis aequans, de latere inspectus pronoto subverticali, scuto atque dorsello in eodem plano dispositis, aequaliter curvatis et aequilongis ; metanoto, cum nucha, quam his haud brevior et anguli recti dimidium declivitate formante. Prothorax superne inspectus conico-obtruncatus, basis latitudine duplam longitudinem aequans ; margine anteriore angulo obtuso in medio excavato et costis duabus parallelis instructo ; collari angusto, antice recte terminato, margine subacuto. Sulei scapulares antice tantum indicati. Metanotum de supra inspectum triangulare, apice truncatum, nucham tegularem formans a reliqua superficie haud discretam ; plicae subtiles, spiraculis proximae, vix conspicuae ; spiracula minima, oblonga, a postscutello paulum remota.

Proalae nervo stigmatico in clavam haud parvam desinente, quam nervo marginali sesquibreviore (8 : 13), hoc et postmarginali aequilongis, cellula basali et speculo glabris, margine sat longe ciliato.

Sculptura capitis et dorsi reticulata, areolis sat magnis, plerumque regulariter hexagonalis, fere ubicumque aequalibus, reticulo strigis parum elevatis, in latitudine convexis, formato. Dorsum setis perpauca longis instructum.

Abdomen longitudinem capitis cum thorace aequans, huius latitudinem vix superans, ovato-acuminatum, segmento basali parvo  $\frac{1}{5}$  totius longitudinis extenso, nitido, in margine postico convexo, segmentis reliquis transverse reticulatis, 3.-5. aequalibus.

Long. 1,45 mm.

*Habitat.* Silhouctte : Mare aux Cochons plateau.

*Adn.* Haec species *Micromelo elongato* Thoms. peraffinis videtur.

Specimen unicum.

#### GEN. *Phaenacra* Förster.

##### 46. *Phaenacra eurycephala*, sp. n.

*Femina.* Capite thoraceque nigris, albo-pilosis, abdomine supra brunneo-cuprescente, in segmento basali pallidiore ; oculis rufo-brunneis ; pedibus, alarum nervis, scapo in dimidio apicali, pedicello annellisque griseo-luteis, scapi dimidio basali albido ; funiculo brunneo-luteo, albo pubescente, clava brunnea articulo ultimo pallido.

Caput magnum, thorace latius proportione 8 : 5, antice visum longitudine  $\frac{3}{4}$  latitudinis aequante, facie satis convexa, vertice lato,  $\frac{2}{3}$  totius latitudinis extenso, oculis glabris, haud prominulis, linea oculari inferiore paulum infra medium longitudinis sita, genis fortiter curvatis, peristomio parvo, clypeo apice medio inciso-bidentato ; de latere inspectum subellipticum longius quam latius proportione 7 : 4, vertice aliquantulum angustato, oculis ovatis, diametro transverso quam longitudinali sesquibreviore, genis subtiliter sulcatis ; superne visum longitudine partis mediae  $\frac{1}{3}$  latitudinis aequante, ocellis in angulum obtusum dispositis, posterioribus ab anteriore et oculis aequae distantibus, inter se spatio

sesquolongiore remotis, vertice haud postice limitato. Superficies in dimidio inferiore faciei strigulosa, reliquo spatio sculptura reticulata parum conspicua.

Antennae in linea oculari insertae, scapis linearibus contiguis ocellum vix superantibus. Flagellum quam latitudo capitis paulum brevior; pedicellus conicus, duplo longior quam latior; anelli subaequales; funiculi articuli tres primi aequilongi, quam pedicellus vix breviores, gradatim crassiores, primus apicis latitudine pedicellum haud superans; articuli tres ultimi longitudine decrescentes, sensim crassiores, sextus quadratus; clava articulis tribus praecedentibus aequilonga, suturis vix conspicuis.

Thorax brevis, altus, collari marginato; scutello elevato, aequale lato atque longo; dorsello foveola punctiformi in utroque latere prope eius extremitates impressa, a metanoto haud costa separato; metanoto sine carina nec plicis, in parte media antice areolis duabus notato rotundis, depressis, et dorselli extremitatibus contiguis, postice nucha instructo satis magna at parum prominente, in utroque latere areolis depressis limitata. Spiracula parva, subrotunda, a postscutello remota. Collare transverse strigulosum; sculptura dorsii fortiter impressa, reticulato-punctata, super metanotum areolis dimidio quam in scutello latioribus. Pili super dorsum sat frequentes, crassi, longiusculi.

Proalae cellula costali quam nervo marginali duplo longiore, nervo stigmatico dimidium marginalis aequante, nervo postmarginali inerte terminato, quam marginali haud brevior, speculo sub praestigmate non limitato.

Coxae posticae parvae, pilis paucis longis in latere posteriore instructae.

Petiolus transversus.

Abdomen longitudinem thoracis cum capite superans, latitudinem thoracis fere aequans, elongate ovato-acutum, segmento basali parvo 1/6 longitudinis occupante, nitido, in margine postico convexo, segmentis 2.-5. subaequalibus, fere laevibus.

Long. 2 mm.

*Habitat.* Anonyme Island ("a cultivated islet near Mahé").

*Adn.* Hanc speciem generi *Phaenacrae* attribuendam iudicavi, etsi capitis latitudine, illam abdominis superante, et proalarum nervis, a *Phaenacra nubigera* Först., quae typus est generis, differret. *Homoporus* Thoms., *Uriella* Ashm., nec non *Tropidogastra* Ashm., Kurdjumowi iudicio idem sunt atque *Phaenacra* (*Revue russe d'Entom.* xiii. 1913. No. 1. p. 3). Species autem quam nunc descripsi, a typis horum generum his characteribus praecipue differre videtur: ab *Homoporo fulviventre* (Walk.) capite quam thorace latiore et clypeo apice inciso, ab *Uriella rufipede* Ashm. nervo marginali quam stigmatico longiore, a *Tropidogastra arizonensi* Ashm. metanoto carina instructo.

Specimen unicum.

#### GEN. *Merallus*, n.

Genus *Micromelo* et *Phaenacrae* intermedium, ab illo nucha fere nulla distinguitur; characteres eius praecipui sunt flagellum 3-annulatum stigmaque proalarum crassum. Species typica habitu, etiam colore, *Phaenacrae eurycephalae*, quam nuper descripsi, similis est.

#### 47. *Merallus phaenacroides*, sp. n. (figs. 40, 41).

Species praecedenti haud congener, habitu et colore similis, sed alarum clava conspicua antennisque in femina triannulatis facile distinguenda.

*Femina.* Nigra, abdominis leniter cupreseantis basi cum metanoto nigro-viridibus, pilis albis: oculis brunneo-rufis. scapo, pedicello et elava fere tota griseo-luteis, funiculo lutescenti-brunneo, griseo-pilosulo; femoribus fuscis, tibiis pallide flavis versus apicem, cum tarsis, albis, his apice infuseatis; alarum nervis flavo-griseis.

Caput thoracem latitudine superans, hae quam longitudine sua paullum maiore; oculis glabris parum prominulis, dimidio fere longitudinis extensis, de latere inspectis supra et infra minus rotundatis; facie convexa, antennis mox supra dimidium huius insertis, linea oculari inferiore  $1/3$  capitis longitudinis ab ore remota; ocellis in angulum obtusum dispositis, externis ab anteriore paullum minus quam ab oculis remotis, inter se spatio duplo quam distantia ab oculis. Longitudo capitis superne inspecti  $3/8$  latitudinis in medio aequans. Superficies sculptura reticulata conspicua, elypeo tantum strigoso.



FIG. 40.—*Merallus phaenacroides*, ♀.  
Antennae pars ( $\times 130$ ).

Seapus ocellum anteriorem vix superans; flagellum latitudinem capitis aequans, pilis longiusculis. Anelli tres simul sumpti quam pedicellus vix breviores, duo primi subaequales, tertius fere duplo longior. Articulus primus funiculi pedicello paullum latior at fere duplo longior, articuli sequentes gradatim curtantes et crassiores, ultimus quadratus. Clava exsiccata compressa, quam articulus primus funiculi nonnihil longior, quam praelava latior et dupla longitudine.

Thorax haud brevis, latitudine  $3/4$  capitis haud superans, collari valde angusto sed bene discreto, metathorace earina et plicis destituto, nucha fere nulla, haud prominente, collare parvum formante, metanoti areolis rotundis prope dorselli extremitates leniter impressis et limite incerto, spiraculis parvis parum elongatis. Mesothoracis dorsum lineis elevatis crassis reticulatum formantibus, quam in capite magis conspicuum; metathorax reticulo lineis elevatis subtilibus insculptus. Prothoracis collare punctulatum. Pili super dorsum rari, crassi, longiuseuli.

Proalae nervo marginali  $3/4$  cellulae costalis aequante, postmarginali eadem proportione quam marginali brevior, quam stigmatico duplo longiore, hoc elava sat magna, haud rotundata, terminato.

Abdomen triquetrum, longitudinem thoracis eum capite aequans, latitudine quam thoracis minore, de supra inspectum elongate ovato-aetum, segmento primo  $1/5$  longitudinis paullum superante, 2. et 3. aequalibus simul sumptis primo aequilongis, reliquis longioribus. Superficies transverse reticulata.

Long. 2 mm.

*Mas.* Niger vel nigro-viridis, metathoracis partibus quibusdam aliisque saepe auratis, abdominis segmento basali in medio dorso flavido, clava funiculo concolori, tibiis pro parte infuseatis. Flagellum longum, thoracem eum capite longitudine fere aequans, pilis longis instructum, articulorum latitudini subaequalibus. Pedicellus brevis; anelli duo, parvi; funiculi articulus primus quam pedicellus triplo longior, haud latior, articuli sequentes sensim breviores et crassiores, sextus dimidiam primi longitudinem vix superans et latitudine paullum maior; elava articulo hoc duplo longior. Abdomen thorace paullum brevius,



FIG. 41.—*Merallus phaenacroides*, ♀.  
Proalae nervi ( $\times 43$ ).

lateribus vix curvatis, latitudine maxima evidenter post medium sita, segmento basali  $1/3$  longitudinis formante.

Long. 1,47–1,5 mm.

*Habitat.* Mahé: Cascade, "all from cultivated country near sea-level."

Specimina tria ♂♂, unum ♀.

#### GEN. *Notoglyptus*, n.

Hoc novum genus etiam in Italia occurrit. Specimina duo, utraque masculina, observavi, aspectu valde similia, at speciebus diversis pertinentia, quorum alterum in Liguria a dominis Bensa et Solari inventum, alterum seychellense, in Insula Mahé captum. Huius faciei formam, genas, clypeum atque thoracis latera examinare non potui et in descriptione praetermisi, quare species italica, mihi melius cognita, generis typus erit; ab ea genericam diagnosim deducam. Quae haec est: Caput vertice lato, ocellis in angulum obtusum dispositis, genis in dimidio inferiore excavatis, ore angusto, clypei margine prominente, integro, mandibulis validis (sinistra 3-dentata?) acute ac longe dentatis, maxillarum palpis normalibus; flagello sat longe pilosulo. Thorax pronoti collari acuto, scutello pone axillarum suturas alveolis nonnullis, medio dorso fovea elliptica, juxta freni suturam foveolis numerosis transversim subseriatis, excavato; dorsello transversim sulcato; metanoto carina et plicis, rectis, subparallelis instructo; spiraculis rotundis a postscutello parum remotis; mesosterno, mesepimero ac metapleura haud laevibus. Proalae nervo basali parce pubescente, nervo marginali tenui, postmarginali quam stigmatico duplo longiore. Petiolus elongatus coxas superans, reticulo minuto insculptus, huius areolis elongatis. Abdomen segmentis post secundum retractis. Genus *Cryptoprymno* valde proximum, at seapulis sicut in *Merismo* plane discretis et scutelli alveolis foveisque bene distinctum.

Specierum huic generi pertinentium mares ita distinguas:

*N. niger*—♂: niger, funiculi articulis omnibus elongatis, primo latitudine duplo-, ultimo sesquilongiore; metanoto inter earinam et plicas aequaliter insculpto;

*N. virescens*—♂: obscure viridi-aeneus, thoracis foveis, petiolo abdomineque nigris; funiculi articulo primo latitudine sesquilongiore; metanoto inter carinam et plicam utriusque lateris area rotundata speculari.

#### 48. *Notoglyptus virescens*, sp. n. (figs. 42, 43).

*Mas.* Obscure viridi-aeneus, his partibus etiam obscurioribus, fere nigris: capite praeter tempora, genas et zonam juxta marginem anteriorem orbitae, mesoscuto praeter zonas marginales, axillulis foveis alveolisque omnibus dorsi metanoto praeter aream subnitidam inter earinam et plicam, utriusque lateris: foveis alveolisque omnibus dorsi et abdomine cum petiolo nigris. Oculi rufobrunnei; antennarum seapus, mandibulae, tegulae et alarum nervi, pallide flavo-grisei; flagellum flavo-fuscum; pedes cum coxis lutei.

Caput sat magnum, crassum, thoracis latitudinem vix superans, antice visum oculis haud prominulis, glabris,  $2/3$  eius longitudinis extensis, facie leniter convexa, antennis in linea oculari insertis; de supra inspectum diametro longitudinali dimidium transversi fere aequante, vertice subplano postice haud marginato, ocellis in angulum obtusissimum dispositis, externis inter se paullum

magis quam ab oculis remotis; de latere, ovatum, inferne truncate, temporibus genisque latis, his earina obliqua divisus ex parte inferiore orbitae retrorsum decurrente, oculis latitudine sesquilongioribus, forma etiam ovata. at in dimidio inferiore postice recte marginatis. Superficies capitis lineis subtilibus reticulata, zona juxta marginem anteriorem orbitae, temporibus genisque, fere

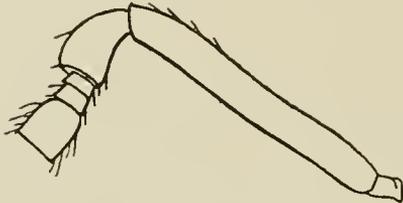


FIG. 42.—*Notoglyptus virescens*, ♂.  
Antennae pars ( $\times 130$ ).

laevibus. Antennae sat longae atque tenues; scapo subrecto ocellum haud superante; flagello thoraci aequilongo, pilis longitudine articulos funiculi aequantibus; pedicello latitudine sua fere duplo longiore; annellis duobus, aequalibus, simul sumptis quam articulo sequente dimidio brevioribus; haec pedicelli latitudinem paullo superante eiusque longitudine paulum minore;

reliquis funiculi articulis sensim brevioribus, at sensim crassioribus, ultimo subquadrato; clava articulis praecedentibus  $2\frac{1}{2}$  aequilonga.

Thorax superne inspectus pronoto cuplo latiore quam longiore, collari in medio dorsi valde angusto, antice recte marginato; mesoncti parte praecaxillari brevi, triplo latiore quam longiore, scapulis plane discretis, triangularibus fere aequaliteris; scuto antice duplo quam postice latiore; scutello quam scuto duplo longiore, latitudine sua sesquibreviore; axillis fere contiguis et axillulis magnis, his prope alae metathoracis radieulam mucronem conspicuum formantibus; dorsello lineari transverso; metanoti parte media scuto aequilonga, postice in nucliam obtruncatam producta, medio obtuse carinata, lateribus plicis limitata fere totis rectis et in tertio posteriore tantum curvatis; spiraculis rotundis a postscutello et plicis satis remotis; callo parce at longe pilosulo. Pronotum transverse strigulosum, reliquum dorsum reticulatum, certis locis alveolis subquadratis vel foveis rotundis excavatum. Arcolae reticuli super scutellum et scutum maiores, in hoc lineis elevatis, prope margines tamen minus conspicuis, salientibus, determinatae. Sulei scapulares serie singula alveolorum impressa. Scutellum nitens, basi alveolis sex excavatum, quorum duo mediani minores, in limbo apicali arcuato et in linea frenum limitante foveis impressum contiguis, seriatis. Pars media metancti reticulo insculpta ex lineis elevatis, sicut super scutum, formato.

Proalae longitudine corpus cum capite aequantes, haud latae, basi fere omnino glabrae, reliquo spatio parce pubescentes, apice sat longe ciliatae: cellula costali in margine glabra, in superficie angusta pilis uniseriatis; cellula basali postice tantum pilorum serie limitata; speculo non infra nervum marginalem extenso; hoc dimidio quam cellula costali brevior et nervo postmarginali fere aequilongo, stigmatico dimidium postmarginalis aequante. Alae metathoracis angustae, cellula costali basalem non superante, nervo marginali sat lato, pilis marginis postici dimidia alarum latitudini subaequalibus.

Pedes longi, haud robusti. Coxae posticae metanoto paulum breviores, pilis paucis longis ornatae.



FIG. 43.—*Notoglyptus virescens*, ♂.  
Thoracis dorsum cum coxis  
posticis et petiolo ( $\times 45$ ).

Petiolus coxas longitudine aequans, neque propter insertionem superans, cylindricus, latitudine sua duplo longior, superficie minute granulosa.

Abdomen breve, obtuneatum, de supra inspectum forma semielliptica, de latere paullum depressum, segmentis post basale retractis et apiculum vix prominens formantibus. Segmenti basalis longitudo distantiam ab extremo anteriore thoracis usque ad scutelli frenum fere aequans, latitudo spatio hoc parum minor. Margo posticus leniter concavus, superficies laevis, nitida.

Long. 1,4 mm.

*Habitat.* Mahé: "from marshes on the coastal plain near Anse Royale."

Specimen unicum.

#### GEN. *Sphegigastrella*, n.

Hoc genus subtribui *Sphegigasterinorum* (recte *Sphegigasterinorum*) adscribere licet. Eius characteres praecipui hi sunt: flagellum annellis tribus, tertio, in maribus, quam secundo perspicue maiore; articuli quinque funiculi elongati; clava 3-articulata; sulcus scapularis in 1/3 postico obsoletus; scutellum freno haud discreto, hoc in parte eius extrema ac verticali quaerendo; metathorax carina et plicis destitutus, spiraculis ellipticis; petiolus in feminis coxis posticis brevior, in maribus aequilongus; abdomen elongatum, segmento, basali quam ceteris haud longiore. Genus a *Sphegigastro* praecipue differt articulo quinto annuliformi, genis haud compressis, petiolo quam coxis posticis non longiore, segmento abdominali secundo quam primo minore; *Eurydinotomorphae* Giraulti affine videtur.

#### 49. *Sphegigastrella longigastra*, sp. n.

*Femina.* Obscure viridis, metanoti parte media nigra; oculis rubris; flagello et alarum nervis brunneis; seapo, tegulis pedibusque praeter coxas, interdum etiam his apice, obscure luteis, vel rufescenti-luteis, femoribus posticis obscurioribus; proalis hyalinis vel infuscatis.

Caput thorace latius proportionem  $3/2$ , longitudine sua proportionem  $7:5$ ; antice visum vertice arcuato, oculis sat magnis  $3/5$  faciei longitudinis extensis, glabris; genis fortiter curvatis; clypeo medio bidentato, haud discreto; antennis supra lineam ocularem in media facie insertis, radiculis spatio inter se remotis quam oculorum prominentia sesquibreviore. Vertex teres, ab occipite haud separatus, ocellis magnis, anteriore lineae posterioribus tangenti contiguo, his spatio ab orbitis remotis quam distantia inter eos intercedente sesquilongiore. Forma capitis de latere elliptica inferne truncata, oculis late ovatis diametro transverso  $4/5$  longitudinalis aequante; genis sulcatis, teretibus. Superficies fere tota minute reticulata; clypeus radiatim subtiliter strigulosus.

Antennae tenues, seapo tenui, recto, ocellum anteriorem haud superante, flagello capitis latitudini fere aequilongo. Pedicellus duplo longior quam latior; anelli tres simul sumpti dimidiam pedicelli longitudinem paullo superantes, 1. et 2. aequales, duplo latiores quam longiores, tertius vix maior; articuli quinque funiculi pedicelli longitudinem et latitudinem paullum superantes fere duplo longiores quam latiores; clava articulis duobus praecedentibus fere aequilonga, haud latior, apice haud aeuto, articulis basali et apicali longitudine aequalibus, intermedio quam his parum longiore.

Thorax capitis longitudine fere duplo longior, prothorace sat magno, subcenico, antice in articulatione capitis marginato-limbato, collari discreto, angusto,

antrorsum declivi et margine haud prominente; suleis scapularum in  $1/3$  postica non elongatis, abrupte terminatis; scutelli freno haud discreto; metanoto scutello aequilongo, carina et plicis destituto, prope dorselli extremitates laterales fovea sat magna oblique elliptica, postice haud limitata, impresso; nucha angusta, callo parce pilosulo, spiraculis ellipticis. Mesonoti pars praemaxillaris item atque scutellum lineis elevatis conspiciue reticulata, areolis regulariter polygonis; sculptura axillarum et metathoracis prope suleum spiraculi fere obsoleta, in parte media metanoti usque ad nucham concinne alveolata.

Proalae in parte tertia basali fere omnino glabrae, reliquo spatio confertim pubescentes, speculo distincto, nervo marginali tenui, dimidium cellulae costalis longitudine aequante, postmarginali paulum brevior, leniter curvato, stigmatico quam hoc dimidio brevior, versus apicem sensim dilatato et clava haud determinata, pilis marginis brevibus. Alae metathoracis cellula costali usque ad hamulos limbo angustissimo producta.

Coxae posticae pyriformes, modice elongatae, pilis brevibus in latere anteriore ornatae, in dimidio apicali lateris posterioris longe pilosae.

Petiolus metanoto parum brevior,  $2/3$  coarum longitudinis vix attingens, basi angustus, medio globosus et fere laevis, in tertio postico subcylindricus, transverse strigulosus; de supra inspectus duplo longior quam latior, de latere in dorso sinuatus et inferne leniter convexus.

Abdomen subfusiforme, valde elongatum, duplam thoracis longitudinem aequans, latitudinem haud superans, segmento basali  $1/5$  longitudinis extenso, margine postico convexo, quinto conico et duobus praecedentibus fere aequilongo; superficie minute reticulata, areolis transversis, in segmentis tantum primo et secundo laevi, nitida; terebra haud prominente.

Long. 3,5–4 mm.

*Mas* abdomine, interdum etiam thorace, nigro-viridibus vel nigris, coxis posticis concoloribus vel item atque femoribus lutescenti-brunneis; annellis 1. et 2. aequalibus, 3. conspiciue maiore, aequae longo atque lato, annulos praecedentes longitudine aequante, quam articulo primo funiculi dimidio brevior; hoc quam pedicello paulum magis et latitudine sua duplo longiore; articulis sequentibus bene discretis, sensim brevioribus, ultimo latitudinem parum longitudine superante, omnibus sat longe pilosis; clava articulis duobus praecedentibus vix longiore; proalis apice minus breviter ciliatis; pedunculo subcylindrico metanoto et coxis posticis aequilongo, harum apicem propter metathoracis prominentiam superante; abdomine angusto, usque ad segmentum septimum elongate triangulari, longitudine thoracem cum pedunculo fere aequante, latitudine maxima prope apicem  $2/3$  thoracis attingente. Long. 2–3 mm.

*Habitat.* Silhouette: Mare aux Cochons plateau et foresta super hunc locum.—Mahé: "near Morne Blanc, including specimens from the high forest of Morne Pilot, at about 2,000 ft.; Cascade Estate, 1,000 ft."

Specimina duo ♀♀, quinque ♂♂.

#### 50. *Sphegigastrella flavipes*, sp. n.

Species praecedenti similis, sed minor, petiolo pedibusque totis luteis praecipue distinguenda.

*Femina.* Capite thoraceque griseo-viridibus, nitidis; vertice viridi-aeneo;

oculis rubris; antennis flavo-griseis praeclava et clava fuscis, vel etiam scapo obscure luteo et flagello brunneo-luteo, clava vix obscuriore; pedibus cum coxis et abdominis petiolo luteo-rufis vel luteis; abdomine pallide brunneo, leniter viridi- et cupreo-nitente: alis plus minus infuscatis, nervis griseis.

Caput quam in specie praecedente paullum latius, thoracem latitudine superans proportione 7:5. Oculi ex latere inspecti ovato-rotundati, diametro longitudinali ae transverso subaequalibus.

Annellus tertius praecedentibus manifeste maior. Funiculus articulis minus attenuatis, sensim paullo brevioribus-longioribus, ultimo fere quadrato; clava quam articulis duobus praecedentibus aliquantulum longiore atque latiore.

Sculptura dorsi sicut in specie praecedente, sed areolis maioribus harumque fundo nitido; metanotum in parte media fere tota grosse alveolatum, prope sulcum spiraculi utrinque fere laeve, nitens.

Proalae pubescentia minus conferta, apice sat longe ciliatae, nervo marginali quam cellula costali sesquibreviore, postmarginali  $\frac{3}{4}$  marginalis aequante, quam stigmatico longiore proportione 5:3, hoc quam nervo marginali fere dimidio brevior.

Coxae posticae magis elongatae, metanotum aequantes.

Petiulus coxas haud superans, his fere sesquibrevior, antice tantum paullum attenuatus.

Abdomen thoracis longitudinem et  $\frac{4}{5}$  huius latitudinis fere aequans, ad medium latissimum.

Long. 2 mm.

*Mas* differt pilis flagellum ornantibus articulis aequilongis, petiolo coxas posticas paullo superante, longitudine quintuplam latitudinem aequante, abdomine latitudine maxima post medium longitudinis sita.

*Habitat.* Mahé, Silhouette, Praslin, variis locis. "Mahé: from cultivated land at about 1,000 ft., and from endemic forest of rather stunted 'Capucin' (*Northea*) trees on summit of 'Montagne Anse Major' at about 2,000 ft.—Silhouette, from high endemic forests."

*Adn.* Huic speciei etiam attribuenda videntur specimina quinque masculina (quorum duo statura minima), petiolo cum coxis posterioribus et femore postico brunneis vel flavo-griseis.

Specimina plurima.

#### GEN. *Pachycrepis* Förster.

##### 51. *Pachycrepis spilopterus*, sp. n. (fig. 44).

*Femina.* Obscure viridis, facie et propectore, auratis; scapo cum pedicello luteis, funiculo et clava fuscis; oculis nigris; pedibus cum coxis etiam luteis, his posticis basi extus virescente; tegulis obscure luteis, proalis nervis flavo-griseis et macula magna prope stigma nigra; abdomine nigro-cyaneo.

Caput magnum, thorace latius proportione 9:7; antice visum longitudine  $\frac{7}{10}$  latitudinis vix aequans, forma fere trapezoidali, vertice convexo, genis rectis, sat longis; de latere inspectum longitudine et latitudine subaequalibus, oculis rotundatis, genis fovea magna triangulari fere totis excavatis. Clypeus interne haud limitatus, in margine exteriori triarcuratus, sinu medio aliis parum angustiore. Mandibulae magnae, dentibus acutis, externo maximo, sinistra 4-, dextra 3-dentata (?). Ocelli in angulum obtusum dispositi, externi spatio inter

se remoti quam ab oculis sesquibreviore. Superficies faciei tota punctato-reticulata, verticis minute reticulata.

Antennae paullum supra lineam ocularem in medio faciei insertae, retrorsum flexae metanotum attingentes; seapo verticem valde superante; pedicello latitudine paullum longiore, basi vix constricto; annellis brevissimis, primo minimo; funiculi articulis elongatis, pedunculo brevissimo coniunctis, pilisque eorum latitudinem fere aequantibus ornatis; articulo primo fere duplo quam pedicello longiore et latitudine sua nennihil longiore, articulis sequentibus gradatim paullum brevioribus ac latioribus, sexto vix longiore quam latiore; clava elongate ovata, articulis duobus praecedentibus haud crassiore et parum longiore, quam articulo primo funiculi sesquilongiore, suturis aequaliter tripartita.

Thorax brevis, altus; dorso valde curvato, item atque capitis vertice reticulato, super metanotum reticulo fortius insculpto; collari angusto, antice acute marginato; scutello antice zona fere plana, angusta, limitato, freno vix discreto; metanoto teeti instar in longitudinem plicato, juxta dorselli extremitates fovea ineerte limitata, haud profunda, impresso; calli fimbria fere nulla.

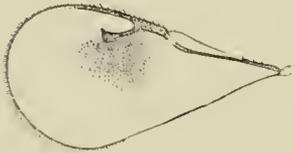


FIG. 44.—*Pachycrepis  
spilopterus*, ♂.  
Proala ( $\times 27$ ).

Proalae nervo marginali et stigmatico aequalis,  $1/3$  costae aequantibus, nervo postmarginali quam his fere duplo longiore.

Pedes postici eoxis laminato-compressis, ovatis, pilis fere omnino destitutis.

Petiolus aequae longus atque latus.

Abdominis latitudo  $2/3$  thoracis aequans, longitudo huius subaequalis.

Long. 1,5 mm.

*Mas* facie magis aurata, flagello longius pilosulo, abdominis segmento primo, sive postpetiolo, lineari, brunneo-lutco, duplam coxarum longitudinem aequante.

*Habitat.* Mahé: "Mare aux Cochons district, and country above Port Glaud."

Specimina duo ♀♀, unum ♂.

#### GEN. *Dipara* Walker.

##### 52. *Dipara rufescens*, sp. n.

*Femina.* Capite nigro, oculis concoloribus, facie inferne saepe testacea, corpore, cum coxis, testaeo-rufo et pro parte nigro, interdum fere toto rufo vel brunneo; pedibus flavo-rufis, tarsis pallidioribus apice fuscis, alis leniter griseo-seentibus vel griseo-fuscis, nervis flavo-griseis, antennarum seapo obscure luteo, flagello interdum concolore, plerumque fusco.

Caput thoracae latius proportionem  $8:7$ , antice visum longitudine  $5/6$  latitudinis aequans, vertice convexo inter ocellos posteriores magis elevato, ocello medio mox supra lineam ocularem sito, oculis glabris minus quam  $2/3$  longitudinis extensis; linea oculari inferiore  $2/7$  capitis longitudinis ab ore remota; hoc haud lato; genis fortiter curvatis; elypeo subquadrato in margine externo integro; facie supra elypeum modice elevata; antennis paullum supra lineam ocularem paullumque sub medium faciei insertis, eodem fere spatio inter se quam ab orbita remotis. Vertex de supra inspectus  $3/4$  latitudinis occupans,

antrorsum leniter declivis, postice indistincte marginatus, tamen angulum fere rectum cum occipite formans; hoc linea circulari foramen includente satis elevata, superficie plana, verticali. Ocelli sat magni, in triangulum rectangularem dispositi, externi ab anteriore atque orbitis aequo spatio remoti, margini occipitali contigui. Forma capitis de latere duplo longior quam latior, postice linea recta limitata, antice fere aequaliter curvata, orbita latitudine sua parum longiore, ovato-elliptica; genis sulcatis. Scrobes latae sed inferne tantum impressae, haud profundae. Mandibula dextra acute tridentata. Superficies capitis minute reticulato-sulcata, setis nonnullis super verticem longis; eminentia infra antennarum insertionem et clypeus fere laeves, subnitidi.

Antennae longae, retrorsum flexae ad medium petioli productae; scapo recto ocellum anteriorem vix attingente; pedicello quam scapo haud latiore, latitudine sesquolongiore; anello haud conspicuo; articulis septem funiculi aequalibus, primo pedicellum latitudine aequante, omnibus bene discretis, pilis dimidiam latitudinem, sensillis fere totam longitudinem aequantibus; clava triarticulata, articulis praecedentibus  $2\frac{1}{2}$  aequilonga.

Thorax brevis, haud robustus, fere gibbosus, latitudine longior proportione 11 : 7, prothorace, scuto, scutello et metanoto fere aequilongis; collari magno longitudine latiore proportione 5 : 3, antice haud marginato, lateribus rectis; scuto aequo longo atque lato, antice quadruplo quam in latere postico latiore; sulcis scapularum fortiter impressis, leniter sinuatis, cum axillarum extremitate contiguis; scutello ovato, convexo, latitudine sua sesquilongiore, sutura freni paullum pone medium longitudinis sita; metanoto plus minus distincte carinato, superficie rugoso-costata, apice truncato, spiraculis parvis, fere rotundis, a postscutello parum remotis. Collus transverse concinne striatus; superficies dorsi minute sulcato-reticulata, areolis inaequalibus, ad medium scutelli et super axillas minimis, foveolis rotundis nonnullis, setas longas ferentibus, sparse excavatis. Frenum in longitudinem striatum. Praesternum sat magnum, antice recte angulatum, inferne productum, fere laeve; mesosternum confertim alveolato-punctatum; mesopleura et collaris latera transverse strigulosa; metapleura triangularis, reticulata.

Proalae abdomen superantes, postcosta tenui, apice subtiliore, setisque quinque longis aliisque minoribus instructa, quam nervo marginali proportione 7 : 9 brevior; nervo hoc cum postmarginali longe setosis; stigmatico  $1/5$  marginalis fere attingente et clava parva fere semicirculari terminato, dente sat longo, tenui, munito; nervo postmarginali ad extremitatem marginis anterioris alae producto, postcostae aequilongo et quam stigmatico magis triplo longiore; cellula costali perangusta, basali nervo valde obliquo extus terminata, fere glabra; speculo secundum nervum marginalem disposito usque ad dimidium huius elongato, incerte limitato; pilis inter speculum et nervum marginalem minus confertis, in margine apicali sat longis. Alae metathoracis abdominis apicem attingentes, angustae, longitudine quintuplam latitudinem aequantes, margine anteriore fere toto recto, posteriore leniter curvato, nervo marginali  $1/3$  longitudinis occupante, cellula costali super hunc non elongata, setis marginis postici et apicis longioribus.

Pedes cum coxis elongati, femoribus, tibiis tarsisque longitudine subaequalibus, tarsis tenuibus. Coxae anticae fere laeves,  $2/3$  femoris aequantes, mediae atque posticae reticulatae-sulcatae, modice vitro auctae transverse strigulosae; haec ultimae magnae, subfusiformes,  $1/2$  thoracis et  $5/6$  petioli

longitudinis attingentes, latitudine sua triplo longiores, linea elevata in margine apicali aliaque prope hunc annulos formantibus.

Petiolus valde elongatus, deorsum declivis, interdum leniter arcuatus, dimidium thoracis longitudinis superans, latitudine  $1/5$  longitudinis suae aequans, forma cylindrica, superficie scabra, satis vitro aucta punctato-alveolata.

Abdomen parvum, nitidum, segmentis post primum retractis, petioli longitudinem parum superans, de supra inspectum semiovale, margine postico recto et longitudine sesquibreviore, fovea postpetioli parva; de latere obovatum, longitudine duplam altitudinem fere attingens.

Long. 2 mm.

*Mas* feminae similis.

*Habitat.* "Mahé: marshy coastal plain near Anse Royale.—Silhouette: coast near Pointe Étienne, and forest above Mare aux Cochons.—Félicité Island."

#### DE SPALANGIINIS

Revisionem generum quae sunt *Cerocephalae* Westw. affinia, ad ea bene definienda et recognoscenda necessariam esse opinor. Nunc tentamen tabulae analyticae, species mihi observatione exemplarium vel descriptionibus notas includentis, hic referam, etsi marium characteribus saepe omissis et diagnosis nimis brevibus, studiosis parvae utilitatis fore videatur.

Praeter species seychellenses in hac monographia descriptas, quarum unam subgeneri novo, duas generibus etiam novis adscribere licet, exemplaria observavi *Theocolaci formiciformi* Westw. pertinentia, masculinum et femineum, quae mihi dominus Waterston (sub nomine "*Cerocephala formiciformis* Westw.") ex Anglia, comiter misit, aliaque generi *Chaetospilae* Westw. attribuenda, feminea, in Italia septentrionali (Veneto) inventa (ex collectione Magrettii, in Museo Civico Genuensi) alia denique, eiusdem sexus, a dominis Doderò et Mantero prope Genuam collecta. Haec ultima, quae alio loco describam, forma erunt typica generis novi quod *Sciatherodes* appellabo. In *Chaetospilae* exemplaribus eosdem characteres observavi, exceptis nonnullis specificae rationis, quos Westwood descriptione feminae et figuris indicavit, itaque in opinione Thomsoni atque Försteri non convenio, qui *Chaetospilam* ac *Cerocephalam* pro synonymis habuerunt: differentias inter haec genera Westwood ipse recognovit, neque hoc eum fefelisse videtur. Auctorum exemplum secutus, *Cerocephalam* formam illam appello quam Ratzburg postea nomine *Sciathera* descripsit, at non satis certum iudico *Cerocephalam cornigeram* Westw. in Guerini "Magasin de Zoologie" descriptam, et *Sciatheram trichotum* Ratz., eidem speciei, immo eidem generi, pertinere. Crawfordi *Cerocephala atroviolacea* \* et *bakeri*, † generi *Cerocephalae* iuste relatae videntur.

In tabula analytica genera *Spalangia* Latr. et *Paralaesthia* Cam. omisi, hoc ultimum mihi non satis notum ex auctoris descriptione, forsitan *Neosciatherae* mihi, est proximum.

- A. Axillae remotae, sutura axillo-scutellaris haud immersa, dorsum nitidum.
- a. Funiculus ♀ 5-articulatus . . . . . Gen. *Chaetospila* Westw.
- aa. Funiculus ♀ 6-, ♂ 7-articulatus.
- b. ♂ et ♀ alati, metanoti sculptura saepe conspicua  
Gen. *Cerocephala* Westw. (*Sciatheras* Ratz.).

\* *Proc. U.S.N. Mus.* 1913. p. 314, ♀.

† *Philippine J. of Sc.* ix. No. 5. Ser. D. 1914. p. 460, ♀.

Proalae nervo postmarginali et stigmatico brevibus ; maris flagellum articulis hirtis . . . . . Subgen. *Cerocephala*, n.

Proalae nervo postmarginali fere nullo, tenui ; maris flagellum articulis setis longis in verticillum dispositis, clava biarticulata medio constricta . . . . . Subgen. *Parasciatheras*, n.

bb. ♂ et ♀ apteri, metanotum sublaeve . . . . . Gen. *Theocolax* Westw.

B. Axillae propinquae vel coniunctae, sutura axillo-scutellaris immersa, scutellum triangulare.

a. Superficies axillarum et scutelli laevis, pronotum et mesonotum nitida, metanotum fovea pone dorsellum nulla, praestigma setosum

Gen. *Sciatherodes*, n.

aa. Superficies axillarum oblique sulcata, scutelli strigosa, pronotum et mesonotum punctata, metanotum fovea transversa pone dorsellum profunde excavata, praestigma glabrum (an setis deciduis ?).

b. ♀ antennis infra medium faciei, in linea oculari insertis, scapo ocellum non superante, funiculi articulo primo quam pedicello fere duplo longiore, proalis margine apicali fortiter curvato, nervo postmarginali et stigmatico brevibus subaequalibus . . . . . Gen. *Neosciatheras*, n.

bb. ♂ antennis paulum supra medium faciei insertis, scapo verticem superante, pedicello brevi, funiculi articulis et clava valde elongatis, subcylindraceutis, illis medio constrictis, sensillis longis, hac articulis tribus subdiscretis ; alveolis in sulco axillo-scutellari uniseriatis ; proalis apice subtruncato-rotundato, nervo postmarginali fere nullo, stigmatico elongato clava mutica ; pedibus sat longis, gracilibus

Gen. *Sciatherellus*, n.

GEN. *Cerocephala* Westw.

SUBGEN. *Parasciatheras*, n. (*vide ante*).

53. *Cerocephala* (*Parasciatheras*) *caelebs*, sp. n. (figs. 45-48).

*Mas.* Piceo-rufus, pronoto ac mesothoracis dorso aeneis, nitidis, capitis vertice violaceo ; funiculi articulis apice obscurioribus, setis basi nigris, clavae articulo apicali itemque abdomine nigris ; proalis macula dilute brunnea infra praestigma aliaque magna pone 5/9 longitudinis ornatis, spatio reliquo hyalino, pilis fimbriae griseis.

Caput antice visum aequè longum atque latum, superne arcuatum, inferne obtusum, genis buccatis, oculis sat magnis, haud prominulis, linea oculari superiore fere 1/5 longitudinis, inferiore 5/7 a vertice remota, facie in dimidio inferiore radiatim strigulosa. Forma capitis superne inspecti transverse elliptica longitudine parum latior, facie et occipite fere aequè prominentibus, ocellis in angulum rectum dispositis. Superficies in dimidio superiore laevis, nitida.

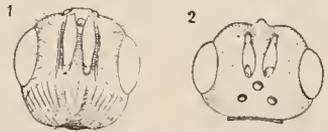


FIG. 45.—*Cerocephala* (*Parasciatheras*) *caelebs*, ♂.

1, caput antice visum; 2, idem superne; (× 30).

Antennae media facie insertae. Scapus ocellum anteriorem haud superans ; funiculus articulis 1.-3. satis conspicue, 4. et 5. minus, versus ipsorum apicem

latitudine decrescentibus, itaque forma obovica, truncata, setis longis, crassis, instructis; clava articulis duobus aequalibus formata, medio constricta.



FIG. 46.—*Cerocephala* (*Parasciatheras*)  
*caelebs*, ♂.  
Flagellum ( $\times 43$ ).

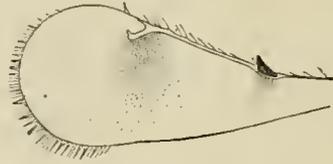


FIG. 47.—*Cerocephala* (*Parasciatheras*)  
*caelebs*, ♂.  
Proala ( $\times 30$ ).

Sulci scapulares foveolis impressi rotundatis, uniseriatis, antersum gradatim maioribus. Axillae remotae; earum superficies et scutelli laeves. Sulci axillo-scutellares alveolorum serie unica indicati, alveolis versus scutelli basim gradatim minoribus. Metanotum superficie reticulato-alveolata.



1



2

FIG. 48.—*Cerocephala* (*Parasciatheras*)  
*caelebs*, ♂.  
1, proalae nervus stigmaticus;  
2, praestigma; ( $\times 80$ ).

Proalae apice rotundatae, pilis fimbriae ad angulum posticum longioribus, nervo stigmatico haud angustato  $1/5$  marginalis aequante, lateribus parallelis, clava nulla, dente autem sat longo; praestigma setarum caespite instructum.

Petiolus coxas posticas superans.

Long. 1,7 mm.

*Habitat.* Mahé: Cascade Estate, "from forest at 1,000–2,000 ft."

Specimen unicum.

GEN. *Neosciatheras*, n. (*vide ante*).

54. *Neosciatheras laticeps*, sp. n. (figs. 49, 50).

*Femina.* Picco-rufa, oculis concoloribus, abdomine brunneo-lutescente. Clava flavo-ochracea; scapus subtus atque lateribus, coxae anticae atque posticae, tarsi omnes et oviductus in dimidio basali, pallide flavo-grisei, oviductus dimidium apicale nigrum; coxae intermediae totae, anticae macula magna lateris exterioris, posticae apice, nec non alarum nervi, brunnei; proalae praestigmate nigro, ultra cellulam basalem flavido-grisescens, fascia sub praestigmate et macula juxta nervum stigmaticum obscurioribus, margine apicali pallido, pilis fimbriae albis apice nigris.

Caput thoracis latitudinem superans proportionem 7 : 5, longitudine sua paullum latius proportione 10 : 9; antice visum vertice arcuato, oculis prominulis, glabris, linea oculari inferiore  $1/3$  capitis longitudinis ab ore remota, genis inferne curvatis, peristomio sat lato, antennis paullum supra lineam ocularem et infra medium faciei insertis, ab oculis aequo spatio quam inter se remotis; scrobibus infra tantum determinatis et margine externo ad  $1/3$  scapi longitudinis in angulum obtusum, de latere inspectum melius observandum, elevato. Faciei pars subantennalis sulcis duobus notata parallelis, a scrobibus ad os extensis; spatio interposito angulatim plicato. Forma capitis de latere oblonga, limite

antere et posteriore subrectis atque parallelis, latitudine  $\frac{4}{7}$  longitudinis aequante; vertice cum fronte continuo, superne angustato; oculis ellipticis; orbita margine elevato et diametro longitudinali quam transversa sesquilingiore, hoc latitudinem capitis fere totam occupante. Vertex, superne inspectus, lateribus orbita obliqua, postice occipite concavo terminatus; hoc distincte marginato et margine in parte media ocellis posterioribus propinquo. Ocelli mediocres, in declivio anteriore verticis angulum fere rectum formantes, externi ab oculis aequo spatio quam inter se remoti. Superficies capitis tota scabropunctata, pubescentia brevi, alba, satis conferta.

Antennae 10-articulatae, sine anello, funiculo 6-articulato, clavae articulo primo vix, ultimo minime, discretis. Scapi leniter curvati et convergentes, usque ad ocellum anteriorem elongati. Flagellum duplam scapi longitudinem paulo superans, fere glabrum, pilis paucis brevibus, adpressis; pedicellus parvus, latitudine sua haud sesquilingior; funiculi articulus primus elongatus pedicello duplo longior, haud apice latior, in dimidio basali magis attenuatus; secundus pedicelli longitudinem nonnihil superans, quam primus brevior proportione 3:5; articuli sequentes gradatim breviores et

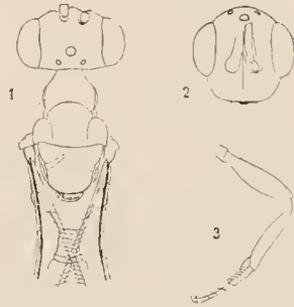


FIG. 49.—*Neosciatheras laticeps*, ♀.  
1, thorax cum capite, abdominis petiolo et alarum parte basali (× 23); 2, caput antice visum (× 21); 3, pes anticus (× 27).

crassiores, ultimus quadratus; clava cylindro-conica, duplam praeclavae longitudinem paulo superans, articulo basali satis discreto medium eius non attingente.

Prothorax magnus, de supra inspectus in dimidio anteriore conico et sculptura minutissima granulosa, in posteriore collare formans lateribus rectis, parallelis, superficie scabra, in longitudinem irregulariter sulcato-rugosa. Scutum antrorsum declive, latitudine paullum longius, minute punctatum; scapulae (× 50) oblique rugosae. Axillae quam scapulae multo maiores, in medio dorso conniventes et scutellum depellentes, ab hoc sulco profunde impresso separatae, superficie

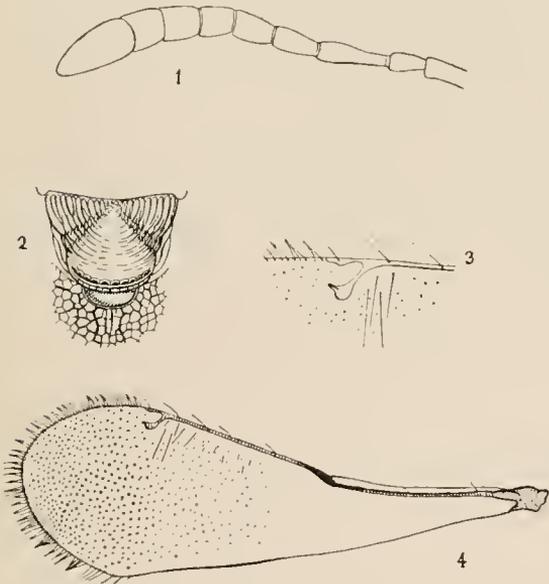


FIG. 50.—*Neosciatheras laticeps*, ♀.

1, flagellum (× 55); 2, scutellum cum axillis, dorsello et metanoto (× 45); 3, prothoracae pars stigmatica (× 80); 4, prothorax (× 40).

perspicue rugoso-sulcata, rugis curvatis, versus apicem scutelli convergentibus et brevi spatio in huius superficiem productis. Scutellum triangulare subaequilaterum, in longitudinem curvatum, limite postico parum convexo,

superficie haud laevi. Postseutellum lineare arcuatum, dorsello indistincto. Metanotum carina destitutum, modice vitro auctum superficie scabra, satis magnificatum superficie reticulato-alveolata; pone dorsellum fovea transversa semielliptica, sat profunda, excavatum; spiraculis subrotundis a postseutello remotis. Mesothoracis latera vix perspicue sulcato-reticulata, mesosterno fovea rotunda impresso, episterno et epimero discretis, antice a mesosterno serie fovearum separatis.

Proalae abdominis apicem attingentes, haud latae, post nervum stigmaticum, id est ad  $\frac{4}{5}$  longitudinis, margine elliptico aequaliter fimbriato terminatae; cellula costali lineari, longitudinem nervi marginalis cum postmarginali aequante, cellula basali extus valde oblique terminata, superficie reliqua sparsim punctata, pilis destituta, exceptis paucis (4-5) prope nervum stigmaticum, huius longitudinem superantibus. Postcosta, item atque nervus marginalis setis quinque instructa, portione ascendente in speciminibus quae observavi glabra (setis deciduis?) et crassiore. Nervus stigmaticus brevis,  $\frac{1}{8}$  marginalis aequans, in dimidio basali attenuatus, elava haud determinata sed dente sat longo munita. Nervus postmarginalis stigmatico paullum brevior. Alae metathoracis longae, latae, apicem abdominis fere attingentes, margine postico et apicali sicut in alis anterioribus longe piloso.

Pedes normales, nec breves nec crassi. Coxae anticae in dimidio apicali lateris exterioris carina valde prominente instructae. Coxae intermediae quam anticae latiores, abdominis petiolo aequilongae et quam posticae dimidio breviores, haec pyriformes, anticis magis quam sesquilingiores et conspicue crassiores. Tibiae posticae confertim rigido-setosae.

Petiulus cylindricus, sulcatus, postice oblique terminatus, superne inspectus linea media dorsali quam lateralibus sesquilingiore, metanoto fere aequilonga; latitudine longitudinem lateris fere aequante.

Abdomen, absque oviductu, thoraci aequilongum, nec amplius, fusiforme, duplo longius quam latius, superficie laevi, nitida; de latere visum ventre magis convexo; segmento basali medio dorso haud ineiso dimidiamque abdominis longitudinem attingente; secundo triplo brevior. reliquis hoc etiam brevioribus, subaequalibus. Oviductus  $\frac{1}{3}$  abdominis aequans.

Long. 2,5 mm.

*Habitat.* Silhouette: Mare aux Cochons.

Specimina duo.

#### GEN. *Sciatherellus*, n. (*vide ante*).

##### 55. *Sciatherellus orycinus*, sp. n. (figs. 51, 52).

*Mas.* Fulvo-ferrugineus, oculis brunneis, funiculi articulis in dimidio apicali nigris, coxis abdominisque petiolo pallidioribus, abdomine pro parte infuscato, proalis nervis griseo-fuscis, ante nervum marginalem fere hyalinis, reliquo spatio flavescenti-griseis, sub praestigmate umbratis, sub stigmate macula magna transversa pallide castanea ornatis, margine apicali infuscato pilisque fimbriae totis griseis.

Caput antice visum paullum longitudine latius, proportione 100 : 87, oculis sat magnis, dimidiam capitis longitudinem superantibus (proportione 5 : 9), linea

oculari inferiore post  $\frac{3}{4}$  longitudinis sita, facie mucronibus et carinis nullis. in dimidio inferiore oblique strigosa.

Antennae nonnihil supra mediam longitudinem capitis alte insertae, scapo verticem valde superante et orbitis aequalongo; flagello longissimo, quam capite fere quintuplo, quam thorace et abdomine simul sumptis fere sesquilingiore; pedicello parvo globoso; articulis septem funiculi valde elongatis, subaequalibus, quam scapo vix crassioribus, non longioribus. Sensilli articulis dimidio breviores, fere ubicumque ordine duplici dispositi, ita ut articulorum numerus duplicatus apparet. Clava articulo praecedente longior proportione 4:3, indistincte in articulos divisa, sensillis omnibus aequalongis et ordine triplicato dispositis.

Prothorax de supra inspectus lateribus in dimidio posteriore parallelis; scuto ante scapulas prominente convexo-marginato; scutello triangulari a scuto nonnihil remoto, axillis magnis in medio dorso conniventibus, longitudinaliter strigosis, a scutello alveolorum serie late separatis; axillarum strigis super scutellum brevi spatio productis. Metanotum grosse, sed haud profunde alveolatum, alveolorum fundo inaequali, fovea pone dorsellum nulla.

Proalae abdomen superantes, versus apicem conspicue dilatatae, hoc subtruncato-rotundato, pilis fimbriae frequentioribus, sat longis, omnibus fere aequalibus; praestigmate in specimine haud setoso; nervo marginali pilis numerosis instructo; postmarginali fere nullo; stigmatico longo,  $\frac{1}{4}$  marginalis aequante, marginibus subparallelis, clava haud determinata denteque nullo; superficie glabra, exceptis pilis quibusdam prope nervum stigmaticum, quam hoc paullum brevioribus.



FIG. 52.—*Sciatherellus oryctinus*, ♂.  
Proala (× 45).

parum dilatatae, diametrum coxarum primi paris vix superantes: hae in latere exteriori haud carinatae, quam intermediae fere sesquilingiores, quam posticae parum breviores.

Petiolus metathoracis apici conico alte supra coxas posticas adfixus, his longior proportione 5:3, thorace paullum magis quam dimidio brevior; de latere visus leniter curvatus; superficie strigosa.

Abdomen segmentis post secundum retractis, longitudine petiolum fere aequans, segmento basali magno, secundo  $\frac{1}{4}$  huius non superante.

Long. 1,8 mm.

*Habitat.* Mahé: Cascade Estate.

Specimen unicum.

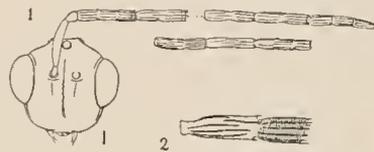


FIG. 51.—*Sciatherellus oryctinus*, ♂.  
1. caput antice visum eum antenna (× 24); 2. funiculi articulus tertius (× 58).

Pedes graciliores, sat longi. Coxae posticae

GEN. *Spalangia* Latreille.56. *Spalangia fallax*, sp. n. (fig. 53).

*Femina*. Nigra, alis flavo-griseis, harum nervis, tarsis praeter apicem, interdum tibia media, brunneo-luteis, tibia postica extremitatibus et trochanteribus omnibus minus obscuris.

Caput magnum, antice visum parum latitudine longius proportione 7 : 6, thoracis longitudinis  $5/8$  aequans; vertice alte elevato; oculis haud prominulis, orbita antice sinuosa; linea ocellari superiore in  $2/9$ , inferiore in  $1/3$  longitudinis sita; genis mox infra oculos leniter tumescentibus, reliquo spatio haud curvatis, quam orbita paulum brevioribus; arcobis insertionis antennalis forma triangulari, angulis rotundatis, his externis spatio remotis dimidiam capitis latitudinem aequante; area ocellari sulco limitata; facie sulco divisa longitudinali profunde impresso, acute marginato, ex area ocellari ad lineam ocularem inferiorem extenso et strigis nonnullis transversis interrupto; scrobibus latis, haud profunde excavatis, incerte limitatis; spatio his interposito subconvexo. Superficies pilis hirta haud numerosis, nec ordine manifesto dispositis, fere

ubicumque laevis, polita, exceptis genis spatioque inter antennarum radículas, quae sunt grosse, profunde et confertim punctata.

Antennae thoraci fere aequilongae, flagello longitudinem capitis superante. Scapus dimidium flagelli aequans; pedicellus  $2/5$  scapi attingens; funiculi articuli transversii, primus longitudine sua paulum latior, sequentes sensim latiores, item atque clava pedunculo brevi, angusto, conjuncti, ultimus fere duplo latior quam

longior; clava solida, subcylindrica, apice rotundata, articulis tribus praecedentibus aequilonga.

Collum minute at conspicue reticulatum; pronotum minute reticulato-squamosum foveolisque rotundatis sparsis leniter impressis, quam scutum duplo longius; hoc margine anteriore modice curvato, dimidiam scutelli longitudinem parum superans. Alveoli sulcos scapulares et axillares formantes, haud magni. Scutellum politum, sparsim et parce setosum, ad angulos exteriores tantum foveis piliferis 2-3 sat magnis impressum, freno nullo, huius sutura nec sulco nec foveis indicata; dorsellum punctorum serie utrinque impressa, ex medio margine posteriore ad foveolam sublateralem oblique desinente; metanotum in parte dimidia anteriore arca instructum triangulari elongata, utrinque fovea conspicua limitata, his foveis fundo punctatis, postice confluentibus, in parte dimidia posteriore metanoti serie impari punctorum non usque ad petiolum continuatis. Mesopleura minute reticulata, areolis rectangularibus valde elongatis, oblique dispositis: modice vitro aucta potius oblique et concinne striata apparens.

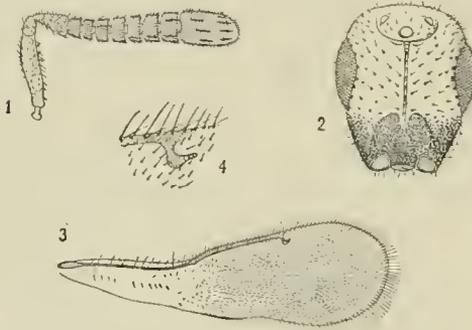


FIG. 53.—*Spalangia fallax*, ♀.

1, antenna (x 58); 2, caput antice visum (x 30); 3, proala (x 52);  
4, eiusdem nervus stigmaticus (x 150).

Proalae latitudine longiores proportione 5 : 16, nervo marginali  $\frac{4}{5}$  cellulae costalis aequante, stigmatico brevissimo sub angulo fere recto egrediente, superficie jam pone cellulam basalem pilis vestita, pubescentia brevi at conferta ad  $\frac{1}{3}$  nervi marginalis incipiente.

Pedes posteriores trochanteris articulo secundo supra tumescente.

Petiolus  $\frac{2}{3}$  metathoracis longitudinis aequans, ex basi ad apicem aequè latus, superficie minute granulosa, nec longitudinaliter sulcata neque costulata.

Abdomen depressum, latum, quam thorax, absque petiolo, paullum brevius, sesquialtius, segmentis minute reticulato-sulcatis, secundo et tertio longitudine aequalibus.

Long. 1,3–1,5 mm.

*Habitat.* Mahé : Cascade Estate, "at about 800 feet."

Specimina duo.

*Adn.* Species haec characteribus nonnullis, praecipue antennis, cum europaea *Sp. erythromera* Först. convenit, capitis structura cum *Sp. brasiliensi* Ashm.; affinis etiam videtur *Sp. impunctae* How. et *subpunctatae* Först. Petioli sculpturam, quae in generis sectionibus instituendis et speciebus distinguendis valde utilis mihi videtur, auctores saepe neglexerunt.

#### GEN. *Eunotomyia*, n.

Hoc genus ab *Amuscidea* Gir. differt annulo antennali nullo, funiculi articulis non elongatis, proalae nervo marginali stigmaticum aequante, nec duplo longiore, postmarginali fere obsolete, segmento primo abdominis  $\frac{1}{3}$  huius longitudinis superante. Cum *Muscidea* eiusdem auctoris satis convenit, tamen differt annulo antennali nullo. Metanotum in specimine seychellensi examinare non potui.

#### 57. *Eunotomyia festiva*, sp. n. (figs. 54–56).

*Femina.* Capite cum scapo brunneo-luteis, oculis obscure testaceis, flagello nigro, occipitis angulis inter marginem et orbitas viridi-maculatis, genis infra oculum area fusca notatis; thorace obscure viridi, lateribus fere totis, collaris parte postica, axillis et scutelli freno plus minus auratis, hoc obliquitate quadam inspecto purpureo nitente; scutelli limbo apicali nec metathoracis alveolis maculisque nonnullis ad insertionem setarum dorsi nigricantibus; pedibus cum coxis, tegulis, alarum nervis et proalarum disco usque ad marginem alae posticum brunneo-luteis, tibiis tantum obscurioribus tarsisque, praeter apicem, pallidioribus; abdomine obscure violaceo, segmentis apicalibus viridi-nitentibus, pedunculo cyanescenti-nigro.

Caput thoracis longitudinem latitudine aequans, antice visum triangulare, transversum, longitudine latius proportione 5 : 3, vertice subrecto,  $\frac{5}{9}$  totius latitudinis extenso, spatio inter orbitas et ocellos laterales horum distantiam ab ocello anteriore aequante, spatio inter ocellos laterales quam dimidia verticis latitudine vix maiore; oculis hemisphaericis, glabris, dimidiam capitis longitudinem parum diametro superantibus; antennis

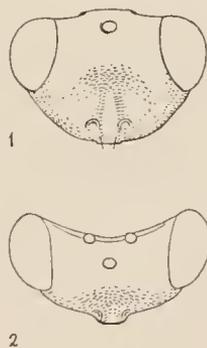


FIG. 54.—*Eunotomyia festiva*, ♀.  
1, caput antice visum; 2, superne;  
( $\times 30$ ).

ad os insertis; facie fovea ovali haud profunda impressa, in medio huius inter radículas antennarum modice elevata. Vertex fortiter compressus, acute marginatus, ultra lineam ocularem haud prominulus. Caput ex latere inspectum subtriangulare, in longitudinem fere duplo quam in latitudinem extensum.

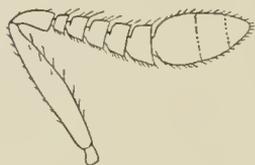


FIG. 55.—*Eunotomyia festiva*, ♀.  
Antenna (× 65).

Superficies subnitida, minute ac subtiliter reticulato-sulcata, areolis super occiput minoribus; facies pilis brevibus sparsis ornata.

Seapus ocellum anteriorem non attingens, subfusiformis, magis latere anteriore curvatus; flagellum quam seapus sesquolongius, pedicello latitudine sua longiore, proportione 5:2, articulis quinque funiculi bene discretis pilisque sat longis instructis, primo quam ceteris parum minore, latitudine pedicello aequali paullumque latiore quam

longiore, reliquis gradatim latioribus, ultimo duplo latiore quam longiore; clava ovata, articulis tribus praecedentibus aequilonga et latitudinem praeclavae superante, articulorum vestigio fere nullo.

Thorax latitudine maxima  $\frac{3}{4}$  eapitis aequans; collari lato, antice incerte limitato, margine postico modice curvato; mesonoti parte praeaxillari transversa, quam collari duplo tantum longiore et longitudine sua triplo latiore; scuto antice proportione  $\frac{5}{3}$  latiore quam longiore, basi longitudini aequilonga; scutello metathoracem non obtegente, aequae longo atque lato, quam scuto fere duplo longiore, freno distincto, limbo posteriore lunato, alveolis septem subquadratis impresso. Dorsum setis nonnullis perlongis instructum, sculptura reticulato-sulcata, axillis tantum laevibus, nitidis, scutello extremo apice laevi, dorsulo atque freno fere toto areolis elongatis haud magnitudine nec forma differentibus, in sculptis. Metanotum breve, serie transversa alveolorum rectangularium circa decem instructum. Callus pilis longis albis ornatus. Metapleura triangularis subaequilatera, item atque mesosternum et mesopleura laevis, nitida.

Proalae apice rotundatae, sat longe ciliatae, superfacie ultra lineam ex basi nervi stigmatici ad medium lateris posterioris productam setis haud confertis vestita, reliquo spatio fere glabra; nervis longe setosis, humerali ad juncturam cum basali, ubi cellula costalis latissima, fortiter angulatim plicato; marginali haud tenui, ad mediam alae longitudinem incipiente; stigmatico huius aequilongo, versus apicem sensim latiore et clava indistincta terminato; postmarginali fere nullo. Alae metathoracis item atque anteriores longe ciliatae, margine postico paullum ante medium fortiter areuato-plicato.

Pedes postici coxis pyriformibus, tibiis magis setosis, calcari medium metatarsi fere attingente.

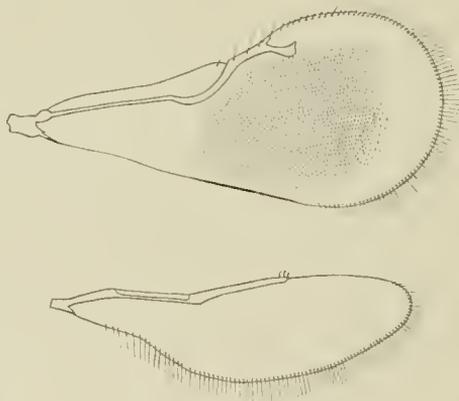


FIG. 56.—*Eunotomyia festiva*, ♀.  
Alae (× 45).

Abdomen thorace paululum longius, haud latius, breviter pedunculatum, ovatum, subdepressum, lateribus parum curvatis; pedunculo fere aequae longo atque lato, supra planiusculo, marginato ac ruguloso; segmentis apicem formantibus brevissimis, segmento basali maximo,  $2/3$  abdominis longitudinis aequante, de supra inspecto fere quadrato, superficie laevi, nitida.

Long. 1,5 mm.

*Habitat.* Mahé.

GEN. *Mesopeltis*, n.

Species cuius descriptio sequitur, habitu et colore *Scutellistae cyanae* Motsch. similis, sed scutello haud elongato ab ea facile distinguenda, media est inter hoc genus atque *Eunotum*: a *Megapelte* autem differt scutello non elongato segmentoque primo abdominis maximo.\*

58. *Mesopeltis atrocyanea*, sp. n. (figs. 57-59).

*Femina.* Nigro-violascens, antennis fulvo-ochraceis, oculis et pedibus brunneis, tibiaram apice, tarsis, praeter apicem nigrum, pallide testaceis, alarum nervis griseo-fuscis, alis metathoracis lenissime, mesothoracis fortius infumatis, his pone cellulam basalem et in disco obscurioribus.

Caput magnum, crassum, thorace latius, antice visum transversum forma trapezoidali,  $3/5$  longitudinis longitudine aequans; vertice longitudini aequilongo; ocellis posterioribus ab oculis eorum diametro aequali remotis; oculis glabris, ad dimidiam faciei altitudinem extensis; genis fere totis rectis inferne tantum curvatis; oris margine plano. Capitis superne inspecti forma lunata, limite anteriore semicirculari, posteriore etiam fortiter curvato, margine occipitali peracuto; forma de latere subtriangularis, latitudine sesquilingior, oculis ellipticis diametro longitudinali quam transverso parum brevior. Superficies sub nitida, sulcis tenuissimis minute reticulata. Facies modice convexa, antennis ad os insertis, scapis fere contiguis in fovea longitudinali leniter impressa receptis, non ultra dimidiam oculorum altitudinem extensis.

Flagellum scapo fere aequilongum; articuli tres primi funiculi simul sumpti quam pedicellum parum longiores, dimidium funiculi formantes, primus et secundus parvi, vix transversi, articulus quartus et quintus magni, haud multum longitudine latiores, ultimus latitudine pedicelli longitudinem aequans; clava ovata quam praeclava parum crassior et  $1/3$  flagelli longitudinis, dimidiam funiculi, attingens, articulis tribus praecedentibus aequilonga, in articulos divisa suturis obliquis, vix conspicuis, coniunctos, quorum primus dimidium totius longitudinis occupans, reliqui duo subaequales.

Thorax robustus, fortiter in longitudinem curvatus, latitudine maxima  $3/5$  capitis aequans. Pronotum de supra inspectum brevissimum, fere lineare,

\* Dum haec descriptio imprimebatur, Waterston speciem novam illustravit, nomine *Eunoto truncatipenni*, in Africa in "Gold Coast" inventam, quam generi meo *Mesopelti* adhuc inedito pertinere ipse recognovit (*Bull. Entomol. Research*, London, vol. vii. 1917. p. 252-257. figs. 8, 9); metanotum *Mesopeltis atrocyanae*, ex cotypo quem ego Museo Britannico misi, in descriptione sua effinxit (*l.c.* fig. 9b).

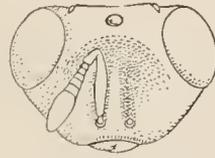


FIG. 57.—*Mesopeltis atrocyanea*, ♀.  
Caput antice visum cum antenna  
( $\times 30$ ).

fortiter arcuatum. Scutum satis longum, antice quam postice proportione 5 : 2 latius, basi quam longitudine sesquibrevius. Scutellum postice vix productum, metanoti dimidium anterius obtegens, aequae longum atque latum, scuti longitudinem superans proportione 4 : 3, lateribus brevibus, rectis, margines parallelos formantibus, freno haud discreto, parte tertia postica margine fortiter arcuato limitata et foveis marginalibus impressa rotundatis, sat magnis, fere contiguis, omnibus in fundo punctis nitentibus obsitis. Metanotum fere duplo quam scutellum brevius, foveis in sculptum magnis, haud profundis, fere omnibus

transverse duplici ordine dispositis. Sculptura dorsi illi capitis similis, areolis in scapulis minoribus, in axillis minimis, in zona media longitudinali scutelli sat magnis at valde elongatis.

Proalae margine apicali recto, nervo humerali in eius parte ascendente crassiore et satis curvato, a nervo marginali hiato angusto separato; costa in parte distali item atque praestigmate arcuata; nervo marginali 1/6 cellulae costalis aequante, stigmatico tenui huic subaequilongo, versus clavam subreniformem incerte limitato; postmarginali parum

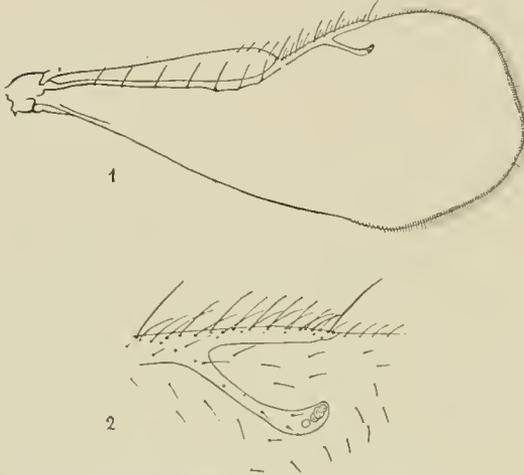


FIG. 58.—*Mesopeltis atrocyanca*, ♀.

1, proala ( $\times 65$ ); 2, eiusdem nervus postmarginalis et stigmaticus ( $\times 167$ ).

breviore, truncato; his nervis, praeter stigmaticum, setis nonnullis longis instructis, marginali autem et postmarginali cum extremitate costae setis aliis minus longis, sat frequentibus, ornatis; cellula costali in dimidio proximali, cellula basali in dimidio posteriore cum spatio usque ad marginem posticum alae, glabris, area speculari, parte anteriore cellulae basalis et zona sub nervo marginali punctulatis. Alae metathoracis haud latae nec margine postico fortiter curvato, setis fimbriae sat longis, cellula costali ad medium nervi marginalis producta.

Abdomen latitudine thoraci subaequale paullumque longius, basi late sessile, hac in dorso foveis exeavata magnitudine et forma alveolis metanoti similibus. Segmentum primum superne inspectum subquadratum, 3/4 totius longitudinis aequans, politum, lateribus antice marginatis, ventre pone coxas posticas pube albida ornato; segmenta reliqua brevissima apicem breviter conicum formantia, cuius longitudinem terebra in uno specimine projecta paullum superat.

Long. 1,5 mm.

*Mas* differt antennis longioribus, crassis, 9-articulatis, pedicello latitudine et longitudine fere aequalibus, articulo primo funiculi quam pedicello duplo latiore et latitudine sua fere duplo longiore, articulis tribus huic sequentibus



FIG. 59.—*Mesopeltis atrocyanca*, ♂.

Abdomen atque metanotum cum scutelli apice ( $\times 30$ ).

cylindricis, gradatim brevioribus, ultimo aequae longo atque lato, tribus apicalibus clavae pertinentibus ultimo funiculi subaequalibus.

*Habitat.* "Silhouette: Mare aux Cochons, and from long grass in low cultivated country.—Mahé: country above Port Glaud.—Long Island (a cultivated islet near Mahé)."

Specimina tria ♀♀, unum ♂.

SUBFAM. ELASMINAE.

GEN. *Elasmus* Westwood.

59. *Elasmus eximius*, sp. n. (figs. 60, 61).

*Femina.* Capite, praeter partem inferiorem flavo-griseam pronoto, mesonoti parte praeaxillari axillisque, obscure viridibus, metallicis; thoracis lateribus nigro-brunneis, praesterni disco, humeris et axillarum puncto prope tegulas rufescentibus; metathorace laete viridi, nitido; dorsello atque scutello aurantiacis, hoc basi et macula discoidali ad apicem fere nigris; abdomine usque ad segmentum quintum luteo-aeruginoso, basi tantum maculis duabus dorsalibus fuscis notato, in eius parte apicali nigro; scapo et pedicello lutescenti-griseis, illo in latere supero obscuriore, hoc fusco-maculato; funiculo et clava brunneo-luteis; pedibus flavo-griseis, tarsis obscurioribus, coxis mediis ac posticis dimidio basali, femoribus posticis etiam apice et lateribus versus apicem, nigris; alis griseis.



FIG. 60.—*Elasmus eximius*, ♀.  
Flagellum (× 65).

Vertex foveolis in sculptis rotundis fere contiguis, diametro dimidium ocellorum non superantibus; facies, praeter partem oralem, foveolis fere ubicumque spatio remotis diametro eorum aequali. Funiculi articuli elongati, primus pedicello duplo longior, longitudine sua duplam latitudinem paullum superans, tertius primo paullum brevior; clavae articulus basalis secundo vix longior, praeclava nonnihil brevior. Sensilli antennales in articulo primo funiculi transverse triseriati, in articulo tertio et duobus primis clavae biseriati. Tibiae posticae calcari maiore  $\frac{1}{4}$  metatarsi non superante, spinarum seriebus lateris dorsalis extus rhombos quatuor semisque, valde elongatos, formantibus.

Long. 2,3 mm.

*Habitat.* Mahé: "cultivated country near sea-level at Cascade."

Specimen unicum.



FIG. 61.—*Elasmus eximius*, ♀.

Tibiae posticae pars apicalis (× 55).

*Var.* Specimen aliud, etiam femineum, a praecedente differens scutello flavo, at eisdem maculis nigricantibus, dorsello fusco, flavo-limbato; macula humerali punctiformi, axillari nulla.

*Habitat.* Mahé: "marshy coastal plain near Anse Royale."

*Adn.* Haec species ab *E. insulari* Gir. differre videtur macula humerorum non albida, abdomine basi haud omnino nigro, post segmentum quintum toto nigro, nec apice tantum zonaque praeapicali nigricantibus.

60. *Elasmus bellus*, sp. n.

*Femina.* Praecedenti similis, differt scutello parti praeaxillari dorsi colore, dorsello in dimidio anteriore nigro, in posteriore albido, femore postico

pone medium infuscato at apice flavo-griseo; foveolis faciei minus confertis spatioque remotis earum diametrum sesqui vel duplo superante; spinis in latere dorsali tibiae posticae series tres sinuosas, nusquam confluentes, formantibus.

Long. 2.2 mm.

*Habitat.* Silhouette.

Specimen unicum.

61. *Elasmus*, sp. (fig. 62).

*Femina.* Nigro-aenea, interdum cyanescens, capite. metathorace et abdominis basi viridibus, metallicis, abdomine reliquo fere nigro, dorselli margine flavo-griseo; scapo ac pedicello brunneo-luteis, hoc supra fusco-maculato, funiculo et clava concoloribus vel brunneis; pedibus griseo-fuscis, genubus minus obscuratis; alis griseis.

Foveolae verticis et faciei diametro dimidium ocellorum aequantes, spatio remotae earum diametrum fere ubicumque sesqui-superante. Funiculi articuli subaequales, longitudine sesquilongiores, primus quam pedicellus haud multo longior, sensillis in serie unica transverse dispositis; clava articulis duobus primis quam praeclava brevioribus, medio haec latior, sensillis per totam fere articulorum longitudinem extensis. Tibiae posticae sat robustae,



FIG. 62.—*Elasmus*, sp., ♀.  
Antenna (× 65).

calcari maiore  $1/3$  metatarsi attingente, latere dorsali confertim spinuloso, spinis longis rhombos extus formantibus tres semisque, longitudine duplam eorum latitudinem non superantes.

Long. 2 mm.

*Habitat.* Mahé: Port Victoria, Cascade Estate.—Anonyme Island.—Silhouette: Mare aux Cochons.

Specimina duodecim.

SUBFAM. EULOPHINAE.

GEN. *Elachertus* Spinola.

62. *Elachertus*, sp.

*Mas.* Niger, nitore vario, antennis scapo et pedicello flavis vel flavo-rufis, funiculo griseo, oculis brunneis, pedibus praeter coxas posticas flavis, alarum nervis pallidis, abdominis dorso testaceo-maculato. Caput interdum nigro-viride; prothoracis dorsum et mesothoracis pars praeaxillaris, cum scutelli zona marginali, aeneis, nitore aureo-purpureo; scutelli discus purpureo-violascens; metathoracis dorsum medio nigro-viride, lateribus nigrum; abdominis segmenta, oblique inspecta, nigro-viridia. Pili dorsi pallide grisei, oculorum albi.

Caput transversum, longitudine sesquilatius, latitudine thoracem fere aequans; vertice acute pone ocellos marginato, his in angulum fere rectum dispositis, posterioribus spatio duplo quam ab oculis inter se remotis; oculis magnis, sat dense pubescentibus; genis haud buccatis; scrobe profunda; superficie conspicue reticulato-sulcata, foveis non marginatis sparse impressa.

Antennae funiculi articulis subaequalibus pedicello aequilongis, compressis, clava fortiter medio constricta.

Prothorax scuto dimidio brevior; sulci scapulares cum illis scutelli haud

continui, ab eis axillis medio dorso proximis separati; scutellum scuto aequilongum, latitudine sua sesquialongius, sulcis impressum zonam marginalem limitantibus et prope eius apicem haud coniunctis, foveis duabus rotundatis in parte apicali zonae marginalis, inter se paullum remotis, notatum. Superficies scuti atque scapularum grosse reticulato-sulcata; areolae scutelli antice dimidio quam in scuto angustiores, sensim postice minores, in parte tertia apicali nullis; axillae fere laeves. Metanotum medio politum, carina elevata, sulcata, quam scutellum sesquibreviore. Mesothoracis latera et metapleura laevia.

Proalae nervis stigmatico et postmarginali longis, hoc incerte limitato.

Calcar pedum posticorum maius tibiae apicis latitudini aequilongum, calcar minus multo brevius.

Abdomen petiolo transverso brevissimo, thoraci aequilongum, vel segmentis posticis plus minus retractis.

Long. 1-1,1 mm.

*Habitat.* Mahé: Cascade Estate.

Specimina duo.

*Adn.* Haec species nulli ex tribus generis sectionibus quas Thomson instituit convenire potest. In eius characteribus hoc est praecipuum: vertex pone oculos acute marginatus, alarum speculum nullum, petiolus transversus, abdomen fere sessile. *Elachertus hyphanteriae* Crawf., texana species, huic quam descripsi valde affinis videtur, verum scapulis in angulis anterioribus non insculptis et femoribus posticis nigris differt.

#### GEN. *Stenelachistus*, n.

Hoc novum genus in subtribu *Elachertinorum*, inter *Elachertum* (= *Elachistum*) atque *Stenomesium* ponere licet, eiusque species duae nunc cognitae eodem sunt colore subluteo, maculis nigris, qui est *Stenomesio rufescenti* Rossii, aliisque huius generis speciebus. *Stenelachistum* a *Stenomesio* thorace, abdomine antennisque, omnibus elongatis, distinguas.

Generis *Stenelachisti* haec est diagnosis: Corpore elongato, nitore haud metallico; vertice cum occipite continuo; oculis glabris; flagello longe-articulato; scutello juxta marginem foveolis linearibus uniseriatis vel etiam sulco continuo impresso; callo parce at longe piloso; mesosterno a pectore sulco longitudinali discreto, mesepisterno pectori contiguo, inter mesosternum et epimerum disposito; proalis abdomen superantibus, cellula costali lineari, nervo stigmatico brevi, postmarginali longo; postpetiolo 1/4 abdominis formante. — Quibus notis haec adjicere licet: corpus colore lutescente, nigro-maculatum; caput thorace latius; genae haud sulcatae; metanotum carina instructum vel carinae loco plicis incurvis, propinquis, spatium angustum limitantibus, interdum etiam nucha, terminatum.

Species huius generis margine occipitali, scutello, metanoto, nervi marginalis et articularum antennalium longitudine, inter se valde differunt.

Genus *Stenomesioideus* quod Ashmead instituit, secundum auctoris tabulas analyticas (deest enim descriptio) a *Stenelachisto* bene distinguendum videtur, quum sulcis scutelli careat eiusque clava in articulos tres sit divisa.

#### 63. *Stenelachistus impressus*, sp. n. (figs. 63-65).

*Femina.* Lutea, nigro-maculata, alis hyalinis, nitore pingui. Vertice interdum rufescente; area ocellari, oculis et flagello nigris; pronoto et scuto partim,

scutello in dimidio posteriore, dorsello toto, etiam nigris; tarsorum apice, abdominis macula dorsali post medium sita, lateribus et apice fuscis.

Caput crassiusculum, thorace latius proportione 4:3, antice visum triangulare, longitudine  $\frac{7}{9}$  latitudinis aequans; vertice leniter arcuato; oculis sat prominulis, glabris; orbitis paullum infra convergentibus; linea oculari inferiore  $\frac{1}{4}$  longitudinis ab ore remota; genis vix curvatis; peristomio angusto; clypeo haud discreto, parte media eius marginis incisuris duabus limitata; antennis paullum supra lineam ocularem infra medium faciei insertis, ab oculis aequo spatio quam inter se remotis. Forma capitis de latere ovata; diametrum transversum  $\frac{5}{7}$  longitudinalis aequans; oculus  $\frac{3}{5}$  capitis latitudinis formans; diametrum longitudinale orbitae quam transversum paullum longius. Tempora pone oculos callo instructa, id est eminentia quadam oblonga, haud bene limitata, quae de supra melius est inspicienda. Genae sine sulco, teretes. Caput superne inspectum duplo latius quam longius, diametro longitudinali quam latitudine verticis minima sesquibreuiore, vertice terete, cum occipite superficiem convexam, continuam, formante; pars pone oculos, id est tertium posticum longitudinis, lateribus valde obliquis, modice curvatis; linea occipitalis marginem elevatum collo adpressum formans; ocelli in triangulum subaequilaterum dispositi, posteriores in linea oculis tangente dispositi, ab his aequo spatio quam inter se remoti. Superficies totius capitis laevis.

Antennae 9-articulatae, clava 2-articulata. scapo ocellum superante, sat longe rigido-piloso, pilis tamen in dorso brevioribus, at magis numerosis; flagello elongato, tenui, quam scapo triplo longiore, quam diametro transverso capitis fere duplo longiore; pedicello  $\frac{1}{3}$  scapi longitudinis et  $\frac{7}{9}$  funiculi articulorum



FIG. 63.—*Stenelachistus impressus*, ♀.  
Flagellum (× 45).

aequante, anello satis distincto; funiculi articulis quatuor triplo longioribus quam latioribus, breviter pedunculatis; clava quam articulo precedente fere sesquilongiore, haud crassiore, articulo basali pedicello aequilongo, apicali  $\frac{5}{7}$  huius attingente.

Thorax haud robustus, duplo longior quam latior, prothorace sat longo, conico, supra quam mesoscuto sesquibreuiore, scapulis sulcis profundis separatis, mesoscuto antice dimidiam thoracis latitudinem aequante, aequae longo atque lato; axillis superne inspectis scapulis subaequalibus, angulis internis satis remotis, latere anteriore recto in lineam cum scutello disposito; hoc ultimo latitudinem scuti aequante, longitudinem paullum superante, setis quatuor instructo, lateribus rectis, limite postico vix arcuato, superficie foveis impressa elongatis, latis, seriem singulam formantibus unicuique lateri parallelam, his seriebus postice arcuatim coniunctis et apicem scutelli tangentibus; dorsello sat magno latitudine quam scutello sesquibreuiore, in tota parte postica profunde foveis tribus transversis, contiguis, excavato; metathorace quam scutello paullum brevior, lateribus curvatis, parte postica angusta in nucham parvam

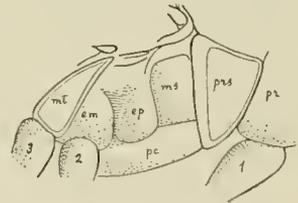


FIG. 64.—*Stenelachistus impressus*, ♀.

Thoracis latus cum coxis; *pr*, prothorax; *prs*, praesternum; *ms*, mesosternum; *ep*, episternum; *pc*, pectus; *em*, epimerum; *mt*, metapleura; 1, 2, 3, coxae; (× 45).

semicylindricam, fere aequae longam atque latam, desinente; carinis duabus metanoti incurvis, lineae mediae propinquis, versus hanc convexis, spatium limitantibus antice quam scutellum dimidio angustius, postice minus latum et ad medium minimum; spiraculis rotundis linea elevata pro parte circumdatis; callo pilis paucis, circa 8, valde longis, instructo. Superficies dorsii reticulato-sulcata, metanoti vero fere laevis; setae nonnullae longae, praecipue in scapulis, ordine dispositae. Praesternum triangulare, altitudine quam eius basi sesquilingiore; episternum mesosterno et epimero interpositum, cum latere superiore pectoris item atque mesosternum late coniunctum; hoc forma subquad-rangulari.

Proalae abdomen superantes, cellula costali haud glabra, angusta, latitudinem nervi marginalis aequante et  $5/7$  eius longitudinis attingente, cellula basali glabra, superficie reliqua fere tota sat dense pilosa, speculo nullo, pilis fimbriae apicalis in parte postica marginis magis elongatis et quam dimidia nervi stigmatici longitudine brevioribus, nervo marginali quam stigmatico quadruplo longiore, hoc clava haud lata, apice acuta, unco tenui instructa, nervo postmarginali  $4/7$  marginalis attingente, duplam stigmatici longitudinem superante. Alae metathoracis angustae, pilis marginis posterioris quam earum latitudine maxima dimidio brevioribus.

Pedes elongati, tarsorum articulis subaequalibus, postici unicalcarati, calcari tenui tibiae apicis latitudinem aequante.

Abdomen longitudinem thoracis cum capite aequans, thorace haud latius, elongate ovatum, apice acuto. Petiolus vix conspicuus, deorsum versus; post-petiolus mesonoto subaequilongus et  $1/4$  abdominis occupans. Superficies laevis, nitida, longe at parce pilosa.

Long. 1,8–2,3 mm.

*Habitat.* Silhouette: "from cultivated country near coast at Pointe Étienne."

—Mahé: "marshy coastal plain near Anse Royale."

Specimina duo.

#### 64. *Stenelachistus brevicornis*, sp. n.

*Femina.* Lutea, nigro-maculata, alis fere hyalinis, nitore pingui. Flagellum fuscum; verticis area ocellaris, pronotum, mesoscutum in dimidio anteriore, scutellum totum cum dorsello, episternum, epimerum, mesopectus pro parte, abdominis latera et apex, nigra.

Caput crassum, superne visum fronte et occipite excavatis, diametro longitudinali  $1/4$  transversi haud superante, parte pone oculos brevior, occipite haud linea saliente marginato, ocellis angulum fere rectum formantibus, posterioribus ante lineam dispositis orbitis postice tangentem; oculis de latere inspectis magnis, subrotundis. Flagellum minus attenuatum, latitudinem capitis vix superans, funiculi articulis aequalibus, latitudine duplo longioribus, clava quam articulo praecedente fere sesquilingiore.

Thorax latitudine  $3/4$  capitis aequans. Mesoscutum in linea media postice impressum sed haud sulcatum. Axillae minus remotae, ita ut scutellum  $1/3$  scuti suturae latere anteriore occupat; scutelli latus posteriorius fortiter curvatum,



FIG. 65.—*Stenelachistus impressus*, ♀.  
Dorsum cum abdominis segmento basali ( $\times 30$ ).

superficies sulco impressa utroque lateri parallelo, postice curvato at marginem posteriorem scutelli non attingente. Dorsellum magnum, forma lunata, postice integrum ac metathoraci contiguum. Metanotum carina instructum quam dorsellum sesquibreviore, lineis duabus elevatis et contiguis formata. Nucha nulla. Superficies dorsi praeter metanotum reticulato-sulcata. Proalae cellula costali quam nervo marginali vix brevior, hoc duplam stigmatici longitudinem paulum superante, proportione 9 : 4, quam nervo postmarginali sesquilongiore.

Abdomen petiolo brevi at distincto, longitudine thoracem cum capite haud superans, latitudinem thoracis fere aequans.

Long. 1,6 mm.

*Habitat.* Mahé : "Mare aux Cochons district, 1,000-2,000 ft."

Specimen unicum.

#### GEN. *Euplectrus* Westwood.

##### 65. *Euplectrus bicolor* (Swed.) Hal.

*Pteromalus bicolor* Swederus, *Svensk. Vet.-Akad. nya Handl.* xvi. 1795. p. 204.

*Euplectrus bicolor* Haliday, *Trans. Entom. Soc. London*, iii. pl. 4, 1843. p. 297.

*Euplectrus bicolor* Thomson, *Hymen. Scandin.* v. 1878. p. 187.

*Euplectrus bicolor* Masi, *Boll. Labor. Zool. gen. e agr.*, Portici, iii. 1908. p. 124. F. 27-29.

Specimina : septem feminae, sex mares.

*Habitat.* Silhouette : Mare aux Cochons.—Mahé : Cascade Estate, "country above Port Glaud," "high forest of Morne Blanc and Pilot."—Praslin, Côtes d'Or Estate.

Species etiam in Britannia, Alemagna, Suecia et Italia reperta.

Characterum varietatem quae in hac *Euplectri* specie nec non in aliis eiusdem generis occurrit, auctores non satis recognovisse videntur. Itaque species nonnullas quas iidem auctores descripserunt, *bicolori* plus minus similes et dorsi sculptura eorum iudicio distinguendas, non bene esse definitas existimo. Quum ego specimina plurima *Euplectri bicoloris*, ex Turingia atque Italia meridionali provenientia, examinaverim, haec de characteribus observavi. Variat in scutello reticuli areolarum amplitudo, quum illae sint quam areolae scuti plus minusve maiores, interdum etiam forma elongatae atque paene lineares, interdum vero polygonae. Sed in uno ex speciminibus seychellensibus arcolae dorsales fere ubicumque eadem magnitudine inveni. Interdum scuti carina huius partem posteriorem tantum occupat, nec raro omnino est oblitterata. Proalarum cellula basalis spatiumque angustum, quod est speculi loco, glabra sunt vel pilis nonnullis instructa. Color lutescens quo plerumque capitis pars inferior est praedita, in speciminibus quibusdam frontem fere totam occupat, itemque macula eiusdem coloris quae abdominis dorsum ornat, magnitudine valde variat. Saepe autem funiculus et elava sunt plus minus infuseati, colore hoc versus antennae apicem sensim obscuriore ; unum ex maribus seychellensibus flagello fere nigro observavi.

#### GEN. *Sympiesis* Förster.

##### 66. *Sympiesis laetus*, sp. n.

*Femina.* Capite, cum oculis, brunneis ; scapo aeruginoso, flagello nigro ; thoracis dorso abdominisque basi laete viridibus, exceptis scutello atque meta-

noto eyanescentibus; thoracis lateribus eum coxis posterioribus nigris; coxis anticis et reliquis pedum partibus stramineis, tarsorum apice infuseato; alarum nervis pallide brunneis; abdomine post segmentum basale nigro-aeneo, lateribus cyaneo-nitente.

Caput thorace paulum latius, antice visum  $\frac{3}{4}$  latitudinis suae longitudine aequans; oculis magnis, prominulis, glabris, linea oculari inferiore in  $\frac{1}{6}$  longitudinis ab ore remota; genis brevibus, convexis; clypeo haud discretum; peristomio antice marginato, integro; mandibulis 7-dentatis, dentibus post secundum apicalem minimis; antennarum insertione  $\frac{1}{3}$  longitudinis ab ore distante; de supra inspectum triplo latius quam in medio longius, verticis latitudine minima dimidium formante, ocellis in angulum fere rectum dispositis, anteriore lineae posterioribus tangenti contiguo, his ab oculis et anteriore aequae distantibus, inter se spatio sesquolongiore remotis. Superficies minute reticulata, infra lineam ocularem etiam minus conspicue insculpta.

Antennae pedicello latitudine sesquolongiore, anello minimo, funiculi articulis duobus primis et clava quam pedicello duplo longioribus, quarto sesquolongiore, clavae articulo basali dimidium superante, tertio mucronem apicalem formante.

Prothorax conicus, collari nullo, latitudine scutum antice tantum discretum aequans,  $\frac{3}{5}$  diametri transversi thoracis haud superans, longitudine quam scutum dimidio brevior. Hae setis ternis in quoque latere instructum; scutellum sesquibrevius, subquadratum, 4-setosum setisque anterioribus angulo interno axillarum propinquis; metanotum scutello aequilongum, carina et plicis destitutum, postice haud marginatum, area media spiraculis interposita elevata. Epimerum parvum, trilaterum, margine anteriore convexo, reliquis rectis. Sculptura prothoracis, mesothoracis dorsi, metanoti cum metapleura et praesterni, reticulato-alveolata, conspicua, areolis lineis valde elevatis, crassis, limitatis, forma varia, plerumque quadrangulari; areolae super axillas, scutelli partem mediam et metanoti aream inter spiracula, minores; mesosternum et mesopleura reticulato-squamosa, episternum sculptura reticulata parum conspicua.

Proalae nervo stigmatico  $\frac{1}{9}$  marginalis,  $\frac{1}{3}$  praestigmatis et nervi postmarginalis aequante, cubito ad medium areuato ibique nervum spurium linea glabra indicatum emittente; pilis infra nervum marginalem longioribus, reversis, haud seriatis.

Tibiae posticae calcaribus brevibus, subaequalibus. Tarsi omnes articulis fere aequilongis.

Abdomen laminato-depressum, thoraci cum capite aequilongum, nec thorace angustius, elongate ellipticum, apice aetum; segmento primo convexo-marginato quam secundo duplo longiore, laevi, nitido, sequentibus subaequalibus superficie reticulato-squamosa, in secundo tamen fere obsoleta.

Long. 3 mm.

*Habitat.* Praslin: Côtés d'Or Estate.

*Specimen* unicum.

*Adn.* A *S. sericeicorni* Neesi, specie generis typica, differt metathorace punctulato, neque carina neque plicis neque costula marginali postica instructo; articulis tarsalibus subaequilongis; abdominis forma elliptica; denique capitis pedumque colore. *Sympiesis grenadensis* How., cui quoque metanotum est punctulatum, huius carina praecipue distinguitur.

GEN. *Crateulophus*, n.

Hoc genus in *Eulophinorum* subtribu, prope *Sympiesidem* et *Dimmockiam* ponere licet, sed habitu *Micropectro* et *Comedoni* (= *Cratotrecho*) etiam accedit. Characteres eius praecipui hi sunt: antennae 10-articulatae, funiculo 4-articulato; mandibulae dentibus sex instructae (? — dentium numero 4 certe superante); thorax robustus, dorso aspectu granuloso, re vera minute atque dense punctulato; scapulae haud discretae; scutellum sulcis nullis; metanotum longius, carinatum, manifeste punctulatum; alarum nervatura illae *Sympiesidis* similis; abdomen distincte petiolatum, thoraci aequilongum, forma ovata, depressum; denique maris abdomen spatuliforme, antennaeque ramis tribus longis instructae.

67. *Crateulophus niger*, sp. n. (figs. 66, 67).

*Femina*. Nigra, metanoto aeneo, abdomine in dimidio anteriore supra et infra late ferrugineo-maculato, oculis castaneis, ocellis obscure rubris, scapo fulvo vel flavo-albido, flagello fusco, alis leniter infumatis nervis flavo-fuscis, pedibus praeter coxas fulvis, femoribus anticis plerumque brunneis vel nigris, setis dorsi et calli fimbriae albis.

Caput thoraci aequè latum, antice visum latitudine brevius proportionè 9:13, forma subtriangulari, vertice non arenato, inter ocellos magis elevato, oculis magnis,  $\frac{3}{4}$  longitudinis extensis, glabris, tamen fortiter vitro auctis pilis brevissimis rarisque instructis; linea oculari inferiore in  $\frac{1}{5}$  longitudinis, antennarum insertionè in  $\frac{1}{3}$  a margine orali remotis; clypeo angusto transverse lineari, nitido, labrum simulante, interne costula subrecta limitato. Mandibulae 6-dentatae. Vertex antice declivis, margine postico oculis ocellisque externis tangente, inter hos acuto; ocelli fere in lineam dispositi, aequo spatio inter se atque ab oculis remoti. Latitudo capitis de latere inspecti  $\frac{5}{7}$  longitudinis aequans, oculorum fere eadem. Genae sulco parum conspicuo, pone hunc fere obsolete insculptae. Facies sculptura minute et confertim reticulata; areolae lineis parum elevatis limitatae, infra antennarum insertiones minores, subtransversae, super verticem minus conspicuae.

Antennae 10-articulatae, anello brevissimo, funiculo 4-articulato, clava articulo apicali minimo. Scapus ocellum anteriorem fere attingens, flagellum capite sesquilongius. Articuli funiculi et clava compressi, pilosuli, aequè lati, primus valde elongatus, pedicello sesquilongior, latitudine sua quadruplo longior, secundus atque tertius  $\frac{3}{4}$  huius aequantes, quartus paullum brevior et pedicello aequilongus; ultimi item atque clava distincte pedunculati; haec ovato-acuta, articulo basali medium superante.

Thorax robustus, sculptura dorsi reticulato-punctata quam capitis magis conspicua. Prothorax de supra inspectus brevis, longitudine duplo latior, in utroque latere fortiter sinuatus, collari nullo; mesonotum prothorace longius proportionè 4:3, setis paucis longis instructum, scapulis haud discretis; scutellum subquadratum scuto aequilongum, 4-setosum, haud sulcatum; dorsellum magnum; metanoti pars media longitudinem scutelli fere aequans, alte elevata, carina conspicua, lateribus rectis fere parallelis, acute marginatis, plicae spiraculis contiguas simulantibus, area triangulari in angulis anterioribus depressa et leniter concava, superficie tota sculptura quam in dorso magis conspicua, lineis areolas limitantibus nitidis; spiracula magna, elliptica; callus longe pilosus. Mesothoracis partes laterales, praeter epimerum et zonam marginalem praesterni ac

mesosterni nitida, item atque dorsum insculptae; praesternum et metapleura magna, mesosternum latum epicnemio haud discreto, episternum parvum supra epimerum dispositum.

Proalae nervo marginali et postmarginali longis, stigmatico brevissimo, postcosta multisetosa. nervo spurio pilosulo post medium cubiti egrediente, nervo hoc ad medium obtusissime angulatim plicato, pilis marginis apicalis brevibus, superficie usque ad  $\frac{2}{5}$  longitudinis fere glabra, setis nonnullis longis sub nervo marginali seriatim dispositis atque reversis; cellula costali nervo marginali aequilonga, hoc cum postmarginali ex basi versus apicem sensim attenuato, nervo stigmatico  $\frac{1}{6}$  marginalis,  $\frac{2}{5}$  postmarginalis aequante (cfr. fig. 67).

Tibiae posticae calcaribus duobus instructae, altero parvo, altero brevissimo.

Abdomen ovatum, fere laminato-depressum, thoracis longitudinem atque latitudinem aequans, petiolo distincto sed brevissimo, transverso, segmento basali quam secundo duplo longiore, convexo-marginato, sequentibus longitudine subaequalibus, recte marginatis, post segmentum tertium minute reticulato-sulcatis, parce at longe pilosis.

Long. 1,8-2 mm.

Mas scapo plerumque ferrugineo, alis obscurioribus, dorso interdum nigro-aeneo, macula abdominis minus lata, femore postico praeter  $\frac{1}{3}$  basalem nigro, femore antico haud infuscato; antennis scapo versus apicem attenuato, pedicello brevi latitudine sua vix longiore, anello fere inconspicuo, funiculi articulis

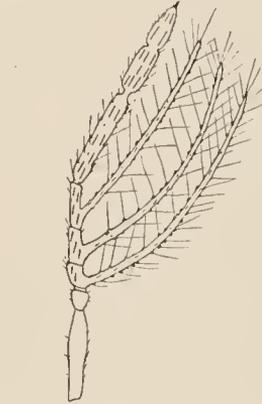


FIG. 66.—*Crateulophus niger*, ♂.  
Antenna (× 25).

tribus primis ramum emittentibus medium clavae attingentem pilisque articulis aequilongis ornatum, articulo primo quam secundo et tertio brevior, quarto tribus praecedentibus simul sumptis et clavae subaequilongo; huius articulis tribus quam ultimo funiculi haud latioribus, basali longitudinem apicalium superante, tertio minus discreto; abdomine spatulato, latitudine maxima in margine

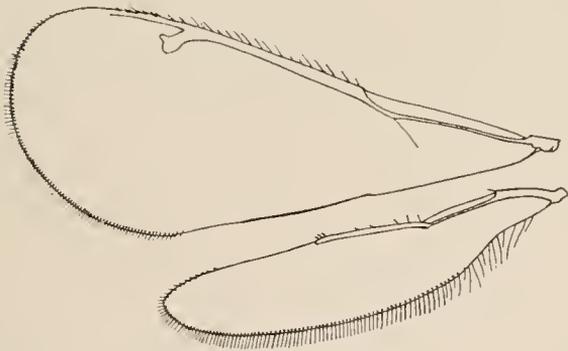


FIG. 67.—*Crateulophus niger*, ♂.  
Alae (× 25).

segmenti quarti  $\frac{3}{4}$  thoracis latitudinis aequante, segmento basali medium fere attingente, segmentis reliquis usque ad sextum sensim paulum longioribus, superficie laevibus. Long. 1,7-2 mm.

*Habitat.* Silhouette: Mare aux Cochons, Pointe Étienne.—Mahé: Cascade Estate, and Port Victoria.—Félicité Island.

Specimina 11 ♀♀, 5 ♂♂.

GEN. *Hemiptarsenus* Westwood.68. *Hemiptarsenus antennalis*, sp. n.

*Femina*. Viridis, vel griseescenti-viridis, thorace leniter aurato, abdominis apice interdum obscuro; facie infra antennarum insertionem violacea, supra viridi; scapo testaceo vel flavo-albido, latere superiore infuscato, flagello nigro, clava in  $1/3$  vel  $1/2$  apicali alba; pedibus cum coxis anticis flavo-albidis, post articulum primum tarsorum gradatim versus apicem obscurioribus, praetarsis brunneo; alis leniter fumatis, nervis et abdominis petiolo flavo-griseis.

Caput tegumento tenui post mortem fortiter plicato, oculis glabris, superficie minute reticulato-granulosa. Antennae flagello longissimo thoraci cum capite aequilongo, pedicello brevi, anello parvo, articulis funiculi usque ad tertium aequalibus et latitudine fere quadruplo, quam pedicello fere triplo longioribus, articulo quarto paulum brevius et vix latius, clava huic aequilonga.

Thorax latitudine  $4/9$  longitudinis aequans. Mesonotum antice valde convexo-productum, conspicue reticulato-punctatum, areolis ante scutellum plerumque ellipticis, in scutello angustioribus, fere linearibus; frenum lunatum et dorsellum magnum laevia, subnitida. Metanotum scutello brevius, area media haud lata, sulcis postice convergentibus limitata, superficie inter sulcos fere laevi, carina et plicis nullis; spiracula parva, rotunda, in sulco sat longe a postscutello locata. Praesternum magnum, episternum in margine superiore profunde excavatum, metapleura parva elongate triangularis.

Proalae cellula costali angustissima fere nervo marginali aequilonga, nervo stigmatico  $1/5$  huius aequante, postmarginali quam stigmatico haud sesqui-longiore, pilis marginis apicalis longis.

Pedes graciles, elongati, tarsorum articulis sensim brevioribus, primo  $1/3$  tibiae aequante.

Petiolum crassus, longitudine paulum latior.

Abdomen longitudinem mesothoracis cum metanoto aequans, latitudinem superans, postpetiolo haud brevi  $1/3$  longitudinis attingente, polito, segmentis reliquis aequilongis, apicali tantum sat conspiciendo insculpto.

Long. 1,4 mm.

*Habitat*. Mahé: "marshy coastal plains of Anse aux Pins and Anse Royale."  
Specimina tria.

GEN. *Sympiesomorpha* Ashmead- (?).

Ashmeadi *Sympiesomorphae* characteres, quos auctor in eius opere "Classification of Chalcid Flies" indicavit, ad species recognoscendas non satis sufficere opinor. Quum vero species tres, quas sum descripturus, cum generis diagnosi atque *Sympiesomorphae brasiliensis* et *obscurae* descriptionibus conferuntur, notis duabus praecipue congruentes videntur, quum *Sympiesidibus* persimiles sint et ab his scapulis plane separatis differant. Eae verum a speciebus Ashmeadi, saltem a *brasiliensi*, differunt oculis glabris, eaque quam *ornatam* appello, metanoto etiam differt carina destituto, abdomineque thoracis longitudinem non aequante. Denique species seychellenses abdominis macula flava non sunt praeditae.

69. *Sympiesomorpha ornata*, sp. n.

*Femina.* Capite brunneo, leniter purpureo-nitente; oculis griseo-rubris; scapo, pedicello annelloque obscure luteis, articulis reliquis flagelli fuscis; thoracis dorso fere toto viridi-aureo, setis albis instructo; metanoto cuprescente; scapulis, scuto antice, atque thoracis lateribus, cum coxarum posticarum basi, nigris; macula prothoracis super coxas anticas, coxis intermediis totis, posticis inter basim et apicem, aurantiacis; reliquis pedum partibus flavis, praetarsis tantum leniter infuscatis; tegulis etiam flavis; alarum nervis pallide brunneis; abdomine nigricante, basi viridi-cyanea, linea media ventrali flavida.

Caput thorace latius proportione 6:5, antice visum  $\frac{7}{9}$  latitudinis suae longitudine aequans, oculis magnis, prominulis, glabris, linea oculari inferiore  $\frac{1}{5}$  longitudinis ab ore remota, clypeo haud discreto, peristomio antice marginato, integro, mandibulis 6-dentatis (?) dentibus post secundum apicalem parvis, antennis mox supra lineam ocularem insertis; de supra inspectum triplo latius quam in medio longius, vertice saltim dimidium capitis latitudinis occupante, area elevata ocellari haud determinata, ocellis posterioribus ab anteriore et oculis aequo spatio, inter se spatio fere duplo, remotis, oculo anteriore lineae aliis tangenti propinquo, occipite haud marginato, pilosulo. Superficies sculptura reticulato-sulcata minuta et conferta at parum conspicua.

Scapus ocellum vix superans, flagellum duplam capitis longitudinem fere attingens, pedicello brevi, anello parvo, articulis funiculi et clava compressis, sensim at vix conspicue latioribus, pilis eorum latitudinem fere aequantibus, haud numerosis, instructis; articulis duobus primis funiculi duplo quam pedicello et quam latitudine sua triplo, longioribus, articulo quarto  $\frac{3}{4}$  longitudinis primi aequante, clavae articulo basali etiam brevior, dimidium paullo superante, reliquis subaequalibus.

Thorax elongatus, prothorace magno, conico, longitudine in medio dorso quam latitudine maxima mesothoracis sesquibreviore; scapulis bene discretis, scuto antice convexo-marginato; scutello  $\frac{2}{3}$  scuti longitudinis vix attingente, aequae longo atque lato, latitudine maxima post  $\frac{2}{3}$  eius longitudinis sita, lateribus in tertio ultimo curvatis, setis anterioribus angulo postico axillarum propinquis, sulcis nullis; dorsello magno duplo latiore quam longiore; metanoto  $\frac{2}{3}$  scutelli longitudinis aequante, carina et plicis omnino destituito. Spiracula magna, rotundata. Epimerum parvum, triangulare, antice recte marginatum. Superficies dorsi minute reticulato-sulcata, areolis in parte anteriore scuti superque axillas minoribus, super scutellum maioribus, regularibus; metanotum minus evidenter insculptum; dorsellum laeve.

Proalae subcostae parte ascendente sensim crassiore, quam nervo stigmatico duplo longiore, hoc fere  $\frac{1}{8}$  nervi marginalis ( $\frac{2}{15}$ ) et  $\frac{1}{3}$  postmarginalis aequante; fimbria apicali brevi.

Calcar maius quam tibiae apicis latitudo paullum brevius.

Abdomen ellipticum, longitudinem mesothoracis cum metanoto attingens, latitudinem superans; petiolo parvo, transverso; segmento primo quam secundo et tertio aequalibus paullum longiore, fere toto laevi, sequentibus reticulato-sulcatis; segmento apicali quam praecedente multo brevior.

Long. 2,6 mm.

*Habitat.* Silhouette: Mare aux Cochons.

Specimen unicum.

70. *Sympiesomorpha pulchella*, sp. n.

*Femina*. Capite toto, thorace pro parte, aeruginosis, pronoto, mesoscuto praeter margines laterales et marginem anteriorem, scutello praeter anteriorem, nec non metathoracis dorso, aureo-viridibus; axillis extus nigris, interius aeruginosis; mesosterno cum meso- et metapleura nigris; abdomine aeneo, basi viridi; scapo luteo, flagello nigro-brunneo; pedibus fulvis, coxis aurantiacis; tegulis flavis, alarum nervis brunneo-griseis; linea oculari inferiore in  $1/6$ , antennarum insertione in  $1/3$  capitis longitudinis sita; metanoto carina tenui instructo; abdomine valde elongato, thoracem cum capite conspicue superante, quam thorace haud latiore. Long. 3 mm.

*Habitat*. Silhouette: Mare aux Cochons.

Specimen unicum.

71. *Sympiesomorpha modesta*, sp. n.

*Femina*. Viridis, obscura, capite aeneo, scapulis, thoracis lateribus abdomineque subtus, nigris; antennarum scapo luteo, flagello brunneo-nigro; coxis nigris, anterioribus apice flavidis, reliquis pedum partibus flavo-griseis; tegulis flavis, alarum nervis brunneo-griseis; linea oculari inferiore in  $1/6$ , antennarum insertione in  $1/3$  capitis longitudinis; metanoto carina conspicua; abdomine thoraci cum capite aequilongo, quam thorace haud latiore. Long. 2,5 mm.

*Habitat*. Silhouette: "near sea-level in cultivated country, Pointe Étienne."

Specimen unicum.

GEN. *Allomphale* Silvestri.

*Boll. Labor. Zool. gen. e agr.*, Portici, ix. 1914. p. 217.

72. *Allomphale aemula*, sp. n.

*Femina*. Obscure viridis, subaurea, capite opaco, scapo ochraceo, pedicello metallico, funiculo et clava fuscis; thoracis lateribus pro parte coxisque fere nigris; tibiis anticis fuscis, mediis in dimidio apicali, posticis praeter marginem exteriorem, ochraceis; tarsis pallide testaceis, apice nigricante; alarum nervis brunneo-griseis; abdominis dorso post segmentum basale interdum cuprescente; ocellis magnis, posterioribus spatio ab anteriore remotis eorum diametrum vix superante; mesepimero itemque praesterno conspicue reticulato-squamosis; metanoto juxta costam transversam dorsello contiguam alveolis sat determinatis, seriatis, inculpto.

Long. 2,5-3 mm.

*Mas*. Scapo tibiisque fuscis, abdomine post segmentum basale, dimidium formans, nigro. Long. 1,5 mm.

*Habitat*. Silhouette: Mare aux Cochons, Pointe Étienne.—Praslin, Côtes d'Or Estate.—Mahé, Cascade Estate.

Specimina 5 ♀♀, 2 ♂♂.

*Adn*. Species *Allomphalae cavasolue* Silv. (*l.c.*), unicae huius generis hucusque inventae, similis et affinis, ab ea differens colore, sculptura dorsi minus minuta, epimeri sicut praesterni conspicua. In *Allomphale cavasolue* epimerum sculpturam reticulato-sulcatam, areolis rhombicis transversis, ostendit; ocelli posteriores ab anteriore distant spatio quam eorum diametro duplo longiore;

scapus etiam in feminis fuscus est ; pedes, praeter tarsos, sunt obscure cyanei vel violacci. Speciem hanc, cuius cotypum examinavi, Silvestri in Colonia Erythraea invenit.

GEN. *Achrysocharis* Girault.

( = *Closterocerus* Westwood, partim).

73. *Achrysocharis cardigaster*, sp. n. (fig. 68).

*Femina*. Aurato-viridis, nitida, scapo pedibusque cum coxis, albis, tarsorum apice et flagello fuscis, alis hyalinis, nervis griseo-luteis.

Funiculus articulis aequalibus quam pedicello parum longioribus ; clava longitudinem funiculi cum pedicello fere aequans. Metathorax area media triangulari indistincte partibus elevatis limitata, vertice antice verso parum a dorsello remoto ; spiraculis parvis, rotundis, tuberculis nullis. Nervus stigmaticus, cum clava, pyriformis, dente post medium oblique prominente ; nervus postmarginalis quam stigmaticus haud longior, sensim versus apicem attenuatus. Alae metathoracis pilis marginis posterioris 1/4 earum latitudinis maximae nonnihil superantibus. Petiolus brevis at distinctus. Abdomen eordiforme, subdepressum, thorace haud longius, paullum latius, valvula ventrali sat prominula, segmentis post primum aequalibus, hoc quam ceteris duplo longiore.

Long. 1 mm.

*Habitat*. Mahé : "marshy ground near sea-level at Cascade."—Silhouette : Mare aux Cochons.

Specimina duo.

*Adn.* Species *Closterocero formoso* Westw., praeter abdominis formam, similis.

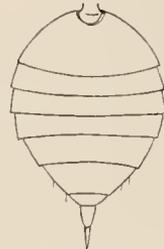


FIG. 68.—*Achrysocharis cardigaster*, ♀.  
Abdomen (× 45).

GEN. *Coccophagus* Westwood.

74. *Coccophagus eleaphilus* Silvestri, var. n.

*Coccophagus eleaphilus* Silvestri, *Boll. Labor. Zool. gen. e agr.*, Portici, ix. 1905. p. 318. fig. 64.

Specimina quinque ♀♀, unum ♂.

*Habitat*. Mahé : Cascade Estate.

*Adn.* Speciei forma typica, quam Silvestri descripsit, ab ipso in Colonia Erythraea apud Nefasit inventa, ubi *Philippiae chrysophyllae* larvarum est parasita, ab exemplaribus seychellensibus pedum colore differt. Hunc tamen colorem in hac specie varium recognovi. Nam, exceptis coxis mediis atque posticis, pedes interdum omnino lutei sunt ; hos Silvestri femoribus omnibus et tibiis posticis spatio quodam nigricantes descripsit. Coxae anticae interdum sunt nigrae, tibiaeque eiusdem paris in latere anteriore brunneo-lutescentes. Femora postica in uno specimine obscurata, in alio nigra sunt. Scutellum interdum omnino est luteum, quo colore etiam dorsellum praeditum esse potest. Maris vero caput pedesque sunt flavo-citrina. Equidem partium obscurarum et pallidarum distributionem in *C. eleaphilo* variam esse opinor, quod in aliis generis speciebus etiam fieri aliquoties observavi.

Huius varietatis sensilli antennales, scutelli setarum taxis atque longitudo, nervi stigmatici forma, alarum fimbriae, seta prope apicem femoris medii inserta, articuli tarsalis primi longitudo; cum notis quas Silvestri descriptione vel figura indicavit, bene conveniunt.

GEN. *Tetrastichus* Haliday.

*Tetrasticho* nomini eandem significationem nunc attribuo, quae est in Thomsoni opere de "Hymenopteris Scandinaviae," quod mihi facere licebit secundum Silvestrii exemplum (*Boll. Labor. Zool. gen. e agr.*, Portici) atque Waterstoni (*Bull. Entomol. Research*, London, vi. 1915) qui nuper species nonnullas descripserunt. An sint *Aprostocetus* et *Geniocerus* valida genera vel subgenera, sicut Kurdjumow opinatur (*Revue Russe d'Entom.* xiii. 1913) nolo hic disserere, hoc tantum dicam, in meo iudicio, naturali specierum consociationi repugnare. Hic error etiam in opere Thomsoni occurrit, quum in eadem generis sectione *Aprostocetum* aliasque species subeosta plurisetosa instructas auctor descripserit.

Species quatuordecim quae sunt in collectione seychellensi, hac tabula analytica possunt dignosci.

- A. Capite thoraceque rufis, abdomine nigro-brunneo. Parvus (1 mm.)  
*T. aeruginosus*, sp. n.
- B. Corpore nigro.  
 = Abdomine quam thoracae duplo longiore. Longitudine 2 mm.  
*T. inunctus* (Nees) Thoms. (?).  
 = Abdomine longitudinem thoracis aequante vel paullo longiore. Statura parva.  
 + Proalae setis marginalibus brevibus . . . . . *T. stictococci* Silv. (?)  
 + Alarum setis marginalibus latitudinem alae posterioris aequantibus.  
*T. longifimbriatus*, sp. n.
- C. Colore corporis alio.  
 = Abdomine longo, acuminato, saepe longitudinem thoracis cum capite superante.  
 + Abdomine longitudinem thoracis cum capite duplo superante.  
*T. longiventris*, sp. n.  
 + Abdomine minus elongato.  
 × Corpore viridi-aureo, nervo marginali pedibusque sulphureis.  
*T. theioneurus*, sp. n.  
 × Aliter pietus, abdominis dimidio basali rufescente.  
 \* Funiculi articulo primo quam secundo manifeste brevior.  
*T. dolichocerus*, sp. n.  
 \* Funiculi articulo primo quam secundo et tertio plus minus longiore.  
 — Pronoti longitudine margini postico scuti aequali.  
*T. distinguendus*, sp. n.  
 — Pronoto brevior . . . . . *T. agnatus*, sp. n.  
 = Abdomine thoraci subaequilongo, haud acuminato.  
 + Scuto lateribus tantum setoso, medio longitudinaliter sulcato.  
 × Coxis posticis fere nigris, nervo humerali seta una longa instructo.  
*T. nigricosa*, sp. n.

- × Coxis posticis in latere exteriori pro parte viridibus. Nervo humerali seta tantum una longa antice instructo. *T. nigriceps*, sp. n.
- × Coxis posticis luteis. Nervo humerali setis duabus instructo, marginali et stigmatico crassioribus . . . *T. dispar*, sp. n.
- + Scuto setis multis sparsis ornato, sulco longitudinali nullo; coxis posticis luteis.
- × Thorace supra metallico-nitente, scutello. interdum scuto, purpureis, setis super hoc tenuibus . . . *T. metalliferus*, sp. n.
- × Thorace supra plus minus obscure virescente, setis super scutum brevibus nec tenuibus . . . *T. hagenowii* (Ratz.).

#### 75. *Tetrastichus longiventris*, sp. n.

*Femina.* Aurato-viridis, abdomine fere toto nigricante, terebrae valvis nigris; oculis griseo-rubris; antennis brunneis, pedicello lutescente; facie infra lineam ocularem, tegulis, coxis anterioribus apice et reliquis pedum partibus, pallide flavis, excepto tamen tarsorum articulo apicali plus minus infuscato; alarum nervis griseis.

Flagellum thoraci subaequilongum, articulo primo funiculi triplo longiore quam latiore, secundo et tertio sensim brevioribus, latioribus, tertio autem latitudine sua paullum longiore; clava articulo primo funiculi fere aequilonga, quam praeclava paullum latiore.

Pronotum minute, at evidenter, reticulatum. Mesothoracis dorsum confertim, minute, in longitudinem striatum. Scutum haud medio sulcatum, postice leniter concavo-marginatum, setis prope margines laterales instructum. Scutellum scuto fere aequilongum, extremitatibus anterioribus sulci submediani externique ab extremitate sulci scapularis aequae remotis, spatio mediano quam submedianis sesquialtore. Metathorax dorsello magno, quam scutello triplo tantum brevior, carina dimidiam dorselli longitudinem vix aequante, superficie reticulata, sulcis lateralibus fortiter impressis, parte postica profunde excavata. Praesternum minute reticulatum; mesosternum sculptura parum conspicua, superne areolis reticuli transversis; episternum fere laeve; epimerum magnum, triangulare, sutura recta cum episterno coniunctum, angulo superiore ad altitudinem metapleurae desinente, lineis subtilibus sat grosse reticulatum. Metapleura parva, basi angusta.

Proalae apicem tergiti apicalis attingentes, duplo longiores quam latiores, nervo marginali quam cellula costali sesquialtore, quadruplam stigmatici longitudinem vix superante; postcosta bisetosa, seta prima nonnihil radicae propinqua; speculo non ultra praestigma extenso; pilis fimbriae in dimidio inferiore marginis apicalis quam illis superficiei sesquialtioribus, pilis nervi marginalis 2/3 nervi stigmatici vel dimidium aequantibus. Alae metathoracis in dimidio apicali latiusculae, apice acutae, margine posteriore prope apicem fortius curvato, pilis marginis anterioris brevissimis, posterioris 1/3 earum latitudinis aequantibus.

Pedes tenues, tarsorum articulis subaequalibus.

Abdomen quam thorax cum capite duplo longius, compressum, longe acuminatum, terebrae valvis 1/5 totius longitudinis formantibus.

Long. 2,5 mm.

*Habitat.* Silhouette.

Specimen unieum.

*Adn.* Hanc speciem *Aprostoceto quadrimaculato* Först. proximam esse opinor. Eius characteres praecipui in abdominis colore ac forma, terebrae longitudine, alae metathoracis fimbria et apice acuto, proalarum magnitudine, scutelli sulco nullo, flagello quam thorace paulum brevior, funiculi articulis apicem versus sensim curtantibus, sunt quaerendi.

#### 76. *Tetrastichus dolichocerus*, sp. n.

*Femina.* Capite thoraceque saturate viridibus, nitore dorsi subaureo vel cyaneo; oris margine pallido, oculis obscure rubris, funiculo et clava brunneis, pedicello et scapo dilute brunneis, hoc ultimo interdum griseo-albido; pedibus cum coxis anterioribus coxisque posticis in dimidio apicali, ligneis, praetarsis nigro; alarum nervis griseis; abdomine basi ventraeque fere toto aeruginosis, superficie reliqua obscure viridi.

Antennae elongatae; flagellum thoracis longitudinem superans (proportione 5:4), pedicello brevi, articulo primo funiculi quam hoc paulum longiore, quam secundo et tertio fere dimidio vel sesquibreviore; clava quam articulo praecedente sesquilongiore, articulo basali dimidium eius attingente.

Pronotum breve, longitudine dimidium marginis posterioris scuti haud superans, superficie reticulata. Scutum medio sulcatum, interdum sulco linea obscura, laevi, tantum indicato, prope margines laterales setis binis instructum, superficie, item atque scutelli, confertim et minute in longitudinem striata. Alae metathoracis versus apicem minus attenuatae, extremo apice haud acuto, pilis marginis posterioris dimidiam earum latitudinem non attingentibus. Pedes valde longi, postici abdominis apicem articulo primo tarsali attingentes; tarsi omnes attenuati.

Abdomen longitudinem thoracis cum capite aequans, terebrae valvis  $1/6$  totius longitudinis prominentibus.

Long. 1.3–1.6 mm.

*Mas* differt abdomine thoracis aequilongo, basi et dimidio apicali brunneis, in parte media lutescente; flagello tenui thoracis cum capite aequilongo, funiculi articulis aequalibus, quadruplo longioribus quam latioribus et pilis eorum longitudinem non superantibus, setis anterioribus elongatis nullis, clava quam articulo praecedente sesquilongiore, coxis anticis funiculi articulis aequilongis.

Long. 1,3 mm.

*Habitat.* Mahé: "Cascade Estate, at about 1,000 ft., and near sea-level; marshy coastal plain near Anse Royale."—Silhouette; Mare aux Cochons.

Specimina 4 ♀♀, 1 ♂.

*Adn.* Huius speciei hi sunt characteres praecipui: flagelli longitudo, funiculi articulus secundus atque tertius primo valde longiores, tertius autem clavae articulo basali vel scilicet duobus apicalibus simul sumptis aequilongus, scutum haud sulcatum, abdomen basi rufescens.

#### 77. *Tetrastichus distinguendus*, sp. n.

*Femina.* Praecedenti similis, praecipue differt scapo brunneo, flagello pallidior, pedicelli margine apicali pilisque albidis; alis lenissime griseo-virescentibus, anguste fusco-limbatis, nervis brunneis; tarsi articulo apicali plus minus infuscato; flagello thoracis longitudinem parum superante; articulo

primo funiculi quam pedicello fere duplo longiore, quam secundo et tertio aequalibus sequilongiore et clavae aequali longo, hac in articulos aequales divisa; pronoto haud brevi, longitudine marginem posteriorem scuti aequante et superficie conspicue reticulata, prope marginem posticum, ad medium, sulco transverso impressa; scuto et scutello omnino subtilissime strigosis, modice vitro auctis politis, nitidis; scuti sulco vix indicato vel nullo; pilis in margine apicali proalae quam in superficie triplo vel quadruplo longioribus; alis metathoracis pilis fimbriae quam earum latitudine paulum brevioribus (proportione 7:11); abdomine quam thorace longiore proportione 5:3, latitudine  $\frac{1}{3}$  longitudinis suae non attingente, segmentis 3.-5. aequalibus, terebrae valvis  $\frac{1}{6}$  totius longitudinis prominentibus.

Long. 1,6 mm.

*Habitat.* Mahé: "Mare aux Cochons district, 1,000-2,000 ft."

Specimina duo.

\**Adn.* Species haec, habitu praecedenti valde similis, differt articulo primo funiculi quam secundo ac tertio, qui sunt longitudine aequales, conspicue longiore, clavae articulis tribus etiam aequalibus, pronoto longo, scuto haud sulcato vel tantum vestigio sulci impresso, superficie minutissime striata, ita ut si modice vitro sit aucta, magis quam in specie praecedente polita ac nitida videatur, denique alarum fimbria atque colore, nec non articulo quarto tarsorum et praetarsis brunneis. In specie praecedente praetarsus tantum est infuscatus.

#### 78. *Tetrastichus agnatus*, sp. n.

*Femina.* *T. dolichocero* et *T. distinguendo* similis, capitis dimidio inferiore, vel etiam facie fere tota, flavo-albidis, antennis scapo ac pedicello brunneoluteis, reliqua parte obscurioribus, alis vitreis, praetarsis infuscatis; flagello longitudinem thoracis fere attingente, funiculi articulis atque pedicello subaequalibus, primo tamen funiculi longiore, clava quam articulo praecedente sesquilongiore, aequaliter divisa; pronoto brevi; scuto sulco medio magis minusve profunde impresso, superficie conspicue striata; alis posterioribus apice acuto terminatis, fimbria longa; pedibus brevioribus; tarsis posticis non attenuatis, articulis subaequilongis; abdomine longitudinem thoracis cum capite non superante, terebrae valvis  $\frac{1}{6}$  eius longitudinis prominentibus.

Long. 1,3 mm.

*Habitat.* Anonyme Island ("a cultivated islet near Mahé").

Specimina duo.

*Adn.* Species characteribus *T. dolichocero* simulque *T. distinguendo* similis. At eius abdomen minus est elongatum, sunt pedes breviores et graciliores, funiculi articulus primus quam secundus vel tertius paulo longior, capitis dimidium inferius albicans. Ex speciminibus altero setae sunt duae juxta sulcum scapularum insertae, altero tres, primo pedes leniter obscurati, secundo pallidi.

#### 79. *Tetrastichus theioneurus*, sp. n. (fig. 69).

*Femina.* Aurato-viridis, nitens; oculis obscure rubris; scapo lutescenti-brunneo, subtus pallido, interdum obscure luteo, pedicello concolore, flagello griseo-brunneo; pedibus cum coxis anterioribus, coxis posticis in dimidio apicali,

pallide sulphureis; tarsorum articulo ultimo brunneo, tarsis anticis, interdum posticis, flavo-fuscis; alis hyalinis, nervis alae posterioris, anterioris saltem marginali, item atque pedibus, pallide sulphureis; terebrae valvis nigris.

Caput antice visum rotundato-triangulari, transversum, oculis glabris, genis modice curvatis, peristomio angusto, superficie item atque scutum insculpta, punctis piliferis sparsis parum conspicuis; antennis in media facie paullum supra lineam ocularem insertis. Flagellum longitudinem prothoracis cum

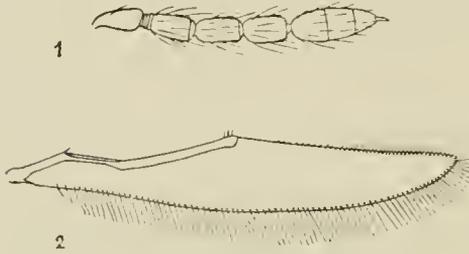


FIG. 69.—*Tetrastichus theioneurus*, ♀.  
1, flagellum (× 65); 2, ala metathoracis (× 45).

mesothorace aequans, pedicello brevi, hoc et funiculi articulis tribus aequalongis, articulo primo eum annellis arcu contiguus quam sequentibus evidenter longiore, secundo et tertio sensim paullum latioribus, pilis instructis eorum longitudinem aequantibus, elava quam articulo tertio fere duplo longiore, articulis aequalibus.

Scutum haud medio sulcatum, prope margines laterales setis binis

vel ternis instructum, margine postico leniter concavo, superficie reticulata, areolis rhombicis valde elongatis, fere linearibus, lenissime excavatis. Scutellum scuto sesquibrevius, de supra inspectum spatio mediano quam submedianis bis et dimidio latiore, extremitatibus anterioribus sulci submediani et externi ab illa sulci scapularis aequae remotis, sensillo punctiformi mox pone setas anteriores instructum, superficie confertim et minute in longitudinem striata. Metathorax postice truncatus, dorsello magno quam scutello fere dimidio brevior, tecti instar in longitudinem angulato-plicato, sulcis tenuissimis difficulter inspicendis reticulato; superficie metanoti reticulata; earina dorsello aequalonga. Metapleura magna, basi lata, quam epimerum superficie maior; hoc superne apice rotundato  $3/4$  metapleurae longitudinis attingens.

Proalae abdomen superantes, longitudine triplum fere earum latitudinis aequantes; nervo marginali quam cellula costali sesquolongiore et quintuplam nervi stigmatici longitudinem fere attingente, pilis ornato nervo stigmatico aequalongis; posteosta bisetosa, setis aequae ab eius extremitatibus et inter se remotis; speculo fere nullo, non ultra praestigma extenso; superficie in dimidio apicali pilis brevibus sat confertis instructa; pilis fimbriae his quadruplo longioribus. Alae metathoracis apice haud rotundato, pilis marginis posterioris dimidia earum latitudine vix longioribus.

Pedes tenues, antici articulis tarsi subaequalibus, fere quintuplo longioribus quam latioribus; primo spinis confertis seriatis instructo; pedes postici articulis tarsalibus, praecipue 1. et 2., longioribus.

Abdomen elongate ovatum, acuminatum, quam thorax duplo longius, lateribus haud compressum, terebrae valvis  $1/4$  totius longitudinis prominentibus, superficie reticulato-squamosa.

Long. 1,4–1,6 mm.

*Habitat.* "Silhouette; Mare aux Cochons, and from near the coast at Pointe Étienne.—Mahé: Cascade Estate, about 1,000 ft., and marshy coastal plains near Anse Royale."

Specimina 20 ♀♀.

*Varietas.* Specimina duo ♀♀, thoracis area dorsali incerte limitata, abdominis dimidio anteriore ventraeque fere toto obscure ferrugineis.

*Habitat.* Mahé, "Cascade Estate, and near Anse Royale."

*Adn.* Species ab affinibus hic descriptis, scilicet *Tetrasticho longiventri*, *distinguendo, agnato*, qui autem omnes generi *Aprostoceto* secundum Kurdjumow pertinerent, praecipue differt colore, tarsorum anticorum articulo basali serie conferta spinarum munito, funiculi articulis subaequalibus, scuto haud medio sulcato.

80. *Tetrastichus inunctus* (Nees) Thomson (?) (figs. 70, 71).

(?) *Eulophus inunctus* Nees, *Hymen. Ichneum. affn. Monogr.* ii. 1834. p. 183. ♀.

(?) *Entedon oleivus* Ratzeburg, *Ichneum. d. Forstinsect.* ii. 1848. p. 169.

(?) *Tetrastichus inunctus* Thomson, *Hymen. Scandin.* v. 1878. p. 294.

(?) *Geniocerus inunctus* Kurdjumow, *Revue Russe d'Entom.* xiii. 1913. p. 249 (tabula analytica).

*Femina.* Brunneo-nigra, abdomine et thoracis lateribus subnitidis, dorso opaco, oculis griseo-rubris, antennis fere totis grisescenti-brunneis, alis hyalinis; his partibus luteis; peristomio, orbitalum margine anteriore, scapo subtus, tegulis et alarum nervis, dorsello, femoribus anticis in dimidio apicali, posterioribus basi et apice, tibiis, tarsisque fere totis; articulo apicali tarsorum brunneo, interdum articulis 1.-3. tarsi antici griseis; sulco praecellari lineisque ab ore ad antennarum insertionem saepe brunneo-luteis.

Caput thoracis latitudinem aequans, antice visum subtriangulare, paullum longitudine latius, facie post mortem foveam semicylindricam formante, superficie punctis piliferis conspicuis sparsis, minute reticulata, areolis infra antennarum insertiones regulariter polygonis, in reliqua facie rhombicis et oblique seriatis. Antennae scapo subcompresso, pedicello sat longo, funiculi articulis subaequalibus, primo longitudine fere



FIG. 70.—*Tetrastichus inunctus*, ♀.  
Antenna (× 90).

quadruplam latitudinem aequante, secundo huic aequilongo, vix latiore, tertio paullum brevior, proportione 7 : 8, et latitudine dimidiam longitudinem parum superante; clava quam articulo praecedente duplo longiore, maiore latitudine et articulo basali medium eius fere attingente.

Scutum magnum, convexum, sulco medio haud profunde impresso, prope margines laterales setis instructum brevibus, tenuibus, difficulter inspicendis, aliis ad marginem subseriatis, aliis paucis remotioribus, sparsis; superficie in dimidio postico et lateribus foveolis oblongis, contiguis, alte et crasse marginatis, oblique subseriatis, minute insculpta, antice, in area semicirculari, reticulato-punctata, foveolis etiam minoribus, subrotundis, acute marginatis. Scutellum quam scutum sesquibrevius, superne inspectum spatio inter sulcos medios duplo quam spatium submedianis latiore, his in medio lateris anterioris cum sulco scapulari contiguis; superficie in longitudinem confertim ac minute striata, sculptura a mesoscuto valde differente. Dorsellum lineare transversum. Metano-

tum breve, medio quam dorsellum vix longius, ibique, carinae loco, area elevata instructum subquadrata, costis transversis anticis et posticis confluentibus formata; superficie minute reticulata, sulco spiraeuli inconspicuo. Mesosternum linea duplicata fortiter eurvata postice marginatum; epimerum mediam metapleurae longitudinem apice rotundato haud superans, eum episterno sutura lenissime curvata coniunctum. Praesternum sicut dimidium seuti posteriorius et prothoracis latera et metapleura, reticulata; mesosternum sculptura minus conspicua; epimerum minute reticulato-suleatum; episternum laeve.

Proalae abdominis apicem vix superantes, latitudine dimidiam longitudinem fere attingentes; subeosta 4-setosa; nervo marginali quam cellula costali longiore proportione 7:4, quam stigmatice proportione 9:2; speculo antice non ultra 1/3 nervi marginalis extenso, praestigma saepe non superante; nervo basali plerumque bisetosus, eubitali prope cellulam basalem saepius glabro; superficie in parte dimidia basali pilis haud frequentibus, sat longis, instructa, in dimidia apicali brevioribus, magis confertis, quam fimbriae apicalis dimidio brevioribus. Alae metathoracis margine anteriore usque ad apicem fere recto, pilis marginis posterioris 1/4 earum latitudinis fere aequantibus.

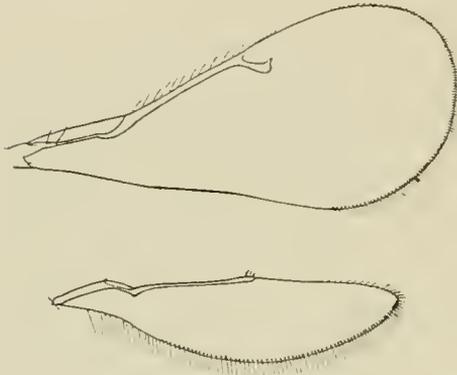


FIG. 71.—*Tetrastichus inunctus*, ♀.  
Alae (× 26).

Pedes robusti, postici coxis in latere exteriori reticulatis, in anteriore confertim striatis, femoribus crassis, quam anterioribus fere duplo latioribus. Tarsi omnes articulo apicali quam ceteris subaequalibus longiore.

Abdomen thorace fere duplo longius, triquetrum, apice acuminatum, terebrae valvis spatio tergito ultimo aequilongo prominentibus; superficie reticulata.

Long. 2–2,3 mm.

*Habitat.* “Silhouette: from near Mont Pot-à-eau and Mare aux Cochons, 1,000–2,000 ft.—Mahé: Cascade Estate, about 1,000 ft.; Mare aux Cochons district, 1,000–2,000 ft., etc.”

Specimina 35.

*Varietas.* Scapo atque pedicello, linea praecellari lineisque ab ore ad insertiones antennarum luteis; margine orbitali anteriore haud flavo-lineato; femoribus luteis, posticis tantum in latere dorsali fusco-umbratis vel macula brunnea notatis; coxis anticis interdum fere totis luteis; alis haud hyalinis; seuto minus opaco et sculptura seutello simili, setis uniseriatis.

*Habitat.* Mahé: “high forest of Morne Blanc and Pilot, about 2,000 ft.; summit of Mount Sebent, about 1,800 ft., etc.”

Specimina 4 ♀♀.

*Adn.* An sint huic speciei exemplaria quae descripsi attribuenda, non sane quidem mihi certum est, etsi eum descriptionibus satis congruant; nam cum Neesi diagnosi hoc tantum non conveniunt, abdomine thoraci aequilongo, femoribus apice obscuris. Ratzeburgi descriptio varietati attribuenda videtur.

81. *Tetrastichus hagenowii* (Ratz.).

*Eutedon Hagenowii* Ratzeburg, *Ichneum. d. Forstins.* iii. 1852. p. 211.

*Tetrastichus hagenowii* Ashmead, *Fauna Hawaiïensis*, i. Cambridge 1901. p. 329.

*Geniocerus hagenowii* Kurdjumow, *Revue Russe d'Entom.* xiii. 1913. p. 249 (tabula analytica).

*Geniocerus hagenowii* Crawford, *Proceed. U.S. Nat. Museum*, xlviii. 1915. p. 584. ♀ (fig. antennæ).

*Femina.* Aeneo-viridis, abdomine saepius in dorso, praeter basim et apicem, violascenti-nigro, basi brevi spatio flavo-grisea; flagello griseo-brunneo versus apicem plerumque pallido-pubescente; scapo, pedicello, abdominis petiolo pedibusque fere totis luteis; coxis anticis brunneis vel aeneis, tarsorum apice nigro; alis lenissime infumatis, nervis dilute brunneis.

Caput minute reticulatum, areolis frontis paullum elongatis, oblique subseriatis, infra antennarum insertiones minimis ac subrotundis; punctis piliferis parum conspicuis, confertis sed leniter impressis; oculis parce, breviter, pilosis.

Flagellum capitis latitudinem paullo superans, pedicello triplo longiore quam latiore, annellis quatuor, si fortiter vitro auctis manifestis, quorum ultimus postannello connatus, articulis sequentibus sat longe pilosis, primo funiculi elongato, pedicellum longitudine et latitudine nonnihil superante et clavae aequilongo, secundo ac tertio subaequalibus, quam primo sesquibrevioribus, secundo interdum  $\frac{4}{5}$  primi, tertio  $\frac{3}{5}$ , aequantibus.

Thorax robustus, latitudine  $\frac{3}{4}$  eius longitudinis haud superans. Dorsum convexum, sculptura reticulata, areolis super scutum minutis, elongatis, angustis, fere omnibus rhombicis, in eius parte anteriore minoribus, super scutellum etiam minus conspicuis, plerumque rectangularibus, in longitudinem seriatis. Dorsellum atque metanotum nitida, reticulo lineis modice elevatis, subtilibus, formato. Scutum teeti instar in angulum obtusissimum plicatum, foveis piliferis conspicuis 20-28 sparsis impressum. Scutellum aequae longum atque latum, superne inspectum area media quam submedianis duplo latiore, setis anterioribus post  $\frac{2}{3}$  longitudinis insertis, sensillis inter setas utriusque lateris nullis. Metanotum conspicue carinatum, carina postice areolam triangularem formante, deinde costas duas metathoracem limitantes emittente. Metapleura reticulato-sulcata, areolis haud elongatis. Prothoracis latera atque praesternum reticulato-alveolata. Mesosternum et mesopleura subtiliter reticulato-sulcata; epimerum triangulare, apice  $\frac{2}{3}$  metapleurae longitudinis attingens.

Proalae longitudinem thoracis cum abdomine fere aequantes, earum latitudine longiores proportione 21 : 50; margine apicali bene rotundato; postcosta setis quatuor vel quinque, interdum septem instructa; nervo marginali quam cellula costali longiore proportione 7 : 6, quadruplam nervi stigmatici longitudinem superante (proportione 35 : 8) setisque  $\frac{2}{3}$  huius nervi aequantibus instructo; speculo non ultra praestigma extenso, setarum serie nervi cubitalis a cellula basali incipiente. Alae metathoracis pilis marginis posterioris  $\frac{1}{4}$  earum latitudinis parum superantibus.

Pedes longiusculi, antici articulis tarsalibus primo et secundo aequilongis, tertio et quarto vix brevioribus, etiam aequilongis; postici articulo tarsali primo elongato, secundo  $\frac{3}{4}$  huius aequante, tertio et quarto subaequalibus dimidiam primi longitudinem vix attingentibus; intermedii articulis sicut in pedibus posticis at paullum brevioribus.

Abdomen oblonge ovatum, apice acuto, longitudinem thoracis cum capite aequans, superficie reticulato-sulcata.

Long. 1,6—1,9 mm.

*Mas* antennarum annellis vix conspicuis, funiculi articulis aequalibus, quam pedicello parum longioribus, clava in articulos tres aequales divisa et duobus praecedentibus simul sumptis aequilonga; setis flagelli brevioribus latitudinem articulorum aequantibus, longioribus, in articulis singulis funiculi et primo clavae insertis, usque ad dimidium articuli sequentis elongatis.

*Habitat*: passim, *Periplaneta* parasitizans.

Specimina plurima, in insulis Mahé et Silhouette collecta.

*Adv.* Hanc speciem, cuius exemplaria Hagenow plurima in Greifswald obtinuit ex ootheca *Blattae* in spolio avis seychellensis latente, Ratzburg breviter descripsit. Specimina igitur quae ego examinavi, quasi cotyporum praetium habent. Species haec valde est diffusa, blattarum oothecas inquinans, et etiam, quorundam virorum iudicio, parasita occurrit *Evaniae appendigastris* vel aliarum generis specierum, oothecas inquinantium. Inter exemplaria in Insulis Seychellensibus collecta eaque quae dr. Martelli in Sicilia, prope Cataniam, invenit, quaeque is mihi comiter misit, nulla est differentia. Clavam maris in hac specie biarticulatam esse, sicut in *Tetrasticho xanthopodo* Ratz., Kurdjumow affirmavit, ego vero articulos tres haud difficulter numeravi.

## 82. *Tetrastichus metalliferus*, sp. n.

*Femina.* Corpore metallico, capite cum prothorace aeneis, scuto et scutello purpureis, mesothoracis lateribus fere nigris, axillis, dorsello, metanoto abdominisque basi pallide aeneis (id est virescenti-griseis, metallicis) nitidissimis, abdomine reliquo nigro-brunneo; — vel etiam fronte et scutello purpureis, reliquo thoracis dorso aeneo, scuto tantum leniter aurato —; antennis brunneis, scapo cum pedicello, pedibusque cum coxis posterioribus, stramineis vel luteis, tarsorum articulis apicalibus infuscatis; tegulis brunneo-luteis, nervo marginali et stigmatico flavo-griseis.

Caput punctis piliferis numerosis, conspicuis.

Antennae pedicello sat longo; funiculi articulo primo quam pedicello paulum brevior, secundo et tertio subaequalibus,  $\frac{2}{3}$  pedicelli fere aequantibus; clava quam pedicello haud multo longiore, in articulos aequales divisa.

Thorax latitudine  $\frac{3}{5}$  eius longitudinis aequans, dorso plano, prothorace et scapulis conspicue reticulatis, his ultimis tamen prope scuti latera fere lacvibus; axillis minute reticulatis; scuto areolis valde elongatis, fere linearibus, oblique subseriatis, foveolis piliferis haud numerosis sparsis; scutello quam scuto minus conspicue inculpato (si modice vitro augeas, sericeo), areolis dimidio angustioribus et brevioribus, superficiem striatam simulantibus; dorsello et metanoto lineis subtilibus reticulatis, areolis magnis. Scutum ab axillis late, scapulis interpositis, separatum, sulco medio nullo, setis tenuibus longis, ad margines laterales ternis vel quaternis, in superficie nonnullis, sparsis. Scutellum latum, margine postico lenissime curvato, area media quadrata quam submedianis angustis quadruplo latiore, setis, in arcis submedianis, longis, sensillo nullo interposito. Dorsellum magnum. Metanotum dorsello duplo longius, carinae leco costis longitudinalibus arcuatis instructum versus lineam mediam convexis ac fere contiguus. Metapleura angusta, subtiliter reticulato-sulcata, areolis elongatis.

Proalae corpori aequilongae, latitudine dimidiam longitudinem fere aequantes,

apice bene rotundatae; subcosta setis quinque vel quatuor instructa; nervo marginali longitudinem cellulae costalis paullum superante, quam nervo stigmatico quadruplo longiore setisque instructo quam haec dimidio brevioribus; speculo non ultra praestigma extenso; setarum serie nervi cubitalis a cellula basali incipiente. Alae metathoracis apice rotundatae, pilis fimbriac  $1/4$  earum latitudinis aequantibus.

Pedes sat longi, tenues, tarsorum articulis duobus ultimis brevioribus.

Abdomen ovatum, distincte petiolatum, thoracis longitudinem et latitudinem aequans, terebrae valvis prominentibus, superficie reticulato-squamosa.

Long. 1.25 mm.

*Habitat.* Mahé: "Mare aux Cochons district, and Cascade Estate and the forest above, 1,000-2,000 ft."

Specimina tria.

### 83. *Tetrastichus dispar*, sp. n.

*Femina.* Obscure grisescenti-cyanea, abdomine castaneo, scapo luteo, pedicello obscuriore, funiculo et clava brunneis, oculis griseo-rubris, pedibus cum coxis fulvis, femoribus anticis postice in dimidio apicali infuscatis, tarsis apice obscuro, tegulis brunneis, alarum nervis flavo-griseis.

Caput thoracis et longitudine sua paullum latius, punctis piliferis conspicuis impressum. Flagellum mesothoracis dorso aequilongum; pedicellus dupla latitudine vix longior, funiculi articulus primus pedicelli longitudinem aequans, sequentes sensim breviores et latiores, ultimus aequae longus atque latus; clava conica articulis duobus praecedentibus aequilonga.

Thorax latitudine  $5/7$  eius longitudinis aequans, scuto profunde medio sulcato, setis ternis ad margines laterales instructo, sculptura reticulata conspicua; scutello in longitudinem striato, areis submedianis de supra inspectis quam area media fere dimidio angustioribus; dorsello rectangulari, reticulato; metathoracis dorso minute at fortius reticulato, carina instructo mox pone dorsellum divisa et carinas duas formante parum divergentes, cum costa posteriore metanoti foveolam fere linearem includentes. Praesternum, metapleura et area triangularis mesosterni post huius marginem reticulato-alveolata; epimerum, item atque episternum, fere laeve, forma haud triangulari, potius subrectangulari, at latere anteriore leniter sinuato insertionem alae metathoracis fere attingente.

Proalae longitudinem thoracis cum abdomine aequantes, earum latitudine longiores proportione 9:4; margine apicali bene rotundato; postcosta unisetosa; nervo marginali quam cellula costali vix brevior setisque instructo quam nervo stigmatico dimidio brevioribus, hoc  $1/3$  marginalis fere aequante; speculo non ultra praestigma extenso; setarum serie nervi cubitalis a nervo basali incipiente. Alae metathoracis ad apicem magis attenuatae, apice extremo rotundatae, pilis marginis posterioris  $1/3$  earum latitudinis aequantibus.

Pedes postici calcarum dimidium metatarsi haud superante, tarsorum articulis elongatis, subaequalibus.

Abdomen ovatum, apice acutum, longitudine thoracem parum superans, latitudine aequans, segmentis 2.-4. basi, sequentibus totis reticulato-sulcatis.

Long. 1,6 mm.

*Habitat.* Mahé, Cascade Estate, "about 1,000 ft."

Specimen unicum.

84. *Tetrastichus nigriceps*, sp. n.

*Femina.* Capite nigro, oculis et ocellis rubris, antennis flavescenti-griscis, scapo subtus et lateribus albedo; thorace saturate aureo-viridi, tegulis pedibusque luteis, coxis posticis extus fere usque ad apicem viridibus, tarsis articulo apicali infuscato, alarum nervis dilute brunneis, abdomine obscure viridi basi rufo-flavescente, segmentorum 2.-4. dorso cupreo.

Antennae scapo fusiformi valde compresso, quam pedicello duplo longiore, flagello thoracis longitudinem fere attingente, pedicello et funiculi articulis subaequalibus, in specimine exsiccato duplo longioribus quam latoribus, clava quam articulo praecedente fere duplo longiore, in articulos subaequales divisa.

Thorax latitudine  $5/7$  eius longitudinis aequans, scuto medio sulcato setisque binis ad margines laterales instructo, in longitudinem minute reticulato-striato; scutello minute striato; area media quam submedianis de supra inspectis vix latiore; dorsello subtiliter reticulato-sulcato; metanoto sat conspicue reticulato-squamoso et carina elevata instructo dorsello aequilonga.

Proalae sat longae, corpus longitudine aequantes, duplo longiores quam latiores, margine apicali modice arcuato, postcosta bisetosa, nervo marginali quam stigmatico longiore, proportione  $5 : 2$ , pilis instructo quam nervo stigmatico sesquibrevioribus, dente clavae angustae satis elongato; speculo non ultra praestigma extenso; setarum serie nervi eubitalis a nervo basali incipiente. Alae metathoracis pilis marginis posterioris  $1/3$  earum latitudinis vix aequantibus.

Tarsorum articuli subaequales.

Abdomen thoraci aequilongum, superficie reticulato-squamosa.

Long. 1,5 mm.

*Habitat.* Silhouette: Mare aux Cochons.

Specimen unicum.

85. *Tetrastichus nigricoxa*, sp. n.

*Mas.* Obscure viridis, mesothoracis lateribus, coxis, femoribus abdomineque nigris, hoc basi et apice aeneo; genibus, tibiis tarsisque luteis, his versus apicem infuscatis; antennis brunneo-luteis; tegulis brunneis, alarum nervis griseis.

Antennae scapo compresso, longitudine triplam eius latitudinem paulum superante, post medium carina instructo latitudini aequilonga; flagello mesothoracis dorsum haud superante, setis elongatis nullis; pedicello duplo longiore quam latiore; anello conspicuo, longitudine dimidiam pedicelli latitudinem attingente; funiculi articulis aequalibus, vix elongatis,  $3/4$  pedicelli longitudinis attingentibus; clava articulis duobus ultimis funiculi simul sumptis aequilonga, in articulos aequales divisa.

Thorax latitudine  $7/9$  eius longitudinis aequans, scuto medio sulcato, setis instructo quaternis ad margines laterales, versus scutellum sensim remotioribus et longioribus, superficie item atque scutelli minute in longitudinem striata; scutelli areis submedianis de supra inspectis quam area media fere dimidio angustioribus; dorsello subtiliter reticulato-sulcato; metanoto reticulato-squamoso, carina elevata instructo quam dorsello fere sesquilongiore.

Proalae longitudinem corporis sine capite aequantes, latitudine quam dimidia earum longitudine minore proportione  $2 : 5$ , margine apicali modice arcuato;

postcosta unisetosa; nervo marginali cellulae costali aequilongo, crasso,  $\frac{1}{9}$  eius longitudinis latitudine attingente, setisque instructo quam nervo stigmatico sesquibrevioribus, hoc etiam crasso, quam marginali triplo brevioribus; nervo basali glabro, speculo magno ad medium marginalis extenso. Alae metathoracis apice rotundatae. pilis marginis posterioris  $\frac{1}{4}$  earum latitudinis aequantibus.

Pedes postici calcari metatarso aequilongo, tarsorum articulis sensim vix longioribus.

Abdomen ovatum, longitudine thoracem aequans, latitudine  $\frac{5}{7}$  tantum attingens, superficie reticulato-squamosa.

Long. 1,65 mm.

*Habitat.* Mahé: "Mare aux Cochons district, 1,000-2,000 ft."

Specimen unicum.

### 86. *Tetrastichus aëruinosus*, sp. n.

*Femina.* Aeruginosa, abdomine brunneo basi flavescente, flagello griseo-fusco, oculis et ocellis rubris, pedibus cum coxis flavo-albidis, alarum nervis pallidis.

Caput magnum, lenticulare, antice visum rotundatum, oculis parum prominulis, fere glabris, antennis in linea oculari post  $\frac{1}{3}$  longitudinis capituli insertis, scapo quam orbita brevioribus, flagello thoraci aequilongo, articulis funiculi sensim vix longioribus, elava quam articulo praecedente duplo longiore.

Thorax brevis, altus. Scutum setis longis, binis in utroque latere, sat procul a margine instructum, sulco medio distincto; scutellum dimidiam seuti longitudinem vix superans, latitudinem aequans, margine postico fere recto, sulcis mediis nullis; metathorax postice truncatus, dorsello magno, carina parum prominente quam dorsello dimidio brevioribus. Mesothoracis dorsum minutissime et confertim in longitudinem striatum, latera item atque metanotum lineis subtilibus reticulata, areolis magnis. Mesosternum postice fortiter curvatum; epimerum triangulare, apice dimidiam metapleurae longitudinem superans.

Proalae duplo longiores quam latiores, nervo marginali quam cellula costali longiore proportione 10 : 7, quintuplam nervi stigmatici longitudinem attingente; postcosta setis tribus instructa; pilis in superficie haud confertis, post dimidiam alae longitudinem in margine sesquolongioribus; speculo non ultra praestigma extenso. Alae metathoracis in dimidio exteriore triangulares, pilis marginis postici quam earum latitudine paulum brevioribus.

Pedes longi, haud robusti, postici femore, tibia et tarso aequilongis, hoc ultimo articulo apicali quam ceteris subaequalibus vix longiore. Tarsi antici articulis sensim longioribus, apicali evidenter longiore.

Abdomen oblongo-ovatum, longitudine thoracem cum capite aequans, latitudine paulum superans, apice nervum stigmaticum attingens, terebra haud prominula.

Long. 1 mm.

*Mas* differt scapo compresso, pedicello et articulo primo funiculi aequalibus, articulo tertio et quarto evidenter longioribus, omnibus setis duplam eorum longitudinem superantibus instructis; clavae articulo basali quarto funiculi aequilongo.

*Habitat.* Mahé: Cascade Estate.

Specimina 1♀, 2 ♂♂.

87. *Tetrastichus stictococci* Silv. (?).

? *Tetrastichus stictococci* Silvestri, *Boll. Labor. Zool. gen. e agr.*, Portici, ix. 1915. p. 370. fig. 26.

Sunt in collectione specimina duo, ex Mahé (Caseade Estate) provenientia, quorum characteres omnes examinare non potui; ea vero *Tetrasticho stictococci* attribuenda videntur, silvestrianae speciei, quam auctor in Côte d'Or (in Africa Occidentali) invenit cuiusque mas tantum est notus. Speciminibus mahensibus, quae feminae sunt, corpus est brunneo-nigrum, thoracis dorso leniter cyanescente; funiculus cum elava obscure griseus, seapus atque pedicellus flavo-grisei; idemque color est tibiis tarsisque, excepto horum articulo apicali obscurato; femora primi et secundi paris pedum non ultra dimidium basale sunt nigra. *Tetrasticho strictococci*, secundum Silvestrii descriptionem, nulla est pars pedum nigro picta; quod vero sexus character esse potest. Aliaque est differentia in setis scuto insertis, quae in *Tetrasticho seychellensi* quatuor sunt prope seapularum suleum: in uno autem specimine seta quinta juxta marginem posticum et prope ultimam seriei lateralis inseritur: at secundum Silvestrii descriptionem tres numerantur. In specimine seychellensi setis quinque instructo, setae ipsae parti posteriori scuti vel scutello adfixae, setaque axillulae, anomalam longitudinem attigisse videntur. De thoracis lateribus hoc dicere licet. Praesterni et metapleurae superficies, etiam si fortiter vitro augeas, transverse atque minute strigulosa apparet; metapleurae et epimeri eadem est magnitudo; hoc apice eius acuto marginem superum metapleurae attingit.

88. *Tetrastichus longifimbriatus*, sp. n. (fig. 72).

*Mas.* Nigro-brunneus, peristomio, antennis, pedibus praeter femora postica et coxas flavis vel flavo-griseis, dorsello nigro vel brunneo-luteo, alis griseo-viresecentibus, tegulis et nervis pallide brunneis.

Antennae seapo compresso triplo longiore quam latiore, carina apicem fere attingente; flagello quadruplam seapi longitudinem aequante, pedicello latitudine sua paullum longiore, funiculi articulo primo brevi pedicello aequali, sequentibus et elavae duobus primis aequalibus, duplo longioribus; setis in latere dorsali articuli secundi usque ad medium elavae elongatis, in latere ventrali apicem articuli paullum superantibus, illis articuli tertii et quarti triplae unius articuli longitudini aequalibus.

Scutum medio suleatum, item atque scutellum minute in longitudinem striatum. Dorsellum magnum, earinae metanoti aequalongum, haec autem brevis, lata.

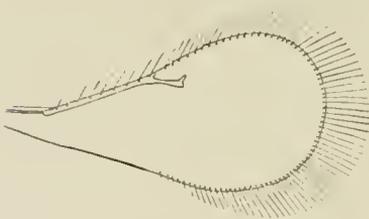


FIG. 72.—*Tetrastichus longifimbriatus*, ♂.  
Prosa (× 45).

Proalae abdomen valde superantes, longitudini huius cum thorace aequales, latitudine  $\frac{2}{5}$  earum longitudinis attingentes; posteosta bisetosa, nervo marginali quam stigmatico sextuplo longiore pilisque instructo huic aequalongis; pilis fimbriae valde elongatis, nervum stigmaticum aequantibus; hoc elava haud determinata, apice truncate et mox ad apicem dentato. Alae metathoracis

angustae,  $1/6$  earum longitudinis latitudine aequantes, in dimidio externo clongate triangulares, apice acuto. Pili fimbriae in alis anterioribus et posterioribus aequilongi, harum latitudini aequales.

Tarsi postici articulis aequilongis.

Abdomen thorace paullum brevius.

Long. 0,9 mm.

*Habitat.* Mahé: "Cascade Estate, from forest near Mount Harrison, about 1,700 ft.; slopes of Morne Seychellois, about 2,000 ft."

Specimina duo.

*Adn.* Haec species quam nunc *Tetrastichis* adseripsi, characteribus genericae rationis ab illis forsitan non differt quas Ashmead et Howard *Gyrolasiae* Först. attribuerunt; hae femineo sexu tantum cognitae, omnes Americae pertinent.

#### GEN. *Syntomosphyrum* Förster.

##### 89. *Syntomosphyrum trichops*, sp. n.

*Femina.* Nigra, parum nitens, oculis brunneis, ocellis rubris, antennis, alarum nervis et abdominis petiolo griseo-luteis, tegulis brunneis, alis haud limpidis, pedibus cum coxis posterioribus fulvis, femoribus anticis basi nigris, praetarsis omnibus leniter infuscatis.

Caput thorace parum latius, antice visum rotundato-triangulare, paullum latitudine sua brevius (proportione 5 : 6), vertice arcuato, oculis dense hirtis, linea oculari inferiore  $1/5$  eius longitudinis ab ore remota, clypei margine medio foveola punctiformi impresso, antennis paullum supra lineam ocularem et infra medium faciei insertis. Forma capituli de latere ovato-triangularis, diametro transverso dimidium fere longitudinalis aequante, oculis subrotundis totam fere latitudinem occupantibus, genis teretibus sulco impressis. Vertex de supra inspectus medio tantum propter foveam antennalem angustato, margine postico acuto, oculo anteriore lineae posterioribus tangenti fere contiguo, his ab anteriore et ab oculis aequo spatio remotis. Superficies tota reticulata, foveolis piliferis crebris impressa, pilis sat longis hirta.

Scapus lineam ocularem superiorem non attingens; flagellum breve longitudinem capituli vix aequans, pedicello duplo longiore quam latiore, annellis coalescentibus articulum minimum formantibus, funiculi articulis tribus sensim latioribus, vix brevioribus, primo subtransverso, ultimo longitudine sua  $3/5$  latitudinis haud superante; clava conica, quam articulo praecedente duplo longiore, haud latiore, in articulos tres divisa, quorum primus ultimo funiculi subaequalis.

Thorax latitudine  $3/4$  longitudinis aequans, pronoto sat longo, sed collari minime discreto; mesonoti scuto haud sulcato et margine posteriore dimidium eius latitudinis maximae, longitudine  $7/9$  huius attingente; scutello brevior (proportione 11 : 14) aequae longo atque lato, sulcis etiam nullis; axillis a lateribus scuti valde remotis; metathorace dorsello magno, carina media elevata, carinis lateralibus spiraculis extus tangentibus, angulis posterioribus reflexo-marginatis. Sculptura pronoti, mesoscuti et scapularum fortiter reticulato-sulcata, areolis forma irregulari, foveis piliferis conspicuis sed haud profundis neque marginatis, sparsis; axillae, axillulae atque scutellum sculptura magis minuta, areolis fere dimidio minoribus, regularibus, foveis piliferis nullis; dorsellum etiam reticula-

tum, metanotum subsquamosum. Callus parce pilosus. Metapleura et mesosternum conspicue reticulata, epimerum cum episterno fere laevia, praesternum sicut thoracis latera alveolatum, foveolae autem prothoracis subquadratae. Mesosterni latus posticum fortiter sinuatum, aream episterni depressam, rhomboidalem, antee limitans. Pili super pronotum, super scutum et scapulas frequentes, aequilongi, super axillas et axillulas nulli: scutellum setis quatuor longis instructum, anterioribus seuto propinquis, sensillo discoidali setis cuiusque lateris interposito.

Proalae abdominis apicem vix superantes, latae, dimidiam earum longitudinem latitudine fere aequantes, subcosta trisetosa, nervo marginali quam cellula costali sesquilingiore et quintuplam nervi stigmatiei longitudinem vix superante (2 : 11), setis eirea duodecim instructo nervo stigmatico aequilongis; cellula basali fere glabra, speculo non ultra praestigma extenso; pilis fimbriae in parte postica longioribus. Alae metathoracis cellula costali super nervum marginalem angustissima usque ad hamulos extensa, apice rotundatae, pilis marginis posterioris 1/3 earum latitudinis vix aequantibus.

Pedes longiusculi, intermediis articulo primo tarsali quam secundo et tertio longiore, postici articulo secundo quam primo nonnihil longiore et tertio brevi.

Abdomen distincte petiolatum, ovatum, thoracis longitudinem et latitudinem paullum superans, duplo longius quam latius; segmento primo duplam secundi longitudinem aequante, hoc cum tertio et sexto brevibus, subaequalibus, segmentis vero quarto et quinto cum primo longioribus; terebrae valvis vix apice prominulis; superficie tota reticulato-squamosa, pilis longiusculis sat erebris ornata.

Long. 1,35 mm.

*Mas* femoribus omnibus leniter infuscatis, flagello capitis longitudini aequilongo, articulo primo funiculi subquadrato, paullum longitudine sua latiore et quam pedicello fere dimidio brevioris; sequentibus pedicello aequilongis, sensim vix latioribus, ultimo latitudine paullum longiore; elava in articulos tres subaequales divisa, quorum primus praelavae longitudinem aequans; funiculi articulis omnibus pilis eorum longitudini aequalibus ornatis, duobus primis antice etiam setis paucis funiculo aequilongis instructis; abdomine quam thorace paullum longiore, nonnihil angustiore, magis depresso.

Statura quam feminae vix minor.

*Habitat.* "Silhouette: Mare aux Cochons, about 1,000 ft.—Mahé, Cascade Estate."

Specimina 2 ♀♀, 1 ♂.

*Adn.* Species haec *Syntomosphyro glossinae* et *phaeosomati*, Waterstoni, est proxima.

#### GEN. *Melittobia* Westwood.

##### 90. *Melittobia hawaiiensis* Perkins.

*Proc. Hawai. ent. Soc.* 1907. p. 124.

*Femina.* Corpus nigro-brunneum; oeli concolores, ocelli rubri, antennae grisescenti-brunneae, scapo, pedicello inferius, flavo-griseis; os aeruginosum; pedes pallide flavo-ochraeci, femoribus ad basim antee plus minus fusco-maculatis, coxis brunneis antee flavescentibus; alae lenissime grisco-virescentes, nervis griseis.

Caput thorace paullum latius, discoideum, vertice elevato, oculis hirtis, labri incisura media lobulos duos rotundatos separante, mandibulis 3-dentatis. Antennae ad os, infra lineam ocularem, insertae, scapo compresso ocellum haud attingente, prope apicem latiore eiusque superficie tota pilis paucis brevibus instructa; flagello duplo fere quam scapo longiore, quam capitis latitudine brevior, annellis inconspicuis, microscopio inspectis quasi duplicata lamella perspicuendis; funiculi articulis tribus sensim latioribus, primo longitudine parum, ultimo fere sesquialtore; clava brevi, triarticulata.

Thorax, cum abdomine, valde depressus, hoc ultimum vix brevis. Prothorax longus, conicus; scutum medio haud sulcatum, scutellum sulcis ductibus parallelis; metathorax etiam longus, dorsello fere lineari, spiraculis parvis rotundatis, carina nulla. Callus pilis paucis instructus. Pars thoracis superior minute reticulata, areolis scutelli fere linearibus.

Proalae abdominis apicem nonnihil superantes, latitudine dimidiae earum longitudini fere aequali, apice leniter rotundato, nervo submarginali setis longis tribus, interdum duabus vel quatuor instructo, marginali quam cellula costali vix longiore, postmarginali brevissimo, latitudine sua haud longiore, stigmatico  $1/3$  marginalis parum superante (proportione 7 : 18), parte basali glabra, excepto spatio quodam cellulam basalem inferius limitante; speculo infra praestigma nullo, hoc autem a nervo humerali non bene discreto setaque instructo quam illis nervo marginali antice adfixis nonnihil longiore. Metathoracis alae ipsarum latitudine quintuplo longiores, cellula costali ad hamulos extensa, pilis marginis postici  $1/3$  latitudinis vix longioribus.

Pedes robusti, tarsorum articulis longitudine subaequalibus, calcaribus brevibus metatarsum non superantibus.

Abdomen distincte petiolatum, latitudine maxima  $2/3$  eius longitudinis attingens, quam thorax aliquantulum latius, lateribus fere rectis, apice parum rotundato, terebrae valvis vix prominentibus, segmentis subaequalibus, pilis numerosis sparsis, longiusculis, superficie in longitudinem confertim striata.

Long. 1 mm.

*Habitat.* Mahé: Cascade Estate.

Specimina plurima.

*Adv.* Hanc speciem amplius et apte describere nequeo, quum sint exemplaria adeo exsiccatione deformata ut ne quidem solutione alcalina partes omnes in priorem formam restitui possint, quod saepe huius generis speciebus occurrit.

Gratias nunc agam domino Watersten qui hanc speciem recognovit et cum europaea *M. acasta* (Walk.) comparavit; is de characteribus *Melittobiae hawaiiensis* notas quasdam scripsit, quas libenter hic referam. "The mandibles are shorter and broader than in *acasta*. The median elypeal incision is much shorter and the lobes are truncate, not rounded (a condition not found in others of the genus). The eyes are for this genus densely pubescent and the face more hairy, the scrobes are smaller, and the impressed lines on the mid frons more approximated. In the antennae the scape is shorter and broader and the joints of the funicle are all much broader than long; the sensoria are more numerous. In the prothorax the spiracular emargination is very slight and the spiracle is not deeply embedded. This is an extremely bristly form all over. It may be separated at a glance from *acasta* by comparing the mid lobes of their respective mesonota. In the European insect there are about 40 bristles (20,20) while in the Seychelles form the bristles are about 80 (40, 40) The wing has stronger

bristles and the radius of the Seychelles species bears apparently 8-9 bristles, while *acasta* has 5-6."

SUBFAM. TRICHOGRAMMINAE.

GEN. *Centrobia* Förster.

91. *Centrobia mahensis* Kieffer.

Hanc speciem, adhuc ineditam, el. Kieffer descripsit (*vide* p. 230).

SUBFAM. MYMARINAE.

GEN. *Gonatocerus* Nees.

(*Rachistus* Förster).

92. *Gonatocerus silhouettae*, sp. n. (fig. 73).

*Femina.* Corpore nigro, abdominis dimidio basali et apice obscure ochraceis, dorsello, antennis, praeter scapi latus dorsale ac ventrale nigricantia, trochantcribus, femoribus basi, genubus, femoribus anticis etiam dimidio toto apicali, flavo-griseis; tibiis fuscis; tarsis tibiis concoloribus at apicem versus magis infuscatis; alis dilute brunneo-flavidis, nervis pilisque flavo-fuscis.

Caput thorace parum latius, oculis glabris, setis duabus brevibus in linea oculari, genis minutissime reticulatis, areolis parum elongatis. Antennarum radica 2/5 scapi longitudinis aequans, pedicellus 1/2 vix superans, pyriiformis; funiculi articuli sensim latiores, duo primi pedicello breviores, tertius hinc subaequalis, reliqui sensim longiores, breviter, anguste, pedunculati, octavus latitudine sua duplo longior; clava etiam breviter pedunculata, indivisa, articulis duobus et dimidio praecedentibus aequilonga, quam

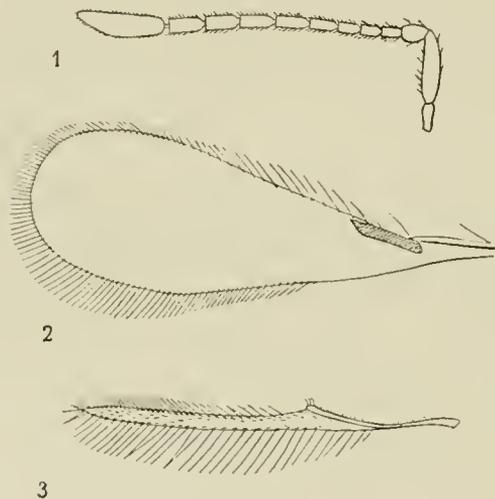


FIG. 73. — *Gonatocerus silhouettae*, ♀.

1, antenna; 2, 3, alae; ( $\times 45$ ). Pili in superficie proalae non sunt delineati.

praeclava parum magis quam sesquialior, forma oblonga, apice haud acuto, pube brevissima, vix conspicua, sat dense vestita.

Scutum atque scutellum sculptura reticulata, areolis in dimidio anteriore scuti fere linearibus, brevibus ac contiguis, in dimidio posteriore multo maioribus, oblongis, verum ad scutelli suturam subrotundis.

Proalae setis fimbriae ante dimidium marginis anterioris et in parte dimidia externa marginis posterioris, maximis, at 1/4 alae latitudinis haud superantibus. Alae metathoracis pedunculo 1/5 totius longitudinis formante, latitudine in 1/3 apicali 1/25 longitudinis, setis lateris anterioris hinc latitudini aequalibus, posterioris triplo vel paulo amplius longioribus.

Femora ad medium crassiora. Calcar pedis antici spinulosum, articulus tarsalis primus secundo sesquilingior, strigili toto spatio instructus. Tarsi posteriores articulo primo secundo sesquilingiore.

Abdomen thoraci aequilongum, petiolo transverso, terebra fere ad basim egrediente.

Long. 0,8 mm.

*Habitat.* Silhouette : Mare aux Cochons.

Specimen unicum.

GEN. *Polynema* Haliday.

93. *Polynema seychellense*, sp. n. (fig. 74).

*Mas.* Niger, ocellis ferrugineis, scapo ac pedicello flavis. antennae articulis reliquis flavescenti-fuscis ; abdominis petiolo, alarum nervis pedibusque cum coxis flavo-griseis, tarsis, absque articulo apicali brunneo, pallidioribus ; proalis ante medium longitudinis fascia leniter fumata ornatis.

Caput parum thorace latius ; vertice antice viso haud curvato, de latere inspecto angulatim plicato, plica marginem superiorem capitis formante ; ocellis externis in huius extremitatibus prope orbitas locatis, ocello medio in declivitate anteriore et setis sex, haud erectis, circumdato, quarum duae infra vergentes, binae laterales ; occipite sulcis duobus ab ocellis ad foramen magnum productis impresso ; oculis glabris, orbitis late marginatis ; antennis corpori aequilongis, margini orbitali contiguas, pedicello brevi, articulis sequentibus aequalibus, latitudine sesquilingioribus, isthmo brevissimo coniunctis, apice truncatis, pilis brevibus instructis, ultimo forma ovali, extremitate obtuso.

Dorsum superne inspectum scapularum sulcis conspicuis, subrectis ; scuto convexiusculo, latitudine sesquilingiore et margine antico fortiter curvato ; scapulis sat magnis, scutello subelliptico quam scuto fere sesquilingiore atque manifeste latiore.

Superficies capitis et thoracis polita, etiam si 100 diam. magnificata, sculptura nulla.

Proalarum fimbria setis apicis  $\frac{2}{5}$  earum latitudinis, setis in parte postica exteriori  $\frac{3}{5}$  aequantibus. Alae metathoracis antice setis instructae earum latitudini aequalibus, postice triplo longioribus.

Calcar tibiae anticae pilis nonnullis brevissimis instructum, tibiae mediae atque posticae harum latitudine haud longius, glabrum, apice acutum, subrectum, at latere exteriori manifeste curvato. Articulus basalis tarsi antici strigili munitus, idem tarsorum posteriorum longitudinem secundi tertiique aequans, articuli tres ultimi subaequales.

Abdominis petiolus tenuis, coxis posticis aequilongus.

Abdomen globosum, longitudine dimidium thoracis paullum superans et huius latitudinem aequans.

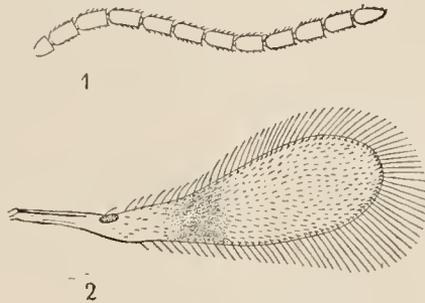


FIG. 74.—*Polynema seychellense*, ♂.  
1, antenna ; 2, proala ; (× 45).

Long. 0,66 mm.

*Habitat.* Silhouette: apud Mare aux Cochons ("high jungle").

Specimen unicum.

## EINE NEUE TRICHOGRAMMIDE VON DEN SEYCHELLEN INSELN.

BESCHRIEBEN VON PROF. DR. J. J. KIEFFER (BITSCH).\*

### *Centrobia mahensis*, n. sp. (fig. 75).

♂. Hellgelb, Abdomen schwarzbraun. Augen unbehaart, länger als die Wangen, Ocellen einen sehr flachen Bogen bildend; Mandibeln wenigstens so breit wie lang, fast viereckig, am abgestutzten Ende mit drei kleinen Zähnen, Maxillarpalpen eingliedrig, walzenförmig, sehr dünn, mit einer Endborste, welche länger als das Glied selbst ist; Labialpalpen durch eine Papille ersetzt. Antenne 6-gliedrig, unterhalb der Augenbasis entspringend; 1. Glied vom Grunde bis zur Spitze allmählich verdickt, länger als die drei folgenden zusammen; 2. Glied walzenförmig, kaum länger als dick, ebenso dick wie das 1.; das 3. fast halbkuglig, proximal etwas schmaler als das 2.; 4.-6. zusammen eine längliche, zugespitzte Keule bildend, welche wenig kürzer und wenig dicker als das 1. Glied ist, und spärliche, wenig abstehende Haare trägt, deren Länge der Dicke der Keule gleichkommt, 1. und 2. Glied kaum quer, das kegelige Endglied länger als breit, die Trennung zwischen den drei Keulengliedern wenig deutlich. Thorax ziemlich flach, gleichbreit, um die Hälfte länger als das Abdomen, mit dem er, in seiner ganzen Breite, verbunden ist; Pronotum schmal, bogig, weit vor den Tegulae aufhörend; Mesonotum nach hinten verschmälert und abgestutzt, länger als breit, so lang wie das Scutellum und das Metanotum zusammen. Vorderflügel am Distalende breit abgerundet, und bewimpert, in der proximalen Hälfte allmählich und stark

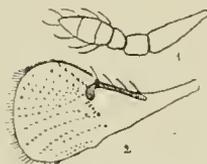


FIG. 75.—*Centrobia mahensis*, ♂.

(J. J. Kieffer del.).

1, Antenne; 2, Vorderflügel.

verschmälert und kahl, in der distalen Hälfte mit Längsreihen kleiner Borsten; Marginalis lang und breit; Stigmatica lang und breit, halb so lang wie die Marginalis aber breiter, schwach bogig, distal von der Flügelmitte liegend, Hinterflügel sehr schmal, fast linealförmig, distal zugespitzt, im proximalen Drittel, am Vorderrande, bis zu den zwei Frenalhückerchen ausgeschnitten, mit drei Längsreihen von Wimpern, die mittlere Reihe aus kleinen Borsten bestehend, die vordere, nahe am Vorderrand des Flügels, mit längeren Borsten, die hintere am Hinterrand, mit sehr langen Wimpern, welche fast doppelt so lang wie die Flügelbreite sind. An den 4 Vorderbeinen sind die Tibien kaum dicker als die Tarsen und wenig dünner als die Femora; an den zwei Hinterbeinen sind die Femora und die Tibien stark verdickt, etwa 3 mal so dick wie die Tarsen, die Femora am dicksten in der Mitte, die Tibien vom Grunde bis zum Distalende allmählich dicker; Tarsus so lang wie die Tibien, die 3 Glieder desselben etwa gleichlang, 3 mal so lang wie dick; Krallen einfach. Abdomen ziemlich flach gedrückt. Länge: 0,5 mm.

*Vorkommen.* Seychellen. Mahé: "Cascade Estate, about 800-1,500 ft., 1909."

\* See p. 121 (footnote). Figs. 75, 1 and 2, are probably to be regarded as diagrammatic.

ON SOME APPARENTLY NEW *NOTODONTIDAE*

BY LORD ROTHSCCHILD, F.R.S., PH.D.

1. *Spatalia affinis* spec. nov.♀. Similar to *plusiata* Walk., but much darker.

Differs from *plusiata* on the forewings in the colour being deep black-brown **not** chocolate, in the silver  $\mathcal{T}$  and stigmatic grille being larger and farther away and not fusing with pale area of forewing, in the brown apical quadrate patch extending farther back into the pale area, and in the hindwings having the basal two-thirds pale buff and outer one-third only dull brown.

Length of forewing: 30 mm. Expanse: 68 mm.

*Habitat.* Upper Aroa River, British New Guinea, March 1903 (A. S. Meck), 2 ♀♀.

2. *Spatalia indistincta* spec. nov.♀. Nearly related to *laticostalis* Hmps. but paler.

Differs in the pale area of the forewing being less well defined and variegated with small streaks and clouded spots, and there is a pale spot in the dark apical patch; the dark portion of the forewing is paler and clouded with pale violet.—Hindwing is much paler brown.

Length of forewing: 24 mm. Expanse: 56 mm.

*Habitat.* Townsville, North Queensland (Dodd), 1 ♀.

3. *Naprepa fusconubilata* spec. nov.Nearest to *flexifera* Schaus, but has shorter and broader wings.

♂. Forewing much less rufous, the outer one-third obliquely clouded and streaked with greenish grey, the two obliquely vertical white spots above vein 1 absent and replaced by a longitudinal white line on vein 1, the oblique zigzag dark band of forewing less distinct.—Hindwings rufous wood-brown **not** dark rufous chestnut, the white and black ocellate spot above tornus enclosed in a grey irrorated patch, the lighter postmedian line longer and more evenly curved. Thorax dark chocolate *without* whitish tufts.

♀. Similar, but much larger, and has a large whitish tuft on first abdominal segment.

Length of forewing: ♂ 41 mm., ♀ 62 mm. Expanse: ♂ 92 mm., ♀ 136 mm.

*Habitat.* Las Quignas, near San Esteban, Venezuela (S. M. Klages); San Esteban, Venezuela, July 1909 (S. M. Klages) (type, ♂ San Esteban), 2 ♂♂, 1 ♀.

4. *Naprepa adusta* spec. nov.♀. Resembles nothing else in the genus, but nearest to *pulcheria* Druce.

Antennae brown; head, thorax, and abdomen buffish cinnamon, a darker median line on patagia.

Forewing buffish cinnamon suffused with rusty brown, giving the appearance of having been scorched, this burnt appearance being much stronger

on the outer half of the wing; median three-fifths of costal area and for part of cell creamy greyish buff; a sinuate postmedian line of black dots and a black dot under base of vein 2; lobe of inner margin hardly produced; in outer two-thirds of wing are a number of dark striae reaching from apex of cell and median nervure to termen.—Hindwing buffish cinnamon, a postmedian sinuate band consisting of an inner portion darker than rest of wing and an outer one paler; a brownish patch at tornus and traces of dark half-moons along margin.

Length of forewing: 40 mm. Expanse: 87 mm.

*Habitat.* Tinguri, Carabaya, South-east Peru, 3,400 ft., August 1904 (G. Oekenden), 1 ♀.

#### 5. *Antiora affinis* spec. nov.

♂. Differs from *A. subrufula* Walk. in the wings being shorter and broader. The forewings appear darker and more maroon, owing to the reduction of the grey irroration; the white stigma and postmedian transverse band are **absent**; between veins 2 and 4 is a postmedian ill-defined cloudy whitish patch.

The hindwings differ in being quite black and having a median cloudy whitish patch.

Below entirely black, and the cloudy whitish patches on fore- and hindwings much more sharply defined and whiter.

Length of forewing: 19 mm. Expanse: 43 mm.

*Habitat* ?.

#### 6a. *Cargida pyrrrha intensa* subsp. nov.

Differs from *pyrrrha pyrrrha* in being much darker and in the pattern being much more strongly marked.

*Habitat.* Nogales, Arizona, July 1903 (Osler), 4 ♂♂, 1 ♀.

#### 7. *Nystalea nigriplaga* spec. nov.

♀. Nearest to *idonea* Walk.

Antennae dark brown; frons and palpi wood-buff, vertex sooty grey; the two tufts at base of antennae, the tegulae, and patagia sooty blackish grey edged with buffish, the rest of thorax and abdomen dark wood-grey slightly variegated with buff.

Forewing dark blackish wood-brown variegated all over with buffish and rusty brown-buff, which on costa consists of bent streaks in basal three-fifths and of square dots on outer one-fifth. A black round velvety stigma ringed with buffish on lower corner of discocellulars with a dark rufous spot above it and a dull sooty black quadrate spot behind it; an oblong sooty black patch extends obliquely from end of cell to termen, in this patch is an oblique buff streak and some indications of buffish dots; a row of black chevrons on margin and fringe of termen.—Hindwings sooty black-brown; basal half suffused with buff; fringe and abdominal margin buff.

Length of forewing: 42 mm. Expanse: 92 mm.

*Habitat.* La Oroya, Rio Inambari, South-east Peru, 3,100 ft., December 1905 (G. Oekenden), 1 ♀ type; 1 ♀ Santo Domingo, Carabaya, 6,500 ft., December 1902 (G. Oekenden).

8. *Nystalea cossoides* spec. nov.

♂. Nearest to *guzmani* Schaus.

Antennae black-brown; head and tegulae deep chestnut; thorax silvery grey and deep chestnut mixed with a pale chestnut tuft on hind edge; abdomen dark wood-brown, last segment and anal tuft cinnamon.

Forewing clouded mouse-grey, the central three-fifths suffused with brown, a basal chestnut patch on upper half of wing; a convex curved double transverse line, inwardly dull chestnut, outwardly black, a similar double sinuous postmedian line, but with the inner part black and outer chestnut: in between these two transverse bands are a number of short and irregular black hair-lines and rings, and some grey patches in the browner ground-colour; some black subapical hair-streaks and a black crenulated terminal line.—Hindwing: basal two-thirds greyish, somewhat thinly scaled and hyaline, outer one-third sooty black-brown, fringe white.

Length of forewing: 23 mm. Expanse: 52 mm.

*Habitat.* Santo Domingo, Carabaya, South-east Peru, 6,000 ft. (G. Ockenden), 1 ♂.

9. *Nystalea zeuzeroides* spec. nov.

♂. Nearest to *discalis* Schaus.

Antennae dark brown; palpi buff at the upturned third joint, rest streaked grey and chestnut; head, antennal tuft, and tegulae deep bright chestnut; basal half of patagia roan-grey, rest of patagia and thorax bright maroon-brown; abdomen brown with mauve tinge.

Forewing silvery mouse-grey variegated with a large number of sinuate and zigzag transverse lines of different widths of bright brown, wood-brown or whitish; at end of cell is a stigma of dark grey surrounded by a brown line, a postdiscal dark brown streak on subcostal.—Hindwings dark brown, basal two-thirds variegated with some buffish clouding.

Length of forewing: 29 mm. Expanse: 66 mm.

*Habitat:* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 6 ♂♂.

10. *Nystalea ocellata* spec. nov.

♂ ♀. Antennae brown serrated with pale rusty teeth; head yellowish cinnamon rufous; antennal tufts short, some colour; tegulae and base of patagia cinnamon rufous, some of the hairs tipped with violaceous grey; rest of patagia and thorax violaceous brown tipped with grey and mauve; abdomen wood grey-brown, a chestnut tuft on first segment.

Forewing liver-brown with a series of streaks on costa, some chestnut, others brown, buff, or mauve, and some darker and paler transverse crenulate shadow-lines on basal half of wing; a median basal black spot and a similar larger one on vein 1; beyond the cell is a broad band from costa to median vein, the inner half of this band is half rufous, half black, the outer half rufous with two marginal silvery-mauve lines and between these lines powdered with silvery mauve; this band is followed by three or four crenulate angled dark lines variegated with streaks and freckles of silvery mauve and blue; a subapical velvety black spot surrounded by a buff and speckled area giving somewhat the effect of an ocellus; a submarginal row of slate-blue somewhat ocellated dots.

—Hindwing: basal half dirty buff suffused with earth-brown, outer half earth-brown.

Length of forewing: 21–25 mm. Expanse: 47–56 mm.

*Habitat.* La Oroya, Rio Inambari, South-east Peru, 3,100 ft., December 1905 (G. Ockenden), 5 ♂♂, type; Rio Demerara, British Guiana, 1 ♂, 1 ♀.

#### 11. *Bardaxima molossus* spec. nov.

♂. Antennae brown; palpi, head, tegulae, and centre of thorax dark chocolate-brown; a small tuft of buffy-yellow hair below antennae; patagia very large olive-grey, pale grey at base; abdomen wood-brown.

Forewing: basal two-fifths greyish wood-brown densely strigillated and suffused with darker brown; a median slightly curved double black-brown transverse line, two blackish dots in median fold in basal one-fifth; outer three-fifths wood-grey strigillated with yellowish brown and dark brown; the striae in some places so arranged as to form transverse bands more or less distinct; outer one-fifth of costa with double excision; a large chestnut subapical patch. —Hindwing greyish wood-brown, fringe buff.

Length of forewing: 31 mm. Expanse: 73 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 1 ♂.

#### 12. *Bardaxima castaneobrunnea* spec. nov.

♂. Antennae red-brown; head and thorax deep chocolate-rufous; abdomen similar but washed with black.

Forewing bright rufous chocolate, suffused here and there with purplish mauve; a number of erenulate streaks and spots more or less indistinct rufous cinnamon; a rufous cinnamon stigma at apex of cell containing two black lunules; a large round ocellate subapical patch blackish chocolate. —Hindwings blackish chocolate-brown.

Length of forewing: 20 mm. Expanse: 46 mm.

*Habitat.* Rio Demerara, British Guiana, 2 ♂♂.

#### 13. *Eragisa basifera* spec. nov.

♂. Antennae brown; head and thorax mossy green-grey; abdomen mouse-grey suffused with pinkish cinnamon.

Forewing mossy green-grey, a dull chestnut broad subbasal transverse band edged outwardly by a triple black line, the outermost line being interrupted; postmedian and submarginal lines of white spots. —Hindwing cream-buff; abdominal area brownish buff; termen and tornus suffused with cinnamon.

Length of forewing: 23 mm. Expanse: 52 mm.

*Habitat.* Potaro, British Guiana, February–June 1908 (S. M. Klages), 6 ♂♂; Aroewarwa Creek, Maroewym Valley, Surinam, May 1905 (S. M. Klages), 2 ♂♂; La Union, Rio Huacamayo, Carabaya, South-east Peru, 2,000 ft., December 1904 (G. Ockenden), 3 ♂♂. Type, Potaro.

#### 13x. *Eragisa tenebrosa* spec. nov.

♂. Antennae strongly pectinated sooty black; head deep blackish chocolate; thorax blackish chocolate mixed with rufous chocolate; abdomen dirty brown-buff at base and on sides of first four segments.

Forewing deep blackish chocolate suffused with a slaty purple bloom from a dusting of bluish scales, a number of more or less distinct transverse crenulate and waved lines of black spots and lunules; a buff stigma outlined in black. —Hindwing sooty brown, basal one-third and abdominal area suffused and mixed with buff; a rusty buff broken line in fringe.

Length of forewing: 33 mm. Expanse: 75 mm.

*Habitat.* Chiriqui, Panama, 1 ♂.

14a. *Crinodes striolata fuscipennis* subsp. nov.

♂♀. Differ from *striolata striolata* from Brazil in their darker duller forewings and in the hindwings being uniform grey-brown, **not** variegated with buff.

*Habitat.* Venezuela and Costa Rica and Peru (type ♂, Tinguri, Carabaya, South-east Peru, August 1904, G. Oekenden), 10 specimens.

14b. *Crinodes striolata insularis* subsp. nov.

♂♀. Differ from *striolata striolata* in being suffused with dark brownish cinnamon which gives it a washed-out appearance.

*Habitat.* Trinidad, 10 specimens.

15. *Crinodes schausi* spec. nov.

Mr. W. Schaus was the first to point out that the insect figured by Huebner as the ♀ of his *beskei* was a distinct species which he named *striolata* but Mr. Schaus lumped together under the name of *striolata* specimens with striolated forewings and without; considering the non-striolated ♀♀ to be the ♀♀ of his *striolata*. However, I have a big series of the non-striolated form containing both ♂♂ and ♀♀, and I consider it a good species.

♂♀. Differ from *ritsimae* in the rufous chocolate **not** sooty black-brown colour, in the long narrow **not** short kidney-shaped stigma and which is **not** buff, in the more striated baso-costal region of forewing, and in the longer and narrower pale wedge on inner margin.

*Habitat.* Mexico and Costa Rica, 57 specimens.

16a. *Lepasta bractea gigantea* subsp. nov.

♂♀. Much larger than *bractea bractea*, and much more sooty grey without any trace of cinnamon.

Length of forewing, *bractea bractea*, ♂ 19 mm., ♀ 21 mm.; expanse, ♂ 43 mm., ♀ 47 mm.

Length of forewing, *bractea gigantea*, ♂ 26 mm., ♀ 26 mm.; expanse, ♂ 58 mm., ♀ 58 mm.

*Habitat.* Santo Domingo, Carabaya, 6,500 ft., December 1902 (G. Oekenden), 1 ♀ (type); La Union, Rio Huacamayo, 2,000 ft., November 1904 (G. Oekenden), 1 ♂.

17. *Tachida cossula* spec. nov.

♂♀. Antennae brown; head and tegulae dark cinnamon suffused with sooty grey; rest of thorax variegated with various shades of grey.

Forewing mauve-grey clouded with various band-like suffusions of brown

and grey; an indistinct subbasal band black and rufous; a double crenulate antemedian band inwardly buffish, outwardly black; a pale stigma with dark grey centre, a heavy velvety black postmedian band slightly angled or rather projecting at vein 3; beyond this an indistinct sinuate crenulate and interrupted line, and a black terminal hair-line.—Hindwings dirty white, buffish on abdominal area, a brown marginal line somewhat spreading into wing.

Length of forewing: 20 mm. Expanse: 46 mm.

*Habitat.* Buenavista, East Bolivia, 750 m. = 2,438 ft., August 1906—April 1907 (J. Steinbach), 2 ♀♀; Santo Antonio do Javary, Upper Amazons, June 1907 (S. M. Klages), 6 ♂♂. (These ♂♂ have much less conspicuous antemedian bands, but are not fresh.)

18. *Dyasia stigmatica* spec. nov.

♂. Antennae orange-brown; head, thorax, and abdomen purplish sooty black-brown.

Forewing purplish sooty brown; basal one-third with scattered rusty striae joined to velvety black ditto; these on the outer edge of this part of wing conglomerated to form a rather ill-defined broad antemedian rufous band containing black spots; outer two-thirds with hardly any of these striae, an oblique postmedian line of rufous spots with black centres; a large subapical rust-red patch like a brand in the centre of which is a broad brown-black band.—Hindwings dirty white; costal and abdominal areas dirty grey; termen greyish.

Length of forewing: 25 mm. Expanse: 57 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 1 ♂.

19. *Dyasia melanoleuca* spec. nov.

♂. Antennae brown; head purplish blackish chocolate; thorax dirty white; abdomen brownish buffy grey; basal segment whitish; anal tuft buff.

Forewing purplish sooty black-brown, paler on outer one-third; basal one-seventh obliquely pure white; dark portion of basal two-thirds of wing crossed by a lot of very indistinct crenulate lines of dots, a more distinct postmedian double curved band of such spots; costa spotted with dark spots, two larger round black subapical spots obliquely placed; a black spot above vein 2.—Hindwing: abdominal two-thirds white, costo-terminal one-third dirty sooty brown.

Length of forewing: 15 mm. Expanse: 34 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 3 ♂♂.

20. *Dyasia punctata* spec. nov.

♂. Antennae brown; head and thorax cinnamon-brown; abdomen yellowish wood-grey; a black round spot on anal segment.

Forewing mauve pinkish cinnamon clouded with band-like cloudings of brown and with numerous streaks and specklings; a round black subbasal spot in median fold, a blurred blackish broad antemedian black-brown band followed by a somewhat curved line of different-sized black spots; a postmedian line of black spots; two large subapical black spots and one about vein 3.—Hindwing wood-brown, basal two-thirds washed with buff; fringe buff.

Length of forewing: 26 mm. Expanse: 59 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 1 ♂.

21. *Lirimiris guatemalensis* spec. nov.

♂ ♀. Differs from *truncata* Herr.-Sch. in having the head and tegulae dark brown like the thorax, the antennae much darker, and the pectinations longer, and in the pale costal two-fifths of the forewing being white **not** yellow.

Length of forewing: ♂ 35 mm., ♀ 37 mm. Expanse: ♂ 77 mm., ♀ 81 mm.

*Habitat.* Ciudad de Guatemala (Rodriguez), 2 ♂♂, 1 ♀.

22. *Lirimiris chimaera* spec. nov.

♂. Allied to *truncata*, but at once distinguished by its very long, narrow, and strongly curved forewings.

Antennae chestnut rufous with enormously long pectinations; head and tegulae cream-buff; rest of thorax deep chocolate-brown with an olive tinge on patagia; abdomen sooty brown-grey, segments 5 and 6 paler.

Forewing strongly curved and very narrow; costal two-fifths cream-buff, a streak in cell along median, outer one-third of costal area, a band below it, and a subterminal band rust-red; a few scattered rust-red scales in cream-buff area; rest of wing chocolate-brown washed with olive.—Hindwing dull white tinged strongly on nervures and on abdominal area with dirty grey, margin and tornus rusty brown.

Length of forewing: 49 mm.; breadth at lobe: 13 mm.; breadth at tornus: 13 mm. Expanse: 108 mm.

*Habitat.* Santo Domingo, Carabaya, July 1902, 6,000 ft. (G. Ockenden), 1 ♂.

23. *Lirimiris lemoulti* spec. nov.

Allied to *meridionalis* Schaus, but much smaller and darker.

♂. Antennae deep brown heavily pectinated; head darker-buff; thorax olive wood-brown; tegulae sprinkled with buffish grey; abdomen dark wood-brown.

Forewing deep wood-brown grained and striated similar to wood; basal one-sixth much paler and with two chevron-like double marks, a large irregular stigma outlined with white, an irregular ill-defined postmedian double row of evanescent dusky spots, some black and white streaks on inner margin, an oblique ill-defined pale patch from costa to antemarginal white line divided in middle by dark streak, an antemarginal curved and minute white line followed by two white and black crenulate submarginal hair-lines.—Hindwing sooty brown, a postmedian pale band indicated and a series of pale and black bands round and on tornus.

Length of forewing: 25–26 mm. Expanse: 56–58 mm.

*Habitat.* St. Jean de Maroni, French Guiana.

[*Lirimiris elongata* Schaus and *L. euribya* (Druce).]

Mr. Schaus has united these two insects as the same species, but they are really two very distinct species. *L. euribya* is much smaller and has the costa much straighter, *i.e.* much less convex. The basal two-thirds of the forewings are orange-cinnamon and the outer one-third cinnamon-buff, while in *elongata* the basal half of the forewing is greyish wood-brown, the outer half being wood-

grey with a buffish tinge. Moreover, within the last two years both species have been bred by the Rev. Miles Moss at Para, and the larvae are totally different and feed on quite different trees.

Length of forewing, <i>elongata</i> , ♂	38-45 mm.	Expanse, 83-98 mm.
"    " <i>euribya</i> , ♂	28-36 mm.	Expanse, 62-78 mm.
"    " <i>elongata</i> , ♀	48-58 mm.	Expanse, 105-127 mm.]

23 *bis a*. *Lirimiris elongata postpallida* subsp. nov.

♂. Differs from *elongata elongata* from Peru in its almost white hindwings, and the forewings being less grey, more suffused with pale buff.

*Habitat*. Costa Rica, Tuis (W. Sehaus).

23 *bis b*. *Lirimiris elongata orientalis* subsp. nov.

♂. Differs from *e. elongata* in having the forewings suffused with brownish buff, and the hindwings, although dark brown as in *e. elongata*, also show a more yellowish tone.

*Habitat*. Potaro, British Guiana, February 1908 (S. M. Klages); Omai, British Guiana; British Guiana bought at Georgetown (Rev. Mr. Whitford) (type); St. Jean de Maroni, French Guiana; Fonte Boa, Upper Amazons, September 1906 (S. M. Klages). 9 specimens in all.

24. *Lirimiris mirabilis* spec. nov.

♂. Antennae strongly pectinated amber-brown; head and thorax buff; abdomen sooty grey-black; last segment and anal tuft grey.

Forewing: basal two-fifths buff with some slightly darker marks; a large cream-white round spot in a larger olive-brown patch at end of cell, from which runs a broad cream band towards apex; outer four-fifths of costa sooty black, extending into the wing beyond cell as low as base of vein 5 and then narrowing again towards apex, a subapical chocolate patch, rest of wing buff shaded somewhat with brown, a postmedian doubly zigzag line somewhat faint and shadowy; between veins 4 and 6 some irregular pale rufous-brown patches and a marginal band of pale rufous from vein 4 to vein 1; wing strongly excised between veins 4 and 1; along outer half of vein 1 wing is sooty grey.—Hindwing white.

♀. Similar but paler; forewing less excised between veins 1 and 4; margin of hindwing slightly rufous.

Length of forewing: 37 mm. Expanse: 81 mm.

*Habitat*. Pozuzu, Peru, 900 m. = 2,925 ft. (W. Hoffmann), 1 ♂ (type); Valencia, Venezuela, 1 ♀.

25. *Arhacia postbrunnea* spec. nov.

♂. Antennae shaft dark brown, pectinations paler; palpi chocolate; head olive-buff; thorax olive-buff striped with pale brown, and tegulae ringed with chocolate; abdomen sooty black-brown, anal tuft edged and suffused with paler brown.

Forewing olive-buff with a chocolate border all round except on basal one-sixth of costa; a yellow-buff stigma with two darker lines in it, a brown smear

in median fold and various streaks and smears of darker and paler olive-buff on disc; an indistinct zigzag postdiscal brownish line and in the chocolate border along termen are two pinkish submarginal hair-lines and a broader buff line along inner side of terminal portion of chocolate border.—Hindwing sooty black-brown; basal two-thirds of costal, one-third of wing and abdominal area suffused with olive-buff; two pinkish lines at tornus.

Length of forewing: 25 mm. Expanse: 56 mm.

*Habitat.* St. Jean de Maroni, French Guiana.

26. *Drugera pallidiflava* spec. nov.

♀. Antennae pale brown; head and thorax rusty buff mixed with grey and brown hairs; abdomen yellowish wood-grey, an orange patch on second segment.

Forewing shining buff; base olive-brown, an oblique rather indistinct antemedian olive-rufous band and curved concave broad postmedian similar band; three anteapical rufous-chocolate spots on costa, which is washed with rusty rufous; a rufous interrupted antemarginal line, outer margin strongly convex.—Hindwing buff suffused with mauve or purplish brown.

Length of forewing: 22 mm. Expanse: 49 mm.

*Habitat.* La Oroya, Rio Inambari, South-east Peru, January 1906, 3,100 ft. (G. Ockenden).

27. *Drugera muscosa* spec. nov.

♂. Antennae amber-brown serrated deeply on one side, one-fourth from base is a large comblike structure consisting of prolonged and widened teeth, first joint very long, rest of antennae attached to first joint by a flat tongue on underside only; head and thorax dark chocolate-brown washed with olive-green; abdomen cinnamon chocolate-brown.

Forewing blackish moss-green, with subbasal, antemedian, median, three postmedian, and submarginal irregular lines of lighter and darker coalescent half-moons, the submarginal row is greyish white inside.—Hindwings cinnamon chocolate-brown.

Length of forewing: 27-29 mm. Expanse: 61-65 mm.

*Habitat.* Maraval, Trinidad, July 1891 (type); Calama, Rio Madeira (W. Hoffmanns).

28. *Psilacron sericeus* spec. nov.

♂. Antennae strongly pectinated, decreasing regularly to the apex, rufous, shaft buff; head and thorax very shaggy, cinnamon-chocolate much mixed with buff and greenish hairs; abdomen chocolate-cinnamon, anal tuft buff.

Forewing bright buff clouded with greyish and cinnamon, giving it a greenish olivaceous tinge; costal area chocolate-cinnamon much shaded with buff, a basal chocolate line, a double antemedian band, upper half thick and chocolate, lower half thin and grey; a somewhat ill-defined and hazy large wedge-shaped patch of chocolate suffused with buff occupies the costal three-fifths of disc of wing, within which is a large double buff stigma; the forewing has a strong satiny lustre and is very thickly scaled.—Hindwing chocolate-cinnamon.

Length of forewing: 22 mm. Expanse: 51 mm.

*Habitat.* 4 Huancabamba, Cerro de Pasco, Peru (E. Böttger) (type); 1 Oconeque, Carabaya, 7,000 ft., South-east Peru, July 1904 (G. Ockenden).

### 29. *Psilacron divisa* spec. nov.

♂. Antennae rufous; head and thorax rufous cinnamon-chestnut; abdomen black-brown, anal tuft dull rufous.

Forewing chestnut cinnamon-rufous; costa with oblique darker streaks, a number of ante- and postmedian lines of darker coalescent lunules, a small black stigmatic spot, and a yellowish streak beyond cell.—Hindwings black-brown.

Length of forewing: 16 mm. Expanse: 36 mm.

*Habitat.* 1 Fonte Boa, Upper Amazons, May 1906 (S. M. Klages) (type); 1 La Union, Rio Huacamayo, South-east Peru, 2,000 ft., November 1904 (G. Ockenden).

### 30. *Notoplusia distinguenda* spec. nov.

♂. Antennae brown; head and thorax pale mauve suffused with red; abdomen mauve-brown with an upright deep red tuft on first segment, and on second and third segments similar mauve-brown tufts tipped or sprinkled with red; anal tuft large mauve-brown tipped with dark brown.

Forewing: basal half obliquely dull brown tinged with mauve, with indistinct lines of darker streaks, and a large dumbbell-shaped patch of apple-green; outer half cinnamon-mauve, an irregular submarginal band of maroon-red spots, forked in upper half, one patch on inner fork very large; termen maroon-red.—Hindwings: basal half pale wood-grey, outer half darker brownish grey.

♀ larger with hindwing all dark grey.

Length of forewing: ♂ 22 mm., ♀ 26 mm. Expanse: ♂ 48 mm., ♀ 57 mm.

*Habitat.* 2 ♂♂, 1 ♀, Fonte Boa, Upper Amazons, October 1906 (S. M. Klages); 1 ♂, 1 ♀, Santo Antonio do Javary, Upper Amazons, May 1907 (S. M. Klages); 1 ♂, Allianca below San Antonio, Rio Madeira, November 1907 (W. Hoffmanns) (type); 1 ♂, St. Jean de Maroni, French Guiana.

### 31. *Trichomoplata dimorpha* spec. nov.

♂. Antennae amber-brown; head, thorax, and abdomen dirty greyish buff.

Forewing semihyaline dirty white; basal three-fourths of costal area and basal half of wing more heavily scaled, dirty yellowish grey clouded, and also similar though much fainter cloudings at apex and along subterminal area, a large rusty orange patch on basal half of vein 2.—Hindwing semihyaline white; costal and abdominal areas dirty pale yellowish grey.

♀. Much larger; antennae rufous cinnamon; head and thorax buffish cinnamon; abdomen darker.

Forewing buffish cinnamon with indistinct darker lines and streaks, central part of disc beyond middle semihyaline whitish with bands and streaks of cinnamon; on vein 2 is a large blood-red patch and obliquely below it one of rusty brown, a submarginal curved double hair-line white and deep rufous.—Hind-

wing semihyaline whitish, more or less thickly clothed with rusty cinnamon hairs especially on abdominal and costal regions.

Length of forewing: ♂ 22 mm., ♀ 29 mm. Expanse: ♂ 50 mm., ♀ 67 mm.

*Habitat.* 3 ♂♂, 6 ♀♀, Fonte Boa, Upper Amazons, May 1906 (S. M. Klages) (♀ type).

### 32. *Trichomoplata stigmatica* spec. nov.

♂. Antennae amber-yellow; head dark buff; thorax and abdomen rusty cinnamon.

Forewing rusty cinnamon, disc beyond middle semihyaline, basal one-third of wing washed with pale brown in type and with blackish in second specimen; at apex of cell a veniform black stigma with buff centre and an orange spot outside it distad; a large rufous orange patch on vein 2.—Hindwing semihyaline white; costal and abdominal areas densely clothed with cinnamon-buff hairs.

Length of forewing: 20 mm. Expanse: 46 mm.

*Habitat.* 2 ♂♂, Fonte Boa, Upper Amazons, May 1906 (S. M. Klages).

### 33. *Stauropus nitidus* spec. nov.

♂. Antennae amber-brown; head and thorax yellowish golden bronze; abdomen brownish cinnamon.

Forewing deep rufous chocolate densely powdered with metallic green; a subbasal spot and an angulated streak below median white, a white irregular discoellular patch; a postmedian band of white lunules angled outwards and a postdiscal green band angled inwards meet between veins 3 and 4 and form a cross (×), the inner, upper, and lower arms being formed by the band of white lunules and the outer by the green band.—Hindwing: basal three-fifths pale cinnamon clothed with yellowish hairs, outer two-fifths darker cinnamon.

♀. Similar, but the metallic green powdering much denser, and in consequence the insect appears almost green.

Length of forewing: ♂ 22 mm., ♀ 24 mm. Expanse: ♂ 49 mm., ♀ 53 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., January–February 1911 (A. S. Meek), 7 ♂♂, 2 ♀♀.

### 34. *Stauropus flavicollis* spec. nov.

♂♀. Antennae brown; head and tegulae buffish yellow, base of tegulae white; rest of thorax chocolate-purple, most of the hairs with small white tips; abdomen clayey wood-brown.

Forewing chocolate-purple powdered with white scales, the absence of these white scales in places causes the wing to appear banded with sinuous and zigzag dark transverse lines; along costa patches of metallic apple-green, some similar green scales near centre of disc, three postdiscal green lunate patches.—Hindwing pale cinnamon, apex with chocolate-purple and white patch.

Length of forewing: ♂ 20 mm., ♀ 23 mm. Expanse: ♂ 45 mm., ♀ 52 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 1 ♂, 1 ♀ (♀ type).

35. *Stauropus purpurascens* spec. nov.

♂. Antennae deep brown; head and thorax chocolate maroon-purple powdered somewhat with white; abdomen pale wood-brown.

Forewing chocolate maroon-purple powdered with pale lavender and metallic apple-green scales, the absence in places of these scales gives the wings the appearance of being spotted with brighter purple patches; a cinnamon-white discocellular stigma, an irregular broken postdiseal green band produced by the conglomeration of the green scales.—Hindwing whitish washed with purplish cinnamon, darker towards margins; a deep purple-cinnamon patch at apex.

♀. Similar, larger, and with denser green scaling; no stigma in forewing; hindwing cinnamon grey-brown; purple apical patch powdered with green.

Length of forewing: ♂ 19 mm., ♀ 25 mm. Expanse: ♂ 42 mm., ♀ 56 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 4 ♂♂, 2 ♀♀.

36. *Stauropus viridinitens* spec. nov.

♂♀. Antennae cinnamon-brown; palpi dark brown, third joint orange, very shaggy; head grey with large tuft of hair on vertex; thorax brown, the very long hair tipped with long tips of yellowish green; abdomen chocolate-cinnamon.

Forewing greyish white, densely covered over with metallic green scales; a double antemedial line purple-brown, a double irregular sinuous postmedian band partly of lunules, partly of irregular patches purple-brown, a purple-brown subterminal band of streaks.—Hindwing chocolate-cinnamon; apical patch purple-brown, densely coated with green scales.

Length of forewing: ♂ 24 mm., ♀ 27 mm. Expanse: ♂ 55 mm., ♀ 62 mm.

*Habitat.* Biagi, Mambare River, North-east British New Guinea, 5,000 ft., January 1906 (A. S. Meek) (type ♀), 7 ♂♂, 1 ♀.

37. *Stauropus leucophaeus* spec. nov.

♀. Antennae bright brown; head and thorax pale coffee-brown mixed with dirty white; abdomen dirty brownish cinnamon.

Forewing deep chocolate-brown powdered densely with white scales, a band before middle, a broken irregular patchlike postmedian band, and a zigzag subterminal line entirely without white scales; a broad irregular postdiseal area grey, as is the double stigma.—Hindwing pale chocolate-cinnamon; apical patch brown and white.

Length of forewing: 25 mm. Expanse: 55.5 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 1 ♀.

38. *Stauropus glaucoviridis* spec. nov.

♀. Antennae amber-brown; head and thorax pale bluish sage-green, hairs each tipped with white, inner edges of patagia and patch in centre of thorax dirty grey; abdomen cinnamon wood-brown.

Forewing bluish sage-green encrusted with a here-and-there broken layer

of thick white scales, the ground-colour appearing in patches, a broad oblique postmedian band and a broad anteterminal band in which latter runs a subterminal white line of short streaks; some black spots on costa and a black antemedian band reaching to above vein 1; fringe chequered sooty grey and sage-green.—Hindwing cinnamon grey-brown.

Length of forewing: 23 mm. Expanse: 52 mm.

*Habitat.* Biagi, Mambare, North-east British New Guinea, April 1906 (A. S. Meek), 1 ♀.

### 39. *Stauropus triplagosus* spec. nov.

♀. Antennae brown; head cinnamon-grey; thorax brown, each hair with outer half dirty whitish grey so that the colour appears grizzled; abdomen very pale cinnamon-brown.

Forewing whitish grey powdered with darker scales and in several large patches washed with greenish buff; a large patch beyond discocellulars running from costa into the wing, a baso-subbasal patch below median, and a patch between inner margin and centre of vein 2 dark brown slightly sprinkled with grey; double zigzag ante- and postmedian lines and a sinuous subterminal hair-line also dark brown.—Hindwing pale cinnamon-brown, costal one-third grey with large subapical dark brown patch.

Length of forewing: 28 mm. Expanse: 63 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 500 ft., February 1911 (A. S. Meek), 1 ♀.

### 40. *Stauropus frugilegus* spec. nov.

♂. Antennae brown; head and thorax mouse-grey; abdomen mouse-grey.

Forewing mouse-grey suffused with olive-green, double ante- and postmedian darker lines, the space between the double lines and also between the two lines of each double line a sprinkling of bluish or lavender scales producing a glaucous appearance; a sinuous subterminal dark line beyond which are also bluish scales.—Hindwing dirty white; abdominal area hairy buff; costal area same colour as forewing, outer one-fifth below this pale brownish cinnamon, tapering to vein 1.

Length of forewing: 23 mm. Expanse: 52 mm.

*Habitat.* Rook Island (New Guinea), August–September 1913, 2 ♂♂ (A. S. Meek).

### 41. *Stauropus viridogrisea* spec. nov.

♂. Antennae brown; head rufous cinnamon, strongly mixed with whitish; thorax cinnamon so strongly mixed with white as to appear dull whitish grey; abdomen pale cinnamon-brown.

Forewing brown, outer half densely, basal half less densely suffused with white and spangled with patches of metallic green scales; a number of dark indistinct sinuous double lines cross the disc of the wing, a waved subterminal dark brown hair-line.—Hindwing pale greyish cinnamon-brown, a large dark brown subapical patch powdered with green scales.

♀. Much larger and paler with the sinuous lines much more distinct.

Length of forewing : ♂ 20 mm., ♀ 29 mm. Expanse : ♂ 45 mm., ♀ 66 mm.

*Habitat.* Biagi, Mambare, 5,000 ft., April 1906 (A. S. Meek), 1 ♂ (type); Upper Aroa River, British New Guinea, March 1903 (A. S. Meek), 1 ♀.

42. *Stauropus alboviridis* spec. nov.

♀. Antennae rufous; head and thorax cinnamon maroon strongly mixed with white; abdomen pale cinnamon brown.

Forewing white; basal one-fifth and inner area running along beyond vein 1 and into a patch reaching vein 2 metallic green, in the latter patch a white spot, terminal area suffused with metallic green, a large costo-subcostal green patch with white in it, and two lines proceeding to join patch below vein 2.—Hindwings pale greyish cinnamon; costal area white with large subapical chocolate patch powdered with green.

Length of forewing : 25 mm. Expanse : 55 mm.

*Habitat.* Biagi, Mambare, 5,000 ft., January 1906 (A. S. Meek), 2 ♀♀.

43. *Stauropus germana* spec. nov.

♂. Similar to *pallidifascia* Hmps. but at once distinguished by the double postmedian band **not** being angled, but evenly curved.

Antennae black-brown; head and thorax chocolate rufous; centre of abdomen rufous maroon, sides rufous cinnamon.

Forewing : base and outer one-third slate-grey, the latter with rufous brown cloud-marks and a maroon subterminal hair-line; rest of wing deep rufous with indistinct cloudings, a double curved postmedian band of blood red with cinnamon rufous interspace; a pale stigma.—Hindwing buffy cream-colour; costal one-third maroon rufous with slate-grey apex.

♀. Larger markings similar but deep rufous replaced by chocolate and postmedian double line followed by a broad band of bluish-grey white; hindwing grey-brown.

Length of forewing : ♂ 24 mm., ♀ 29 mm. Expanse : ♂ 54 mm., ♀ 66 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 3 ♂♂, 2 ♀♀ (♂ type); Biagi, Mambare, 5,000 ft., March 1906 (A. S. Meek), 1 ♀.

44. *Stauropus rufescens* spec. nov.

♂. Antennae deep brown; head white tinged with cinnamon, vertex pale lemon; tegulae white mixed with deep rufous, rest of thorax deep maroon rufous; abdomen grey-brown.

Forewing : basal one-fourth pale rufous densely sprinkled with metallic apple-green scales; disc of wing bright maroon rufous, outer one-fourth sprinkled with apple-green giving it a deep brown appearance.—Hindwing inner half cream-white slightly tinged with rufous, rest of wing deep maroon rufous.

♀. Differs in the whole head being pale lemon, the tegulae whiter, and the rest of the thorax dark cinnamon.

The forewing has the basal three-fourths of forewing dark rufous chocolate and the apple-green scales intermixed with grey; the outer fourth is rufous grey with only green scaling along terminal area.—Hindwings darker.

Length of forewing: ♂ 18 mm., ♀ 20 mm. Expanse: ♂ 40 mm., ♀ 46 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 1 ♂ type; Biagi, Mambare, 5,000 ft., April 1906 (A. S. Meek), 1 ♂, 1 ♀.

45. *Stauropus sikkimensis khasianus* subsp. nov.

♂. Differs from *s. sikkimensis* in the thorax and base of the forewing being apple-green **not** grey, and rest of the wing deep spinach-green, as is also the large square apical patch on the hindwing.

*Habitat.* Khasia Hills, Assam, 8 ♂♂ (compared with 7 ♂♂, 2 ♀♀ from Darjeeling in Tring Museum).

46. *Stauropus affinis* spec. nov.

♀. Similar to *sikkimensis* and *s. khasiana*, but distinguished by the absence of definite cross bands on the forewing, by a pale subcostal patch one-third from apex, and by three black patches in and near apex of cell. Base of forewing and thorax mixed lavender-grey and apple-green; large apical patch on hindwing black.

Length of forewing: 26 mm. Expanse: 57 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 6,000–7,000 ft., February 1911 (A. S. Meek), 2 ♀♀.

47. *Stauropus mediolinea* spec. nov.

♂. Antennae dark brown; head and thorax mouse-grey; abdomen slightly browner.

Forewing pale mouse-grey, a double median irregular rufous band, the outer part only reaching median vein, basad from this some traces of zigzag lines and spots also rufous; a terminal line of black and white dots.—Hindwings darker mouse-grey with a terminal line of cuneate dark brown spots.

Length of forewing: 26 mm. Expanse: 58 mm.

*Habitat.* Chung-Kiang, West China, August 1911, 1 ♂.

48. *Stauropus incisus* spec. nov.

♀. Antennae dark brown; head, thorax, and abdomen yellowish grey mixed with white hairs.

Forewing white; base and basal four-fifths of wing below median and vein 2 olive-green into which runs a pure white wedge-shaped patch from median on which are some scarlet scales; rest of wing clouded and speckled with scarlet, green, and dark grey scales and spots.—Hindwing greyish brown-cinnamon, a black subapical streak.

Length of forewing: 20 mm. Expanse: 45 mm.

*Habitat.* Ogrugu, Niger.

49. *Stauropus apiculatus* spec. nov.

♂♀. Antennae deep brown; head and thorax pale maroon-cinnamon; abdomen cinnamon-brown, last segment and anal tuft ash-grey.

Forewing claret-cinnamon; base, inner margin below vein 1, a large lunate.

postdiscal patch, and a smaller patch below vein 3 pinkish silver-grey.—Hindwings cinnamon-brown.

Length of forewing : ♂ 21 mm., ♀ 28 mm. Expanse : ♂ 47 mm., ♀ 63 mm.

*Habitat.* Penang, January—April 1898 (Curtis), 2 ♂♂, 1 ♀ (type ♀); 1 ♀ Khasia Hills, April 1897 (Native coll.).

50. *Stauropus notodontina* spec. nov.

♂. Antennae dull brown; head dirty white; thorax grey freckled with white and cinnamon brown-grey.

Forewing: basal three-fifths slate-grey clouded with paler grey, a double semicoalescing antemedian black line and a postmedian dark serrated band beyond which is a broad black sharply angulated line separating the basal three-fifths from rest of wing, an indication of a discocellular stigma; outer two-fifths of wing pale ash-grey, a dark grey streak from costa to vein 4 outside angled band; a black marginal hair-line.—Hindwing dirty white with brownish grey shaggy hair at base and on abdominal area, a black torral spot and a dark grey terminal hair-line; fringe chequered grey and white with two black spots near tornus.

♀. Larger; forewing ground-colour uniform, grey bands and lines very distinct, angled black band broken between veins 2 and 3.—Hindwings cinnamon-grey with a darker and paler double median line.

Length of forewing : ♂ 25 mm., ♀ 29 mm. Expanse : ♂ 57 mm., ♀ 67 mm.

*Habitat.* Khasia Hills, Assam, May 1897 (Nat. coll.), 5 ♂♂, 4 ♀♀ (♀ type).

51. *Stauropus bipunctus* spec. nov.

♀. Similar to the last but more uniform grey.

Forewing mouse-grey with paler and darker shadowy serrated lines; two black spots obliquely vertical, one in cell and one below median, a postmedian serrated black band from costa to vein 4 outside, which is a black costal patch from which runs a dark grey serrated line also to vein 4.—Hindwings yellowish grey.

Length of forewing : 26 mm. Expanse : 60 mm.

*Habitat.* Penang, January 1897 (Curtis), 1 ♀.

52. *Cascera albiscripta* spec. nov.

♀. Antennae black-brown; head white, vertex buffish green; tegulae buffish green, rest of thorax buffish green shaded with pale brown and sprinkled with white; abdomen bronzy wood-brown.

Forewing olive-bronze, basal three-fifths with double white spots on costa, inside of cell white, reaching beyond median near base; an antemedian white curved hair-line and a dumbbell white patch beyond it below median; a large black reniform stigma and beyond it a broad white oblique band reaching from costa to vein 2; subterminal and terminal area whitish with cinnamon spots, a zigzag white line bordering it basad.—Hindwing: basal half bronzy wood-brown, outer half darker.

Length of forewing : 24 mm. Expanse : 55 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 1 ♀.

53. *Cascera albiscripta virens* subsp. nov.

♀. Similar to *a. albiscripta* but paler bronzy olive-green.

*Habitat.* Angabunga River, affluent of St. Joseph's River, British New Guinea, November 1904—February 1905 (A. S. Meek), 1 ♀.

54. *Cascera marginata* spec. nov.

♀. Antennae brown; head brownish buff; thorax creamy brown, tegulae and patagia on inner side broadly with hairs tipped with white; abdomen brownish cinnamon.

Forewing dirty white variegated with streaks and cloudings of olive-brown, a deep chocolate stigma and a square pure white patch between basal half of veins 2 and 3; outer fourth of wing and area below median nervure chocolate-brown suffused with olive; some indistinct whitish lines and spots in area below median and an irregular white marginal line.—Hindwing brownish cinnamon.

Length of forewing: 25 mm. Expanse: 56 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 1 ♀ type; near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December 1910 (A. S. Meek), 2 ♀♀.

55. *Cascera flavovirens* spec. nov.

♀. Antennae brown; head vinaceous mixed with cream-white; tegulae claret-colour edged with greenish white, patagia pale yellowish sea-green mixed with white and edged with claret-colour; rest of thorax and abdomen cinnamon.

Forewing mossy yellowish sea-green variegated with darker and whitish lines and clouds; costa with alternate maroon and white oblique bands and patches, a large antemedian angled maroon patch below median with white spot in angle, a pale maroon stigma, a white patch above vein 2, a broad irregular postdiscal maroon band, and a subterminal line of maroon and white cuneate spots.—Hindwings cinnamon.

Length of forewing: 28 mm. Expanse: 63 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December 1910 (A. S. Meek), 1 ♀.

56. *Cascera olivacea olivacea* spec. nov.

♂ ♀. Antennae rusty brown; head olive mixed with white; tegulae orange-buff, dark brown at base, rest of thorax buff washed with olive and with central dark brown spot; abdomen dark cinnamon.

Forewing velvety olive-brown, with irregular buff and green baso-subbasal marks, costa with white and olive on greenish buff markings, a central irregular olive-buff patch clouded with olive-brown and sharply reduced to half its width from base of vein 2 and with a large and smaller dark olive-brown patch above median; a white patch above vein 2 and an olive-buff zigzag subterminal line; fringe golden olive.—Hindwing dark cinnamon.

Length of forewing: ♂ 25 mm., ♀ 27 mm. Expanse: ♂ 57 mm., ♀ 61 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December 1910 (A. S. Meek), 1 ♂, 1 ♀.

56a. *Cascera olivacea flavolavata* subsp. nov.

♂. Differs from *o. olivacea* in being much paler and looks as if it had been soaked in a sulphur bath.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 1 ♂.

57. *Cascera irrorata* spec. nov.

♂. Antennae rufous brown; head cinnamon; tegulae cinnamon, hairs along edges tipped with white, rest of thorax dark cinnamon-brown with many hairs tipped with white; abdomen rufous cinnamon.

Forewing bright chocolate slightly washed with olive and streaked and lined irregularly with pale whitish pink; a white mark under median near base and an oval white patch on vein 2; an irregular sinuate white subterminal line; fringe mixed pale grey and brown.—Hindwings dark cinnamon.

Length of forewing: 21.5 mm. Expanse: 49 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 1 ♂.

57a. *Cascera irrorata pallida* subsp. nov.

♂. Differs from *i. irrorata* in the forewings being paler and more washed with olive and the white and pinkish white marking much extended.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 1 ♂.

58. *Cascera perscripta* spec. nov.

♂ ♀. Antennae brown; head brownish buff; tegulae brownish orange-buff, rest of thorax deep cinnamon-brown mixed with cream-white; abdomen cinnamon.

Forewing velvety olive-green scribbled all over with pale buff lines and streaks, those in centre of disc tinged with bright pink.—Hindwing cinnamon.

Length of forewing: ♂ 23 mm., ♀ 25 mm. Expanse: ♂ 51 mm., ♀ 56 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., February 1911 (A. S. Meek), 2 ♂♂, 6 ♀♀.

59. *Cascera variegata* spec. nov.

♂. Antennae brown, basal three segments white; head cream-white; tegulae amber-yellow mixed with buff, rest of thorax amber-brown mixed with white and olive-green; abdomen cinnamon.

Forewing golden olive-bronze, banded, spotted, and streaked with buff, white, and pink, a postdiscal cloud-band of bronzy green.—Hindwings dark cinnamon.

♀. Larger and darker.

Length of forewing: ♂ 22 mm., ♀ 26 mm. Expanse: ♂ 49 mm., ♀ 57 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 3 ♂♂, 3 ♀♀.

60. *Malocampa bucephaloides* spec. nov.

♂. At first sight this and the next species resemble the genus *Phalera*. Antennae very large and long, heavily pectinated on basal three-fourths, bright amber-brown; head rusty chestnut; thorax purple-chocolate, hinder half densely sprinkled with white, giving it a roan colour; abdomen cinnamon rufous.

Forewing rusty chocolate-brown; base dark grey edged with white, a broad central band 7 mm. wide of greyish mauve irrorated with black scales, this band is ill defined on the basal side, spreading far towards base below median, on the distad side it is sharply defined by a concave transverse triple line first black, then white, then rufous orange, the black portion of this line is sharply angled inwards; the outer two-fifths of the wing are rufous chocolate fading into greyish cloudy mauve; fringe rufous and grey.—Hindwing cinnamon rufous tinged with brown, an angled rufous-cream postmedian band; fringe rufous white.

Length of forewing: 35 mm. Expanse: 78 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

61. *Malocampa phaleroides* spec. nov.

♂. Very closely allied to the last species. Antennae brownish amber-yellow; head rusty chestnut; thorax purple-chocolate, hinder edges and hind edge of patagia with the hairs tipped with dirty white; abdomen rusty cinnamon.

Forewing brownish cinnamon-chocolate washed with yellowish grey; a double discocellular stigma; base of wing obliquely violet-chocolate; a sub-basal white band starting from vein 1 runs obliquely to costa and along latter except outer one-third, and spreads to subcostal vein, and slightly beyond it; a postdiscal double lunate crenulate mauve and brown shadow-line, and a sub-terminal line of mauve and brown spots; fringe rusty rufous.—Hindwing cinnamon rufous with darker median line edged outwardly with rusty white ending in a chocolate and white tornal patch; fringe rusty rufous.

Length of forewing: 35 mm. Expanse: 79 mm.

*Habitat.* La Oroya, Rio Inambari, Peru, 3,100 ft., September 1904 (G. Ockenden), 2 ♂♂.

62. *Rhuda opalistriga* spec. nov.

♂♀. Similar to *difficilis* Schaus, but smaller, and the baso-subbasal streak prolonged in a band along four-fifths of vein 1, and consisting of an opalescent blue band with a white central line; above this band the brown colour runs in a perfectly straight oblique band below the pale pink fascia and ends on vein 2 one-sixth from termen in a round black spot.

Length of forewing.	Expanse.
<i>difficilis</i> , ♂ 31 mm., ♀ 37 mm. . . . .	♂ 70 mm., ♀ 83 mm.
<i>opalistriga</i> , ♂ 25 mm., ♀ 29 mm. . . . .	♂ 56 mm., ♀ 64 mm.

*Habitat.* Amazons, 1 ♀; Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 1 ♂ type.

63. *Rhuda posttriangulum* spec. nov.

♂. Differs from *tuisa* Schaus in the forewing being narrower and more pointed, and in the baso-subbasal bluish white oblique band being prolonged farther along vein 1. On the hindwing in the **absence** of the terminal brown band, in having an indistinct or rather ill-defined dirty brown bar running up from tornus to almost base of wing, and in the termen being deeply concave **not** convex, and the apex and tornus are produced to long blunt points, making the wing absolutely triangular instead of rounded. The hindwing is yellow suffused with dirty brownish grey.

Length of forewing: 31 mm. Expanse: 69 mm.

*Habitat.* Potaro, British Guiana, May 1908 (S. M. Klages), 3 ♂♂ type; Omai, British Guiana, June 1908 (S. M. Klages), 1 ♂.

64. *Hoplitis cinnamomea* spec. nov.

♂♀. Close to *strigata* Moore. Antennae deep rufous; head brown; thorax grey, slightly mixed with brown hairs; abdomen rufous cinnamon.

Forewing rufous cinnamon; costa and a concave band from apex curving round to middle of costa deep rufous; within this line and just behind it three pale grey patches; a slate-grey cloudy patch in centre of disc; termen and inner margin from vein 4 to middle of inner margin including vein 1 broadly slate-grey; a large deep rufous patch above tornus.—Hindwing semihyaline white, a blackish patch at tornus.

Length of forewing: 33 mm. Expanse: 75 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 3 ♂♂, 1 ♀ (♂ type).

65. *Hoplitis insignifica* spec. nov.

♀. Antennae rufous brown, shaft grey; head and thorax dirty brownish mouse-grey, a dark streak in centre of thorax and on patagia; abdomen dirty brown-grey.

Forewing mouse-grey with dark grey streaks on costa; ante- and post-median dark grey lines.—Hindwing dirty white, passing into grey-brown along costa, apex, and termen; an ash-grey and dark patch at tornus.

Length of forewing: 34 mm. Expanse: 74 mm.

*Habitat.* Dammer Island, November 1898 (H. Kühn), 2 ♀♀.

66. *Hoplitis dasychiroides* spec. nov.

♀. Antennae shaft crimson, pectinations black; head and thorax mouse-grey; abdomen greyish white, a root patch on first segment.

Forewing mouse-grey; three or four black-brown lines run from costa across cell to median nervure and some oblique dark grey bands one-third from apex on costo-subcostal area; a postdiscal curved and slightly sinuous black line and a shadowy darker grey subterminal band.—Hindwing semihyaline white, outer one-third slate-grey. Second specimen forewing more brownish.

Length of forewing: 31 mm. Expanse: 68 mm.

*Habitat.* Isumeb, S. W. African Protectorate.

67. *Hoplitis curvatula* spec. nov.

♂. Very curiously curved and narrow forewings. Antennae black; frons orange-buff, vertex dark brown-grey; thorax greyish olive mixed with dirty buff, tegulae edged with black; some black on thorax; abdomen sooty brown ringed with dirty white, anal tuft orange.

Forewing costa very strongly convex and outer one-third strongly curved downwards; termen from apex abruptly truncated and excised at tornus, giving the narrow wing a unique appearance; olive-brown washed and splashed with patches of deep moss-green; in cell running from costa is a truncated black  $\times$ , and on outer one-third of costo-subcostal area are black bands and spots, and a large black mark above tornus.—Hindwings: basal two-thirds white; long hair on abdominal area buff; outer one-third black-brown; some black streaks above tornus.

Length of forewing: 42 mm. Expanse: 93 mm.

*Habitat.* Kasai River, Congo Region.

68. *Chadisra albobrunnea* spec. nov.

♀. Antennae brown, basal five joints cream-colour; head buff, palpi brown; tegulae buff, patagia chocolate, rest of thorax yellowish grey; abdomen greyish cinnamon.

Forewing: basal half obliquely chocolate-brown; costal area, some marks above vein 1 and in cell amber-brown; outer half whitish grey suffused with very pale olive; a similar coloured patch runs up from the inner margin into the basal half of wing, and a deep brown patch runs into the wing from costa near apex.—Hindwing dirty wood-brown, a dark spot above tornus.

♂. Similar, but duller and paler; the two halves of forewing less distinctly different in colour and hindwing pale whitish grey.

Length of forewing: ♂ 25 mm., ♀ 30 mm. Expanse: ♂ 56 mm., ♀ 67 mm.

*Habitat.* Khasia Hills, Assam, December 1895 (Nat. coll.), 1 ♂. 3 ♀♀ (♀ type).

69. *Chadisra meeki* spec. nov.

♂. Antennae dark brown; head and thorax dark coffee-brown mixed with cinnamon-buff hairs; abdomen bright cinnamon, anal segment with black hair-lines.

Forewing: basal two-fifths dark brown, edge of inner margin and a patch near base of costa brownish buff, this dark brown area deeply incised between veins 1 and 2; outer three-fifths of wing dull isabel-buff clouded and streaked with yellowish olive and blackish brown; a black brown patch on and under costa just before apex.—Hindwing: basal two-thirds dirty buff; outer one-third brownish cinnamon, a brown streak above tornus.

Length of forewing: 29 mm. Expanse: 66 mm.

*Habitat.* Mount Goliath, Central Dutch New Guinea, 5,000–7,000 ft., January 1911 (A. S. Meek), 3 ♂♂.

70. *Chadisra striata striata* spec. nov.

♂. Antennae brown; head buff mixed with black hairs; tegulae buff mixed with black hairs, rest of thorax black mixed with brownish hairs; abdomen brownish buff.

Forewing greyish cinnamon with broad black band like longitudinal streaks from base to termen, and a number of blackish vertical striations; a median sinuous and strongly angled black line.—Hindwing buff, margins pale cinnamon, a dark brown spot above tornus.

♀. Larger.

Length of forewing: ♂ 22 mm., ♀ 25 mm. Expanse: ♂ 50 mm., ♀ 56 mm.

*Habitat.* Kumusi River, North-east British New Guinea, low elevation, August 1907 (A. S. Meek), 1 ♂, 1 ♀ (♂ type); Upper Aroa River, British New Guinea, April 1903 (A. S. Meek), 1 ♂.

71. *Chadisra striata divisa* subsp. nov.

♀. Differs from *S. striata* in the basal half obliquely being strongly suffused with brown, thus dividing the wing into two parts.

*Habitat.* Goodenough Island, 2,500–4,000 ft., May 1913 (A. S. Meek), 2 ♀♀.

72. *Chadisra plagosa* spec. nov.

♂. Antennae brownish buff; head, thorax, and abdomen buffish wood-brown.

Forewing buffish cinnamon with a number of indistinct zigzag brownish lines; a pale greenish subbasal patch under costa, basal one-fourth of wing paler, more buffish; a large black-brown sharply angled band runs from median to tornus and from median to near base of inner margin; all below this band brownish slate-grey; a large subapical patch pale lavender-grey tinged with green.—Hindwings wood-brown; fringe, base, and median shadow buffish.

Length of forewing: 21 mm. Expanse: 47 mm.

*Habitat.* Warri, Niger, April 1897 (Dr. Roth), 1 ♂.

73. *Tarsolepis rufobrunnea* spec. nov.

♂. Antennae deep brown, pectinations short; head and thorax vinaceous chocolate; abdomen deep brown, no crimson tuft on underside.

Forewing deep rufous chocolate; basal two-thirds of costal area entirely suffused with pale mauve and freckled; silver patches as in *sommeri*, but much larger; submarginal area washed strongly with vinaceous and with four lines, inner one orange-buff, outer three various shades of brown.—Hindwings paler chocolate.

Length of forewing: 37–49 mm. Expanse: 83–109 mm.

*Habitat.* Travancore (Place), 1 ♂ type; Khasia Hills, Assam (Nat. coll.), 1 ♂.

74. *Tarsolepis sericeus* spec. nov.

♂. Antennae dark rufous brown; head and thorax deep rufous chocolate; abdomen sooty blackish grey, anal segment buff with dark brown streaks and two large fan-shaped and pointed buff tufts.

Forewing vinaceous chocolate streaked and clouded with cinnamon so as

to resemble watered silk; termen deeply serrated with pale median streak to each tooth; a yellow quadrate spot under middle of vein 4.—Hindwing golden buff suffused with brown-grey.

Length of forewing: 34 mm. Expanse: 77 mm.

*Habitat.* Java.

75. *Phalera postaurantia* spec. nov.

♂. Antennae black, pectinations very long; head and thorax rufous and buff mixed, patagia and patch at back of thorax grey tipped with white; abdomen orange ringed indistinctly with brownish orange.

Forewing vinaceous wood-brown suffused with grey and white, becoming whiter towards inner margin; a double antemedian line, inner less pronounced rusty brown, outer black; a postdiscal double line of coalescent lunules, inner black, outer dark rufous; an apical olive-buff patch below which is an irregular heavy black angled line.—Hindwings golden orange; edge of termen and nervures black.

Length of forewing: 27 mm. Expanse: 60 mm.

*Habitat.* Itumba, German East Africa (Dr. Baxter), 1 ♂ type; Mpuapua, German East Africa (Dr. Baxter), 1 ♂.

76. *Phalera elongata* spec. nov.

♂ ♀. This species is distinct from all others by its long and narrow wings and long silken hair on the body.

Antennae rusty rufous, pectinated in both sexes, shorter in ♀; head and thorax golden buff, margins of tegulae and two median transverse lines deep rufous, hind part of thorax clothed with long silky sooty brown hairs, patagia white edged with grey; abdomen clothed with long silky hair, basal segment sooty brown, anal segment and tuft buff washed with dirty grey; rest of abdomen orange.

Forewing brown-grey washed with pink; base white, a subbasal black-brown line, followed by seven indefinite darker grey crenulate and sinuate lines; apical one-fourth to vein 3 buff with darker buff clouding, bordered inwardly by a bright rufous and brown double concave band, black streaks in buff on veins 3 and 4.—Hindwings sericeous bronzy grey-brown.

Length of forewing: ♂ 28-30 mm., ♀ 33 mm. Expanse: ♂ 62-66 mm., ♀ 75 mm.

*Habitat.* Khasia Hills, Assam, February 1896 (Nat. coll.), 2 ♂♂, 1 ♀ (♂ type).

77. *Phalera inexpectata* spec. nov.

♂. Antennae black; head cream-white; thorax white; tegulae, a median convex band and three spots behind dirty black-brown, tegulae being palest; abdomen white washed with brownish and with broad brown rings on each segment, anal tuft brownish white.

Forewing vinaceous brown on outer one-third freckled with white scales, basal two-thirds cream-white freckled densely with vinaceous scales thickest on basal one-third and least in cell and round discocellulars; base white with black dot; this freckling gives the forewing a roan appearance; an antemedian deep purple

line angled in cell, joined to which outwardly is a similarly coloured wedge-shaped patch on median; a similarly coloured wedge spot beyond middle of costa and a small spot below it on inner margin.—Hindwing white, outer one-fourth brown-grey.

Length of forewing: 34–39 mm. Expanse: 76–88 mm.

*Habitat.* Ilesha, South Nigeria (Captain Humphrey), 2 ♂♂.

#### 78. *Rifargia cossoides* spec. nov.

♂. Antennae: shaft dark brown, peetinations short, amber-brown; head and thorax deep chocolate-brown, hind part of thorax pale greenish grey, edge of tegulae dark rufous; abdomen rufous cinnamon-chocolate, anal segment above greenish grey, anal tuft mixed greenish grey and rufous.

Forewing: basal one-third above median fold deep chocolate-brown with some dark rufous marks, a deep chocolate-brown apical patch tinged with rufous, rest of wing greenish grey washed with brownish with a number of more or less obsolete double brownish sinuate bands, a black crenulate-angulate subterminal hair-line.—Hindwing deep brownish chocolate, a median paler indefinite band, and a grey and black tornal patch. ♀ similar but paler, and light part of forewing whitish grey with no greenish tinge.

Length of forewing: 32–38 mm. Expanse: 72–87 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 5 ♂♂ type; Santo Antonio do Javary, Upper Amazons, May 1907 (S. M. Klages), 1 ♂; Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages), 1 ♂; Christianeburg, Rio Demerara, British Guiana, 1 ♀.

#### 79. *Rifargia terebroides* spec. nov.

♂. This insect looks exactly like a melanistic *Cossus terebra*.

Antennae serrate, shaft black, serrations amber-brown; head and thorax sooty brown, two transverse black lines on the tegulae; abdomen brownish cinnamon-chocolate, first two segments suffused with sooty brown.

Forewing olivaceous cinnamon suffused, clouded, and patched with sooty brown, greyish moss-green, and dark grey, giving the wing at first sight a mummy-brown appearance; subbasal and antemedian somewhat obliterated double crenulate black lines, a greenish brown oval stigma, two double postmedian bands, the first sooty brown, sinuate, reaching inner margin where it meets a white spot, the second black, convexly curved, only reaching vein 3, two subapical black streaks and a black crenulate subterminal hair-line.—Hindwing dull brownish chocolate.

Length of forewing: 31 mm. Expanse: 70 mm.

*Habitat.* Potaro, British Guiana, May 1908 (S. M. Klages), 3 ♂♂ type; Tumatumari, British Guiana, January 1908 (S. M. Klages), 1 ♂; British Guiana bought at Georgetown (Rev. M. Whitford), 1 ♂; Aroewarwa Creek, Maroewym Valley, Surinam, March–April 1905 (S. M. Klages), 2 ♂♂; Fonte Boa, Upper Amazons, October 1906 (S. M. Klages), 2 ♂♂.

#### 80. *Rifargia biplaga* spec. nov.

♂. Antennae dark rufous brown; head and thorax black-brown, out half of tegulae rufous brown; abdomen brownish cinnamon.

Forewing black-brown slightly variegated with paler brown and olive; basal one-third to vein 1 deeper black-brown, a basal dull cinnamon patch below vein 1, a long black apical streak and two large lavender-grey patches on vein 1, reaching inner margin below it and halfway to vein 2 above it.—Hindwing dirty cinnamon wood-brown with traces of paler central cloud-band.

Length of forewing: 32 mm. Expanse: 72 mm.

*Habitat.* Tinguri, Carabaya, South-east Peru, 3,400 ft., August 1904 (G. Oeckenden), 4 ♂♂ type; La Oroya, Carabaya, 3,100 ft., September 1905 (G. Oeckenden), 1 ♂.

#### 81. *Rifargia basiplaga* spec. nov.

♂♀. Antennae sooty black; head and thorax chestnut-brown, tegulae and patagia mixed with brownish buff; abdomen sooty brown.

Forewing: basal one-third cinnamon, rusty brown to vein 1, edged and rayed with rufous chocolate, outer two-thirds of wing and all below vein 1 dark dull brown; above vein 3 on outer two-thirds of forewing densely suffused and sprinkled with whitish grey, a postmedian sinuous rufous hair-line and black terminal hair-line.—Hindwing sooty black-brown, base suffused slightly with cinnamon.

Length of forewing: ♂ 23–26 mm., ♀ 28 mm. Expanse: ♂ 51–59 mm., ♀ 63 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 2 ♂♂ type; Potaro, British Guiana, April–May 1906 (S. M. Klages), 2 ♂♂; Rio Demerara, British Guiana, 2 ♀♀; Fonte Boa, Upper Amazons, May–October 1906 (S. M. Klages), 5 ♂♂.

#### 82. *Rifargia steinbachi* spec. nov.

♂. This and the following species are distinguished by their long, narrow, and pointed wings.

Antennae amber-brown; head cinnamon-brown; thorax greenish grey; abdomen rufous cinnamon.

Forewing rusty cinnamon above median fold, shaded and clouded with mossy olive-grey and green; outer one-fifth of wing and all below median fold dark olive mouse-grey; a band from base along basal one-third of median fold and a broad ill-defined zigzag cloud-like band from one-fifth before apex obliquely to below middle of median fold rusty brown-black.—Hindwing white washed with brown on termen and abdominal area. The Fonte Boa ♂ is much more rufous on forewing, but is much rubbed.

Length of forewing: 26 mm. Expanse: 59 mm.

*Habitat.* Buenavista, East Bolivia, 2,438 ft., August 1906–April 1907 (J. Steinbach), 1 ♂ type; Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 1 ♂.

#### 83. *Rifargia muscosa* spec. nov.

♂. Antennae dark brown, serrations amber-yellow; head chestnut rufous; tegulae chestnut rufous edged with soot-brown black, rest of thorax soot-brown black mixed with green-grey; abdomen first two segments chestnut rufous, sides golden orange, rest of abdomen and anal tuft sooty black with a few scattered yellow hairs, lateral line except on last two segments golden orange.

Forewing mossy grey-green densely mottled with black and tinged in centre with pale cinnamon rose; an antemedian double black line and two or indistinct postmedian erenulated ones, a erenulated marginal black line; an orange basal tuft below vein 1.—Hindwing: centre grey; veins and portion dull brown; base and abdominal one-fourth golden orange on which is a dark brown smear.

Length of forewing: 25 mm. Expanse: 57 mm.

*Habitat.* Aroewarwa Creek, Maroewyn Valley, Surinam, April 1905 (S. M. Klages), 1 ♂.

#### 84. *Rifargia intermedia* spec. nov.

♂. Is intermediate between *picta* Schaus and *merita* Schaus, having the continuous median longitudinal band of *merita* and pale band above vein 1 of *picta*, but differs from both in its golden buff coloration.

Antennae brown; head and thorax orange rufous, patagia dirty greenish mouse-grey; abdomen yellowish cinnamon.

Forewing vinaceous cinnamon, median band from base of costa to middle of termen brownish buff washed with pink; the band above vein 1 buff washed on outer half with grey.—Hindwing golden buff slightly suffused with brown on margin. ♀ larger, darker; hindwing suffused with brown.

Length of forewing: ♂ 24 mm., ♀ 29 mm. Expanse: ♂ 54 mm., ♀ 64 mm.

*Habitat.* San Esteban, Venezuela, June 1909 (S. M. Klages), 5 ♂♂, 1 ♀.

#### 85. *Anita gigas* spec. nov.

♂. Antennae black-brown; head and thorax slate-grey variegated with white; abdomen slate-grey.

Forewing slate-grey; costal area and subbasal one-fifth white streaked with grey; rest of wing with lines of darker grey barely showing up from ground-colour; a subterminal zigzag black line.—Hindwing brownish slate-grey.

Length of forewing: 33 mm. Expanse: 73 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 2 ♂♂.

#### 86. *Cargetta albstigmata* spec. nov.

♂. Antennae: shaft cinnamon grey, pectinations black; head and thorax sooty brown-black, a few irregular marks more rusty; abdomen sooty grey-brown.

Forewing sooty black-brown, paler towards termen, a few darker lines near base apparently of raised scales; a white spot at end of cell.—Hindwing grey-brown.

Length of forewing: 21 mm. Expanse: 48 mm.

*Habitat.* Goodenough Island, 2,500—4,000 ft., April 1913 (A. S. Meek), 1 ♂.

#### 87. *Cargetta flavibasis* spec. nov.

♂. Antennae sooty black; head and palpi sooty black-brown with buff and white scales; thorax sooty black-brown; abdomen dark wood-brown.

Forewing sooty black-brown, with some faint traces of rusty markings; a black dot in white ring below middle of subeosta, white dots along outer one-

third of costa and a subterminal line of similar dots and a few one-fourth from termen; three raised dots of scales in centre of disc and some patches of dark green scales along upper or costal portion of wing.—Hindwing: basal half buffish yellow, outer half sooty brown-black.

♀. Similar, but has either the forewing with patches of dark green scales all over and a rusty patch beyond cell or entirely dark green with some discal sinuate brown-grey lines.

Length of forewing: ♂ 21–24 mm., ♀ 25–28 mm. Expanse: ♂ 47–53 mm., ♀ 55–61 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October–December 1910 (A. S. Meek), 1 ♂ type; Upper Setekwa River, Snow Mountains, 2,000–3,000 ft., August 1910 (A. S. Meek), 2 ♀♀; Kumusi River, North-east New Guinea, low elevation, May 1907 (A. S. Meek), 1 ♂.

#### 88. *Cargetta bipuncta* spec. nov.

♂♀. Antennae brown; head olive; thorax olive-grey on greyish olive; abdomen pale cinnamon-brown.

Forewing pale olive-green, subbasal, antemedian, and postmedian crenulate sinuous rusty cinnamon bands edged with brown; a subterminal crenulate brown line; two white spots one above the other at end of cell.—Hindwing cinnamon grey-brown.

Length of forewing: ♂ 22 mm., ♀ 26 mm. Expanse: ♂ 49 mm., ♀ 58 mm.

*Habitat.* Biagi, Mambare River, North-east British New Guinea, 5,000 ft., February 1906 (A. S. Meek), 1 ♂, 1 ♀ (♀ type).

#### 89. *Turnaca mediofascia* spec. nov.

♀. Antennae brown; head and thorax vinaceous pink suffused with cinnamon-grey; abdomen chocolate-cinnamon.

Forewing: costal half vinaceous pink suffused with grey and freckled with rufous; lower half dark chocolate-cinnamon freckled with grey; a slightly sinuous rufous band from base of cell to termen.—Hindwing chocolate-cinnamon.

Length of forewing: 28 mm. Expanse: 62 mm.

*Habitat.* Khasia Hills, Assam, April 1896 (Nat. coll.), 2 ♀♀.

#### 90. *Turnaca phragmatoecioides* spec. nov.

♂. Antennae brown, pectinations rufous; head and thorax buffish brown mixed with cream hairs; abdomen greyish brown-buff.

Forewing pale buffish pinky grey suffused with darker grey below median; three oblique brown streak-like spots on costa, a few scattered shadowy spots on disc, and a postmedian curved line of intracural black streaks.—Hindwings white; base and abdominal area buff.

Length of forewing: 22 mm. Expanse: 49 mm.

*Habitat.* Luebo, Kasai River (P. Landbeck), 1 ♂.

91. *Turnaca lanuginosa* spec. nov.

♂. Very woolly; anal tuft large. Antennae brown, shaft whitish; head and thorax buffish grey washed with cinnamon; abdomen pinkish cinnamon, anal tuft whitish.

Forewing pale pinkish cinnamon washed with grey with a number of cloud-marks and freckled with rufous cinnamon; a postdiscal line of indistinct darker dots.—Hindwing rufous cinnamon.

Length of forewing: 21–22 mm. Expanse: 47–50 mm.

*Habitat.* Luebo, Kasai River (P. Landbeck), 1 ♂ type; Akassa to Onitsha, River Niger (Dr. Cook), 1 ♂.

92. *Turnaca nigripuncta* spec. nov.

♂. Antennae rufous brown; head and thorax grizzled isabel-grey; abdomen isabel-grey, anal tuft grizzled.

Forewing greyish isabel; costa and disc with numerous black-brown dots, a black line from base to termen along median fold, two curved postdiscal lines of black-brown dots.—Hindwing white.

Length of forewing: 17–21 mm. Expanse: 38–48 mm.

*Habitat.* Takwa, Gold Coast (R. E. James), 3 ♂♂.

93. *Baradesa omissa* spec. nov.

♂ ♀. Very similar to *lithosioides* Moore, but smaller and duller; has hitherto been confused with *lithosioides*.

Differs in being duller above; on forewing the discal black dots except a single postmedian line are absent, stigma more distinct; hindwing has brown outer portion much narrower; the dark apex of abdomen does not reach so far up the abdomen. Below the nervures are dark **not** yellow.

Length of Forewing.

Expanse.

<i>lithosioides</i> , ♂ 44–49 mm., ♀ 53 mm.	. . .	♂ 97–107 mm., ♀ 115 mm.
<i>omissa</i> , ♂ 38–41 mm., ♀ 45 mm.	. . .	♂ 84–90 mm., ♀ 98 mm.

*Habitat.* Khasia Hills, Assam (Nat. coll.), 7 ♂♂, 1 ♀ (type ♂); Mount Tahan, Malay Peninsula (J. Waterstradt), 1 ♂; Gunong Ijau, Malay Peninsula, 1 ♂. (Compared with 11 ♂♂, 3 ♀♀ of *lithosioides* from Buxa Bhutan, Sikkim, and Khasia Hills.)

94a. *Euhampsonia niveiceps occidentalis* subsp. nov.

♂. Differs from *n. niveiceps* in being much paler, and in the markings on the forewings being almost obsolete.

*Habitat.* North-west Himalayas; Kumaon, July 1893 (J. G. Pilcher), 1 ♂ type; Kulu, 1 ♂; Dalhousie, July 1891, 1 ♂.

95. *Euhampsonia magnifica* spec. nov.

♀. Antennae very large and heavily pectinated, amber-brown; head and thorax scarlet, a sooty patch at base and one at edge of tegulae, hindermost part of thorax deeper red; abdomen scarlet, last three segments vinaceous red-brown.

Forewing: basal one-fifth scarlet with basal and subbasal zigzag black lines, the latter only to vein 1; rest of wing, basal half brick-red somewhat tinged with brown and with two double lunate crenulate purple-grey cross-bands and a small black stigma, outer half purplish sooty brown-grey with a buffish yellow space between veins 4 and 1 just beyond middle of wing, 1 indistinct median dark crenulate line and 2 postmedian distinct ones.—Hindwings bright brick-red washed slightly with grey on outer one-third.

Length of forewing: 62 mm. Expanse: 136 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, October—December 1910 (A. S. Meek), 1 ♀.

#### 96. *Macronadata brunnea* spec. nov.

♂. Uniform mummy-brown; hindwings paler; antemedian and postmedian lines dark rufous indistinct, a subterminal line of streaks chocolate rufous, a large stigma.

Length of forewing: 22 mm. Expanse: 49 mm.

*Habitat.* Waya, Lado Enclave, June 1912.

#### 97. *Omichlis pseudolibatrix* spec. nov.

♀. Except the red colouring, this species has a general appearance of *Sciopteryx libatrix*.

Antennae brown; head brownish lavender-grey; thorax pale wood-brown suffused with lavender-grey; abdomen pale sooty brown.

Forewings wood-brown tinged with yellow; a yellowish grey stigma, on basal half some indistinct buff and dark subbasal spots, and beyond these some incomplete serrated dark sinuous lines from costa to median vein, basal two-fifths of inner margin and a large patch joining on to it buff strongly freckled with rufous; on outer half an oblique sooty crenulate line followed by two curved lines of sooty coalescent lunules and a zigzag whitish subterminal line.—Hindwing sooty grey-brown, a buff and rufous patch on abdominal fold above tornus.

Length of forewing: 24 mm. Expanse: 53 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December 1910 (A. S. Meek), 1 ♀.

#### 98. *Omichlis plusiotis* spec. nov.

♂ ♀. Antennae brown above, white below; head frons dark rufous, vertex white; thorax vinaceous brown, patagia dark rufous; abdomen sooty vinaceous brown.

Forewing vinaceous yellowish grey freckled with dull rufous and with some indistinct cloudy streaks; a subbasal chocolate patch below vein 1 followed by a silver line from median fold to inner margin consisting of two joined silver moons; an oblique median dark brown band between which and the silver line is a rufous mark, a curved postmedian dark sooty grey line, and a crenulate dark rufous subterminal line.—Hindwing rufous chocolate grey-brown, a silver dot above tornus.

Length of forewing: ♂ 23 mm., ♀ 21 mm. Expanse: ♂ 52 mm., ♀ 47 mm.

*Habitat.* Near Oetakwa River, Snow Mountains, Dutch New Guinea, up

to 3,500 ft., October—December 1910 (A. S. Meek), 1 ♂ type; Upper Setekwa River, Snow Mountains, 2,000–3,000 ft., September 1910 (A. S. Meek), 1 ♂; Ninay Valley, Central Arfak Mountains, Dutch New Guinea, 3,500 ft., November 1908—January 1909 (A. E. Pratt), 1 ♀.

99. *Omicchlis mediofasciata* spec. nov.

♂. Antennae brown, shaft pale cinnamon; head mixed pale grey and cinnamon; thorax brownish cinnamon washed with grey; abdomen cinnamon-brown.

Forewing vinaceous cinnamon; stigma pale rufous, two antemedian and one postmedian double darker lines, between the stigma and the postmedian double line is a sooty single line from below subcostal vein to inner margin; a heavy chocolate rufous band from base to termen at vein 5 (angle) along median. —Hindwing brownish cinnamon, some irregular rufous-brown marks above tornus.

Length of forewing: 22 mm. Expanse: 50 mm.

*Habitat.* Biagi, Mambare River, North-east New Guinea, 5,000 ft., April 1906 (A. S. Meek), 2 ♂♂.

100. *Pachychira excellens* spec. nov.

♂. Antennae rufous; head vinaceous mauve; thorax vinaceous mauve passing into cream-buff behind; abdomen creamy white suffused with mauve.

Forewing bright heliotrope-mauve with strong silvery gloss; a buff stigma, a mauve line from base along median to vein 4 where it is sharply angled upwards and reaches apex; below this line are a number of cloudings giving a watered silk appearance; a subapical duller more sooty mauve patch; there is a large projecting lappet from inner margin. —Hindwing white.

Length of forewing: 32 mm. Expanse: 73 mm.

*Habitat.* Prestea, 70 miles inland from Sekondi, Gold Coast.

101. *Pachychira olivaceofusca* spec. nov.

♀. Antennae brown; head and thorax olivaceous mauve-brown; abdomen wood-brown.

Forewing mauve-brown, some dark olivaceous buff markings and patches in cell and on subterminal one-third of wing; a deep chocolate rufous band runs from middle of inner margin to just below apex. —Hindwing wood-brown, paler on costal half.

Length of forewing: 26 mm. Expanse: 58 mm.

*Habitat.* Moyamba, Sierra Leone (Dr. Cator), 1 ♀.

102. *Scalmicauda bisecta* spec. nov.

♀. Antennae dark brown; head black-brown freckled with lavender-grey; tegulae black-brown; rest of thorax greyish cinnamon mauve; abdomen dark buff.

Forewing greyish cinnamon-mauve, costal two-fifths, a wedge-shaped band along postmedian line, and a patch behind tornus brownish chocolate; two oblique antemedian and an oppositely oblique postmedian line whitish, as are

the margins of a large hour-glass-shaped patch across cell and a quadrate one beyond; a subterminal row of chocolate and whitish lunulate dots.—Hindwing bright buff.

Length of forewing: 24 mm. Expanse: 55 mm.

*Habitat.* Sierra Leone (Major Bambridge), 1 ♀; Assaba River, Niger (Dr. Cator), 1 ♀.

103. *Moresa hieroglyphica* spec. nov.

♀. Antennae buff, pectinations amber-yellow; head buff tinged with rust-red; thorax dark grass-green; abdomen orange-buff, suffused with rufous at base.

Forewing dark grass-green; costal one-fourth of wing buff, apical one-fifth of this salmon-colour; from cell partly coalescing with orange-buff stigma there spreads a broad buff threefold band of crossed bars and digit-like bands to termen, this band is tinged or splashed with rufous, a buff line from it to inner margin and one to vein 6.—Hindwings buff suffused with salmon.

Length of forewing: 32 mm. Expanse: 69 mm.

*Habitat.* Teffé, Amazons, October 1907 (M. de Mathan), 1 ♀.

104. *Moresa obliquifascia* spec. nov.

♂. Antennae brownish buff; head bright buff; thorax deep grass-green; abdomen salmon-orange.

Forewing deep grass-green; costo-subcostal area buff, outer half washed with brown; an irregular broad oblique bar from middle of cell almost to tornus deeply notched at each end buff with sooty grey splashes.—Hindwing salmon-buff; abdominal one-third salmon-colour.

Length of forewing: 22 mm. Expanse: 50 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

105. *Moresa plumbeiplaga* spec. nov.

♀. Antennae black, pectinations amber-yellow; head buff; thorax deep green; abdomen brownish buff.

Forewing deep green, costal edge sooty black-brown; a large irregular oblique brownish leaden-grey patch from below middle of subcostal almost to termen between vein 4 and just below vein 2; a small white streak followed by some very minute white dots runs into wing from costa about one-fifth from apex.—Hindwing: costal one-third buff, rest of wing buffish salmon-pink.

Length of forewing: 24 mm. Expanse: 52 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♀.

106. *Rosema klagesi* spec. nov.

♂. Antennae rufous brown; head and thorax deep green; abdomen crimson-scarlet.

Forewing dark grass-green, costo-subcostal area buff tinged with rufous and brown expanding from base of vein 6 and running thence to termen along this vein; a large oval pale olivaceous apple-green patch occupies the wing from termen to one-third from base and from inner margin to two-thirds the

space between veins 1 and 2.—Hindwing white, costal one-fifth salmon-crimson, abdominal one-fourth buff.

Length of forewing : 25 mm. Expanse : 56 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 4 ♂♂.

107. *Apella acutidivisa* spec. nov.

♂. Nearest to *neobule* Druce. Differs in forewing being entirely cinnamon-buff and the oblique band being single **not** double and deep maroon rufous.—Hindwing paler and rosy cinnamon.

*Habitat.* St. Jean de Maroni, French Guiana, 4 ♂♂.

108. *Apella ovalis* spec. nov.

♂♀. Antennae pale brown; head bright rufous; thorax tegulae bright rufous, rest of thorax cinnamon-buff; abdomen yellowish cinnamon-buff.

Forewing: basal half obliquely cinnamon-buff faintly strigillated with brown, outer half cinnamon-brown, an oblique dark rufous line from subcostal to tail of inner margin separating the two halves of the wing; just beyond the dividing rufous line is an almost circular large cinnamon-grey patch just below subcostal also faintly strigillated with brown; a cinnamon-buff half-moon-shaped patch on and below vein 1 in the centre of wing broadly edged with dark rufous.—Hindwing golden orange-buff.

Length of forewing : 16 mm. Expanse : 35 mm.

*Habitat.* San Esteban, Venezuela, June 1909 (S. M. Klages), 1 ♂ type; Caracas, Venezuela, 1 ♀.

109. *Maschane costipuncta* spec. nov.

♂. Antennae dark brown; head white suffused with brown; thorax tegulae orange-buff, rest of thorax violaceous brown; thorax rufous cinnamon suffused with smoky brown.

Forewing rufous cinnamon suffused with smoky violaceous brown less strongly on outer two-fifths, costa strongly bowed out beyond middle of wing, a powdering of white scales on and below costa; one-third from base a curved maroon-red patch runs into wing from costa.—Hindwing buffish cinnamon suffused with rufous cinnamon.

Some specimens are entirely rufous cinnamon without the smoky brown suffusion.

Length of forewing : 17 mm. Expanse : 39 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 3 ♂♂ type; St. Jean de Maroni, French Guiana, 3 ♂♂.

110. *Dylomia nubiloviolaceus* spec. nov.

♂♀. Antennae rufous; head buffy yellow washed with rufous; thorax tegulae buffy orange, rest grey-cinnamon-buff; abdomen rufous cinnamon-buff.

Forewing golden buff; costal and terminal area broadly maroon-purple, on the latter this colour is suddenly constricted between veins 5 and 7 and from vein 5 to tornus, bordered inwardly by a darker line; a double fan-shaped

brownish purple less strongly marked patch on each side of vein 1.—Hindwings buff washed with purplish rufous.

Length of forewing: 16 mm. Expanse: 36 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 7 ♂♂ type; St. Laurent de Maroni (Le Moul't père), 1 ♂; Fonte Boa, Upper Amazons, June 1906 (S. M. Klages), 3 ♀♀; Aroewarwa Creek, Maroewym Valley, Surinam, May—June 1905 (S. M. Klages), 1 ♀.

#### 111. *Hapigia rufocinnamomia* spec. nov.

♂ ♀. Antennae rufous; head and thorax rufous cinnamon strongly suffused with purplish vinaceous; abdomen sooty grey-brown.

Forewing violaceous cinnamon with a buff antemedian bandlike area, and two postmedian buff patchlike areas, one near tornus above which is an orange spot, and one near apex; the whole wing crossed with numerous lines of coalescent lunules, some with olivaceous centres; an olivaceous stigma and olive subapical spot.—Hindwings smoky grey-brown.

Length of forewing: ♂ 37 mm., ♀ 47 mm. Expanse: ♂ 82 mm., ♀ 102 mm.

*Habitat.* Potaro, British Guiana, February 1908 (S. M. Klages), 3 ♂♂, 1 ♀ (♂ type); Omai, British Guiana, 1 ♂; Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 2 ♂♂.

#### 112. *Antaea pseudosmerinthus* spec. nov.

♂. At first sight resembles *Laothoe amurensis*. Antennae yellowish grey; head and thorax brown-grey suffused with vinaceous, distal half of patagia freckled with ash-grey, a crimson smear at back of thorax; abdomen dark grey-brown.

Forewing pinkish grey washed somewhat with vinaceous, two antemedian lines whitish edged outwardly with vinaceous, an ovoid vinaceous patch in cell ringed with darker vinaceous and then whitish; at the end of cell is a large looped line between costa and median vein inside vinaceous and outside whitish, the distal arm of the loop stained with scarlet; a postmedian bent sinuate whitish line edged outwardly with vinaceous; a postdiscal similar line concavely curved and slightly crenulate from costa to vein 4, strongly zigzag from vein 4 to vein 1, from above vein 4 to vein 1 this line is strongly stained with scarlet; the termen has a deep brown terminal line and is deeply serrated, from apex to vein 4 the wing is truncate and concave, from vein 4 to vein 1 it is obliquely cut off.—Hindwing dark sooty grey-brown.

Length of forewing: 43 mm. Expanse: 95 mm.

*Habitat.* Fonte Boa, Upper Amazons, May 1906 (S. M. Klages), 11 ♂♂ type; Santo Antonio do Javary, Upper Amazons, June 1907 (S. M. Klages), 1 ♂; Humayta, Rio Madeira, July—September 1906 (W. Hoffmanns), 1 ♂.

Some specimens have some sooty patches on the intranervular spaces between veins 2 and 4.

#### 113. *Chliora mediostriga* spec. nov.

♂. Antennae brown; head, thorax, and abdomen dark vinaceous cinnamon.

Forewing brownish orange-buff with numerous cross-lines of vinaceous cinnamon coalescent lunules in basal and outer thirds of the wing; central

one-third of wing with a broad band of vinaceous cinnamon narrowing to inner margin from median (this band is 11 mm. wide at costa and 5 mm. at inner margin, the outer edges are lunate-crenulate, and the band encloses two buff stigmata); a double subterminal line of black lunules and a black central striga from base to within one-fourth of termen along median and vein 4.—Hindwing pale vinaceous buffy cinnamon; fringe buff.

Length of forewing: 26 mm. Expanse: 58 mm.

*Habitat.* Tumatumari, British Guiana, December 1907 (S. M. Klages), 1 ♂ type; Codaljas, Upper Amazons, April 1907 (S. M. Klages), 1 ♂; Fonte Boa, Upper Amazons, November 1906 (S. M. Klages), 1 ♂.

#### 114. *Hapigiodes klagesi* spec. nov.

♂. Antennae dark brown; head and thorax violaceous pomegranate-red; abdomen isabel buffish washed with pale vinaceous.

Forewing purplish pomegranate-brown patched and suffused in several places with maroon and washed with violaceous pink; some sooty cloudy black patches beyond cell, and a dark stigma and a black cloud patch occupying most of wing below median round and above inner excision; a curved postmedian indistinct sooty hair-line with grey dots, a zigzag subterminal black hair-line.—Hindwing grey-buff.

Length of forewing: 26 mm. Expanse: 57 mm.

*Habitat.* Fonte Boa, Upper Amazons, July 1907 (S. M. Klages), 2 ♂♂.

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EXPLANATION OF PLATE III.

No.	1.	<i>Psilacron sericeus</i> Rothsch.	.	.	.	.	.	.	p. 239
„	2.	<i>Notoplusia distinguenda</i> Rothsch.	-	-	-	-	-	-	p. 240
„	3.	<i>Phalera postaurantia</i> Rothsch.	.	.	.	.	.	.	p. 253
„	4.	<i>Maschane costipunctata</i> Rothsch.	-	-	-	-	-	-	p. 262
„	5.	<i>Dyasia punctata</i> Rothsch.	.	.	.	.	.	.	p. 236
„	6.	<i>Stauropus glaucoviridis</i> Rothsch.	-	-	-	-	-	-	p. 242
„	7.	„ <i>rufescens</i> Rothsch.	♂	.	.	.	.	.	p. 244
„	8.	„ „ „	♀	-	-	-	-	-	p. 244
„	9.	„ <i>purpurascens</i> Rothsch.	♂	.	.	.	.	.	p. 242
„	10.	„ „ „	♀	-	-	-	-	-	p. 242
„	11.	<i>Apella ovalis</i> Rothsch.	.	.	.	.	.	.	p. 262
„	12.	<i>Moresa obliquifascia</i> Rothsch.	-	-	-	-	-	-	p. 261
„	13.	<i>Lirimiris chimaera</i> Rothsch.	.	.	.	.	.	.	p. 237
„	14.	<i>Stauropus nitidus</i> Rothsch.	♂	-	-	-	-	-	p. 241
„	15.	„ „ „	♀	.	.	.	.	.	p. 241
„	16.	„ <i>flavicollis</i> Rothsch.	-	-	-	-	-	-	p. 241
„	17.	„ <i>apiculatus</i> Rothsch.	.	.	.	.	.	.	p. 245
„	18.	„ <i>viridigriseus</i> Rothsch.	♂*	-	-	-	-	-	p. 243
„	19.	<i>Tachida cossula</i> Rothsch.	.	.	.	.	.	.	p. 235
„	20.	<i>Drugera pallidiflava</i> Rothsch.	-	-	-	-	-	-	p. 239
„	21.	<i>Dyasia melanoleuca</i> Rothsch.	.	.	.	.	.	.	p. 236
„	22.	<i>Dylomia nubiloviolaceus</i> Rothsch.	-	-	-	-	-	-	p. 262
„	23.	<i>Stauropus viridigriseus</i> Rothsch.	♀*	.	.	.	.	.	p. 243
„	24.	<i>Lepasta bractea gigantea</i> Rothsch.	-	-	-	-	-	-	p. 235
„	25.	<i>Turnaca nigripuncta</i> Rothsch.	.	.	.	.	.	.	p. 258
„	26.	<i>Stauropus frugilegus</i> Rothsch.	-	-	-	-	-	-	p. 243

\* Originally printed *viridogrisea*, by mistake.







EXPLANATIONS OF PLATE IV.

(Corrected)

No.	1.	<i>Gargetta albostigmata</i> Rothsch. ( <i>Cargetta</i> in text, err.)	.	.	p.	256
„	2.	<i>Hapigiodes klagesi</i> Rothsch. - - - - -	-	-	p.	264
„	3.	<i>Omichlis plusiotis</i> Rothsch. . . . .	.	.	p.	259
„	4.	<i>Bardaxima castaneobrunnea</i> Rothsch. - - - - -	-	-	p.	234
„	5.	<i>Moresa hieroglyphica</i> Rothsch. . . . .	.	.	p.	261
„	6.	<i>Hoplitis insignifica</i> Rothsch. - - - - -	-	-	p.	250
„	7.	<i>Rifargia biplaga</i> Rothsch.. . . .	.	.	p.	254
„	8.	<i>Trichomoplata dimorpha</i> Rothsch. ♀ - - - - -	♀	-	p.	240
„	9.	<i>Lirimiris elongata</i> Schaus ♀ . . . . .	♀	.	p.	237
„	10.	„ „ <i>orientalis</i> Rothsch. ♂ - - - - -	♂	-	p.	238
„	11.	„ <i>eurybia</i> Druce . . . . .	.	.	p.	237
„	12.	<i>Tarsolepis japonica</i> Wileman.				
„	13.	<i>Gargetta bipuncta</i> Rothsch. ( <i>Cargetta</i> in text, err.)	.	.	p.	257
„	14.	<i>Lirimiris lemoulti</i> Rothsch. - - - - -	-	-	p.	237
„	15.	<i>Macronadata brunnea</i> Rothsch. . . . .	.	.	p.	259
„	16.	<i>Brachychira olivaceofusca</i> Rothsch. ( <i>Puchychira</i> in text, err.)			p.	260



EXPLANATIONS OF PLATE V.

No.	1.	<i>Stauropus notodontina</i>	Rothsch.	.	.	.	.	.	.	p. 246
„	2.	„	<i>bipunctus</i>	Rothsch.	-	-	-	-	-	p. 246
„	3.	<i>Chadisra meeki</i>	Rothsch.	.	.	.	.	.	.	p. 251
„	4.	„	<i>albobrunnea</i>	Rothsch.	-	-	-	-	-	p. 251
„	5.	<i>Hoplitis dasychiroides</i>	Rothsch.	.	.	.	.	.	.	p. 250
„	6.	<i>Chadisra striata divisa</i>	Rothsch.	-	-	-	-	-	-	p. 252
„	7.	<i>Naprepa fusconubilata</i>	Rothsch.	.	.	.	.	.	.	p. 231
„	8.	„	<i>adusta</i>	Rothsch.	-	-	-	-	-	p. 231
„	9.	<i>Hapigia rufocinnamomea</i>	Rothsch.	.	.	.	.	.	.	p. 263
„	10.	<i>Pachychira excellens</i>	Rothsch.	-	-	-	-	-	-	p. 260
„	11.	<i>Rifargia terebroides</i>	Rothsch.	.	.	.	.	.	.	p. 254
„	12.	<i>Scalmicauda bisecta</i>	Rothsch.	-	-	-	-	-	-	p. 260
„	13.	<i>Rhuda opalistriga</i>	Rothsch.	♂	.	.	.	.	.	p. 249
„	14.	„	„	♀	-	-	-	-	-	p. 249
„	15.	<i>Chadisra striata striata</i>	Rothsch.	.	.	.	.	.	.	p. 252
„	16.	<i>Tarsolepis sericea</i>	Rothsch.	-	-	-	-	-	-	p. 252
„	17.	<i>Chliora mediostriga</i>	Rothsch.	.	.	.	.	.	.	p. 263
„	18.	<i>Gargetta flavibasis</i>	Rothsch.	♀	( <i>Cargetta</i> in text, err.)	-	-	-	-	p. 256.







EXPLANATIONS OF PLATE VI.

No.	1.	<i>Trichomoplat</i>	<i>stigmatica</i>	Rothsch.	.	.	.	.	.	.	p. 241
„	2.	<i>Stauropus</i>	<i>incisus</i>	Rothsch.	-	-	-	-	-	-	p. 245
„	3.	<i>Cascera</i>	<i>variegata</i>	Rothsch.	.	.	.	.	.	.	p. 248
„	4.	<i>Rifargia</i>	<i>steinbachi</i>	Rothsch.	-	-	-	-	-	-	p. 255
„	5.	<i>Turnaca</i>	<i>lanuginosa</i>	Rothsch.	.	.	.	.	.	.	p. 258
„	6.	<i>Cascera</i>	<i>irrorata</i>	<i>irrorata</i>	Rothsch.	-	-	-	-	-	p. 248.
„	7.	<i>Euhampsonia</i>	<i>gigantea</i>	(Druce) = <i>Euhampsonia</i>	<i>magnifica</i>						
				Rothsch.	.	.	.	.	.	.	p. 258
„	8.	<i>Baradesa</i>	<i>omissa</i>	Rothsch.-	-	-	-	-	-	-	p. 258
„	9.	„	<i>lithosioides</i>	Moore (for comparison)	.	.	.	.	.	.	p. 258
„	10.	<i>Antaea</i>	<i>pseudosmerinthus</i>	Rothsch.	-	-	-	-	-	-	p. 263
„	11.	<i>Hoplitis</i>	<i>curratula</i>	Rothsch.	.	.	.	.	.	.	p. 251
„	12.	<i>Apella</i>	<i>acutidivisa</i>	Rothsch.	-	-	-	-	-	-	p. 262
„	13.	<i>Chadisra</i>	<i>plagosa</i>	Rothsch.	.	.	.	.	.	.	p. 252
„	14.	<i>Gargetta</i>	<i>flavibasis</i>	Rothsch. ♂ ( <i>Cargetta</i> in text, err.)	-	-	-	-	-	-	p. 256
„	15.	<i>Omichlis</i>	<i>mediofasciata</i>	Rothsch.	.	.	.	.	.	.	p. 260
„	16.	„	<i>pseudolibatrix</i>	Rothsch.	-	-	-	-	-	-	p. 259
„	17.	<i>Cascera</i>	<i>perscripta</i>	Rothsch.	.	.	.	.	.	.	p. 248
„	18.	„	<i>olivacea</i>	<i>olivacea</i>	Rothsch.	-	-	-	-	-	p. 247
„	19.	<i>Moresa</i>	<i>plumbeiplaga</i>	Rothsch.	.	.	.	.	.	.	p. 261







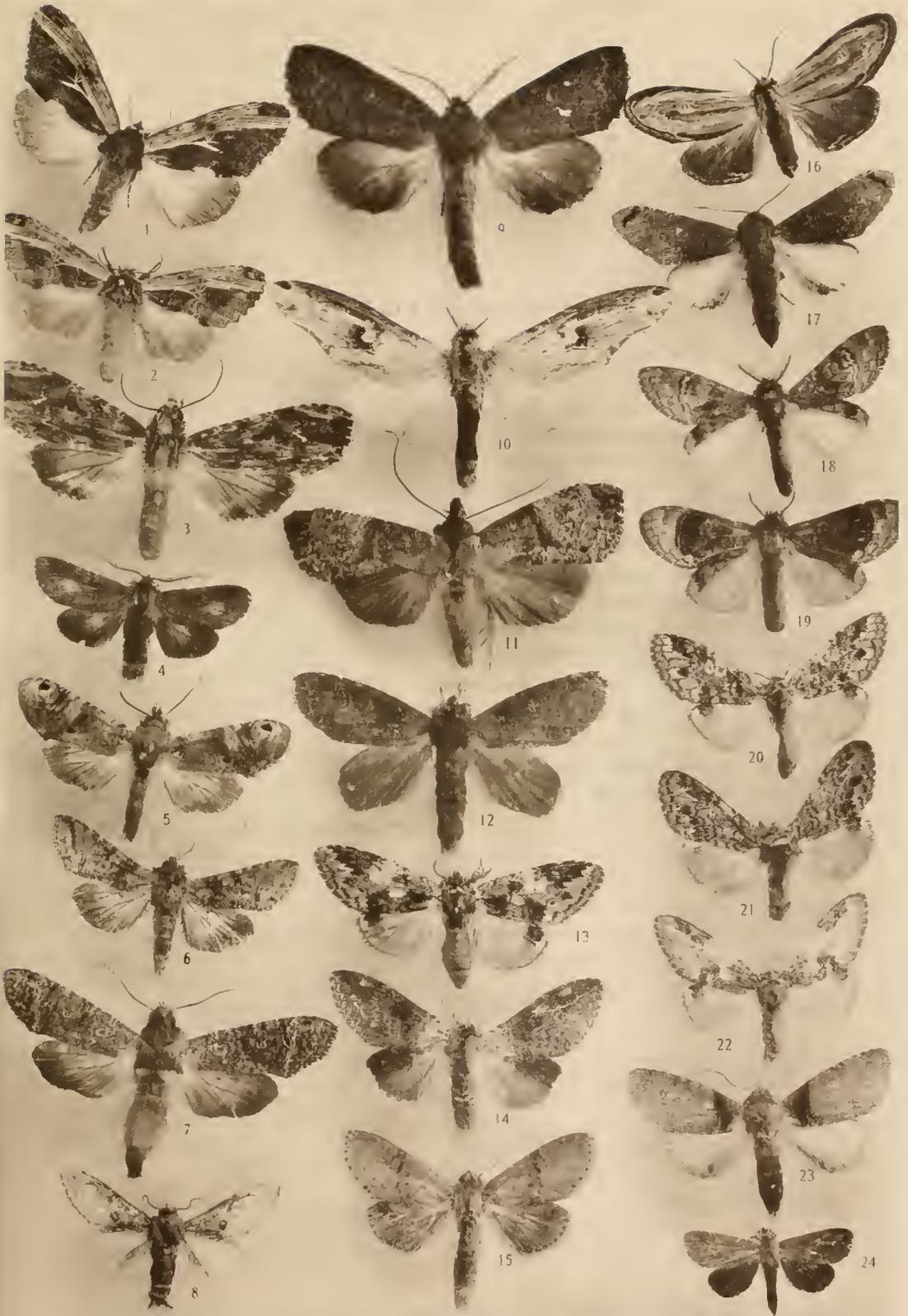














## ON SOME RALLIDAE.

BY ERNST HARTERT, PH.D.

## I. THE NAME OF THE AFRICAN "PURPLE COOT."

THE large African Purple Coot or Purple Moorhen—*Porphyrio* is next allied to the Moorhen, and not to the Coot—has been known as *Porphyrio smaragnotus*, *smaragdonotus*, or *madagascariensis*, which names all refer to it, and it has also been named *chlorynothos*, *chloronotus*, and *aegyptiacus*. In 1894 Sharpe introduced for it the name *Porphyrio porphyrio*, pretending that it was Linné's "*Fulica porphyrio*" of 1766, and this name was adapted by Reichenow, in the *Vögel Afrikas*, as of 1758!

Linnaeus (*Syst. Nat.* ed. x. i. p. 152, 1758) called *Fulica porphyrio* a bird which he diagnosed as follows: "Fulica fronte caeva, corpore violaceo, digitis simplicibus." He quotes as his sources: (1) "Brown, Jamaica, 479." Brown, of course, described the American species! (2) "Albin, av. 3, p. 79, t. 84." Albin figured and described a bird which is all over uniform purplish blue and has a white tail. This can only be *P. caeruleus* and not the African species, which has a green back. Albin does not say where the home of his bird was, but refers to the one described by Plinius, Gesner, and Aldrovandus, who must all have had *P. caeruleus* in their mind, though they mostly described it from pictures only. (3) "Raj. av. 116, n. 13." Ray says he only saw pictures and does not know if the bird really existed. "An detur hujusmodi avis dubitatur?" (4) "Edwards, av. 87, t. 87." Edwards figures and describes a bird which was all over "of a fine blue, inclining to violet." He gives no locality, but says a Mr. Bell told him he had seen male birds in China. (5) "Dodart. act. 3, p. 30?" I have not seen this book, but Dodart had, so far as I know, only black-and-white figures and no text; moreover, as Linné queried his figure, this quotation is of no avail.

Last but not least: Linné said: "Habitat in Asia, America."

In 1766 (*Syst. Nat.* ed. xii. i. p. 258) Linné described his *F. porphyrio* as *corpore viridi, subtus violaceo*, and added some more quotations, Bellonius, Gesner, Aldrovandus, Clusius, Willoughby, and Brisson. Most of these were compilers who referred to the bird described by Plinius, Gesner, Aldrovandus, but Brisson gave a description of a bird with a green back which he says came from Cayenne, though it seems that he really did describe an African specimen, as he says it is nearly as large as a fowl, and afterwards the "Petite Poule Sultane," also from Cayenne. In any case, this cannot alter the meaning of Linné's "*Fulica porphyrio*," of which in 1766 he said, "Habitat in India Asiae, Americae."

It is thus clear that Linné's "*Porphyrio*" of 1758 was a mixture of the South American *Porphyrio martinica* and the Mediterranean *P. caeruleus*, but has absolutely nothing to do with the African species. There is therefore no justification whatever for adopting this name for the African species.

In 1766 Linné altered his diagnosis, and described a species with a green back, but as he did not mention the size and says no word of the occurrence in Africa, that may just as well refer to the American species. Therefore even

Sharpe, who disregarded the description of 1758, because he began his nomenclature with the year 1766, should not have adopted Linné's name for the African species.

The oldest available name for the latter is *Fulica madagascariensis* Latham, 1801. As there seems to be no difference between African and Madagascar specimens, this name covers them both, and the change proposed by Sharpe and Reichenow need not take place.

## II. *PORPHYRIO POLIOCEPHALUS CASPIUS* SUBSP. NOV.

While there is evidently no difference whatever in colour, I find that the tropical (Indian) form of *Porphyrio poliocephalus* is smaller than the palaeartic one from the shores of the Caspian and Persia.

Of the Indian form there is a large series in the British Museum (cf. *Cat. B. Brit. Mus.* xxiii. p. 199), and their wings measure 240–269 mm. Unfortunately, quite a number are not sexed at all, and some apparently not correctly, but, taking one or two errors for granted, it seems that the males measure from 257–269, females 240–256 mm. There are only four Ceylon skins, and their wings measure 240–243 mm., in one, but perhaps abnormally, only 230 mm., but Legge gives the same length! It would thus seem that the Ceylon birds are smaller again, but a larger series must be measured in order to verify this supposition.

Of the Irano-Caspian form I have measured five skins from Lenkoran and eleven from East Persia, and find that they measure 259–286 mm. in the wing—i.e. ♂♂ 270–286, ♀♀ 259–266 mm.

There is thus, if specimens of similar sex are compared, a close approach, but not even an overlapping, and the two forms must therefore be separated.

The Indian bird was named *Gallinula poliocephala* by Latham (*Ind. Orn. Suppl.* p. lxxviii. 1801), and again *Porphyrio neglectus* by Schlegel (*Mus. Pays-Bas*, Ralli, p. 53, 1865).

The larger Caspian and Persian form has no name. It is frequently called "*Porphyrio veterum*," but this is not correct. S. G. Gmelin (*Reise durch Russland*, iii. p. 79, pl. 12, 1774) tells us of the occurrence of the Purple Coot in North Persia, and give an uncoloured figure of it. He thought this bird was the *Porphyrio* of the older writers, and does not, therefore, give it a name. In a footnote he says that it is the *Porphyrio veterum*, meaning the *Porphyrio* of the old authors, and recapitulates the diagnoses of Klein, Brown, and Linné, of their *Porphyrio*. These authors, however, had different birds in mind, and the name *veterum* has therefore no standing; besides that, it was not meant to be a name.

I therefore propose for the large form the name—

### *Porphyrio poliocephalus caspius* subsp. nov.

because it chiefly inhabits the basin of the Caspian.

Type: ♂ ad., Lenkoran, in the Tring Museum.

We must distinguish the following palaeartic *Porphyrio*:

#### 1. *Porphyrio caeruleus* (Vandelli).

South Portugal and Spain, Marocco, Algeria, Tunisia, Sardinia, and Sicily, formerly Balearic Isles and Malta. It was probably this species which occurred,

according to Geoffroy St. Hilaire and Erhard, over half a century ago in Greece, in the swamps of Osman-Aga, the plain of Helos, on the lakes Dystos and Kopai, but it might possibly have been another species.

2. *Porphyrio madagascariensis* (Lath.)

Madagascar and Africa to the Sahara, in Egypt along the Nile to Fayum, Lake Menzaleh and Alexandria.

3. *Porphyrio poliocephalus caspius* Hart.

Wings: ♂ 270–286, ♀ 258–266 mm.

Shores of Caspian, very numerous at Lenkoran, rare in the Volga delta, in Persia, especially in Seistan, East Persia, in Mesopotamia, and probably Afghanistan, from where only one unsexed specimen could be measured.

3A. *Porphyrio poliocephalus poliocephalus* (Lath.).

Wings: ♂ 257–269, ♀ 240–256 mm.

India from Ceylon to the Himalaya, Burma to Tenasserim.

Possibly the Ceylon form smaller again?

4. *Porphyrio alleni* Thomps.

Tropical Africa, as a straggler once Alexandria, twice Sicily, twice Lucca in Italy, a number of times on the Azores, once in Madeira, once on the Mar Menor south-east of Murcia, in December 1902 near Bizerta in Tunisia, in December 1902 near Mazagan in West Morocco, in January 1902 at sea near Yarmouth.

It is certainly very remarkable that a species which breeds south of the Sahara should occur so frequently in Europe, and I do not think that it is impossible that it occurs regularly and nests in Southern Morocco, which is, so far, not at all thoroughly explored. It might thus belong to the birds which, like the *Telephonus*, *Pycnonotus barbatus*, *Asio capensis tingitanus*, *Melierax canorus metabates*, *Francolinus bicalcaratus* (subsp.), and *Streptopelia senegalensis phoenicophila*, have extended their range from the Senegal along the coast to Africa Minor, where most of them became changed into distinct subspecies.

### III. THE FORMS OF *GALLINULA CHLOROPUS*.

The "Moorhen" or "Water-hen," being very widely spread, and in most countries not or only partially migratory, offers a very interesting subject for the study of geographical variation. As usual, series from many breeding-areas are not available, but from the material I was able to compare I am convinced that we can distinguish the following races:

1. *Gallinula chloropus chloropus* (L.).

*Fulica chloropus* Linnaeus, *Syst. Nat.* ed. x. i. p. 152 (1758—"Habitat in Europa." Restricted terra typica, from the first quotation, England).

Outward appearance of wings olive-brown. Wings: ♂ 175–188, ♀ 165–176 mm.

Europe generally from Norway and Russia to the Mediterranean, east-

wards to Turkestan, and North Africa, north of the Sahara. I am not able to say whether the specimens obtained in Dauria (Transbaikalia) belong to this form or to the Chinese one. Wholly or partially migratory in the northern portions of its area. (Series from North Africa not available.)

### 2. *Gallinula chloropus parvifrons* Blyth.

*Gallinula parvifrons* Blyth, *Journ. As. Soc. Bengal*, xii. p. 180 (1843—Calcutta).

(? *Gallinula burnesi* Blyth, *op. cit.* xxiii. p. 737, 1854. Described from a drawing which presents no white under tail-coverts and no white stripes on the flanks. From Kabul.)

In every way like *G. c. chloropus*, but smaller, wings shorter. Wings: ♂ 156–176, sometimes to 182, ♀ 155–165 mm.

India, south to Ceylon, eastwards through China to the Riu-Kiu (Loo-Choo) Islands, and Japan, where it is, however, by no means common. Probably Thibet specimens belong to this race, too. Cf. C. H. B. Grant, *Ibis*, 1915, p. 48.

### 3. *Gallinula chloropus orientalis* Horsf.

*Gallinula orientalis* Horsfield, *Trans. Linn. Soc. London*, xiii. p. 195 (1820—Java).

Easily distinguishable by its bluish slate-coloured upper wing-coverts, which lack the olivaceous brown edges which are found in *G. c. chloropus* and other races. Wings short, 145–167 mm.

Java, Sumatra, Malay Peninsula; Celebes (rare). Specimens from the Philippine Islands seem mostly to belong to this form, but some have the wings much browner. Their wings are sometimes longer than in *G. c. orientalis*. They stand thus somewhat between *G. c. orientalis* and *parvifrons* and resemble *G. c. guami*. Unfortunately not many specimens could be examined.

### 4. *Gallinula chloropus guami* subsp. nov.

Upper wing-coverts darker than in *G. c. chloropus* and *parvifrons*, with very little olive-brown, but not uniform slate-colour as in *orientalis*. Wings: ♂ ♀ 165–175, exceptionally as long as 180 mm.

Island of Guam, Marianne Islands.

Type: ♂ ad., Guam, 11. xii. 1894. Collected by the late Alan Owston's Japanese collectors. In the Tring Museum.

I have examined thirty-six examples from Guam. Cf. *NOV. ZOOL.* 1898, pp. 62–64, where I not only described the status of the Moorhen on Guam, but also discussed some of the other forms of *Gallinula*. That short review, however, was very incomplete and faulty, and does not favourably compare with our present knowledge.

### 5. *Gallinula chloropus brachyptera* (Brehm).

*Stagnicola brachyptera* Brehm, *Vogelfang*, p. 331 (1855—"Mittelafrika").

(Mr. C. H. B. Grant [*Ibis*, 1915, p. 48] adopts for this race Brehm's name *meridionalis*, published on the same page, one line above *brachyptera*. I cannot follow this; Brehm said it had the edge of the wing and under wing-coverts ferruginous ("rostfarben"), which is not the case in any *Gallinula chloropus*,

nor is there a specimen in the Brehm Collection from which this description could be taken.)

Very similar to *G. c. orientalis*, but toes and tarsus as a rule distinctly shorter, sometimes however difficult to distinguish. Wings about 150–175 mm.

Tropical Africa to Cape Colony, St. Thomé and Annobon. Also the Seychelle Islands, Praslin, Ile aux Fous, St. Digne, and probably Ile Aride. The four skins from Ile Aride have the under tail-coverts more or less buff, almost as in *pyrrhorhoa*, and the wings are rather shorter than in the majority of *brachyptera*. I believe, however, that they must all be females, though sexed as males, but the collector, Thibault, was not reliable in that respect. Curiously the upper wing-coverts are also rather more brownish than they usually are in *brachyptera*. It is hardly credible that on the small islet called Ile Aride, close to the Ile aux Fous, a special form should exist!

#### 6. *Gallinula chloropus pyrrhorhoa* Newt.

*Gallinula pyrrhorhoa* Newton, *Proc. Zool. Soc. London*, 1861, p. 18 (Mauritius).

Under tail-coverts always distinctly deep buff. In other subspecies, chiefly in *G. c. chloropus*, the lateral under tail-coverts are sometimes, especially in freshly moulted autumn specimens, more or less buff, but not regularly and so intensely as in this form.

Mauritius, Réunion, and Madagascar.

#### 7. *Gallinula chloropus sandvicensis* Streets.

*Gallinula sandvicensis* Streets, *Ibis*, 1877, p. 25 (Oahu).

At once recognisable by the extended frontal shield in old birds. Toes rather short and slender, more red in front of tarsus.

Sandwich Islands. Though better differentiated than most other forms, after all only subspecies according to my present views.

#### 8. *Gallinula chloropus galeata* (Licht.).

*Crex galeata* Lichtenstein, *Verz. Doubl. Mus. Berlin*, p. 80 (1823—Sao Paulo, Brazil).

Easily recognisable by the widely extended frontal shield, which is truncate (not rounded) behind.

Southern Brazil, Paraguay, Uruguay, Northern Argentina, Eastern Bolivia.

#### 9. *Gallinula chloropus pauxilla* Bangs.

*Gallinula chloropus pauxilla* Outram Bangs, *Proc. New England Zool. Club*, v. p. 96 (1915—West Colombia).

Like *G. c. galeata*, but much smaller.

West Colombia, probably also West Ecuador, and perhaps even farther south.

#### 10. *Gallinula chloropus cachinnans* Bangs.

*Gallinula chloropus carchinnans* Bangs, *Proc. New England Zool. Club*, v. p. 96 (1915—North America. Type Florida).

Easily separable by the colour of the back and scapulars, which are of a more or less reddish brown, though variable, according to Bangs, from "argus

brown" through "Brussels brown" to "raw umber." "In most fully adult individuals the whole back, rump and wings, except lesser coverts, are brown." Size and proportions as in *G. c. galeata*. Wings, 169–178 mm.

"North temperate Eastern and Central North America, south to Nicaragua, and as a rare straggler to Costa Rica; Bermudas; Greater Antilles; Northern Lesser Antilles; Bahamas, rare and local; an isolated colony in California and another at Cape San Lucas" (Bangs, *l.c.*).

Specimens from the Galápagos Islands appear to be inseparable for the present, but a larger series would probably show them to be a smaller subspecies!

Bangs (*l.c.*, p. 98) separated, from comparison of two specimens, a race from S. Lucia, Lesser Antilles, as—

*Gallinula chloropus cerceris.*

A specimen in the Tring Museum, collected on S. Lucia by Selwyn Branch, agrees with other West Indian specimens, and shows nothing of the characters on which Bangs founded his *cerceris*. I therefore believe that *G. c. cerceris* should be regarded as a synonym, and that the type is abnormal. Bangs's second specimen is immature.

11. *Gallinula chloropus garmani* Allen.

*Gallinula garmani* Allen, *Bull. Mus. Comp. Zool.* iii. p. 357 (1876—Lake Titicaca).

Much larger than other American forms, upperside very dark.

Lake Titicaca in Southern Peru. According to Bangs also in Western Bolivia and Chile. This may be correct, but specimens from Eastern Bolivia which I examined belong to *G. c. galeata*.

It seems doubtful if *Gallinula frontata* Wall. (*G. frontata* Wallace, *Proc. Zool. Soc. London*, 1863, p. 35, Buru) should be included in the subspecies of *Gall. chloropus*. It is easily separable, besides other details, from all other forms by the red legs and larger bill, with more extended frontal shield. These differences, though obvious, would not deter me from calling it *G. chloropus frontata*, but it seems to occur together with *G. c. orientalis*, in Celebes. I think, therefore, that we must await further investigations, before treating it as a form of *G. chloropus*, though Stresemann (NOVITATES ZOOLOGICAE, 1914, p. 55) did it without hesitation. *G. frontata* seems to be rare on Celebes, and so does *G. c. orientalis*, and it may be that either of them is only an occasional straggler on the great island, but this is not yet certain. Besides Celebes, *G. frontata* occurs on Buru, Ceram, Amboina, New Guinea, Sumba, Flores, and Borneo, but on the latter almost certainly as an exceptional straggler, if the record is correct.

LITERATURE ON THE FORMS OF *GALLINULA CHLOROPUS*.

1894: Sharpe, *Cat. B. Brit. Mus.* xxiii. pp. 168–180.

1894: Hartert, *Nov. Zool.* v. pp. 62–64.

1915: Claude H. B. Grant, *Ibis*, pp. 47–49.

1915: Outram Bangs, *Proc. New England Zool. Club*, v. pp. 93–99 (review of the American forms).

IV. THE FORMS OF *PORZANA FUSCA* (L.).

In the *Cat. B. Brit. Mus.* xxiii. pp. 146-148, Sharpe united the various forms of this species, only separating *phaeopygus*, because he did not know it, or he would undoubtedly not have kept it as another species.

Sharpe admitted that the species "varies considerably in size," but concluded that "it would seem impossible to recognise more than one form." He gave some measurements which clearly showed that specimens from South India and Ceylon and likewise those from the Philippines are smaller than birds from Northern India on the one hand and from China and Japan on the other.

It is impossible, according to present ideas, to unite all these forms, nor are they, of course, "species," but clearly "subspecies," though their present knowledge is not final, and the distribution of some of the forms not clear and somewhat peculiar.

Linnaeus described the bird from Brisson, who had it from the Philippines. The Philippine form is therefore *Porzana fusca fusca* (L.). As birds from Java are not separable from the latter, Temminck's *Rallus rubiginosus*, described from Java, is a synonym.

"*Zapornia flammiceps*" Hodgson, *Gray's Zool. Misc.* p. 86 (1844), is a *nomen nudum*, and I consider the name too unsuitable to adopt it for the North Indian form.

I distinguish the following forms :

1. *Porzana fusca erythrothorax* (Temm. & Schleg.).

*Gallinula erythrothorax* Temminck & Schlegel, *Siebold's Fauna Japon. Aves*, p. 121. pl. 28 (1849—Japan).

Forehead to about middle of eyes or greater part of crown rufous ; upper-side dark olive-brown, in fresh plumage with rusty tinge. Underside and forehead as a rule less deep, paler rufous, than in allied forms. Larger, wings 105-120 mm. (thirty-five measured).

Japan from Yesso to Kiushiu and Yaku, Eastern China to Yunnan and Siam.

In Yunnan specimens are sometimes rather darker on the underside, so it is not easy, if at all possible, to distinguish them from large specimens of *P. f. bakeri*. The largest specimens I have seen are from Japan (wings mostly 110-120 mm., shortest 105 mm.); those from China measure 105-118 mm., once 120 mm. This is probably accidental, and I do not think that the Chinese form is really smaller. The wings of 10 ♂ from Mengtze or Mongtze in Yunnan measure, according to Mr. Outram Bangs, in litt., 97 to 105 mm., but as he measured the wings "in their natural curve, not flattened against the rule,"\* we may add 3 or 4 mm., so that they come to about 100-109 mm.

\* I am afraid that Mr. Bangs's way of measuring the wing is still the usual one, but it is undoubtedly the wrong way. An absolutely uniform measurement can only be obtained if the wing is flattened against the rule and thus stretched to its fullest extent. By having the same birds measured by brother (and sister) ornithologists in various countries I have proved that we measure absolutely equal, while no uniformity could be attained by measuring "the natural curve." It is also desirable to have a small brass plate fixed at a right angle to the end of the rule, and to press the wing against that plate; if the finger is used to hold the wing in its position at the end of the rule, small deviations are unavoidable.

2. *Porzana fusca phaeopyga* Stejn.

*Porzana phaeopyga* Stejneger, *Proc. U.S. Nat. Mus.* x. p. 394 (1887—Yayeyama, Riu-Kiu Islands).

Very closely allied to *P. f. erythrothorax*, but with bills as a rule thicker and longer, the rufous colour of the chest perhaps a little more saturated.

Stejneger's description is not in agreement with these specimens. They are not darker on the upperside than Japanese examples, and the whitish spotting of the first primary is aberrational. None of our Riu-Kiu specimens shows this, but one from Ceylon has pale rusty, one from Java whitish spots on the outer webs of the first primary. Large series should be compared!

Riu-Kiu Islands: Yayeyama, Amami, Okinawa.

3. *Porzana fusca bakeri*, subsp. nov.

*Zapornia flammiceps* (sic) Hodgson, *Gray's Zool. Misc.* p. 86 (1844—*Nomen nudum!* Nepal).

As already pointed out by Sharpe, specimens from North India are larger than those from Ceylon or South India and from the Philippine Islands. They are nearly and sometimes quite as large as *P. f. erythrothorax*, but the rufous underside is deeper, darker. The crown, as a rule, is entirely rufous. Wing 97–108 mm., once 110 mm.

Type: ♀ ad., Bhim-Tal, Kumaon 20. vi. (Tring Museum.)

Northern India from Kashmir to Cachar, Upper Assam and Burma, south to Calcutta. Possibly northern birds may partially move south in winter, for a specimen from Patani, Malay Peninsula, with a wing of 111 mm. can hardly be *P. f. fusca*, which is evidently resident in the Malay Peninsula (Selangor).

Named after my friend E. C. Stuart Baker, whom I first met in Calcutta, twenty-nine years ago.

This form is common in Assam, especially near Margherita. Mr. Baker gave me the following measurements of eggs:

31·8 × 23·6	} 30. vii. 1905, Margherita.
30·8 × 24·2	
31·0 × 24·0	
31·0 × 23·6	
31·2 × 23·6	

30·2 × 22·8	} 9 vii. 1907, Margherita.
30·3 × 23·3	
30·2 × 23·2	
29·3 × 23·0	
30·4 × 23·0	

31·8 × 22·5	} 28. v. 1905, Margherita.
31·0 × 23·3	
33·5 × 21·8	

28·5 × 21·6	} 12. vii. 1907, Margherita.
28·4 × 22·2	

$$\left. \begin{array}{l} 30.8 \times 22.1 \\ 29.9 \times 21.5 \\ 29.2 \times 21.1 \\ 29.6 \times 22.2 \\ 29.9 \times 21.5 \end{array} \right\} 15. \text{vi. } 1902, \text{ Margherita.}$$

$$\left. \begin{array}{l} 32.5 \times 23.0 \\ 30.0 \times 23.0 \\ 32.1 \times 22.3 \\ 30.8 \times 23.0 \\ 31.8 \times 23.3 \end{array} \right\} 15. \text{v. } 1903, \text{ Margherita.}$$

$$\left. \begin{array}{l} 29.8 \times 23.0 \\ 29.8 \times 23.2 \\ 29.2 \times 23.2 \\ 29.4 \times 22.8 \\ 29.4 \times 23.2 \end{array} \right\} 1 \text{vi. } 1903, \text{ Margherita.}$$

$$\left. \begin{array}{l} 29.8 \times 22.2 \\ 29.2 \times 22.3 \\ 29.8 \times 22.2 \\ 29.9 \times 22.2 \\ 30.5 \times 22.1 \end{array} \right\} 16. \text{vii. } 1893, \text{ Silchar in Cachar.}$$

$$\left. \begin{array}{l} 32.6 \times 22.0 \\ 32.0 \times 22.5 \\ 31.8 \times 22.4 \\ 30.6 \times 22.4 \end{array} \right\} 5. \text{i. } 1898, \text{ Sind Valley, Kashmir.}$$

$$\left. \begin{array}{l} 28.8 \times 23.3 \\ 28.3 \times 22.4 \end{array} \right\} 24. \text{viii. } 1910, \text{ Dacca.}$$

$$36.0 \times 24.5 \quad 26. \text{vi. } 1907, \text{ Behar (an addled egg).}$$

#### 4. *Porzana fusca fusca* (L.).

*Rallus fuscus* Linnaeus, *Syst. Nat.* ed. xii. i. p. 262 (1766—Philippines, ex Brisson).

Colour as in *P. f. bakeri*, i.e. the whole crown, as a rule, rufous, and its tint as well as that of the underside as deep and bright as in *P. f. bakeri*. Size much less, wings 89–99 mm.

This form inhabits the Philippine Islands, Celebes, Java, Christmas Island, Borneo, Sumatra, and the Malay Peninsula. Two males from Flores have wings of 102 and 103 mm. It is also found on Ceylon and in South India, where it is very rare, though known from Kanara, Travancore, the Wynaad, and Mysore. These skins appear to be indistinguishable from Philippine and Malayan ones; sometimes they are on the upperside more yellowish, less olive, but this seems to be due to the state of plumage. It is not the only case that Ceylon forms are more related to Malayan forms than to those of India; as an instance I recall the case of *Accipiter virgatus* (cf. *Nov. Zool.* 1910, p. 210).

It is a mistake to suppose that *Porzana fusca* is a winter visitor only in Ceylon. If so, it would surely come from North India and be *P. fusca bakeri*. In fact it nests, though locally and not commonly, in South India and Ceylon.

Also the eggs confirm the smaller size of the South Indian form. Mr. Baker sent me the following measurements :

28.4 × 21.5	} 24. vii. 1900, Travancore.
29.0 × 22.0	
28.3 × 21.8	
28.6 × 22.2	

28.2 × 22.0	} 20. viii. 1889, Karwar, Kanara, South Bombay.
27.8 × 22.3	
28.4 × 22.2	
28.6 × 22.2	
28.4 × 22.4	

29.5 × 22.5 25. vii. 1903. A single addled egg.

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## NOTES ON GAME-BIRDS.

BY ERNST HARTERT, PH.D.

## I. THE GENERIC NAME OF THE RED-LEGGED PARTRIDGES.

CURIOSLY enough, these birds have hitherto almost universally been called "*Caccabis*." But Kaup (*Skizzierte Entwickelungs-Geschichte und Natürl. Syst. der Europ. Thierwelt*, 1829) gave two names to the group: one, *Alectoris*, on p. 180 (and p. 193), Monotype *A. petrosa* = *barbara*; another, *Caccabis*, on p. 183 (and p. 194), Monotype *C. saxatilis*. We must undoubtedly go by the strictest priority, and accept the first name. Therefore, as *Accipiter palumbarius* has given way to *A. gentilis* and *Anas boschas* to *A. platyrhyncha*, so *Caccabis* must be replaced by *Alectoris*. This would probably have been done before, if in the *Cat. B.* xxii. p. 110, *Caccabis* had not been quoted before *Alectoris*, though both names are given with the correct pages. In lists of synonyms the first name should, of course, always be placed first, even if the author rejects it.

## II. THE CORRECT NAME OF THE BARBARY PARTRIDGE.

While Latham and Gmelin did not identify Edwards's Barbary Partridge and Buffon's Perdrix de Roche ou de la Gambia as one and the same bird—this blunder was apparently first committed by Temminck in *Hist. Nat. Pigeons et Gallin.* iii. pp. 368, 369, and since then everybody has mixed them up—probably no modern ornithologist has read Buffon's description, on which Gmelin's name *Tetrao petrosus* was based, or consulted its source.

Gmelin, *Syst. Nat.* i. 2, p. 758, gave the name *Tetrao petrosus* solely to Buffon's Perdrix de Roche ou de la Gambia (Buffon, *Hist. Nat. Ois.* ii. p. 446). Now, this is what Buffon wrote:

"Cette Perdrix prend son nom des lieux où elle a coutume de se tenir par préférence; elle se plait comme les perdrix rouges, parmi les rochers et les préecipices: sa couleur générale est un brun obscur, et elle a sur la poitrine une tache couleur de tabac d'Espagne. Au reste, ces perdrix se rapprochent encore de la perdrix rouge par la couleur des pieds, du bec et du tour des yeux; elles sont moins grosses que les nôtres, et rétroussent la queue en courant; mais, comme elles, elles courent très-vite, et ont en gros la même forme; leur chair est excellente" (Voyez *Journal de Stibbs*, p. 287; and *l'Abbé Prevôt*, tome iii. p. 309).

There is very little in this description that could lead one to believe that the Barbary Partridge was meant by it; no mention of the red, white-spotted band around the throat, none of the brightly coloured flank-feathers, none of the red tail, and the size being less than that of our partridges, and that they erect the tail when running, and last, but not least, the locality, are absolutely against it. But let us see what Stibbs himself said. In Francis Moore's *Travels into the Inland Parts of Africa, etc., to which is added Capt. Stibbs'*

*Voyage up the Gambia* [formerly often called Gambia], in the Year 1723, we find, on p. 287, in the Captain's "Journal of a Voyage up the Gambia,"\* the following :

"Thereabouts are great Stocks of diverse Sorts of Game, particularly Rock Partridges : I call them so, as being mostly amongst Rocks and Precipices. They are of a dark-speckled Colour, having a round Snuff-colour'd Spot on the Breast about as big as a Half-Crown, the Legs and Beak are red, as also a Circle about the Eyes, just as some Pigeons have ; they are not altogether so big as Partridges, but in Shape exactly like them and run as fast, only then this erects the Tail, and appears like a large Chicken. They are exceeding fine Meat, but difficult to kill."

First of all, we must consider where Stibbs obtained these birds: Not far from Barrucunda, about two degrees of longitude up the river, many days inland, under about 14° long. west. It is quite clear that no *Alectoris* (*Caccabis*) is found there. Then the "dark-speckled Colour" disagrees (Buffon left out the important "speckled"), the spot on the breast is only the size of a "half-crown" (in *Alectoris barbara* it is much larger), the size of the bird itself is considerably less than that of a Partridge (while *A. barbara* is not), and, last but not least, it erects its tail when running! No Partridge does this, but the African *Ptilopachus fuscus* (Vieill.) does it, and, in fact, there can be no doubt this is the bird described by Stibbs, and which Gmelin called *Tetrao petrosus*, the dark speckled plumage, the light brown patch on the breast, red feet, beak, and circle round eyes, approximate size, the habit of running with tail erect, and the locality, all agreeing with it, so that the name *Ptilopachus petrosus* will have to take the place of that of *P. fuscus*.

Fortunately, another name is available for the Barbary Partridge. Bonnatte (*Tabl. Encycl. et Méth.* i. p. 208 (1791)) called it "*Perdix Barbara*." This was taken from Edwards, *Nat. Hist. B.* ii. p. 70, pl. 70 (1747). Edwards called the bird "The Red-legged Partridge from Barbary," and figured and described a dark bird. He says: "A pair of these birds were sent to me alive by my good friend Mr. Thomas Rawlings, Merchant, residing at Santa Cruz, in that part of Barbary which lies without the Streights of Gibraltar, on the Atlantic Ocean." We have thus a definite locality, but which "Santa Cruz" can this have been? It is not the old Spanish fort of Santa Cruz near Oran, and I doubt if at that time (though some portions of "Barbary" were safer then than afterwards) Englishmen resided at the present Agadir (formerly Santa Cruz de Berberia), or at Hini, still farther south, formerly called Santa Cruz de Mar Pequeña). Santa Cruz being a very frequent place, Edwards's place of that name was probably in North Marocco, not very far from the Straits of Gibraltar. name In any case, the name *barbara* is doubtless applicable to the dark North African Barbary Partridge. Its name will therefore henceforth be:

***Alectoris barbara barbara* (Bonn.).**

It inhabits Tunisia, Algeria, and Marocco from Tangiers to the southern Atlas. In Tunisia it is found in the north of the Atlas, in Algeria also, and on the Hauts

\* A translation is also found in Arkstee & Markus, *Allgem. Historie der Reisen*, iii. p. 78, 1784, but it is not quite complete, the—to the translator—less important sentences being left out.

Plateaux here and there in suitable places ; we have traced it as far south as Laghouat. In West Algeria we have not come across any Barbary Partridges, except once on the Djebel Murdjadjo near Oran, where we could not shoot them. (Also in Sardinia !)

In Algeria and Tunisia, south of the Atlas, *A. b. barbara* is represented by the very much paler *A. b. spatzi*. Of Marocco south of the Atlas we have no ornithological knowledge whatever.

On the islands of Tenerife, Gomera, and Lanzarote a strikingly more greyish form, *A. b. koenigi*, occurs.

### III. THE FORMS OF THE GREEK PARTRIDGE.

In the *Catalogue of Birds*, xxii. (1893), Mr. Ogilvie-Grant was "satisfied that it is impossible to distinguish more than one subspecies of *C. saxatilis*," and he thus had only one in Europe, "*Caccabis saxatilis*," and another from Greece to China which he called "*Caccabis chukar*." Under the latter name he comprises all forms with the lores white and the ear-coverts chestnut, the throat being more or less buff. The distribution is given as follows :

"*C. saxatilis*. Mountains of Europe : Eastern Pyrenees, Alps, Carpathians, Apennines, and Balkans, also Sicily. (It is doubtful if this bird is the species found in Greece.)

"*C. chukar*. Ranging in the west to the Ionian Islands (and perhaps found on the mainland of Greece), in the east to China, in the north to Mongolia and Turkestan, and in the south to the Persian Gulf and apparently to Aden (*C. arenarius* Hume). Island of St. Helena (introduced)."

This supposed distribution requires considerable alteration, apart from the fact that nowadays even Mr. Ogilvie-Grant would not lump all the Asiatic forms, *i.e.* the "*chukar-group*."

First of all we must consider the specific name, and that is *graeca*, not *saxatilis*. Dr. Richmond in Washington called my attention to the fact that Meisner, *Syst. Verz. der Vög. welche die Schweiz bewohnen*, p. 41, 1804, gave the name *Perdix graeca* to the bird figured on Daubenton's *Pl. Enl.* 231, which must have been a Greek specimen, as Buffon in his text only talks of Greece, the Greek Islands and Cyprus, and not of the Alps at all, as the habitat of the "*Bartavelle ou Perdrix Greeque*." Meisner, of course, believed that the Swiss birds were the same as those inhabiting Greece, but that was not a very great mistake, as the two forms are very closely allied and have only quite recently been separated. I believe Othmar Reiser (*Ornis Balcanica*, iii. pp. 411, 412) was the first to call attention to their differences ; the fact is that the Alpine bird, which must be called *Alectoris graeca saxatilis*, is, on the upperside, less brightly coloured, the grey more tinged with yellowish brown, the interseapulum less reddish, duller, while in *A. graeca graeca* the upper surface is brighter, the colours purer, the interseapulum more reddish, brighter, the edges to the scapulars, rump, and upper tail-coverts purer ash-grey, almost or quite without the dull brownish wash of *A. g. saxatilis*.

*A. g. saxatilis* inhabits the Alpine region from Savoy to Styria, but is absent from the Jura ; probably the birds from the Carpathians (Galicia, Bukowina)

and the "Krassó-Szörényer Komitat" in South-east Hungary also belong to the Alpine form, but I have not examined specimens from there.

*A. g. graeca* inhabits Greece (mainland) and the Ionian Islands (west of Greece), Macedonia, Albania, and ranges westwards to Montenegro, the Herzegovina and Bosnia to Dalmatia, evidently to the Karst. I have examined a few Italian specimens, and I consider that they too, and therefore, I should say, also the few that have survived, so far, in Sicily, and those formerly found on Elba, belong to the south-eastern form. Mr. Ogilvie-Grant had unfortunately not a single skin from Greece, and the one from Zante which he believed to be a "*chukar*" is certainly a *graeca*. Though at present apparently not found on Zante, *A. g. graeca* still occurs on other Ionian Islands.

Forms of the *chukar*-group occur westwards to Asia Minor. Rhodes, Cyprus, and, curiously enough, to the Cyclades and Northern Sporades, which, unlike Cyprus and Rhodes, which belong to Asia Minor, belong geographically to Greece.

The form from Cyprus, of which I have examined a fine series, mostly collected by Glaszner, differs from all named forms. It is nearest to *A. g. koroviakovi* and *falki*, but the upperside is duller, the hind-neck darker grey, back more reddish, and especially the crown of the head is darker, often almost quite dark blue-grey without brown, or with only a faint brown tinge. It is not so dark as *A. g. chukar*, and the crown is less brown. Wings: males, 162-169 mm.; females, 153-157 mm. I name the Cyprus race:

***Alectoris graeca cypristes* subsp. nov.**

Type: ♂ ad., Galata, Cyprus, 21. iii. 1906. Ch. Glaszner leg. (In the Tring Museum.)

I have compared some specimens from Asia Minor (Smyrna, Eregli, Taurus) and Rhodes; some of these agree well with the Cyprus form, others are (especially on the rump) more brownish. I must, provisionally, unite these with *A. g. cypristes*, but I am not sure if, when a good series from similar months of the year is compared, they cannot be again separated.

A great uncertainty prevails about the Greek Partridges inhabiting Palestine and the neighbouring countries. A specimen from Moab, east of the southern part of the Dead Sea, is very pale and belongs probably to the Sinai form (*sinaica* Bp.), of which I have, unfortunately, not been able to compare examples. Also two skins in the British Museum, collected during the last third of March near Karyatein (not Kuryatein!) in the northern Syrian desert, on the road to Palmyra, are very pale, very near to *pallida*, but more reddish. Do they perhaps also belong to *sinaica*?

Two specimens from Engeddi (west of the Dead Sea) and from the "hills of Judaea" are also very reddish, reminding one strongly of *pubescens*; they agree somewhat with the description of *Caccabis chukar*, var. *margaritae* Dawydoff (*Travaux Soc. Imp. Nat. St. Pétersbourg*, xxix. livr. 1898, pp. 57-63 (Russian), p. 86 (German digest)), but Dawydoff says that the crown is pure grey! This is not the case with the Engeddi and Judaea skins, which have the middle of the crown reddish brown. I know only one subspecies with a pure grey crown, and that is *verae*, described from South-west Persia. Specimens from El Bussah and Hule in the Tristram Collection are again a shade darker than those

from Engeddi and Judaea. Dawydoff says that in Western Palestine, his *margaritae* is replaced by *sinaica*! The question is if that is correct—most likely the author had not compared Sinai specimens; he adds that *margaritae* is larger than *sinaica* and darker on the back, but that it differs from “*chukur*” (by which he probably meant *falki* or *koroviakovi*) by the pure grey crown and wide white stripes under the eyebrows, which extend over the greater part of the vertex.

This *margaritae* is said to live quite isolated in the southern part of the depression called El Ghor, and especially on the shores of the Dead Sea (the northern part is meant, no doubt, not the Ghor south of the Dead Sea).

*Alectoris graeca werae* is the large, very pale form, with pure grey crown, which inhabits the Persian provinces of Luristan, Arabistan (Chusistan), and Farsistan, also Bushire. Judging from two very worn summer specimens from Mesopotamia, it would seem that they, too, belong to *werae*, and if that is so, it might even extend further (? ? into Palestine).

*Alectoris graeca koroviakovi* was described by Zarudny under the name of *Caccabis kakelik koroviakovi* (!) in *Messenger Orn.* 1914, p. 55, in Russian! In this same article (pp. 54, 57, 59) Zarudny renames Hume's *Caccabis pallidus* and calls it *Caccabis kakelik humei*, because Naumann, in 1833, had called a pale variety of the Red-legged Partridge “*Perdix rubra pallida*.” This, however, is no reason for the rejection of that name, as Naumann's names of aberrations have no nomenclatorial standing. Not only are names given to aberrations not considered in the Code of Nomenclature, but it is especially clear that Naumann did not consider his names as of nomenclatorial value, because he used the same names (such as *albus*, *candidus*, *varius*, *pallidus*, *luteus*) over and over again in species after species in the same genus for white, white-spotted, pale, or yellowish aberrations. Buturlin and Zarudny call the species “*kakelik*.” This name was given by Falk (not Falek) in *Beyträge zur topogr. Kenntn. d. Russ. Reichs*, iii. p. 390 (1786). The whole description is: “Schreit beständig kakelik. Grösse einer Kropftaube, Schnabel, Augenbrauen und Füsse brenned roth, Brust grau, Rücken von weiss und grau gewässert. Bucharey, Chiwa, Soongarey.” This description is certainly quite insufficient to identify the species. No doubt the bird calls “*kakelik*,” but the description of the cry is not diagnostic, and, no mention being made of the black circle round the throat, none of the most striking coloration of the sides, and the back not being waved white and grey, the name is unacceptable.

Now as regards the name *koroviakovi*. This name was given to specimens from Eastern Persia (except Khorassan), from the Birdjand Mountains to Persian Baluchistan. From the somewhat conversational and lengthy description (in Russian!) the following description can be extracted: It does not belong to the pale forms (what is meant is, such as *werae*, *pallida*, and *sinaica*). “It is decidedly darker and more strongly pigmented than the Khorassan and Transcaspian,” and the “brightness of colouring is also superior to most of the representatives of the larger *C. kakelik kakelik* from Russian Turkestan. It is specially remarkable for the strong development of a chestnut-brown colour along the middle of the upper part of the head and a deep pink-red-brown colour of the forepart of the back.” Besides the coloration, the small size of *koroviakovi* is remarkable.

These statements of Zarudny are correct. Compared with *Alectoris graeca*

*chukar* from the Indian hills, *koroviakovi* is distinctly lighter and brighter in colour, the breast of a somewhat lighter grey. Wings, ♂ 144–156 mm., once 163 mm., ♀ 140–148 mm.

It is true that the birds from Russian Turkestan, Buehara, and Transcaspia are not the same; they are larger, the colour is less bright, not so reddish, and they appear therefore to me duller, generally darker, though not so dark and dull as *chukar*. Wings. ♂ and ♀ 150–172 mm. I think that the birds from Northern Khorassan are the same too, and probably also those from North Persia south of the Caspian, but Zarudny evidently thinks that they are different again. It is this bird (the one from Russian Turkestan and Buehara) which Zarudny calls “*kakelik*,” and it is the one which probably Falk meant to describe. I therefore call it:

***Alectoris graeca falki* subsp. nov.**

Type: ♂ ad., near Przewalsk, east of Lake Issik Kul, in Russian Turkestan, 26. xi. 1901, collected by Kutzenko. (Tring Museum.)

In the Russian (Moscow) journal *Message Ornithologique*, 1914, p. 59, Zarudny also described another form, which he called “*Caccabis kakelik subpallidus*,” and which I call *Alectoris graeca subpallida* (Zar.). According to the author this form is quite different from “*Caccabis kakelik kakelik*”—my *Alectoris graeca falki*, which belongs to the “dark forms”—and belongs to the “pale forms.” Zarudny—evidently only from the descriptions of *pallida*, without having seen specimens—comes to the conclusion that his birds differ from *pallida* (his “*humci*”) in being smaller, five males having wings of 161–165 mm., fourteen females wings of 148–157 mm. This form inhabits the hills of the desert of Kysyl Kum, west of Semiretchensk and north of Buehara, and those of Southern Buehara, between the Rivers Surehan and Kafirnagan, Wachs and Pjändj. Birds from those hills were united by Bianchi with his *pallescens*, with which he also associated Hume’s *pallida*. Bianchi was evidently not far wrong in doing this, because the types of *pallescens* and *pallida* are very similar to each other, though the latter appears to be still a bit lighter, and the rump not so greyish, but as the birds are in very worn plumage, this cannot decide anything. While true “*pallida*” is the bird of Eastern Turkestan, being found in Karakash, Yarkand, the Russian Chain (Kwen-Lun) to the Pamir, the distribution of the birds which Hume called *pallescens* is somewhat difficult to explain. They were found at Leh, Ak Masjid and Karbu in Ladak and Cashmere, but are not the form inhabiting Cashmere generally, for nearly all over that country we find birds which do not differ from typical *chukar*, even at Gilgit and as far east as Kohat (Whitehead). I therefore believe that the pale form of East Turkestan ranges over the border into and over the Karakorum Mountains into a few highly elevated districts of Cashmere (Ladak), and that Bianchi was correct in uniting *pallida* and *pallescens*—the latter, unfortunately, being the first name, according to page-priority. In any case Sharpe was wrong when he (*Scientif. Res. Second Yarkand Mission*, Aves, p. 121, 1891) separated “*pallida*” as a species and united “*pallescens*” with *chukar*!

*Alectoris graeca pubescens* (Swinhoe).—This is a somewhat variable form; the characteristic vinous tinge is strongly developed in some, less so in others, and even from the same localities. I am by no means certain that Altai speci-

mens belong to *pubescens*, though Bianchi gives its distribution as "North-western Mongolia and Altai and mountain regions of the middle and lower Yellow River up to the Pechiliski Bay." A skin from the Gobi Desert in the British Museum looks more like *chukar* than like *pubescens*.

#### IV. *AMMOPERDIX*.

The *Catalogue of Birds* recognises two species, *A. heyi* and *bonhami*. Later on Mr. Ogilvie-Grant described *A. cholmleyi* from North-east Africa, and Zarudny separated two forms of *bonhami*—*i.e.* *Ammoperdix bonhami bucharensis* from Buchara and *A. b. ter-meuleni* from Arabistan.

*A. cholmleyi* was described in *The Handbook Game-B.* ii. p. 293 (1897), as inhabiting "Egypt and Nubia," but the types came from the Erba Mountains near Suakim. It was said that *cholmleyi* is darker on the upperside and lacks entirely the white forehead and lores characteristic of *A. heyi*. This is perfectly correct, and *cholmleyi* must be considered a good subspecies of *heyi*. Curiously enough, both Mr. Louis Bonhote and Michael Nicoll objected to *cholmleyi* because they had seen, in the Tring Museum, a Palestine specimen without the white lores and forehead. It is very curious that Mr. Nicoll calls the bird *A. heyi heyi*, though he admits that he has not seen an Egyptian male with a white forehead and that they are all darker than *A. h. heyi*. Mr. Nicoll talks of several *A. heyi heyi* without a white forehead, but probably this is a slip. All I can find out is that: North-east African (Suakim, Nubia, Egypt north to Helwan) specimens are darker on the upperside and under-surface (both males and females), and that the males have no white lores or forehead, that ♂ *A. h. heyi* (from South Palestine to Sinai) are paler and have two white loreal spots, more or less distinctly connected by a white frontal line with the exception of one from the Wadi-Kelt (where other males have the white lores and frontal line) which has neither white loreal spots nor frontal line!; the Wadi Kelt birds, however, are quite as light-coloured as other typical *A. h. heyi*. The females of *cholmleyi* are also darker than those of *A. h. heyi*, and in fact like some of "*A. bonhami*."

Unfortunately the latter species must no longer be called *bonhami* but *griseogularis*. That name, "*Perdix griseogularis*," was published April 24, 1843, the description of "*Caccabis Bonhami*" by Gray in May 1843, that of "*Perdix Bonhami*" by Fraser not before November of the same year.

Zarudny (*Orn. Monatsber.* 1911, p. 83) described "*Ammoperdix bonhami bucharensis*" from Buchara, but I cannot admit this supposed subspecies, as the alleged differences are, in my opinion, individual, and specimens from Buchara which I examined are not smaller and agree in every way with typical *griseogularis*.

Zarudny and Loudon (*Orn. Jahrb.* 1904, p. 226) described also an *A. bonhami ter-meuleni* from Arabistan. According to their description the upperside is much more rusty, the back with a vinous tinge, so that the grey colour almost disappears, the crown has a distinct vinous tinge, the light spots on the sides of the neck are "nearly always" strongly rusty.

This description sounds quite convincing, and we are accustomed to paler and more sandy forms in Arabistan. On the other hand, specimens from Bushire and further inland in Farsistan (Witherby coll.) are so very little more sandy on the head and back than typical *griseogularis* in very fresh plumage, in fact one

from the Salt Range in North-west India and another from Kandahar are not distinguishable from those of Farsistan, so that I think this *ter-meuleni* requires confirmation, unless it is quite restricted to Arabistan.

In the *Catalogue of Birds*, xxii. p. 126, the distribution of *heyi*, as I have said above, includes that of *cholmleyi*, and, moreover, it is said to extend "eastwards to Muscat, Persian Gulf." That is a rather sweeping statement, for nothing was then known of any *Ammoperdix* between the west coast of the Red Sea and Sinai and Muscat, though Rüppell, in 1845, said that his *heyi* occurred also at Djedda. Therefore the isolated occurrence at Muscat was remarkable and gave rise to doubts of its identity with the other subspecies. Now several specimens are in the British Museum from Muscat. Mr. Bury found some near Timil in South Arabia, and a female has been obtained near Lahej, north of Aden. One may therefore say that an *Ammoperdix* ranges from Lahej (Aden) to Muscat. This form, however, is neither *A. h. heyi* nor *A. h. cholmleyi*. The males agree with the latter in coloration, but have the two white loreal patches, more or less completely connected by a white line. The ♀ is like those of *A. h. cholmleyi*. Wings of the males, 125–129 mm.

I name this form:

***Ammoperdix heyi intermedia* subsp. nov.**

Type (in the British Museum), ♂ ad. Timil, South Arabia, Bury coll.

I therefore distinguish the following forms of *Ammoperdix*:

1. *A. heyi heyi* (Temm.), 1825: Sinai Peninsula north to the Dead Sea and ravines of the Jordan Valley.
2. *A. heyi cholmleyi* O.-Grant, 1897: western shore of the Red Sea, Nubia, Egypt north to Heluan (Wadi Hof).
3. *A. heyi intermedia* Hart., 1917: South Arabia.
4. *A. griseogularis griseogularis* (Brandt), April 1843: Greater part of Persia, west to Birejik and Kum-Kale on the Euphrates, north to Transcaspia and Buchara, Afghanistan, Baluchistan to Sind and the Indus, and across the Indus Valley to the Khariar Hills and Salt Range in the Punjab.
5. *A. griseogularis ter-meuleni* Zar. and Loud., 1904: Arabistan; distribution and constancy of differences require confirmation.

V. FORMS OF *PERDIX PERDIX*.

The "Grey Partridge" being distributed over nearly the whole of Europe and large parts of Western Asia, and not a migratory, but an entirely or almost entirely sedentary bird, might *a priori* be expected to form a number of local races. This expectation is realised, though not to such an extent as one might have thought. In the *Cat. B. Brit. Mus.* xxii. no subspecies were recognised, nor could the author be expected to describe any, as the series in the British Museum was then very poor and deficient in nearly all the most striking forms, and even now it is poor; for example, there is only one specimen of the Spanish Grey Partridge, not a single one from Italy, none from Brittany or Normandy,

only one from Asia Minor, and hardly any, certainly not enough to draw conclusions from, from the rest of Asia. With regard to the latter, we are just as hopeless in the Tring Museum, but fortunately we have brought together some Pyrenean and a series of Italian examples, and others of value for the study of local races.

The Partridge inhabiting the higher elevations of the Pyrenees and Northern Spain has been fully dealt with in the *Proceedings of the Fourth Ornithological Congress* (London and Tring, 1905) by Professor Dr. Louis Bureau. I need not, therefore, here dwell on its differences and distribution, and will only say that it is a very distinct subspecies.

Comparing a series of Italian Partridges I was not a little surprised to find that they differed at a glance from the Central European *Perdix perdix perdix* and so closely resembled the Pyrenean *P. perdix hispaniensis* (= *charrela*) that at first they seemed to be practically indistinguishable. A more careful comparison showed that they differed from the latter as follows :

In both sexes the upperside is less dark and distinctly more brownish ; jugulum and chest not so dark grey ; the horse-shoe mark in the male (and when present in the female) not blackish brown but chestnut as in normal *P. p. perdix*. The ♂ differs from *P. p. perdix* chiefly by the less rusty or rufous upperside, especially dark brown instead of rufous cross-bars on the rump, and much darker, less reddish brown spots on the upper wing-coverts. The females, because of their coarser markings with the wider light shaft-lines and spots, look rather different from females of *P. p. perdix*. Wings, ♂ 155-159 mm., ♀ 152-158.5 mm.

I name this form :

***Perdix perdix italica* subsp. nov.**

Type : ♂ ad., near Chianti, 20. i. 1905. In the Tring Museum fourteen specimens, compared with nine of *P. p. hispaniensis* and a large series of *P. p. perdix*.

Another very striking Partridge is the one inhabiting the hills of Brittany and Normandy, the so-called "armorican massive." It has been described by Bureau in the very excellent and thorough article on the Pyrenean Partridge in *The Proceedings of the Fourth International Ornithol. Congress*, pp. 497, 498. Its upperside is so entirely rufous brown that the grey ground-colour has quite disappeared and is only visible at the utmost bases when one lifts the feathers. The chest is washed with rufous. The horse-shoe of the male is of a darker chestnut than in normal *P. p. perdix*. Wing, ♂ 153, ♀ 152 mm., but according to Bureau the wing of the male sometimes to 165 mm.

Professor Bureau did not name this form because, on account of the absence of a zone in which no *Perdix* is found (as in the case of *hispaniensis*, the area of which is separated from the regions inhabited by *P. p. perdix* by the "Midi de France," where only *Caccabis* occurs) separating it from its neighbour, *P. p. perdix*, the absence of mountain-ranges or seas, etc., forming a sharp boundary, and the consequent occurrence of intermediate specimens in the stretches along the boundary of the two races. On the other hand, he admits that an ornithologist's eye cannot confound them with the Common Partridge. Reading his remarks I cannot hesitate, though I have examined only one adult male

and female of this race, to name this subspecies, and I propose for it the name :

***Perdix perdix armoricana* subsp. nov.**

Type: ♂ ad., Riaillé, Loire Inférieure, October 1900. Received, with its female, from Dr. L. Bureau. (Tring Museum.)

The other races of *Perdix perdix* will be discussed in one of the forthcoming parts of my book on the palaearectic birds—inshállah.

VI. THE CORRECT NAMES OF THE "BLACK-BELLIED SANDGROUSE"  
AND THE "COMMON FRANCOLIN."

These two species have been called "*Pterocles arenarius*" and "*Francolinus francolinus*" in the *Catalogue of Birds*, and this nomenclature has been followed almost universally. In the *Cat. B.*, however, the twelfth edition of Linnaeus' *Systema Naturae* was generally adopted as the starting-point of nomenclature and not the tenth, which is now taken as the beginning. Therefore Linné's "*Tetrao orientalis*," *Systema Naturae*, ed. x. i. p. 161, is not quoted in the *Cat. B.* xxii., but under *Pterocles arenarius* we find as a synonym "*Tetrao orientalis* Hasselquist, *Reise Paläst.* p. 330, 1762," though the name was not adopted, because of its date being previous to 1766. The more correct quoting would have been as follows: *Tetrao orientalis* Linnaeus, in Hasselquist's *Iter Palaestinum*, p. 278, 1757, as the "Reise" of 1762 is only a translation of the Swedish edition of 1757, which has the title *Iter Palaestinum eller Resa til Heliga Landet*. It was written by Linné, after Hasselquist's death, and Linné says that he added the names of the animals and plants and brought the technical terms into uniformity, without altering the meaning of the author in any way. It is thus clear that the descriptions of the species were actually made by Hasselquist, and this is also evident from their nature, as so many items could only have been taken from fresh specimens, but the names were given by Linné. The name "*Tetrao orientalis*," though before the starting-point of nomenclature in 1757, was adopted by Linné in *Syst. Nat.* ed. x. i. p. 161, and therefore the Black-bellied Sandgrouse must henceforth be called *Pterocles orientalis* (L.), as this name antedates Pallas's *Tetrao arenarius* by thirteen years.

This would be quite a simple matter, but, unfortunately, the appearance of the name *Tetrao orientalis* has also been noticed by Mr. Sergius Buturlin, who misunderstood it and thus caused great confusion.

In an article (in Russian!) in the *Messenger Ornith.* 1910, p. 50, Mr. Buturlin comes to the erroneous conclusion that Linnaeus's name refers to the Francolin, and he therefore calls the latter *Francolinus orientalis*! Unfortunately, Buturlin's article is full of mistakes from beginning to end, and his conclusions are absolutely wrong. Let us examine his article (translated by Roston's Translation Bureau) and see how he came to be so mistaken.

He begins by explaining that Linnaeus had two sections of *Tetrao*, one "*Pedibus hirsutis*," the other "*Pedibus nudis*." Now, *Tetrao orientalis* has the tarsus feathered in front, naked behind. It should therefore have been placed into a third section, but Linnaeus—in whose *Systema Naturae* occur many inaccuracies, obscurities, and errors, as Buturlin truly said—put it into the second

one, with naked tarsi, although in the diagnosis he said, "pedibus antice pilosis," which clearly means, "hairy in front." Buturlin translates this "at the front part slightly hairy," but this is an arbitrary proceeding which cannot be permitted, and when, later on, he says that "pilosus" "may refer to the upper part of the metatarsus of the francolin," this is mere sophistry, as the tarsus is, to all intents and purposes, naked all round and certainly just as bare as in other species in Linnaeus's second section with bare legs. It is true that the words "abdomine gulaque atra, collari ferrugineo" can be applied to both the *Pterocles* and the Francolin, and even more literally to the latter, but they are also (if you like "cum grano salis") applicable to the male Sandgrouse, and the last sentence, "cauda euneiformi," can only refer to the Sandgrouse, which has a euneiform tail, and never to the Francolin, which has a very slightly rounded one. If Buturlin says that the tail of the Francolin is "slightly euneiform," then he is wrong, for it is not, and Linné did not talk of a "slightly euneiform," but of a "euneiform" tail.

The crucial point, however, is: Where did Linné get his diagnosis from?

Linné quotes as follows:

*Tetrao orientalis* Hasselq. it. 278, n. 43.

*Perdix damascena* Will. orn. 128.

Francolin Tournef. it. i. p. 158, t. 158.

Referring to these, Buturlin says: "If we turn to Linné's quotations for the confirmation of his deductions, we see that not a single one refers to the Sandgrouse, but the first quotation is *Tetrao orientalis* Hasselq. it. 278, No. 43."

The fact is that Linné took the deciding portions of his diagnosis entirely from (his own) description in Hasselquist's journey, and that, as I have shown above, they refer to the *Pterocles* and not to the Francolin. He then carelessly and erroneously added two quotations, the first of which, from Willughby, referred to a partridge, the second to the Francolin. The deciding source, therefore, is Hasselquist. This has been, apparently, admitted by Buturlin, and that he failed to recognise it is the greatest mistake in his deductions. He says:

"If we turn to that source, that is to Hasselquist's journey in the Levant in 1749-52 (published by Linné himself), we find (I possess the London edition 1766), under No. 43, only the mention of '*Tetrao orientalis*' or 'the Eastern Partridge,' without any description of the plumage. It mentions that its size is that of an ordinary Partridge (which is nearer to the Francolin than to the Sandgrouse) and that it is found in groves and forests of Anatolia. But the Sandgrouse avoids forests and lives in desert tracts; nor is it found in the western parts of Asia Minor."

Thus Mr. Buturlin brings forward three more points against the name *Tetrao orientalis* referring to the Sandgrouse, and in favour of the Francolin, but unfortunately in all three he is wrong.

First of all, the assertion that Hasselquist's book gives no description of the plumage is utterly wrong, and only due to Buturlin not having seen the book at all, but only the *London edition*, 1766. This latter I have not seen, as I only know the original Swedish work of 1757, and the German translation of 1762, which is a good and complete one, and in which the descriptions of animals and plants, in fact the whole second part, is not translated, but reprinted in the original Latin text. Now, both these give a full description, over a whole page,

of both sexes of *Tetrao orientalis*. To show that every word refers only to the Sandgrouse, I quote a few sentences: "Cauda cuneiformis." "Pedum crura brevissima, antice plumosa, postice nuda." "Digiti omnes breviusculi et satis crassi, membrana crassa, parum lobata ad basin juncti." "Ferruginea sunt margines Capitis inferiores, Gula, Collum ad latera. Cana sunt Caput supra et Pectus." "Atra sunt Gula, Abdomen." "Crura anterius albicant." And the description of the female: "Caput totum, collum, dorsum, humeri & cauda ex lineis transversalibus, irregularibus, atris & spatiis irregularibus, majusculis, pallide ferrugineis mixta. Pectus pallide ferrugineum adpersum maculis regularibus, subrotundatis, atris. Margo humeri ferrugineus. Reliqua ut in mari."

The next point raised by Buturlin is the size. He says that in the (mutilated) English text it is described as of "the size of an ordinary partridge," and that the latter is, in his opinion, nearer to the Francolin than to the Sandgrouse. I do not think that this is a point of any importance at all, because there is not much difference between the two, and probably, had Hasselquist, or Linné, described both the Sandgrouse and Francolin, he would in both cases have made a similar comparison. Moreover, in the original text it is said: "Magnitudo Perdici ruffae."

Lastly, objection is made to the locality, because the Sandgrouse is not an inhabitant of forests, and because it did not occur in Western Asia Minor. First of all, to be strictly accurate, we must refer to the original text, and there we find: "Locus: Natoliae saltus." That means, probably, forest-pastures of Asia Minor, and we may add near Smyrna, where Hasselquist was. This objection, too, is of no importance and cannot decide the question, because probably the birds were received from natives, and the exact place added from information received from the latter or some sportsman. Moreover, "saltus" may, according to the dictionary, not only mean forest-clad districts, but also "ravines," and in stony ravines Sandgrouse occurs. Lastly, Mr. Buturlin is badly informed if he says that *Pterocles orientalis* (= *arenarius* auct.) is not found in Western Asia Minor, for it must be common somewhere near Smyrna, because it used to be sold there in the market and Gonzenbach found its eggs.

I am convinced that Buturlin would not have written his unfortunate and misleading article if he had seen Hasselquist's *Iter* or the German translation, instead of an English, obviously incomplete and inaccurate translation, in which evidently such unimportant details (?!) as descriptions of animals were left out.

There is only one more sentence in Buturlin's article which requires a short consideration. He says that "in other parts of his book Hasselquist mentions several times this new Game-bird found by him (letters from Smyrna of December 16, 1749, and of January 29, 1750), and each time under the name of 'Francolin,' a name which has always been applied to the francolins and not to the Sandgrouse." A comparison with the original Swedish text shows that this is quite correct, but the notes are only casual remarks without descriptions, and a supposed vernacular name alone decides nothing about the name of the species. As the real Francolin occurs also in Asia Minor, the name was evidently known to the Europeans in Smyrna and was by them misapplied to the Sandgrouse. Such misapplications of vernacular names are frequent—I know, for

example, that in Marocco some Spanish residents called the Little Bustard "Francolin."

After all this it is, I hope, clear that the Francolin cannot, under any circumstances, be called "*Francolinus orientalis*," as Buturlin would have it, and that the Black-bellied or Imperial Sandgrouse is to be named:

***Pterocles orientalis* (L.).**

Now to the correct name of the Francolin. Linné called a bird *Tetrao francolinus* (*Syst. Nat.* ed. xii. i. p. 275, 1766). The short diagnosis is: "*Tetrao pedibus nudis calcaratis, abdomine gulaque atris, cauda cuneata.*" Wretchedly short as this description is, it does well for the Francolin and excludes any Sandgrouse ("pedibus nudis calcaratis"), except the description of the tail, which is not cuneate in the Francolin; this mistake might either have arisen from Linnaeus mixing up his own *Tetrao orientalis* of 1758 with the *francolinus* of 1766, or from the figure of Tournefort, in which the tail looks as if it were pointed. We must now turn to Linnaeus's quotations. These are rather puzzling, for he first quotes his *Tetrao orientalis*, though not as of 1758 (*Syst. Nat.* ed. x.), but only "Hasselquist, *iter* 278, n. 43." As I have shown above, there is no doubt whatever that the latter is purely and entirely the *Pterocles*, and as the diagnosis (feet bare and with spurs) excludes the latter, the "archiater" clearly made a mistake in thinking (very carelessly) that the *Tetrao orientalis* was the same as the *T. francolinus*. He further quotes Gesner, Tournefort, Olin, Edwards, and Brisson. Of these only Edwards and Brisson give full descriptions, Edwards a coloured, Brisson a black-and-white plate, Tournefort a recognisable black-and-white figure but no description. Gesner contains irrelevant short notes. Olin figures and describes a bird which appears to be the female of the Francolin, and he calls it "franquellino," but he says that it lives in Barbary, in great numbers in Tunisia, but also in Spain, Sicily—and the Alps! Thus most of his localities are wrong. As the spurs (which are only found in the male) are only seen in Edwards's plate, Linnaeus must principally have used Edwards. The locality given by Tournefort is Samos, while Edwards (1758) described the bird from Cyprus. Brisson (1760) mentions Italy, Cyprus, Samos, and Egypt, from where it is said to have been brought to Malta.

In Italy the bird appears only to have been introduced, though it lived formerly in Sicily; in Samos it was common, and may exist now; but it is Cyprus where it occurs even now and used to be common, and from Cyprus specimens Edwards fully described and figured it. I therefore accept *Cyprus* as the terra typica for the *Tetrao francolinus* L., and this is, in my opinion, the only course one can take, moreover the same form occurs in Asia Minor and Samos.

VII. THE FORMS OF *FRANCOLINUS PONDICERIANUS*.

In the *Catalogue of Birds*, xxii. pp. 141-143, no subspecies of *F. pondicerianus* were separated, but three forms are distinguishable.

*Tetrao pondicerianus* Gmelin, *Syst. Nat.* i. 2, p. 760 (1789—ex Sonnerat, *Voyage aux Indes*, ii. p. 165), was described from Pondicherry on the Coromandel coast. The name, therefore, refers to the form inhabiting South India, for example, Tuticorin, Pondicherry, Madras, Mysore, to Ahmednagar and Belgaum, and the northernmost part of Ceylon (Jaffna). This bird is distinguished from

the other forms by the large longitudinal ochraceous patch on the throat, which is surrounded by a (more or less incomplete) line of black spots, and there is a strong ochraceous tinge on the chest.

The rest of British India, from Sindh, the Punjab and Rajputana eastwards to about the 88th degree of longitude, is inhabited by a very similar form, but the middle of the throat is not ochraceous but creamy white, and there is no or very little ochraceous tinge on the chest. This form has no name—it is figured in Gray and Hardwicke's *Ill. Ind. Zool.* as *Perdix orientalis*, but that name is antedated by *Perdix orientalis* of Horsfield, and I name it therefore:

***Francolinus pondicerianus interpositus* subsp. nov.**

Type: ♂ June 1870, Oudh. (Tring Museum.)

A third form inhabits South Persia, Southern Afghanistan, and Baluchistan, and there is a skin from Muscat in the British Museum. This form is like *F. pondicerianus interpositus* in the colour of the throat and chest, but the upperside is very much paler, much more greyish. It has been well described as:

***Francolinus pondicerianus mecranensis***

by Zarudny and Härms, *Orn. Monatsber.* 1913, p. 53, the type being from Persian Baluchistan.

We have thus:

*F. pondicerianus pondicerianus* (Gm.), South India and North Ceylon.

*F. pondicerianus interpositus* Hart., North-western India.

*F. pondicerianus mecranensis* Zar. and Härms, South Persia, Baluchistan, Afghanistan.

VIII. THE SUBSPECIES OF *FRANCOLINUS FRANCOLINUS*.

Like so many other game-birds, the non-migratory members of the genus *Francolinus* have developed into a number of geographical races. In the *Catalogue of Birds*, vol. xxii., the latter were, as a rule, not distinguished, though the author, even at that time, condescended now and then to acknowledge subspecies, which, however, in some cases (*vide Perdix damascena, Chrysolophus obscurus*) were not geographical forms.

The disentanglement of the subspecies of *Francolinus francolinus* has caused me considerable difficulty. Not only is material wanting from several important areas, but not less than six supposed new forms have been named by Messrs. Buturlin and Zarudny.

Even a cursory glance at the boxes of *Francolinus francolinus* in the British or Tring Museums shows that there are a number of conspicuous geographical races.

The *francolins* from Cyprus, Asia Minor, and Palestine are separated from those of India and Persia by their large size (long wings); the spurs of the males are always present and often long and pointed, the coloration is dark. As I have explained before, Cyprus is the "terra typica" for the name *francolinus*; *Francolinus vulgaris* is only a new name for *Tetrao francolinus*, *Francolinus tristriatus* (Cyprus) a clear synonym.

*Francolinus francolinus caucasicus* Buturlin, 1907, from "Transcaucasia,"

was described as being large, the rufous ring round the neck wide and very dark chestnut, underside strongly spotted with white, even on the chest and sides of chest. Of these characters (and some others not worth mentioning) the width of the chestnut ring is of no value as it varies according to preparation; the large size and dark chestnut colour of the neck-ring agree fully with *F. francolinus francolinus*. I have only seen one male of this supposed subspecies, in the British Museum; it is said to be from Lenkoran and was received from the Florence Museum, or rather its late director, Professor Giglioli, who had got it from Radde. The locality must be wrong, as Radde expressly stated that it was never found near Lenkoran, and it is probably from the Kura Valley or the Lower Araxes. It agrees with *F. francolinus francolinus*, but is more profusely spotted on the underside, there being some white spots even on the chest—just as described by Buturlin, who had seven males! In this great amount of white spotting the specimen is approached by two males from Cyprus and Asia Minor, but under the circumstances we must, for the time being, provisionally admit this form, *F. f. caucasicus*, as a subspecies. On the same page Buturlin also described a "*Francolinus orientalis sarudnyi*"\* from four males from North Persia and the Lower Atrek. I have hardly any doubt that this "*sarudnyi*" is the same as *caucasicus*, as it differs, in the opinion of Buturlin, merely by wider white bars on the rump, which are about 1 mm. instead of 0.5 mm. wide; the width of these bands varying to some extent, this character cannot, without further material, be admitted as of any value.

A third, very distinct, form is the one inhabiting Sindh, Baluchistan, South-eastern and Southern Persia to Fao and Baghdad. It is altogether paler, lighter, and much smaller. The females, too, are very much lighter. I accept for this form Bonaparte's name *henrici* (*Compt. Rend. Acad.* [Paris], xlii. p. 882, 1856, Sindh). It is true that the description is insufficient, all that is said being "major, alis brevioribus," but as it has smaller wings, this, in connection with the definite locality, makes the name acceptable. That the type was generally larger, was probably due to a greater amount of straw on cotton-wool. As the Sindh birds are quite like those from Persian Baluchistan and Seistan in East Persia, Zarudny's name *boglanovi* ("*Francolinus orientalis bogdanovi*," *Orn. Monatsber.* 1906, p. 151) becomes a synonym. As I find that examples from Fao, from Farsistan (collected by Witherby), and Baghdad (British Museum) are indistinguishable, I am almost sure that "*Francolinus orientalis arabistanicus*," Zarudny and Härms, *Orn. Monatsber.* 1913, p. 54, from the "*Zagrossische und Mesopotamische Gebiet Persiens*," described on feeble grounds, must be the same, too.

Quite different from *F. francolinus francolinus* and *henrici* is the bird from the north-western parts of India. It is, in both sexes, very much like *F. f. francolinus* in coloration, but considerably smaller. The spurs of the male are always short and blunt and sometimes absent. In order not to be obliged to make a new name or to accept the absurd name "*europaeus*," we are justified in adopting Bonaparte's name "*asiae*" for this form. It is true that the whole diagnosis is "Minor ex Asia"—but not "Asia Minor," as Ogilvie-Grant wrongly quoted in the *Catalogue of Birds*! The above of course means that "*asiae*"

\* In phonetic transliteration this ornithologist's name is spelt with an S in German, with a Z in English. Therefore species or subspecies named in his honour have also been spelled with s and z; we have, of course, to preserve the original spelling in each case.

lives in Asia, and is smaller than *F. f. francolinus*. As Bonaparte expressly separated "*henrici*" and was not likely to have the rarer "*melanonotus*," we may accept the name *asiae* for the Francolin from the north-western parts of India. It seems to me that "*Francolinus orientalis europæus*" Buturlin, *Orn. Monatsber.* 1907, p. 81, is a synonym. It was described from a specimen with uncertain locality, believed to be from Greece. As of the many statements of the occurrence of Francolins in Greece none are creditable, we must assume that Francolins never lived in Greece, and therefore dismiss Buturlin's suggested locality. The description of "*europæus*" suits best our "*asiae*." There is only one possibility, *i.e.* that the now extinct Sicilian Francolin was smaller than *F. f. francolinus*, as Dresser said it seemed to be; in that case the name "*europæus*" might refer to that extinct form. I hope to receive, before long, information about this, from Italy, where some specimens from Sicily are preserved, according to Arrigoni degli Oddi.

A last distinct form is *F. francolinus melanonotus* (Hume, *Stray Feathers*, xi. p. 305, 1899, Assam and Manipur). This form ranges from easternmost Nepal to Assam, Manipur, Dacca, Maunbhoom. It has the barring of the rump much finer, the white bars being quite narrow, besides some other differences. The name *melanonotus* was overlooked, and therefore not quoted by the author of vol. xxii. of the *Catalogue of Birds*.

#### IX. *FRANCOLINUS BICALCARATUS* AND ITS RACES.

When Mr. Ogilvie-Grant wrote vol. xxii. of the *Catalogue of Birds*, the British Museum possessed only specimens of the typical *bicalcaratus*, which was described by Linné (1766) from the Senegal (ex Brisson). In 1815, not considering the name *bicalcaratus* suitable, Temminck renamed it *adansonii*, and gave as its locality "Gambia, Niger." Another synonym is *albiscapus* Reichenbach, 1853.

Reichenow (*Vög. Afr. i.*) mentioned the dark coloration of the Sierra Leone specimens, and in 1902 Ogilvie-Grant described them as a new species, under the name of *Francolinus thornei* (*Bull. B. O. Club.* xiii. p. 22). Sierra Leone specimens are indeed much darker on the back, crown, rump, and tail, and the chestnut colour on the breast is, as a rule, darker, the creamy colour less in extent. This is very striking in a series, but some specimens are less typical than others. There can be no doubt that *thornei* is merely a subspecies of *bicalcaratus*, although its distribution is most peculiar. Typical *F. b. bicalcaratus* is not only found in Senegambia, but also on the Niger below Timbuktu, in Hausaland (Zaria), on the Gold Coast (Accra). Also a series collected by Anson in Portuguese Guinea (Bissao, etc.) agrees well with Senegal specimens (ten specimens collected by Riggenbach, all very constant), but a few are somewhat darker, and one is not, so far as I can see, distinguishable from Moroccan specimens. A dark form has also been described by Oscar Neumann (*Orn. Monatsber.* 1915, p. 73) from Garua in Adamaua. According to the description it must be very similar to *thornei*, and a male which the Tring Museum received in exchange from the Berlin Museum, labelled—

Tetrao bicalcaratus L.

Mal. Adamaua ? Ostgrenze ?

Kamerun 33741 v. Carnap,

therefore surely from near Garua, as in Kamerun proper the species does not

occur, is, in my opinion, quite indistinguishable from *thornei*. We would thus have a most extraordinary distribution of this dark form, which requires further investigation.

There is, moreover, a third form of *F. bicalcaratus*. The species occurs also in Western Morocco, *i.e.* within the palaearctic region.

According to Reid (*Ibis*, 1885, p. 251) the late Olcese, natural history dealer in Tanger, received six specimens alive, which were caught by natives inland of Casa Blanca (not Cape Blanco, as Ogilvie-Grant says), and the same author says that this Francolin is said to be "common" near Mogador. Irby states that it is found as far north as Rabat.

The specimens received by Olcese died and were converted into skins. From Mogador several consignments of live specimens have been received in England, but I doubt that the bird is "common" near that town, for F. W. Riegenbach, who very successfully collected there for about two years, in spite of our repeated requests for Francolins, failed to come across it. In fact, I am not aware of a single Francolin obtained in a wild state in Morocco. Of the birds received by Olcese I have examined three, two in the Dresser collection, kindly lent me by the authorities of the Manchester Museum, and one in the British Museum. These birds differ at a glance from our series of topo-typical *bicalcaratus*, the crown being not so pale and more reddish, I should say cinnamon rufous or dark reddish cinnamon. The rest of the upperside is more rufescent, the back slightly darker. The underside is also less light, agreeing with that of *F. b. thornei*. I am convinced that this Moroccan form is a subspecies distinct both from *F. b. bicalcaratus* and *thornei*. The colour-differences of the upperside are not likely to be, the markings of the underside cannot be, due to captivity. Moreover, with these three birds agrees absolutely a well-made skin in the Tring Museum, which is evidently that of a wild bird. Unfortunately its locality is unknown. It is labelled "*Francolinus bicalcordus*" (sic!), South Africa, Dr. Smith. Now, it is certain that no *F. bicalcaratus* occurs in South Africa, therefore this specimen must be from somewhere else, and it might just as well be from Morocco as from elsewhere. Thus far the Moroccan bird would be "all right," but the male collected by Giffard in Gambaga, Togoland Hinterland, is also indistinguishable from the Moroccan birds, and one of *F. b. thornei* from Sierra Leone is on the upperside like it too, while two from the Senegal in the British Museum (G. Blaine coll.) and one of Riegenbach's Senegal males have similarly reddish crowns of the head. The throat feathers of the Moroccan birds are not quite creamy white, but pale reddish cinnamon on their edges, but this is probably of no consequence, as it is found also in some *thornei* and indicated in some Senegal specimens.

The fact of the occurrence of this tropical African species in Morocco is so interesting, that it must be emphasised, and I therefore—though, after all the explanations I have given, I am well aware of the risk and possibility of adverse criticism—propose to separate the Moroccan Francolin and call it:

***Francolinus bicalcaratus ayesha* subsp. nov.\***

Type: ♂ ad., said to be from Rabat, in Morocco, in the Dresser Collection now in Manchester.

\* Ayesha (in the Maghreb in Aïsha) was the favourite wife of Mohammed, and a frequent name in Mohammedan countries.

On the labels of the specimens from the Dresser Collection, which were once in the Lilford Museum, the Arab name is given as "Hadjel-es-Sahara" and "Rarâgh." The former is evidently nonsense, for "Hadjel" is the *Caccabis* (rectius *Alectoris*—see above), but "Rarâgh" may be the genuine name of this species. The label also says that the Britons of Mogador call the Francolin "English Partridge," which would imply that it *was* not rare there—but why did Riggenbach not get it?

There is an excellent plate of this form in Dresser's *Suppl. B. Europe*, pl. 703.

The occurrence of this tropical species in Marocco is only known along the Atlantic coast. Like all the other representatives of tropical species, it must have found its way there along the coast of the Western Sahara, for, as I have pointed out before, all of them are either found only in the north of Marocco, Algeria, and Tunisia, or in the west. The other species to which I refer are:

*Telephonus senegalus cucullatus*, Northern Marocco, Algeria, and Tunisia.

*Pycnonotus barbatus barbatus*, Northern Marocco, Algeria, and Tunisia.

*Asio capensis tingitanus*, Marocco, northernmost Algeria.

*Melierax canoras metabates*, Mogador to Mazagan in Western Marocco.

*Streptopelia senegalensis phoenicophila*, Northern Oasis of Western Sahara.

*Otis arabs*, Marocco and West Algeria.

If any of these birds had crossed the Sahara, they would be most frequent in the southern parts of Africa Minor.

#### X. THE SYNONYMY OF *TETRAO PARVIROSTRIS*.

In the *Cat. B. Brit. Mus.* xxii. p. 66, Mr. Ogilvie-Grant quotes as synonyms of *Tetrao parvirostris*, "*Tetrao urogallus*, var. *rupestris* and *T. u.*, var. *minor* Pallas, *Zoogr. Rosso-Asiat.* ii. p. 58." Both quotations are wrong, as Pallas did not give any such names. Pallas only said that Messerschmid described a smaller variety, and that the bird was called by the Russians "Kamenoï Gluchar," which meant Rock-Capercaillie. ("Messerschmidius *minorem* statuebat *varietatem* Urogalli, ejus foeminam describit:" follows description. Further on, on p. 59: "Russis *Kamenoï Gluchar* (*Urogallus rupestris*) vocatur").

Both names, *rupestris* and *minor*, would have priority over *parvirostris*, if they had been given by Pallas to the species, but *rupestris* would be anticipated by Gmelin in 1789.

The first name of the species is *Tetrao urogalloides* Middendorff, which, however, was anticipated by Nilsson.

I have compared specimens from Sachalin and found them to be indistinguishable from others from the mainland. "*Tetrao urogalloides*, var.  $\beta$  *sachalinensis*" Bogdanoff, 1884, is therefore a synonym of *parvirostris*.

ON NEW AND INSUFFICIENTLY KNOWN INDO-AUSTRALIAN  
*GEOMETRIDAE*.

By LOUIS B. PROUT, F.E.S.

SUBFAM. OENOCHROMINAE.

1. *Celerena angustisignata* spec. nov.

♀, 60–62 mm. Head yellow. Terminal joint of palpus rather short, black. Thorax and abdomen concolorous with wings, front of thorax more orange.

*Forewing* deep chrome or cadmium yellow; proximal third of costal margin slate-grey, black at extreme base and very narrowly along costal edge; a narrow slate-grey, distally black-edged band arising at the end of this grey shading, running at first in the direction of tornus or hinder end of termen, but curving very slightly in the end of the cell, interrupted at the fold 6 or 7 mm. from termen, reappearing merely as some feeble grey shading at and behind SM<sup>2</sup>; distal border slate-grey, narrowly edged proximally (except at extreme posterior end) with black; 8 or 9 mm. wide at costa, narrowing rapidly to R<sup>3</sup> (where it is about 3 mm. wide), then more gradually (scarcely 1 mm. at tornus). —*Hindwing* with the slate-grey border quite narrow throughout, its black proximal edging thick anteriorly, tapering posteriorly.

Underside with the markings mainly black; apex of forewing and fringes greyer; proximal band of forewing broadened and rather diffuse.

Sudest Island, January–February 1916 (type) and March 1916, Mount Riu, 2,000 feet (paratype); both in coll. Tring Museum, collected by Eichhorn brothers.

Perhaps a local form of *prodroma* Meyr. or *probolu* Prout (Nov. Zool. xxiii. 5). In any case it will require a name.

SUBFAM. HEMITHEINAE.

2. *Hypodoxa emiliaria subleprosa* subsp. nov.

♂, 42–44 mm.; ♀, 44–48 mm. Markings of name-typical *emiliaria* Guen., except that the antemedian line makes a rather stronger outward projection in the cell; coloration of upperside in both sexes closely like that of *leprosa leprosa* Warr., the distal area in the ♀ participating in some measure in the heavy dark markings of *fulgurea* Prout (which I now regard as another subspecies of *emiliaria*).

Underside nearly as in *e. emiliaria*, the ♀ (but not the ♂) with a black discal dot or small dot developed on the hindwing.

Mount Rossel, Rossel Island, November–December 1915 (W. F. Eichhorn), 2 ♂♂, 4 ♀♀, in coll. Tring Museum.

3. *Dysphania endoleuca* spec. nov.

♀, 84–92 mm. Face cadmium yellow at sides, blackish down the middle. Palpus blackish, first and second joints cadmium yellow beneath. Thorax in front

cadmium yellow with a few dark markings, pectus mostly yellow; thorax above mostly concolorous with forewing, a narrow yellowish transverse band behind middle. Abdomen above purple-brown with whitish belts, on the last few segments cadmium yellow; beneath belted, cadmium yellow and blackish.

*Forewing* with costal margin very slightly curved, at least in distal part; blackish purple, with the markings white; an oblique band from base of hindmargin nearly to the origin of  $M^2$ , mostly bounded anteriorly by  $M$ ; a somewhat oblique transverse median band, nearly as in *cyane* Cram., but rather more regular; the postdiscal spots between the radials small and well separated, the subapical series nearly as in *cyane*, the mark between  $M^2$  and tornus small, sinuous and vague, especially in its posterior part.—*Hindwing* similar to that of *cyane*, the dark subbasal area rather more oblique, connected with the dark border by some shading in front of  $SC$ , the cell-mark smaller, the projection of the white median area behind it rather more shallow, the submarginal zigzag band lighter and brighter (cadmium yellow), with the outward teeth less acute and with a single, rather broad projection to termen along submedian fold, whereas *cyane* shows two slender projections or dashes (on  $M^2$  and fold).

Underside similar, the hindwing with subbasal band only connected with the dark border in front of  $C$ , the yellow submarginal band broadened.

Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December, 1910 (A. S. Meek), 2 ♀♀ in coll. Tring Museum.

Rather recalls some ♀ forms of *tyrianthina* Butl., in which, however, *interalia*, the white median area of the hindwing is interrupted by the ground-colour at abdominal margin and the venter is not yellow-belted. I conjecture that *endoleuca* may be the *cyane* of Oberthür's "Lep. Dorei" (*Ann. Mus. Genova*, xii. 469, indescr.) and possibly of Pagenstecher's "Lep. Aru-Inseln" (*Jahrb. Nass. Ver. Nat.* xxxix. 162, indescr.); I have only seen true *cyane* Cram. from Ceram, Gisser Island, Amboina, and Saparoea, and would provisionally alter the given range (*Lep. Cat.* pt. 14, p. 26) accordingly.

#### 4. *Dysphania militaris abnegata* subsp. nov.

Paler yellow than *m. militaris* L., abdomen without dark belts.

*Forewing* with the oblique antemedian black streak between  $SM^2$  and hindmargin almost invariably reduced to a very fine and slight dash, very often entirely obsolete.—*Hindwing* with basal band usually slender or obsolete; very generally with postmedian band more slender than in *m. militaris*, often more or less interrupted.

Hainan, type (Weng Chang, July 1902) in coll. Tring Museum.

Out of a series of nearly 60 examined, from various localities on the island, only three show the hindmarginal black streak of forewing in at all good development, and these remain distinguishable by the pale ground-colour. In the very few aberrations of *M. militaris* in which the corresponding mark is reduced, the rest of the antemedian band participates in the reduction, which is rarely the case in *m. abnegata*.

#### 5. *Dysphania latiplaga* ab. *chrysostathes* ab. nov.

All the normally white parts of forewing concolorous with the normally yellow parts of hindwing.

Kolawi, Central Celebes, June, August, October, and November, 1912 (Dr. Martin). 7 ♂♂ in coll. Tring Museum, together with 5 which agree with the normal South Celebes form of *latiptiga* Warr.; Palos Bay, Celebes, 1 ♂ in coll. Joicey.

#### 6. *Ornithospila succincta* spec. nov.

♂ ♀, 38-40 mm. Very similar to *cincta* Walk. ♂ antenna with similar (rather short) pectinations, which, however, are continued a little farther distally. Palpus on outer side sometimes with some weak green admixture; in ♀ shorter than in *cincta* ♀.

*Forewing* of the same green as in *cincta*; costal edge more narrowly darkened and with some whitish admixture; dark yellow-green lines and cell-mark as in *cincta*; distal border redder, narrower, scarcely more than a line, which thickens slightly between the veins; fringe distally and at vein-ends whitish.—*Hindwing* on an average more elongate towards tornus than in *cincta*; termen as on forewing; fringe narrowly white proximally between the veins from  $SC^2$  to  $SM^2$ .

Government Hill, Penang, 1,000 ft., May 19-24, 1898 (Curtis), type and others in coll. Tring Museum. Also in coll. British Museum from Penang, 2,260 ft., March 22, 1898, 1 ♂ (S. S. Flower), Sandakan, N.E. Borneo, 1 ♂ (W. B. Pryer), and Sarawak, 1 ♀.

#### 7. *Gelasma auspicata* spec. nov.

♂. 32 mm. Face and palpus dark red, the latter strongly mixed with black, its underside whitish. Vertex and antennal shaft whitish ochreous; antenna pectinate to the 30th joint. Occiput and upperside of thorax green; thorax beneath and most of abdomen whitish ochreous.

*Forewing* with apex rather acute, termen nearly straight, but not quite so straight as in *veninotata* Warr.; opaque grey-green, very slightly greyer at the position of the blotch of underside; costal edge ochreous, irregularly dotted with dark purple-red; lines very fine, lunulate-dentate, whitish, with clearer white dots on some of the veins; antemedian from about one-fourth costa to one-third hindmargin, in the type very indistinct; postmedian at just beyond two-thirds, with deeper lunule inward between  $M^2$  and  $SM^2$ ; a small and faint dark-green cell-dot; terminal line dark purple-red, interrupted by small pale ochreous dots at the veins; fringe pale ochreous, with conspicuous dark-red spots opposite the veins and with a slight reddish darkening distally.—*Hindwing* quadrate (section *Thalerura*), but with the tail at  $R^3$  shorter than in *veninotata*; as forewing except in the unmarked costa and lack of first line and in the elongation of the discal mark.

Underside paler, especially the hindwing and posterior part of forewing; forewing with the ochreous costal edge unspotted, terminal line slightly thickened, a purple-fuscous terminal blotch of about 2 mm. width from tornus about to  $R^3$  and some slight strigulae anteriorly; hindwing with corresponding blotch from apex about to  $R^2$  and some strigulae posteriorly.

Khasis. Type in coll. Tring Museum; paratype in coll. L. B. Prout.

Differs from *veninotata* in shape, in the red terminal line and the more strongly spotted fringes.

8. *Thalassodes furvifimbria* spec. nov.

♂, 37 mm.; ♀, 39–41 mm. Face green. Palpus elongate (in ♂ almost, in ♀ more than, twice as long as diameter of eye; third joint in ♂ as long as, in ♀ longer than, second joint), green, beneath white. Vertex green, only very narrowly white in front. Hindtibia in ♂ not dilated. Abdomen without dorsal ornamentation.

*Forewing* shaped, coloured, and marked as in the typical group, the white lines straight; **fringe**, except at extreme base, **dark grey**.—*Hindwing* with the angle at R<sup>1</sup> moderate or rather slight; postmedian line slight; fringe as on forewing.

Ceylon: Pundaloya. December (type ♂), July and undated (2 ♀♀), in coll. Tring Museum; a ♂ without date and a ♀ April, in coll. British Museum, ex coll. E. E. Green.

Easily distinguished by the dark fringes and the ♂ structure; both the other green-faced Indian species in which the ♂ hindtibia is undilated (*aucta* Prout and *falsaria* Prout) have shorter palpus and yellow fringes. The ♂ type has unfortunately lost the fringes, but is chosen for the structural characters.

9. *Prasinocyma fragilis solida* subsp. nov.

Deeper green than *f. fragilis* Warr., the white lines fainter, the white spots distally to the discocellulars almost or altogether obsolete.

Rossel Island: Mount Rossel, 2,100 ft., November—December 1915 (W. F. Eichhorn). Type in coll. Tring Museum.

10. *Metallochloa exorista* spec. nov.

♂, 32 mm. Closely similar to *meeki* Warr. and its subspecies *tenuilinea* Warr., differing as follows:

Antennal teeth shorter.—*Forewing* with costal margin more markedly arched posteriorly, distal margin slightly more oblique; costal margin more broadly and brightly red, at extreme edge heavily mixed with black; a distinct, though minute, black cell-dot present; minute black dashes on SC<sup>6</sup> and sometimes on R<sup>1</sup> distally to the median silvery streak and proximally to the subterminal; terminal dots somewhat enlarged towards apex.—*Hindwing* more produced in middle of distal margin, the submarginal silvery line in consequence more acutely bent.—Underside without the apical blotch of hindwing or distal grey band.

Upper Aroa River, British New Guinea, March 1903 (A. S. Meek). Type in coll. Tring Museum.

11. *Metallochloa militaris satisfacta* subsp. nov.

*Forewing* with the yellow costal edge somewhat widened, rather strongly dark-dotted. Both wings with the red cell-dot larger, almost as in *sanguinipuncta* Warr., the submarginal dots enlarged into dashes, placed rather farther from the termen, the yellow border consequently somewhat widened. *Hindwing*, as well as *forewing*, beneath with a fuscous apical dot.

Goodenough Island, 2,500–4,000 ft, April and May 1913 (A. S. Meek). 4 ♀♀

in coll. Tring Museum, including type. Also a slightly worn ♀ from Milne Bay, British New Guinea, December 1898.

*M. sanguinipuncta* Warr., from the Key Islands, is very likely also a subspecies of *militaris*, with the submarginal dots placed as in *m. satisfacta*, but red and not enlarged, the space between them and the termen remaining green; but it further differs in showing pairs of vague wavy lines in place of the vague blotches. Only Warren's two originals (his type ♀ and a small worn ♀ unaccountably registered. NOV. ZOOLOG. v. 422, as *militaris*) are yet known to me.

#### 12. *Episothalma sequestrata* spec. nov.

♂ ♀, 38-42 mm. Very similar to *obscurata* Warr. ♀ with third joint of palpus considerably shorter than second (in *obscurata* longer than second), the abdomen more robust, with erests vestigial.

*Forewing* in both sexes with termen less strongly sinuous, more feebly erenulate; lighter grey-green (perhaps sage-green when freshly bred); markings of upperside similar, but with the antemedian line more deeply bent outward in cell, reaching the discocellulars, both lines less strongly marked with white on their reverse sides, distal dark shading weaker, confined to posterior half of wing.—*Hindwing* with termen less erenulate than in *obscurata*; subterminal dark shading narrower, sometimes interrupted.—*Forewing* beneath with the dark distal cloud restricted, at termen reaching from tornus scarcely to M<sup>2</sup>, in a width of less than 2 mm., between M<sup>2</sup> and M<sup>1</sup> still narrower, subterminal, anteriorly obsolete. *Hindwing* beneath with the subterminal dark band much narrowed, especially in posterior part, touching termen at apex and tornus only, between radial fold and M<sup>2</sup> weak or almost interrupted.

Milne Bay, British New Guinea, November—December 1898 (A. S. Meek). Type ♂, December, in coll. Tring Museum. Also 1 ♀ from Goodenough Island, December 1896.

Mr. Meek took *E. obscurata* at the same place in December 1898 (1 ♀) and January—February 1899 (3 ♂♂, 1 ♀); on account of the great difference in the ♀ palpus there can be no question as to their specific distinctness.

#### 13. *Hemithea subflavida copiosa* subsp. nov.

♀. Wings rather broader than in *s. reducta* Warr. (Dutch New Guinea), approaching the shape of the preceding species. Underside with the dark borders rather broader than in *s. reducta* and in addition with the postmedian line (or shade) present, on the forewing partly fuscous, on the hindwing olivaceous.

Bougainville, Solomon Islands, April 1904 (A. S. Meek), 2 ♀♀ in coll. Tring Museum.

The known forms of *H. subflavida* now furnish regular transitions in shape, through *Episothalma sequestrata* to *E. obscurata*, and suggest that the genus *Episothalma* will have to be merged in *Hemithea*. In any case the three species named, together with *E. subaurata* Warr., form a very natural group.

#### 14. *Hemithea insularia duplicata* subsp. nov.

Darker and greyer green than *i. insularia* Guen. (*Spec. Gén. Léop.* ix. 385; Oberth. *Et. Léop.* xii. t. 390. f. 3297), the blotches beneath highly developed,

showing through as slight green shadows on the upperside; an additional narrow dark patch more or less developed on the hindwing beneath, between the tornus and  $M^2$ .

Fergusson Island, October—December 1894 (A. S. Meek), type ♂ and 2 ♀♀; Milne Bay, British New Guinea, December 1898—February 1899 (A. S. Meek), ♂, 2 ♀♀; Kumusi River, N.E. British New Guinea, low elevation, August 1907 (A. S. Meek), 2 ♀♀. All in coll. Tring Museum.

The abdominal crests look better developed than in *i. insularia*, of which, however, little first-rate material is accessible to me.

#### 15. *Hemithea wuka isabella* subsp. nov.

♀. *Forewing* slightly broader still than in *w. wuka* Pagenst.; postmedian line rather more excurved; some greyish shading in distal area, indicating faintly the position of the blotch beneath; terminal dots and fringe yellower.—*Hindwing* with similar distinctions, the outward projection of the postmedian line still more pronounced.—*Forewing* beneath with subterminal blotch or half-band from tornus almost to  $R^3$  and very faint shadow-band anteriorly. *Hindwing* beneath with the usual apical blotch long and strong, a tornal blotch nearly as on forewing.

Isabel Island, Solomons, June 4—July 9, 1901 (A. S. Meek), type in coll. Tring Museum.

Possibly a separate species.

#### 16. *Diplodesma planata* spec. nov.

♂, 22–23 mm.; ♀, 24–27 mm. Head dull green, between the antennae narrowly white. Palpus in ♀ with third joint longer than in the *ussuriaria* group. Thorax above green. Abdomen paler.

*Forewing* with termen nearly straight, a little more oblique than in most of the species; venation in ♂ as in typical *Diplodesma*, in ♀ with  $SC^2$  not or scarcely touching C, yet approaching much more closely than in the *ussuriaria* group; dull green; costal edge very narrowly ochreous, with fine blackish dots; lines white, very fine; antemedian indistinct or obsolescent, slightly excurved in cell and incurved about M; postmedian at nearly two-thirds, very gently curved anteriorly, then almost straight or with an exceedingly slight inward curve in its posterior half; cell-dot not or scarcely discernible; no terminal line; fringe unmarked.—*Hindwing* shaped about as in *subexpressa* Walk. and *contracta* Warr., the abdominal margin being considerably elongate, the tail at  $R^3$  well developed; antemedian line wanting, postmedian slightly or scarcely sinuous, very feebly bent at  $R^3$ .

Underside whitish green, unmarked, the hindwing slightly whiter than the forewing.

N.W. India: Simla, type ♂ (labelled by Warren *celataria* ab. *plana*, but not published); Subathu, June—August 1889, both sexes; Kulu district, a pair. All in coll. Tring Museum.

#### 17. *Diplodesma planata dorsinigrata* subsp. nov.

Differs from the name-typical form, as described above, in having the costal edge of the forewing more strongly dotted with black, the discal mark of

both wings more noticeably darkened, and especially in having a conspicuous black patch on the third and fourth abdominal tergites.

Khasis. 3 ♂♂, in coll. Tring Museum.

### 18. *Diplodesma mystica* spec. nov.

♀, 27 mm. Face deep red, narrowly white below. Palpus twice as long as diameter of eye, third joint as long as second; red above, white beneath. Vertex white. Thorax and abdomen pale greenish above, whitish beneath. Hindtibia without median spurs.

*Forewing* with termen gently curved;  $SC^1$  from near end of cell,  $SC^2$  arising after  $SC^5$ ,  $R^1$  stalked,  $M^1$  connate; pale olive-yellow (probably faded); costal edge white; a fine, not very conspicuous white line from three-fifths hind-margin, nearly parallel with termen about to  $R^1$  or  $R^2$ , then curving slightly away from it, but becoming obsolescent; no terminal line; fringe whitish. — *Hindwing* with abdominal margin fairly long, termen full, very feebly bent at  $R^2$  and inappreciably at  $R^1$ ; C approximated to SC for a short distance near base,  $M^1$  stalked; as forewing, the line about central, complete, very gently curved.

Underside whitish, unmarked.

South Celebes, August–September 1891 (W. Doherty). Type in coll. Tring Museum.

Will not fit into any known genus, but in the absence of the ♂ I place it in *Diplodesma*, Sect. IV. (*Gen. Ins.* fasc. 129, p. 185), into which—assuming that the ♂ frenulum is present—it would fall by my Key (*loc. cit.* p. 13).  $SC^1$  of forewing, C of hindwing, and the shape are, however, against this location.

### 19. *Hemistola malachitaria* spec. nov.

♂, 27 mm. Face blackish on upper half; whitish ochreous on lower. Palpus slender, not reaching beyond frons; whitish ochreous, with some blackish irroration on outer side. Vertex narrowly whitish; occiput green. Antennal shaft whitish ochreous; pectinations slender, not long, rather widely separated, becoming very short towards the 20th joint. Thorax and abdomen green. Hindtibia not dilated.

*Forewing* with DC not very deeply curved,  $SC^1$  from near base of stalk of  $SC^{2-6}$ , anastomosing moderately with C,  $R^1$  barely stalked; light green, almost as in *chrysoprasaria* Esp., only a shade more bluish; antemedian line scarcely indicated; postmedian whitish, quite indistinct, especially anteriorly, apparently not crenulate, perhaps slightly more oblique than in *chrysoprasaria*; no terminal line. — *Hindwing* with termen rounded; postmedian line curved almost as strongly as in *dispartita* Walk.

Underside scarcely paler; unmarked.

Kukli, N.W. India, August 1891. Type in coll. Tring Museum.

In spite of the colour and the shorter antennal pectinations, this is probably nearer to *dispartita* than to *chrysoprasaria*, and I expect the ♀ will prove to have non-pectinate antenna.

20. *Hemistola antigone* spec. nov.

♂, 34 mm. ; ♀, 36 mm. Face deep red. Palpus in ♂ not reaching beyond frons, in ♀ with third joint a little longer, reaching beyond frons ; deep red, beneath paler. Vertex pale green. Antenna in ♂ with short pectinations to about the 27th joint, the last few mere teeth, the longest of the inner series scarcely longer than, of the outer series scarcely three times as long as, the diameter of the shaft ; in ♀ not pectinate. Thorax above green (abdomen in both examples discoloured ; apparently with some red markings dorsally). Hindtibia in ♂ dilated, with hair-pencil.

*Forewing* with apex rather sharp, termen almost straight in the ♂, rather more bent in the middle in the ♀ ; SC<sup>1</sup> free, R<sup>1</sup> stalked or separate ; bluish green, a little duller than in *rubrimargo* Warr. ; costal edge very narrowly ochreous, with dark dots ; first line slightly indicated, apparently about as in *rubrimargo* ; cell-dot sharp, red mixed with black, with a slight pale circum-scription ; postmedian line indistinct except near hindmargin—where it forms a deep lunule inward—and as white dots on the veins, apparently formed nearly as in *rubrimargo*, but more distally placed ; neither line accompanied by any red dot ; terminal line red, mixed with black, slightly interrupted at the veins ; fringe proximally white between the veins, with longer or shorter reddish marks opposite the veins ; distally apparently reddish grey (somewhat damaged).—*Hindwing* narrower than in *rubrimargo* Warr. and *fuscimargo* Prout (Nov. Zool. xxiii. 16), abdominal margin long ; tail at R<sup>3</sup> rather strong ; C anastomosing slightly with SC near base, M<sup>1</sup> almost connate with R<sup>3</sup> ; as forewing, without antemedian line.

Underside whitish green, the discal dots slightly indicated ; costal edge of forewing light ochreous, more feebly dotted than above ; terminal line and fringe nearly as above.

Khasis, May 1896. ♂ type and a ♀ in coll. Tring Museum.

The pale-ringed discal dots, somewhat recalling *Cyclothea disjuncta* Walk., distinguish this from all other species of *Hemistola*.

21. *Iodis rhabdota* spec. nov.

♂ ♀, 33–35 mm. On an average larger than *iridescens* Warr. Palpus in ♂ with third joint a little shorter, antenna in ♂ pectinate to about one-half its length (in *iridescens* to about two-thirds), the branches not quite so long.—*Forewing* slightly broader, the termen less oblique ; SC<sup>1</sup> connate (in one example just from cell), free, R<sup>1</sup> stalked ; the white ground-colour rather less opalescent than in *iridescens*, more tinged with green ; costal margin less dark ; bands broader, the postmedian less oblique anteriorly, rather more dentate.—*Hindwing* with corresponding distinctions.

Khasis, February—March 1894. Type in coll. Tring Museum. Also a ♂ from Sikkim (Knyvett).

Intermediate in colour towards *coeruleata* Warr., which is still greener, has nearly the shape of the present species, but the antennal structure of *iridescens*, and is distinguished from both by the postmedian line of the forewing, which is rather deeply sinuate inward between the radials and moderately between M<sup>2</sup> and SM<sup>2</sup>.

22. *Iodis colpostrophia* spec. nov.

♂, 33 mm. Very similar to *coeruleata* Warr., possibly a local race of it. *Forewing* with apex less pointed, termen distinctly curved (in *coeruleata* straight);  $SC^1$  almost connate with  $SC^{2-5}$ , not anastomosing with C,  $R^1$  connate,  $M^1$  just separate; apparently rather deeper, and at the same time yellower, green than in *coeruleata* (but probably a little discoloured in relaxing); bands broader and still more ill-defined, except the second band distally, where it is edged by a rather sharply white postmedian line, which is even more deeply dentate than in *coeruleata*; similar dark-green shading about DC, suggesting a long-oval, pale-centred cell-mark (sometimes indicated in *coeruleata*).—*Hindwing* rather broad, with the tail rather short; the green antemedian band rather well developed except at costa, partly merged with a green line just outside  $DC^2$ , so as to enclose a roundish pale cell-mark.

South Java, 1,500 m., 1891 (H. Fruhstorfer). Type in coll. Tring Museum.

A ♀ from Rukit. Putus, Selangore, 3,000 ft., May 1896 (Curtis), is rather larger; palpus at least twice as long as diameter of eye, with long third joint;  $R^1$  shortly stalked. I know no authentic ♀ of *coeruleata*, but in a worn specimen from Digboi, Assam, which I have provisionally determined as such, the palpus is not more than one-and-three-quarter times the diameter of eye.

23. *Iodis xynia* spec. nov.

♂, 25–28 mm.; ♀, 32 mm. Face pale green. Palpus in ♂ fully half as long again as diameter of eye, with third joint shortish; in ♀ fully two-and-a-half times diameter of eye, with third joint fully as long as second; mixed with ferruginous above, white beneath. Antenna in ♂ pectinate to one-half, with longish branches. Vertex narrowly white; occiput green. Thorax green above, white beneath. Abdomen above green basally, otherwise whitish; beneath white. Hindtibia in ♂ with strong ensheathed hair-pencil; tarsus slightly over one-half as long as tibia.

Wings shaped as in *argutaria* Walk. or *iridescens* Warr.—*Forewing* with  $SC^1$  connate or occasionally stalked (in one Dharmasala ♂ just separate), anastomosing rather strongly with C and with  $SC^2$ ; opalescent white, the reflections in most lights pearl-blue; irroration fine, light olive-greenish; costal edge ochreous; the greenish shades which accompany the lines and cell-mark, as well as that at distal margin, diffuse and ill-defined; lines white; antemedian ill-defined at costa, less so posteriorly, placed at less than one-fourth the wing-length anteriorly, lunulate outward between the veins (but not deeply), reaching hindmargin at about one-third; postmedian more distinct, 2 or 3 mm. from termen, lunulate-dentate, not strongly incurved between the radials and posteriorly, as near termen at  $SM^2$  as at  $M^2$ ; termen with minute and inconspicuous white dots at veins.—*Hindwing* with first line weak or obsolescent; otherwise similar.

Underside opalescent white; forewing with costal half tinged with greenish, costal edge bright ochreous.

North India. Type, Khasis, March 1894, in coll. Tring Museum.

Represented in most collections, but hitherto apparently mixed with *argutaria* Walk., which is very different in the less long ♀ palpus, darker green colour, deeply sinuous and posteriorly thickened postmedian line and various other points.

24. *Berta poppaea* spec. nov.

♂ ♀, 23 mm. Shape and structure about as in *acte* Swinh. (hindlegs lost in the only ♂). Head and body olivaceous; vertex only very narrowly and inconspicuously white in front. Base of antenna white.

*Forewing* with costa arched, termen slightly curved;  $SC^1$  anastomosing strongly with C, well free from  $SC^2$ ; dull olivaceous, costal edge narrowly ochreous; antemedian line white, indistinct, indicated chiefly by two slender outward curves (in cell and between M and  $SM^2$ ); two white dots on discocellulars, that on  $DC^2$  the larger, somewhat elongate; a slender, zigzag white postmedian line, broken up into dots and small lunules, its position and general course about as in *Iodis annulifera* Warr., the lunule between  $M^2$  and  $SM^2$  rather thick; termen with white dots at ends of veins, the anterior ones small, the posterior elongate.—*Hindwing* similar, with the cell-dots almost or altogether obsolete.

Mount Wuchi, Hainan, May 1903. ♂ (type) and 2 ♀♀ in coll. Tring Museum.

No other Oriental *Berta* shows so little white marking. Structurally, this species, *acte*, and *annulifera* suggest transitions between this genus and *Iodis*.

25. *Berta subrectistriga* spec. nov.

♂, 25 mm. Structure about as in *acte* Swinh., third joint of palpus slightly longer in proportion. Face olivaceous. Palpus olivaceous above, white beneath. Vertex narrowly and rather irregularly white; occiput olivaceous. Thorax and abdomen above olivaceous, with large white spots, which decrease in size posteriorly; beneath mostly white. Legs olivaceous, on inner side white.

*Forewing* shaped nearly as in *acte* or with costal and distal margins still straighter; olivaceous; white markings proximally to the postmedian nearly as in *chrysolineata* Walk., the compound cell-mark broader, especially in its posterior half, less 8-shaped, in that its outer and inner sides do not touch in the middle; a white postmedian band, straightish on its outer edge (slightly more oblique than termen), throwing out broad and deep, fairly uniform, inter-neural teeth proximally; subterminal white line thin between  $SC^2$  and  $R^1$  and between  $R^2$  and  $R^3$ , otherwise rather thick, continuous except for exceedingly fine interruptions at and midway between the veins; termen and fringe about as in *chrysolineata*.—*Hindwing* with the excision between  $R^1$  and  $R^3$  almost as deep as in *chrysolineata*; white markings broad, especially a postdiscal band, which is only cut by slender olivaceous veins; postmedian line zigzag, continuous, fairly thick but nowhere thickened into round spots; subterminal, termen, and fringe nearly as on forewing.

Underside white, tinged with olivaceous in places.

Mount Dulangar, Mindoro, Philippines, 4,500–5,500 ft., November 1895—January 1896 (J. Whitehead). Type in coll. Tring Museum.

26. *Berta zygophyxia* Prout.

*Berta chrysolineata zygophyxia* Prout, *Gen. Ins.* fasc. 129. p. 234 (1912).

I think this must be a separate species, as it sometimes occurs together with *chrysolineata* Walk. I now know it from Penang, Perak, Singapore, Bali, British New Guinea, the Admiralty and the Solomon Islands, and it will certainly be detected in some intervening localities. By an oversight I neglected to state that the type is from Bali.

27. *Berta copiosa* spec. nov.

♂, 23 mm. Face pale olivaceous. Palpus with third joint shortish; olivaceous, beneath white. Vertex white. Occiput mixed with olivaceous. Antenna bipectinate to about the middle. Thorax and abdomen above olivaceous, with indistinct whitish spots; beneath more mixed with white. Hindtarsus less than half as long as tibia.

*Forewing* shaped as in *chrysolineata* Walk.; discocellulars characteristic; SC<sup>1</sup> from cell, anastomosing slightly with C, SC<sup>2</sup> arising after SC<sup>1</sup>, free; dull olivaceous, with some slight whitish irroration; markings sharply white; two spots between the veins near base; antemedian line thickened and lunulate outward in cell, still more deeply lunulate outward in submedian area, but proximally filled in with white so as to form a spot; a small spot in cell just proximal to DC and some vaguer spots behind it; an elongate costal mark from just proximally of DC to the anastomosis of SC<sup>1</sup> with C; partly confluent with this costal mark is an irregularly quadrate patch between the radials slightly beyond the cell; elongate interneural marks just beyond this, between costal margin and R<sup>1</sup>; postmedian line zigzag, thickened proximally into a double spot between the radials, interrupted at M<sup>1</sup>, reappearing rather more proximally as three large interneural spots between M<sup>1</sup> and hindmargin, the first the largest; subterminal line broken into spots, wanting between R<sup>2</sup> and R<sup>3</sup>, small posteriorly; termen and fringe as in *chrysolineata*.—*Hindwing* similar, but with a conspicuous spot on middle of abdominal margin in alignment with the radial, postdiscal patch, which is less quadrate (more transversely elongate) than on forewing.

Underside white, with slight olivaceous cell-marks (irregularly ocellated in their anterior part) and wavy olivaceous transverse lines, the postmedian thickened into an irregular, narrow band, the subterminal also distinct.

Naga Hills, Assam, 1,500–3,000 ft., September–October 1889 (W. Doherty). Type in coll. Tring Museum.

28. *Comostola hypotyphla* spec. nov.

♀, 25 mm. Face red. Palpus about two-and-a-half times, third joint almost as long as, diameter of eye. Vertex white; occiput green. ♀ antenna somewhat serrate. Thorax above green, abdomen mixed with whitish.

*Forewing* with SC<sup>1</sup> from cell, free, R<sup>1</sup> barely stalked, DC not extremely sinuous; light glaucous green, nearly as in *maculata* Moore; costal edge narrowly whitish, unspotted; antemedian dots on M and SM<sup>2</sup>; the dull red cell-dot small, not pale-centred, the whitish ring around it very slender; postmedian yellowish white, consisting of moderate dots on R<sup>1</sup> and R<sup>2</sup> nearly 4 mm. from termen, a curved line (confluent elongate dots) from R<sup>3</sup> to beyond M<sup>1</sup> slightly nearer to termen, a dot at M<sup>2</sup> slightly receding and a nearly vertical mark from fold to hindmargin nearly 4 mm. from tornus; some red scales sometimes noticeable at distal edge of these spots; terminal line white, accompanied proximally by some short and very slender dark reddish interneural dashes; fringe white, with a tinge of green.—*Hindwing* with termen bent at R<sup>3</sup>; cell-mark as on forewing; postmedian line chiefly marked by lunules on R<sup>1</sup> and R<sup>2</sup>-M<sup>1</sup> and a somewhat enlarged spot on middle of abdominal margin; terminal line and fringe as on forewing.

Underside whitish blue-green, unmarked; costal edge of forewing ochreous, slightly shaded with rufous basally, a still slighter rufous suffusion over a wide area proximally except towards hindmargin.

N. India: Dalhousie, May 1891. Type in coll. Tring Museum.

A pair from Dharmasala (= *nympha* Butl., *Ill. Het.* vii. 22, ex. err. det.) show the ♂ antennal pectinations to be long, hindtibia not much thickened. Differs from *maculata* Moore in its small size, more bent termen of hindwing, reduced ocelli, better developed and less deeply bent postmedian line, and especially in having the discocellulars of the forewing of more normal *Comostola* form; *albifimbria* Warr. and *maculata* Moore should, strictly speaking, be placed in *Comostolopsis*, making a transition towards *Comostola*.

### 29. *Comostola demeritaria* spec. nov.

♂ ♀, 18-21 mm. Face light reddish, becoming more ochreous below. Palpus in ♂ about one-and-a-half times diameter of eye, in ♀ about two-and-a-half times; light ochreous, strongly mixed with red except beneath. Vertex and antennal shaft very pale sulphur-yellow; ♂ pectinations four or five times diameter of shaft. Occiput green, separated from the yellow vertex by a slender red line. Thorax and abdomen green above, white beneath and at anal extremity. Hindtibia in ♂ dilated, but without terminal process.

*Forewing* with DC little bent at origin of  $R^2$ ,  $SC^1$  from cell or shortly stalked,  $R^1$  stalked or occasionally connate; light blue-green, almost as in *laesaria* Walk. or a shade bluer; costal edge pale yellow, with the dark speckling generally slight, no dark spots at origin of lines; lines represented by double spots, their approximated parts very pale yellow, their reverse parts red; the antemedian spots placed on  $SM^2$  at one-third and (smaller, sometimes obsolescent) on M; the postmedian on all the veins from  $R^1$  hindward, slightly excurved between  $R^2$  and  $SM^2$ , those on  $R^2-M^1$  confluent, that on  $SM^2$  confluent with a spot at about two-thirds hindmargin, the rest small, sometimes obsolescent; cell-spot moderate, roundish, rather duller than in *laesaria*; terminal line rather strong, interrupted at veins, red proximally, dark and metallic distally, in places separated from fringe by an exceedingly slender white line; fringe pale yellow, with an oblique dark mark at apex.—*Hindwing* rather long and narrow, termen bluntly bent at  $R^3$ ; antemedian line wanting, cell-spot rather larger, oftenest diamond-shaped, some light metallic scales in its middle.

Underside whitish blue-green, costal edge of forewing and all fringes yellowish; cell-spots feebly showing through.

Khasis, December to April. A series in coll. Tring Museum, the type dated March 1894. Also in other collections.

Not differentiated by Warren from *meritaria* Walk.; wings rather less broad, discocellulars much less characteristic, cell-spots less large, vertex and antenna less white.

### 30. *Comostola cedilla* spec. nov.

♂, 22 mm.; ♀, 25 mm. Face dull dark red, sometimes mixed with blackish; very narrowly white below. Palpus ochreous and reddish above, whitish beneath; second joint with some black irroration on outer side. Crown much mixed with red and with a little black. Base of antennal shaft somewhat mixed

with black ; pectinations in ♂, at their longest point, scarcely three times diameter of shaft. Thorax and abdomen as in the allies (*chlorargyra* group).

*Forewing* bright green, rather more yellowish than in the allies ; the white costal edge rather broad, strongly tinged (excepting the pure white basal subcostal streak) with red and—especially at costal extremity—with some metallic blackish irroration ; midcostal streak rather broad and reaching to the posterior end of DC<sup>2</sup> ; distal border of equal width throughout, its white element continuing round the apex between SC<sup>2</sup> and SC<sup>4</sup> to about 3 mm. from termen, where it curves forward in a eedilla-shaped mark and is lost in the reddish suffusion ; oblique mark from tornus fairly broad but rather short, pure white, only at extreme tornus tinged with yellow.—*Hindwing* as in the allies.

Underside with the suffusions predominantly greenish, on the hindwing almost entirely so.

Upper Aroa River, British New Guinea, March 1903, type ♂, and February 1903, ♀ ; Kumusi River, N.E. British New Guinea, low elevation, August—September 1907. All in coll. Tring Museum, collected by A. S. Meek. Also from Penang and Perak in the same collection and from Singapore and Borneo in coll. Brit. Mus.

The ♂ antennal pectinations are much shorter than in any other of the group, unless it be the very distinct *iodioides* T. P. Luc. (= *eucraspeda* Turn., syn. nov.),\* of which only the ♀ is known.

### 31. *Pyrrhorachis pyrrhoga* (Walk.).

I am now inclined to think that Warren was correct in separating his *cornuta* (Nov. Zool. iii. 292) as a distinct species. If not, it is a constant race with very wide distribution (New Guinea and its satellite islands and again on Borneo—not yet known to me from the intervening area). In any case the forms still left under *pyrrhoga* vary geographically. Walker described from South India and his form has the distal border of the forewing rather narrow, not swelling appreciably at the tornus. The Australian form, *marginata* T. P. Luc., seems only separable by its larger size.

***P. p. augustata*** (Warr. MS.) **subsp. nov.** A single ♀ in coll. Tring Museum, from Lifu, Loyalty Islands, has the distal borders still narrower, thread-like.

Another unique specimen, *deliciosa* Warr., from the Natuna Islands, may be a subspecies with the border broadened and not traversed by blackish metallic scaling, but as the hindwing is rather less elongate, I have left it provisionally as a separate species.

***P. p. turgescens*** **subsp. nov.**, from the Khasis, is easily and constantly distinguishable from the name-type by having the marginal spot between tornus and M<sup>2</sup> of the forewing considerably enlarged, more than twice as broad as the rest of the series : the apical and tornal borders of the hindwing also show a tendency to enlargement. Type in coll. Tring Museum.

It is desirable to add that the specimen from which the genitalia were diagnosed (*Gen. Ins.* fasc. 129, p. 239) was a Khasi example (subsp. *turgescens*) in my collection.

\* Lucas's type is in coll. Tring Museum. It was unknown to me when I prepared Pt. 14 of the *Lepidopterorum Catalogus*, and I merely cited the name under *Agathia*, in which genus its author quite erroneously published it.

## SUBFAM. STERRRHINAE.

32. *Rhodostrophia plesiochora* spec. nov.

♂, 27 mm. ; ♀, 30 mm. Similar to *meonaria* Guen. (Prout in Seitz, *Macrolep.* iv. t. 7a), with which it has been mixed. Antennal pectinations shorter, scarcely over twice diameter of shaft. Wings shorter, particularly in the ♂.

*Forewing* rather more ochreous (in the most deeply coloured examples of *meonaria* tending rather to olivaceous), rather more glossy, a faint grey antemedian line indicated except at costa ; postmedian line relatively farther from termen, rather less oblique, generally less red, the narrow band beyond it shadowy ; subterminal grey line well expressed ; a narrow pink shade at termen (rarely indicated in *meonaria* except on the terminal line itself).—*Hindwing* generally rather more ochreous than in *meonaria* ; cell-dot present ; postmedian pink shade broader, but above never reaching nearly to costa, beneath rounded anteriorly (not, as in *meonaria*, angulated) ; subterminal line better developed.

West China : Pu-tsu-fong, 9,820 ft., June—July 1890, type ♂ and a ♀ ; Chow-pin-sa, 2 ♂♂, 1 ♀ ; all these in coll. Brit. Mus. Omei-shan, 1 ♂ in coll. Tring Museum. Teng-yueh-Ting, 1 ♀ in coll. Joicey. Vrianatong, Tibet, 1 ♀ in coll. L. B. Prout.

Erroneously referred to under *meonaria* in Seitz, *Macrolep.* iv. 40 ; the Kashmir examples, including the figure, are true *meonaria*.

33. *Rhodostrophia bisinuata* Warr.

*Rhodostrophia bisinuata* Warr., *Nov. Zool.* ii. 98 (1895) ; Prout in Seitz, *Macrolep.* iv. 43 (1913).

*Rhodostrophia sinensis* Prout in Seitz, *Macrolep.* iv. 43 (1913) (*R. vinacearia* subsp., ? sp.) (syn. nov.).

Warren founded this species on a single ♀ said to be from "Japan," but no doubt really from West China ; several other specimens in the Tring Museum belonging to the latter fauna (for instance, a *Somatina mendicaria* Leech and an *Anisephyra brunnearia* Leech, both presumably topotypical with some of Leech's originals) bear the same erroneous labels. When I was at work on the genus *Rhodostrophia* for Seitz, Warren's type was not accessible to me and I merely quoted the original description ; but on p. 44, in erecting a new species, *Tanaotrichia orientis*, I suggested the possibility that the last-named might prove to be a form of Warren's lost species. Subsequently (*Nov. Zool.* xxii. 324) I erroneously accepted this suggestion and wrote "*bisinuata* Warr. = *orientis* Prout," which must be corrected to "*orientis* Prout." The females of the two species are confusingly similar, but a careful study of Warren's type, together with the rest of the available material, has shown conclusively that *bisinuata* Warr. is the true *Rhodostrophia* and supplants my *sinensis*. I think it will prove a valid species rather than a race of *vinacearia* Moore. I now know it from Chang Yang, Szechuan, Teng-yueh-Ting (Yunnan, near the Burmese frontier), and Vrianatong (Tibet).

34. *Discoglypha aureifloris parvifloris* subsp. nov.

♂ ♀, 30–32 mm. Slightly paler and more rufous-tinged than *a. aureifloris* Warr. (*Nov. Zool.* iii. 111).

*Hindwing* with the mark behind the cell much smaller, only extending

for about the middle half of  $DC^{2-3}$ , narrow, the distal projection along  $R^2$  small or almost wanting.

Sikkim, type ♂, Darjiling, paratype ♀ (H. J. Elwes), in coll. Tring Museum.

### 35. *Discoglypha locupletata* spec. nov.

♂, 26–28 mm. Closely similar to *aureifloris* Warr., but much more mixed with rufous, so as to approach the tone of *D. inflammata* Warr. and *variostigma* Warr.

*Forewing* with the lines in general somewhat thicker, the median and postmedian placed farther from the termen; an irregular submarginal series of yellow spots, the one between  $R^2$  and  $M^1$  largest and roundest, the two between  $SC^4$  and  $R^1$  sometimes confluent, those between  $R^1$  and  $R^2$  minute or obsolescent; the spots behind  $M^1$  are placed quite near the termen and are accompanied proximally by some slight dark shading.—*Hindwing* with corresponding distinctions in the distal area; cell-mark unicolorous pale golden, not marked with rufous orange as in *aureifloris*.

Khasis, April 1895, type and another, August 1896, February 1897, in coll. Tring Museum. A single ♀ from the same locality, November 1894, is larger (32 mm.), with the cell-mark of hindwing reduced.

This has hitherto been passed over as an aberration of *aureifloris*, but as all the differences are constant I suspect it is a valid species, though I have not yet found any structural distinction.

### 36. *Nobilia turbata* Walk.

*Nobilia turbata* Walk., *List Lep. Ins.* xxiv. 1098 (1862) (Sarawak).

*Plutodes strigularia* Snell, in Veth, *Midden Sumatra* i. (8.) p. 57 (1880), syn. nov. (Sumatra).

*Plutodes (Omiza) strigularia* Pagenst., *Jahrb. Nass. Ver. Nat.* xli. 178 (1888).

This widely distributed species shows interesting indications of incipient geographical variations, but the races do not seem to be yet constant enough to warrant naming. On Borneo (the type-locality) and also—so far as less adequate material shows—the Malay Peninsula, Nias, Sumatra, Java, and Celebes, the rufous parts, especially of the forewing, have a rather strong dark admixture. In North India (Sikkim, Assam) the rufous is always bright and clear, such as can only occasionally be matched in the localities named above. In New Guinea and its islands (Ron, Dampier, Vulcan, Goodenough, Fergusson) the darkening often proceeds even further than in the Malayan subregion, but again with some mingling of redder specimens; here, too, the underside is, on the whole, rather more mixed with reddish. As with several other species, the geographical range, so far as at present known, is discontinuous, for *cupreata* Pagenst., *Jahrb. Nass. Ver. Nat.* xli. 178 (= *nebulosa* Warr., Nov. Zool. iv. 58, syn. nov.), from Amboina, must, I think, be accorded specific right. I have seen no other *Nobilia* from the Moluccas.

### 37. *Antitrygodes parvimacla privativa* subsp. nov.

♂ ♀. *Forewing* entirely without green spots in the basal area; the green spots on either side of the discocellulars also reduced in size and not followed by any further green spots posteriorly.

Rook Island, July—August 1913 (A. S. Meek). Type in coll. Tring Museum.

*A. parvimacula* Warr. (Nov. Zool. iii. 293), described from Fergusson and the Trobriand Islands, shows decided tendencies to geographical variations, but—as with *Nobilis turbata*—the majority are not sufficiently sharp to merit names. The island forms (Obi Major, Key Islands, Trobriands, Rook, Louisiades) are in general rather smaller than those from the mainland of New Guinea, the easterly forms also in general more strongly suffused with purple. On the mainland the spots are generally larger than in the Trobriand type, on St. Aignan, Rossel, and Sudest Island smaller, with some aberrations approaching *p. privativa*, especially in the median area, but always with a strongly developed subbasal green spot persisting between M and SM<sup>2</sup>. The Australian form (*divisaria* Turn., Proc. Linn. Soc. New South Wales, xxxii. 676, nec Walk.) does not seem to differ from that of New Guinea.

### 38. *Antitrygodes subaequalis* spec. nov.

♂, 36 mm. Face black, in places mixed with reddish. Palpus pale, mixed (except beneath) with blackish. Crown and base of antenna whitish; occiput narrowly black. Antennal ciliation little longer than diameter of shaft. Collar reddish brown. Thorax and abdomen whitish, tegula with a few reddish scales.

*Forewing* with SC<sup>1</sup> and stalk of SC<sup>2-5</sup> connate from apex of areole; whitish, with fine and very sparse dark irroration, here and there also a few olive-green or reddish scales; a rather small olive-green subbasal spot between M and SM<sup>2</sup>; a tripartite green median band from subcostal region to just across SM<sup>2</sup>, anteriorly nearly 4 mm. wide, posteriorly little less, the element in the cell rounder than in *divisaria*, that beyond it less produced distally than in that species, the two rather broadly separated by the pale discal mark, the posterior element slightly produced distally along SM<sup>2</sup>, anteriorly confluent with the others distally (about M<sup>1</sup>), separated proximally by a projection of the ground-colour at the fork of M and M<sup>2</sup>; a slender, strongly curved, faintly waved, light brown line from just beyond two-thirds costa to five-sixths hindmargin; four olive subapical spots between SC<sup>4</sup> and R<sup>3</sup>, the last small, confluent with the preceding one into an angulated mark on R<sup>3</sup> pointing to and rather closely approaching the termen; rather faint brownish subterminal lines traceable except near costa, becoming bright rust brown at tornus, to which the proximal runs, while the distal terminates on the distal margin itself; terminal line brown, slightly thickened between the veins; fringe white, tinged with pink at tornus, traversed in the middle by some very feeble brown dusting and with traces of spots opposite the veins.—*Hindwing* not very deeply dentate; base whitish, with slight speckles; median green spots similar to those of forewing, the one beyond the cell pointed at its hinder end, the posterior one boot-shaped; some short orange-buff vein-dashes beyond these spots; a grey postmedian line about as in *agrata* Feld.; two submarginal brown lines, the red-brown mark on the proximal (from apex to R<sup>2</sup>) rather thicker anteriorly than in *divisaria*, the triangular ending, on the other hand, scarcely as large; terminal line and fringe as on forewing.

Underside similar to that of *parvimacula* Warr., the greenish median bands more discernible and broader, containing rather distinct whitish cell-marks the outer band of the hindwing receding much more from the distal margin,

especially between apex and  $R^3$ ; a narrower and weaker band distally to this, leaving it at apex, angulated outward at  $R^3$  (close to termen) and rejoining it about  $M^1$ .

Isabel Island, June 4—July 9, 1901 (A. S. Meek). Type in coll. Tring Museum.

39. *Problepsis conjunctiva subjunctiva* subsp. nov.

♂, 30–33 mm. Considerably smaller than *c. conjunctiva* Warr. (*Proc. Zool. Soc. Lond.* 1893, p. 358), from Sikkim, Bhotan, and Upper Burma, both wings with the median grey band and outer line much narrower, more brownish. Underside less darkly marked.

Cheng-Mai, Hainan, August 1902. Type in coll. Tring Museum.

40. *Problepsis plenorbis* spec. nov.

♀, 51 mm. (Head lost.) Body white.

*Forewing* white, with costal edge very narrowly smoky near base, becoming broadly smoky opposite the discal ocellus, white distally; discal ocellus large, almost perfectly round, its diameter nearly 7 mm., consisting of an olive circumscription, which has a width of not quite 1 mm. on its distal side, otherwise about 1.5 mm., and is marked on the proximal half of its proximal side with black scales and a dividing-line of metallic silvery, a white, brown-edged lunule just outside the discocellulars, an elongate black mark between  $R^3$  and  $M^1$  just within the olive ring, a large pink-tinged centre spotted with violaceous metallic, the largest spots being one in front of  $R^1$  and one behind  $M^1$ , and a fine brown distal line separating the pinkish area from the olive circumscription; an indistinct light-brown median line from the ocellus to hindmargin; a slightly sinuous postmedian from middle of wing to hindmargin, about 2–3 mm. from termen; submarginal markings grey, obsolescent anteriorly, nowhere large or very strong, the proximal series consisting of interneural spots, the distal of thin dashes across the veins; terminal line fine and rather pale.—*Hindwing* white, with a slight roundish smoky-brown central patch beyond the cell, on the proximal side of which arises the characteristic silvery marking; this is open at its anterior end (at base of  $R^1$ ), otherwise complete, though rather feeble along hindmarginal end; its anterior half is little over 1 mm. wide, with proximal side very slightly curved (following the course of  $DC^{2-3}$ ), its distal rather more curved; at  $M$  and  $R^3$  it suddenly widens to 3 mm., its expansion being almost all on the distal side (along  $R^3$ ); postmedian line fairly thick, complete, nearly 4 mm. from termen, curving towards tornus at posterior end; subterminal markings also rather better developed than on forewing, otherwise similar.

Forewing beneath with costal margin more broadly and strongly darkened, brown, ocellus smoky brown, ringed with smoky grey, no markings in it except the white lunule, which is broad and clear; faint traces of the postmedian line. Hindwing beneath with the central patch vaguely indicated.

Benkoelen, West Sumatra (Ericsson). Type in coll. Tring Museum.

Probably belongs, like the species among which I have placed it, to the section *Problepsiodes* Warr. (*Nov. Zool.* vi. 336), as its affinities would seem to be with *conjunctiva* Warr., *superans* Butl., etc. It is the only specimen of the genus known to me from Sumatra. I have adopted a MS. name of Warren's.

41. *Problepsis crassinotata* spec. nov.

♂, 41-43 mm. Head black; underside of palpus light-brown to whitish. Antenna black proximally, brown distally; furnished with short triangular teeth, bearing fascicles of long cilia. Thorax and base of abdomen white above, the rest of the abdomen above infuscated or blackened, excepting narrow white posterior edgings to the segments. Hindtarsus almost one-half as long as tibia.

*Forewing* creamy white, with costal edge narrowly infuscated as far as the postmedian line; ocellus rounded, 5 or 6 mm. in diameter, its circumference olive-brownish, the circlet of silvery scales fairly complete, or slightly interrupted in posterior part, where also an arc is cut off by silvery scaling along M and R<sup>2</sup>; centre of ocellus pinkish grey, with a white discal line, proximally to it a double black mark in cell (cut by the silvery ring), posteriorly a large black mark between M<sup>2</sup> and M<sup>1</sup> and a smaller one between M<sup>1</sup> and R<sup>2</sup>, distally a black lunule from R<sup>2</sup> to before R<sup>2</sup>; median shade rather thick, light olivaceous brown, spotted with silvery, reaching from ocellus to hindmargin; some silvery scales proximally between SM<sup>2</sup> and hindmargin: postmedian line formed about as in *vulgaris* Butl. (*delphiaria* Hmps. n., nec Guen.), thick, grey, becoming more ochreous posteriorly; proximal subterminal spots large, especially the (usually confluent) pairs between the radials and at tornus, the subcostal pair more wedge-shaped, the pair between R<sup>2</sup> and M<sup>2</sup> flatter; distal subterminal series small and generally very regular, separated both by the veins and the inter-neural folds; terminal dark line more or less broken into flattened lunules; fringe white, traversed by a thick but not very strong grey line and slightly tipped with grey.—*Hindwing* with the cell-mark rather darker, large between R<sup>2</sup> and fold, narrow anteriorly, containing a very slender white line just behind DC<sup>2-3</sup>, no differentiable black markings, the silvery ones rather irregular; distal and posterior markings nearly as on forewings, the silvery scales of abscimal region more distally placed.

Forewing beneath white, slightly smoky in cell, costal margin more broadly and strongly darkened than above; both wings with ocellus dark fuscous with white cell-mark, the other markings indicated, but not strong.

Khasis. Type and another in coll. Brit. Mus. Also a ♂ without locality in coll. Joicey, and a worn ♂ from Vrianatong, Tibet, in coll. L. B. Prout.

A worn ♀ from Kiukiang, May 1887 (A. E. Pratt), in coll. Brit. Mus. (ex coll. Leech), shows that the species is widely distributed; ♀ antennal ciliation well developed, not much shorter than diameter of shaft.

42. *Problepsis longipennis* spec. nov.

♂, 41 mm. Head black, palpus narrowly white beneath. Antenna blackish, with triangular teeth bearing long fascicles of cilia. Thorax white. Abdomen above mostly blackish, narrowly white at the ends of the segments. Fore and middle legs darkened on inner side; hindtibia white, the hair-pencil partly brown, the tarsus about half the length of tibia, with first joint not noticeably thickened.

*Forewing* not broad, termen rather strongly oblique; glossy cream-white; costal edge narrowly smoky from near base to near apex; some silvery scales along proximal half of hindmargin; discal ocellus contained in an elongate brown cloud, which is within 6 mm. of base in cell, closely approximated to

the costa anteriorly, about 4 mm. from apex distally, crosses  $M^2$  posteriorly, but there becomes less sharply defined and is confluent with a narrow light-brown, silver-dusted patch on middle of hindmargin; ocellus flesh-tinted in centre, containing the white cell-streak, interruptedly bounded by silvery scaling, crossed by a silver streak along base of  $R^3$  and containing between this streak and its hinder edge a double black mark (very small between  $R^3$  and  $M^1$ , larger between  $M^1$  and  $M^2$ ); a thick black mark in cell just proximally to the ocellus and a less thick one between the radials distally to it; postmedian line slender, slightly sinuous, light-brown, from hindmargin to  $R^2$ , where it becomes absorbed in the elongate patch; submarginal grey spots elongate, thick, the anterior two less so; terminal line almost interrupted at the veins, slightly lunulate and thickened between; fringe white, traversed by a feeble central grey shade except at apex, tornus and opposite the veins.—*Hindwing* with the ocellated marking pear-shaped, light olive-brownish, its narrow anterior part containing the long, very slender concolorous cell-streak (which shows up on account of an equally slender white circumscription), its broad posterior part (about the base of  $R^3$ ,  $M^1$ , and  $M^2$ ) roundish, containing a slightly misshapen ring of dark, silver-mixed scaling, from the narrow anterior opening of which projects a line of silvery scaling along the proximal edge of the cell-mark—noticeable also in the preceding species; postmedian line complete, greyish, rather thicker than on forewing, becoming brown at abdominal margin; subterminal grey spots large, rather rounder than on forewing; pairs of small dots against the veins between these and termen (traceable also on posterior part of forewing).

Underside whitish, with costal margin of forewing smoky to near apex; median patches present, more smoky, containing white cell-marks; distal markings faintly discernible.

Khasis, October 1896. Type in coll. Tring Museum.

The descriptions of this and the preceding were drawn up quite independently, but it now occurs to me as conceivable that it may be a remarkable aberration. The structure seems to agree, and the hindwing is quite similar except that the cell-patch is slightly narrowed. The only known *Problepsis* with similarly shaped markings on the forewing is the very distinct Palaearctic species *phoebearia* Ersch.

#### 43. *Problepsis delphiaria* (Guen.).

*Argyris delphiaria* Guen., *Spec. Gén. Lép.* x. 14 (1858).

*Problepsiodes argentisquama* Warr., *Nov. Zool.* vi. 337 (1899) (syn. nov.).

I think the above synonymy will be found correct. To no other known species does Guenée's description apply, though it is unfortunate that he does not mention the antennal structure in detail, and that the locality which he gives—"Central India"—is by no means helpful. It seems a comparatively rare species, and the only authentically ascertained range is Burma to Singapore, though the Tring Museum possesses one old specimen merely labelled "India." Warren (NOV. ZOOLOG. xvi. 126) clearly recognised this species as the true *delphiaria*, though he does not seem to have discovered in it his own *argentisquama* of ten years earlier. *P. vulgaris* Butl. (*Ill. Het.* vii. 23. t. 125. f. 2), of which *attenuata* Warr. (NOV. ZOOLOG. xvi. 126) is a slight and unimportant aberration, and *auriculifera* Warr. (NOV. ZOOLOG. iv. 59) apparently merely a small form—perhaps

undersized through breeding—has been erroneously described and figured by Hampson (*Faun. Ind. Moths* iii. 462. f. 208) as *delphiaria*.

#### 44. *Problepsis paredra* spec. nov.

♂, 35 mm. Head black, the palpus pale beneath. Antenna darkened; pectinations rather stout, very little longer than the widest diameter of shaft, with moderate fascicles of cilia. Collar and thorax white; abdomen partly infuscated above, remaining white at the ends of the segments. Fore and middle legs partly darkened.

*Forewing* white, with costal edge narrowly smoky; markings similar to those of *vulgaris* Butl., but with the ocellated patch considerably broader (at M-R<sup>3</sup> nearly 3.5 mm.), the contained black marks behind R<sup>3</sup> longer.—*Hindwing* with the ocellated patch more swollen posteriorly than in *vulgaris*, and with the contained silvery markings mixed with blackish; a slight brownish anterior extension of this patch; the spot at middle of abdominal margin fairly strong.

Underside with the ocellated patches more strongly marked in dark smoky than in *vulgaris*.

Szechuan, 1910 (*B. M. Barry*). Type in coll. L. B. Prout.

Apart from the shape of the markings, this species is at once distinguishable from *vulgaris* by the darker, more shortly pectinate antenna. I should have liked to unite it with *euircota* Prout (Seitz, *Macrolep.* iv. 50. t. 7 b), but the pectinations are not quite short enough, the ocellated patch—though nearly as broad—is not nearly round enough, being somewhat flattened and even a little concave on its proximal side and with a slight concavity between the radials on its distal side, and is black-edged proximally, as in *vulgaris*.

#### 45. *Problepsis appollinaria candidior* subsp. nov.

♂ ♀. Purer white than *a. appollinaria* Guen. (*Spec. Gén. Léop.* x. 13), ocellus of forewing more obliquely placed (more produced distally about R<sup>1</sup> and R<sup>2</sup>), containing near its distal margin **two oblique black marks**, the posterior one from R<sup>2</sup> nearly to R<sup>3</sup>, thicker than the single black mark of *a. appollinaria*, the anterior one in front of R<sup>2</sup>, thickening distally so as to become confluent with the posterior.

Madura district, South India, March—June 1906 (W. H. Campbell), type ♂ and another in coll. Tring Museum; Palni Hills (W. H. Campbell), a ♀ in coll. L. B. Prout. Also a worn ♀ from Ladak (Stoliczka) from the Felder collection.

As the ♂ hindtarsus scarcely appears quite so short as in *appollinaria* (about one-fourth tibia, against scarcely over one-fifth), it is possible that this may prove a distinct species.

#### 46. *Scopula aetheomorpha* spec. nov.

♂, 17 mm. Face black. Palpus black, pale beneath. Antennal ciliation long. Crown and antenna, body and legs coloured as wings, the foreleg (except tarsus) darkened on inner side; hindtibia moderately thick, fringed on upper-side; tarsus over two-thirds length of tibia.

*Forewing* rather broad, costa arched distally, termen with a rather deep

excavation between  $SC^5$  and  $R^3$ , pointed at  $R^3$ , then rather strongly oblique;  $SC^1$  arising from apex of areole; whitish fawn-colour, rather more drab proximally; antemedian line brownish, sinuous, oblique inward posteriorly, weakly indicated except as a spot at about two-fifths costa; a minute black cell-dot; postmedian line fine, sinuous, black at costa, otherwise feeble, closely followed distally by a narrow, curved, dark subterminal band, from costa about 2 mm. before apex to hindmargin at tornus; a fawn-coloured shade between this and termen.—*Hindwing* with termen excavated between the radials and more slightly near tornus; similar to forewing, the cell-dot less minute.

Underside (except ochreous costal margin of forewing) smoky as far as the subterminal band, cream-buff distally, terminal line ochreous.

Kumusi River, N.E. British New Guinea, low elevation, August—September 1907 (A. S. Meek). Type in coll. Tring Museum.

#### 47. *Ptochophyle geranium* spec. nov.

♀, 20 mm. Face rose-red, with lower extremity white. Palpus with second joint reaching almost to frons, third joint moderate, slender; whitish, the first and second joints mostly rosy on outer side and above. Vertex and antenna creamy white; occiput rose-red. Thorax and abdomen above geranium pink, becoming pale and mixed with cream-buff towards anus; anal extremity and underside pale cream-buff.

*Forewing* moderately broad, apex pointed, termen almost inappreciably sinuate inward anteriorly, not noticeably bent at  $R^2$ ; all the subcostals stalked from apex of areole,  $SC^5$  arising much before  $SC^1$ ,  $M^1$  separate; peach-blossom pink, irrorated with geranium pink, middle of wing in places slightly tinged with buff; lines very indistinct, geranium pink; antemedian fine, before one-third, very slightly curved; median diffuse, near postmedian; postmedian beyond two-thirds, very gently excurved in anterior part, gently incurved posteriorly; faint indications of a rather large cell-spot; fringe pink at extreme base, pale buff distally.—*Hindwing* with termen full but not angled, not crenulate;  $SC^2$  and  $M^1$  scarcely stalked; as forewing.

Underside unicolorous pink.

Near Oetakwa River, Snow Mountains, Dutch New Guinea, up to 3,500 ft., October—December 1910 (A. S. Meek). 2 ♀♀ in coll. Tring Museum.

#### 48. *Chrysocraspeda pulverimargo* spec. nov.

♂, 22 mm. Face and palpus pale, mixed with liver-brown. Crown liver-brown mixed with dark olive-grey, narrowly whitish in front; antennal shaft liver-brown above. Thorax and abdomen above mixed liver-brown and olive-grey, beneath pale cream-buff. Legs pale cream-buff, the anterior pair marked with purplish on upper and inner sides.

*Forewing* broad, apex not acute, termen very slightly waved, curved, scarcely bent at  $R^3$ ; dull liver-brown, mixed with grey; a narrow costal edge and an ill-defined excurved band (anteriorly at least 1 mm. wide, posteriorly attenuated) from about two-thirds costa to tornus more purple; proximally to this band an equally ill-defined one of blackish grey; distally to it a yellow area strongly irrorated with purplish dots and minute strigulae; a minute blackish cell-dot; fringe yellow, with some purplish irroration.—*Hindwing*

ample, termen faintly waved, somewhat gibbous in middle, but not angulated; nearly as forewing, the purplish band rather broader, running from apex to about three-fourths abdominal margin.

Both wings beneath deep purplish grey as far as the dark-grey band of upperside, only with the hindmargin of both wings and base of costa of hindwing pale cream-buff; distal area pale cream-buff, unmarked.

Kumusi River, N.E. British New Guinea, low elevation, June 1907 (A. S. Meek). Type in coll. Tring Museum.

#### 49. *Chrysocraspeda elaeophragma* spec. nov.

♂, 19–20 mm. Head pale, mixed with rufous. Thorax above olivaceous anteriorly, plumbeous to blackish slaty in the middle, rufous posteriorly; abdomen above rufous with some pale admixture and bordered by a darker line; underside pale.

*Forewing* with termen not or scarcely oblique from apex to  $R^2$ , gently curved to M, then exceedingly oblique, behind  $M^2$  faintly subconcave, hindmargin less than two-thirds the length of costa; whitish buff, thickly speckled and strigulated with rufous, the resultant tone salmon-buff; costal margin olive. greyest proximally; lines olive-grey; antemedian from before one-third costa to middle of hindmargin, somewhat curved anteriorly; postmedian from two-thirds costa, nearly parallel with termen in anterior half, bent about  $M^2$ , a little incurved behind, reaching hindmargin near tornus; cell-speak more or less elongate; some olive shading in distal area between  $M^1$  and tornus; terminal line rather thick, broadening at apex, dark olive; fringe yellowish, mixed (except near tornus) with olive.—*Hindwing* elongate, with termen waved, very strongly convex, bent in middle; an elongate white cell-spot; first line curved, close to base; postmedian bent, but less so than termen; terminal line thick; fringe yellowish, mixed (except at apex) with olive.

Underside with the markings more indistinct.

Snow Mountains, Dutch New Guinea: Upper Setekwa River, 2,000 ft., August–September 1910, 6 ♂♂, including the type; near Oetakwa River, up to 3,500 ft., October–December 1910, 6 ♂♂. All in coll. Tring Museum.

#### SUBFAM. GEOMETRINAE.

#### 50. *Ectropis farracearia inculta* subsp. nov.

♂ ♀. In general slightly narrower winged than *f. farracearia* Leech (*Ann. Mag. Nat. Hist.* (6.) xix. 340), though rather variable in this respect, as well as in depth of colour (density of the dark irroration); the only ♀ rather broad-winged, recalling a *Gnophos*. Always more uniform than the name-type, with less strong dark suffusions, distal area less darkened, beneath without definite dark distal band; forewing above without the characteristic white anterior patch between the median and postmedian lines.

Vrianatong, Tibet, 7 ♂♂, 1 ♀, in coll. L. B. Prout.

Possibly a separate species. As variations in the venation are always worth putting on record in the *Boarmia* group, it should be stated that while in all the examples  $SC^1$  and  $SC^2$  are coincident, in a few these are slightly connected either with C or with  $SC^{3-4}$ , in the rest free.

51. *Cleora semiochrea* spec. nov.

♂, 35 mm. Palpus not quite half as long again as diameter of eye; third joint short, but distinct. Antenna pectinate, with longish branches, a short apical part simple. Hindtibia dilated, with hair-pencil. Head and body light brown, collar and underside rather more yellowish.

*Forewing* with termen smooth;  $SC^1$  and  $SC^2$  always from cell, the latter connected by an oblique bar with  $SC^{2-4}$ ; fovea strong; cinnamon (in median area slightly more fawn-colour), with very little irroration; costal edge dotted or strigulated in part with blackish; lines blackish, arising from enlarged costal spots just before one-third and just beyond two-thirds, weak in part between the veins (especially the antemedian between M and  $SM^2$ ); antemedian slightly angulated subcostally; postmedian, after crossing  $SC^5$ , bent outward to  $R^1$ , here angulated, then oblique inward and forming in addition a very gentle inward curve; cell-spot black, elongate and rather thick, almost touched distally by a thick median shade which starts from costa and is right-angled at  $R^2$  but becomes almost entirely obsolete behind M; termen dark-spotted between the veins; fringe dark-spotted opposite the veins.—*Hindwing* with termen scarcely waved; ochre-yellow, in abdominal region and along posterior part of distal margin tinged with the fawn-colour of the forewing; a small and weak discal dot; postmedian line distinct as a spot at abdominal margin, becoming weak or very weak anteriorly.

Both wings beneath somewhat yellowish—less bright than hindwing above. Forewing strongly marked from costa to  $M^2$ , namely with costal dots, antemedian line, cell-spot, median shade, postmedian line of large, partly confluent dots (double from  $R^2$  to  $M^2$ ) and some coarse median strigulation; apical area (except a spot at apex itself) and distal shading about the medians more rufous. Hindwing with some costal strigulae, a small cell-dot and strong, punctiform postmedian line.

Philippines: Luzon, Boguio district, 4,000 ft., April 1909, type in coll. L. B. Prout. Topotype ♂ in coll. Brit. Mus., together with a ♀ from Irisan, Benquet Province, Luzon.

52. *Boarmia roboraria demonstrata* subsp. nov.

♂, 55–58 mm. Nearest *r. arguta* Butl. (Prout in Seitz, *Macrolep.* iv. t. 21 d) but less brownish, the ground-colour almost as in *r. roboraria*; markings at least as sharp as in strongly marked *arguta*.

*Forewing* with cell-spot large; median shade strong, rather uniformly developed, the zigzag median line in consequence less obvious; longitudinal dark shade in front of  $R^2$  strongly developed, especially against the subterminal line.—*Hindwing* with cell-spot small; median shade and the dark shade which accompanies the subterminal strong.—Forewing beneath with the subapical dark patch sharp, reaching  $R^2$ .

Vriantong, Tibet, 2 ♂♂ in coll. L. B. Prout.

In both examples  $SC^{1+2}$  anastomoses shortly with C, a phenomenon which I have only observed in one example of *r. arguta*, out of several examined. In the type-specimen the wings are a trifle broader than in *r. arguta*, but this is not noticeable in the paratype. It is just possible that the two forms in ques-

tion may prove to differ specifically from *roboraria* Schiff., as the subterminal line looks somewhat more dentate, at least on the hindwing.

53. *Sabaria euchroës* spec. nov.

♀, 28 mm. Head and palpus purple-red, third joint of palpus somewhat darkened. Antennal shaft reddish at base, gradually whitening; pectinations longer than in *rondelaria* F. (= *squalidaria* Hb.). Thorax and abdomen above dark fuscous, the thorax (especially in front) mixed with purplish.

*Forewing* rather broad, with the projection at mid-termen strong; purplish, shaded with light violet-grey, especially in costal region; proximal area a little darker than distal, somewhat shaded with olive-fuscous posteriorly; costal edge to two-fifths narrowly reddish, thence narrowly dark olive-grey, interrupted by pale spots in middle of central area and mostly pale towards apex; central area light olivaceous, with brown edgings which thicken into irregular spots anteriorly—the proximal in cell and forwards, the distal only near costa; proximally this band is bounded by a light violet-grey line, arising at two-fifths costa, very oblique outward, sharply bent in cell, then rather oblique inward to hindmargin before middle; distally by an anteriorly whiter line, arising at costa 2 mm. from apex, angulated just behind SC<sup>5</sup>, then straightish (very feebly incurved) to hindmargin within 3 mm. of tornus; fringe darkened with olivaceous to reddish, at extreme base paler.—*Hindwing* rather broad, slightly sinuate inward before the tornus, which consequently appears somewhat more produced than in *rondelaria*; anterior half light red, with the postmedian line indicated in darker red, slightly pale-edged distally; posterior half continuing the coloration and markings of forewing.

Underside light red, of somewhat varying shades; costal margin of forewing ochreous; the costal edge spotted and lined with olive-fuscous; both wings with darker red postmedian line: fringes, especially of forewing, darkened with olivaceous.

Nilgiri Hills: Ouchterlony Valley, 3,500 ft. (H. L. Andrewes). Type in coll. Brit. Mus.

54. *Hypochrosis martini* spec. nov.

♂, 48 mm. Head and upperside of thorax seal-brown. Thorax beneath paler. Abdomen elongate, seal-brown, a narrowing orange ventral patch from base to beyond middle; projecting tufts of white hair (? *coremata*) at anal end.

*Forewing* narrow, with distal margin long and very oblique, anal angle rounded; a transverse band of buff (at each end rather more ochreous) from two-fifths costa to tornus, 1.5 mm. wide at costa, rather broader from cell-fold hindward, its edges somewhat erenulate; a very short, very slender, similarly coloured mark from about three-fourths costa.—*Hindwing* with costal margin long, somewhat gibbous in proximal part, apex and anterior part of termen straighter, near anal angle even faintly subconcave, abdominal margin relatively short; orange, with a large irregular patch at abdominal margin and part of distal margin concolorous with forewing; the boundary of this patch follows the median vein from base almost to the origin of M<sup>2</sup>, then runs approximately parallel with abdominal margin for some distance, recedes to SM<sup>2</sup> before reaching tornus, is nearly 3 mm. from termen in its tornal part and ends before

reaching  $M^1$ ; a liver-coloured costal patch, nearer to apex than to base, 8 mm. long between costal margin and  $C$ , here suddenly reduced to about 4 mm., bounded posteriorly by  $SC^2$ , except for some slight asymmetrical projections beyond.

Underside with the darkest parts paler and more reddish than above; markings as above, but with the band and distal mark of the forewing almost as bright orange as the ground-colour of the hindwing.

Kalewara, Central Celebes, February 5, 1913 (Dr. Martin). Type in coll. Tring Museum.

55. *Percnia maculata punctimaculata* subsp. nov.

Distinguished from *m. maculata* Moore (*Proc. Zool. Soc. Lond.* 1867, p. 651) as follows: *Forewing* rather whiter, with the spots in general reduced in size, mostly becoming mere dots, not confluent, the postmedian series consisting of short, thin dashes on the veins.—*Hindwing* with corresponding dots; a well-developed cell-dot above and beneath.—Forewing beneath infuscated from base to apex, except along hindmargin.

Vrianatong, Tibet, 2 ♂♂ in coll. L. B. Prout.

In this species the subcostal venation of the forewing seems to be in a state of flux. In the type of *m. punctimaculata* the first two subcostals are stalked and  $SC^1$  is connected by a short bar with  $C$ ; in the paratype the right wing agrees with this, while in the left  $SC^1$  and  $C$  anastomose at a point. In a Khasi specimen before me,  $SC^1$  is widely free from  $C$  and  $SC^2$  is quite asymmetrically placed, arising from  $SC^1$  in the right wing, from  $SC^{3-4}$  in the left.

NOTES ON CAPTURES OF ALGERIAN AND TUNISIAN  
LEPIDOPTERA.

By VICTOR FAROULT.

- Papilio machaon mauretanicus*. Ain Zannouch, 27 km. au nord de Gafsa (Tunisie). Commun en Mai 1898; chenilles en Septembre sur *Seseli varium*.  
Sfax (Tunisie). Avril 1902 et Septembre 1903; chenilles en Octobre sur *Foeniculum vulgare* et *Daucus carota*. Tunis-Belvédère, très commun en Mai 1908.
- P. m. saharæ*. Biskra, Col de Sfa. Fontaine Chaude et montagnes environnantes, Mars 1910.
- P. m. mauretanicus*. Batna, Septembre 1910.
- P. m. saharæ*. El Outaya, Mars 1911. Laghouat, 26 Mars 1912.
- P. m. mauretanicus*. Oued Hamidou, Juin 1912.
- P. m. maxima*. Masser à 15 km. nord de Lalla-Marnia; exemplaires énormes, Juin 1914.
- P. m. mauretanicus*. Hammam R'ihra, Juillet 1916; chenilles en Octobre sur *Ruta chalepensis*.
- P. m. saharæ*. Bou Saada, Moulin Terrero et Hôpital Maure. Chenilles communes en Octobre sur *Seseli varium*. Les chenilles du Sud de l'Algérie sont bien différentes de celles de France: var. *hospitonides* Obthr. (= *saharæ* Oberth.), celles du Nord sont semblables à celles d'Europe. A l'élevage en captivité; les chenilles mangent les chrysalides.
- P. podalirius feisthameli*. Ain Draham, 2 Juin 1908 et Juin 1909.  
Chenilles en Septembre sur *Crataegus oxyacantha*.  
Batna, Septembre 1910.  
El Kantara, Mars 1911.  
Bordj bou Arréridj, 10 Juin 1912.  
Hussein Dey, Février 1913.  
Lalla Marnia, Juin 1914.  
Tizi Ouzou, 29 Juillet 1914.  
Hammam R'ihra, Avril à Octobre 1916. Dans cette localité on trouve assez communément les chenilles en Octobre sur les arbres fruitiers, mais particulièrement sur *Amygdalus communis* et *Crataegus oxyacantha*. Toutes les chrysalides de l'automne hivernent et n'éclosent que l'année suivante de Mars à Mai; cette observation s'applique également à *P. machaon*.
- Thais rumina mauretanicus*. Cap Bon (Tunisie), 15 Avril 1904.  
Ain Draham, 12 Avril, 1909. Chenilles en Mai et Juin sur *Aristolochia longa*.  
Élevé 70 chenilles en Juin 1909 et écloses à Biskra fin Mars et Avril 1910.  
Hammam R'ihra fin Mai 1916. Vu quelques papillons volant fin Mai, pris 1 ♀ en très mauvais état; chenilles, assez communes en Mai sur *Aristolochia longa*, élevé et obtenu 24 chrysalides.

*Parnassius* ?. Pour mémoire, je déclare avoir vu en Juillet 1902 un exemplaire de *Parnassius* voisin de *apollo*, au Djebel Fedja, frontière Algéro-Tunisienne.

*Aporia crataegi mauritanica*. Aïn Draham, Juin 1908.

Oued Hamidou, Juin 1912.

Bordj bou Arréridj, Juin 1912. La chenille vit en société sur *Crataegus oxyacantha* et *Prunus insititia*.

*Pieris brassicae*. Commune partout, principalement dans les régions élevées. Pris à Tunis en Novembre 1908 une remarquable série dont les femelles sont très largement tachées de noir. La chenille vit sur différentes espèces de crucifères et aussi sur *Spartium junceum*.

*Pieris rapae*. Commune partout et sans intérêt; l'aberration sans taches est commune au printemps.

*P. daphnidice albidice*. Commune dans toute l'Algérie, la Tunisie et le Maroc. La variété type du printemps est très foncée en dessous; celle d'été, *albidice*, a les taches de dessous peu apparentes, quelquefois jaunes quelquefois laitenses.

Il y a trois générations nettement marquées, Mars—Avril, Juin—Juillet—Août, Novembre. Pris une très jolie série à Magraoua, près El Outaya, en Juin et Juillet 1910.

*Euchloë falloui*. Montagnes d'Aïn Zannouch, à 27 km. au Nord de Gafsa, Avril, Mai 1898.

Biskra, Col de Sfa, 2 Février 1910.

El Outaya, Février, Mars, Avril et Mai 1910; Février, Mars 1911.

Bou Saada, Avril, Mai 1911. Chenille commune à Bou Saada du 19 Avril au 15 Mai sur *Moricandia arvensis*. Elevé et obtenu 250 exemplaires ex larva. Les chrysalides éclosent très irrégulièrement, une provenant de Bon Saada, en Juin 1911 éclot à Guelt es Stel le 2 Octobre 1913.

Laghouat, 28 Mars 1912.

Guelt-es-Stel, Mars 1913. 1 ♂.

*E. tagis pechi*. Guelt-es-Stel, 4 Mars 1913. Vole en bon état jusque fin Avril. Chenilles sur *Iberis odorata*.

*E. charlonia*. Sfax et environs, Mars, Avril 1901.

Kalaat es Senau (Tunisie), 10 Mars 1908; très commune à Tedj el Barla.

Aïn Draham (Tunisie), 15 Mai 1908. 1 ♂.

Biskra, Col de Sfa, 3 Février 1910.

Magraoua, près El Outaya, Juin 1910.

Lalla Marnia et environs, Mai 1914.

Bou Saada, très commune pendant tout le printemps et en automne.

*E. belia*. Aïn Draham, Mars—Avril 1909. Très commun et aussi très varié. Se rencontre un peu partout dans toutes les régions montagneuses de Tunisie d'Algérie et du Maroc, et sur toute la côte, depuis les premiers jours de Mars jusqu'au 19 Mai.

*E. belia* aberr. (rose). Blida gare 19 Avril 1916. 1 ♂.

*E. ausonia algerica* et *belemia*. El Outaya, Roeher Rouge, Avril 1910.

El Kantara, Mars 1911.

*E. ausonia crameri* et *belemia*. Marnia, Mai 1914. Masser, Mai 1914.

*E. belemia glauca*. Magraoua près El Outaya, Juin 1910. Très commune dans les champs de blé commençant à mûrir. Trouvé également quelques

autres variétés non déterminées notamment à Guelt-es-Stel, El Kantara, Aïn Sefra (Ras Chergui).

*Teracolus noua*. Biskra, Fontaine Chaude, 23 Janvier 1910.

El Outaya, Rocher Rouge, Avril—Mai 1910. Commune dans les régions de Biskra, El Outaya, El Kantara, où elle vole en montagne d'Avril à Juillet; la génération printannière est très peu abondante, mais les exemplaires sont plus grands que dans la génération estivale, qui est très abondante. On trouve les chenilles en grande quantité sur *Capparis droserifolia*. La nymphose ne dure que 10 à 15 jours et les éclosions ont lieu du 15 au 25 Juillet; les papillons ne volent qu'une dizaine de jours et sont complètement disparus au 15 Août.

*Colias electo croceus*. Commune pendant toute la saison en Tunisie, Algérie et Maroc oriental; on la trouve jusque dans les oasis du Sud où la chenille se nourrit principalement de Luserne (*Medicago sativa*).

*C. e. c.*, ab. *helice* et *helicina* Obthr. :

El Ariana près Tunis, 15 Mai 1908.

Tunis Belvédère, 15 Novembre 1908.

Biskra, Beni Mora, Janvier, Février 1910.

El Outaya, Magraoua, 1<sup>ère</sup> quinzaine de Juillet 1910.

Batna, Septembre 1910.

Oued Hamidou, Juin 1912.

Masser près Lalla Marnia, Juin 1914.

Aïn Sefra, 10 Juillet 1915.

Guelt-es-Stel, Avril—Mai 1913.

*Gonepteryx cleopatra*. Aïn Draham, Juin 1909.

Sfax et environs, Mai 1910.

Zaghouan Montagne, Mai 1910.

Khenchela, Juin 1911.

Oued Hamidou, Juin 1912.

Masser Mines, Juin 1914.

Guelt-es-Stel, Mars, Avril, Juin et Août.

*G. cleopatra* hermaphrodites. Parmi tous les papillons, le *cleopatra* est celui qui présente le plus souvent des cas d'hermaphroditisme très apparents, quelquefois même nettement tranchés par un côté des ailes ♂♂ et l'autre côté ♀♀. Depuis 1909 j'ai pris 7 hermaphrodites dont 4 seulement en parfait état.

Aïn Draham, 6 Juin 1909, 4 exemplaires.

Khenchela, 23 Juin 1911, 1 exemplaire.

Oued Hamidou, 22 Juin 1912, 1 exemplaire.

Masser, 29 Juin 1914, 1 exemplaire.

*Gonepteryx rhamnii*. Aïn Draham, Juin 1908. Les sujets pris dans cette localité sont d'une grandeur remarquable.

Oued Hamidou, Juin 1912.

Masser, Juin 1914.

*Charaxes jason*. Aïn Draham, Juin et Septembre 1909.

Alger, October 1914.

Perrégaux, 5 Septembre 1915.

Hammam R'ihra, Août, Septembre, Octobre, 1916.

La chenille vit sur *Arbutus unedo*, mais elle est très difficile à trouver; elle

doit vivre aussi sur d'autres plantes, car on trouve des *Charaxes* dans certaines contrées où il n'y a pas d'arbutus à moins de 100 kilomètres à la ronde, ainsi j'ai pris à Sfax un *jason* ♂ le 29 Juillet 1901. A Alger les *Charaxes* ♀♀ volent autour des Fieus dans la ville même, et sur les hauteurs elles affectionnent spécialement les pins.

*Pyrameis atalanta*. Espèce commune dans le Nord pendant toute l'année, spécialement à la saison des fruits, sauf dans l'Extrême Sud, où on ne la rencontre que rarement dans les Oasis.

*P. cardui*. Le plus commun de tous les Lépidoptères; on le rencontre partout, même dans les contrées les plus désertiques; la chenille est très polyphage. N'a pas de variations appréciables.

*Vanessa erythromelas*. Aïn Draïham, Juin et Septembre 1909.

El Kantara, 26 Mars 1911 (Rothschild).

Khenehela, Juin 1911.

Hamunam R'ihra, Juin à Septembre 1916.

La chenille vit en colonies et ravage les arbres fruitiers; elle préfère notamment *Ulmus campestris*.

*Argynnis lathonia*. Batna, Septembre 1910. 1 ♂.

Masser, Juin 1914.

*A. maja seitzii*. Juin, Juillet, Août 1909.

Batna, Septembre 1910.

Masser, Juin, Juillet 1914.

Guelt-es-Stel, Juin 1913.

*Melitaea didyma deserticola*. Biskra, Champ de Fir, 5 Mars 1910. Très commune pendant la 1<sup>ère</sup> quinzaine de Mars, puis en 2<sup>e</sup> génération en Août peu nombreuse.

*M. cinxia*. Aïn Draïham, Mai—Juin 1910.

Khenehela, Juin 1911.

*M. aetherie algerica*. Guelt-es-Stel, 15 Avril 1913.

*M. didyma mauretana*. Masser, Juin 1914.

*Melanargia ines*. Bled Oudna près Tunis, 8 Mai 1908.

Aïn Draïham, 2 Juin 1908. 3 ♂♂, 1 ♀.

Guelt-es-Stel, Avril—Mai 1912—1913.

*M. galatea lucasi*. Aïn Draïham, 2 Juin 1908. Très commune.

Khenehela, Fontaine Chaude, 18 Juin 1911.

Lambèze, Mareouna, 22 Juin 1911.

*M. syllius pelagia*. Guelt-es-Stel et Djelfa, Avril—Mai 1912—1913.

*Satyrus filia*. Zaghouan, Tunisie, Septembre 1908.

Aïn Draïham, Septembre 1909.

Batna, Champ de Fir, Septembre et Octobre 1911.

Sakanudi, 26—27 Août 1912.

Guelt-es-Stel, Août, Septembre, Octobre 1913.

Hamman R'ihra, Août—Septembre 1916 (albo venosa).

*S. ellena*. Meridj près Aïn Draïham, Août 1909.

Aïn Draïham les Sources, Juillet 1911.

*S. sylvicola oberthueri*. Batna, Septembre 1910.

*S. s. holli*. Glacières de Blida, Juin 1912.

*S. powelli*. Guelt-es-Stel, Septembre, Octobre 1913. Commun S.W. la crête Sud à 2 km. du Caravansérail.

- Satyrus semele algerica*. Guelt-es-Stel, Mai, Juin 1913.  
*S. pricuri*. Guelt-es-Stel et Djelfa, Juin 1913.  
*S. abdelkader abdelkader*. Aïn Sefra fin Mai 1915. 2 ♂♂.  
*S. a. nelvai?* Oasis des Aouïnettes, 15 km. ouest de Gabès, Octobre, Novembre 1902. Cette espèce est très commune dans les plaines d'Alfa situées sur les bords du Golfe de Gabès ; elle paraît très voisine de la variété *nelvai* Seitz. Les ♀♀ sont de très grande taille, mais la tache apicale est jaune pâle, un peu plus claire qu'à Guelt-es-Stel, alors que chez les ♂♂ elle est blanche et atteint souvent un tiers de la surface de l'aile.  
*S. a. abdelkader*. Guelt-es-Stel. Août, Septembre, Octobre 1913. Très commune sur les collines couvertes d'alfa où vole *pechi* ; très facile à prendre sur les fleurs de *Colchicum autumnale*. La chenille vit en Juin et Juillet sur Alfa, *Stipa tenacissima*, où on peut la trouver assez communément le soir à la lampe.  
*Pararge egeria*. Tunis, Septembre 1910.  
 Hammam Life (Tunisie), Août, Septembre 1910.  
*P. megera*. Batna, Septembre 1910.  
 Ces 2 *Pararge* sont très répandues dans tout le Nord ; je n'ai pris que 2 ♂♂ de *megera* ab. *tigelius*, au Cap Bon en Septembre 1905.  
*Epinephele jurtina jurtina*. Aïn Draham, Juin 1909.  
 Zaghouan, 30 Juin 1909.  
 Guelt-es-Stel, 13 Juin 1913.  
*E. lycaon*. Guelt-es-Stel, Hassi Baba fin Mai 1913.  
*E. janiroides*. Aïn Draham, Juin 1909, Très commun aux environs immédiats du village dans les coupes de bois.  
*E. ida*. Tunis, Avril, Mai 1908.  
 Masser, Juin 1914.  
*Coenonympha arcanioides*. Aïn Draham, Juin 1910.  
 Oued Hamidou, Juin 1912.  
 Masser, Juin 1914.  
*C. dorus austauti*. Masser et Nedroma, Juin 1914.  
*C. pasiphaë philippina*. Masser, Juin 1914.  
*C. pamphilus lyllus*. Sfax, Juin 1902.  
 Cap Bon Tunisie, Mai, Juin 1904.  
 Aïn Draham, Juin 1910.  
 Oued Hamidou, Juin 1912.  
 Guelt-es-Stel, Avril 1913.  
*C. fettigii holli*. Blida Glacières, Juin 1912.

(I have only altered some of the names to correspond with my own work ; the remarks and notes are all Faroult's own. The Gabes *Satyrus abdelkader* mentioned by him as " variété *nelvai* " have never been reorded before, nor is any record for Tunis extant, and I do not know where the specimens are. These notes are the mere skeleton of what they ought to have been, as the bulk of Faroult's papers were burnt by accident, as he informs me.—ROTHSCHILD.)

SOME FURTHER NOTES ON *ANTHREPTES MALACCENSIS*.

BY ERNST HARTERT, PH.D.

IN NOVITATES ZOOLOGICAE, ix. (1902), p. 209, I gave a review of the forms of *Anthreptes malaccensis*. Though it holds good in the main, it requires some supplementary notes. I suggested that specimens from Palawan might belong to *A. malaccensis chlorigaster*, the form from the Southern Philippines. In NOVITATES ZOOLOGICAE, xx. p. 369,\* Mr. Stresemann has pointed out some differences, and came to the conclusion, from comparing one ♂ from Cagayan Sulu, that it was not separable from the Palawan males, and therefore called the latter *A. malaccensis cagayanensis* Mearns. I agree with this, though I would like to compare a series of females from both places.

In my review I have not considered the females, and most authors have neglected them. This is a mistake, as the females, in most cases, also show differences, and sometimes more striking ones than the males.

The ♀ of *A. m. chlorigaster* differs from that of *A. m. malaccensis* in being much darker greenish on the underside, only a line along the middle being yellow.

The ♀ of *A. m. griseigularis* is similar, but the crown is darker, the back less greenish.

The ♀ of *A. m. wigglesworthi* is distinguished from that of *chlorigaster* by the more whitish throat, paler breast and abdomen, and more greyish crown.

The ♀ of *A. m. celebensis* is almost indistinguishable above from that of *wigglesworthi*, but the throat is still more whitish and the whole rest of the underside very much paler.

The ♀ of *A. m. cagayanensis* (accepting that the Palawan form is the same) is very near to that of *A. m. chlorigaster*, but brighter yellow along the middle of the underside, thus approaching typical *malaccensis*.

A great puzzle are the birds from the Lesser Sunda Islands. In my review I kept them under a separate number, but did not provide them with a name, as they seemed to agree with *chlorigaster*, and partly with *celebensis*. I cannot now confirm that the Sumba males are like those of *celebensis*, for they are more yellowish underneath, but I cannot say how they differ from *chlorigaster*. The females, on the other hand, are distinctly paler underneath, especially on the throat, than those of *A. m. chlorigaster*, but seem to be indistinguishable from the females of *wigglesworthi*. Geographically it is almost impossible that they belong to either of these forms, but until I have seen more fresh material of all, I do not care to take the risk of providing them with a name.

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# NOVITATES ZOOLOGICAE.

12 SEP 1917

A Journal of Zoology.

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.

VOL. XXIV.



No. 2.

PAGES 325—438.

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ISSUED AUGUST 31ST, AT THE ZOOLOGICAL MUSEUM, TRING.

PRINTED BY HAZELL, WATSON & VINEY, LD., LONDON AND AYLESBURY.

1917.

VOL. XXIV.

NOVITATES ZOOLOGICAE.

EDITED BY

LORD ROTHSCHILD, ERNST HARTERT, and KARL JORDAN.

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PLATES II.—VIII. IN THIS NUMBER.

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# NOVITATES ZOOLOGICAE.

Vol. XXIV.

AUGUST 1917.

No. II.

SUPPLEMENTAL NOTES TO MR. CHARLES OBERTHÜR'S  
*FAUNE DES LÉPIDOPTÈRES DE LA BARBARIE*, WITH  
LISTS OF THE SPECIMENS CONTAINED IN THE TRING  
MUSEUM.

(Continued from p. 120.)

BY LORD ROTHSCHILD, F.R.S., PH.D.

## HETEROCERA.

### SPHINGIDAE.

#### 1. *Acherontia atropos* (Linn.).

*Sphinx atropos* Linnaeus, *Syst. Nat.* edit. x. p. 490. No. 8 (1758) (Europe).

WE only met with this insect once, when Hilgert caught a fine specimen in the waiting-room at Aïn Sefra railway-station. It also appears to occur pretty frequently at Hammam Meskoutine, where it frequents the orange blossoms. It does not seem to vary in any way more than in Europe, and the larva appears in the usual two forms, green and brown. The Tring Museum has 12 Algerian examples.

1 Aïn Sefra, May 1913, C. H.

2 Environs d'Alger, June—November 1904–1905, Dr. Nissen.

1 Alger ?, A. Théry.

7 Batna, August 1909–1914, Nelva coll.

1 Hammam Meskoutine, December 1914, Paul Dechabert.

(1 brought to Dr. Hartert at Mrair unfortunately fell to pieces.)

1 larva, Perrégaux, 1915, Faroult.

#### 2. *Amorpha populi austauti* (Stdgr.).

*Smerinthus austauti* Staudinger, *Pet. Nouv. Entom.* vol. ii. p. 190 (1877) (Algiers).

The only time we met with this species ourselves was when one was brought to us alive by a soldier at Aïn Sefra.

This large and handsome form of *A. populi* is fairly abundant in all the places north of the desert where poplar-trees occur or have been introduced. It varies a great deal in the ground-colour of the wings, apparently unconnected in any way with locality, though the series from Le Kreider are all very dark grey, even darker than true *austauti*, while the bulk of the Aïn Sefra series is pale coloured. Four names have been bestowed on four different aberrations,

but all intermediates occur. The following gives about the proportions of the four forms, but the intermediate ones are included under the nearest form: Le Kreider, all *austauti*; Aïn Sefra, 4 *austauti*, 8 ab. *staudingeri*, 10 ab. *incarnata*, 3 ab. *mirabilis*; Meridje, Morocco, 5 *austauti*, 10 ab. *staudingeri*, 5 ab. *incarnata*, 4 ab. *mirabilis*; Sidi-bel-Abbès, 1 ab. *staudingeri*; Batna, 10 *austauti*, 11 ab. *staudingeri*, 3 ab. *incarnata*, 10 ab. *mirabilis*; Tunis, 1 *austauti*, 1 ab. *mirabilis*. In addition to these four well-known aberrations of this insect, Mr. Charles Oberthür has named a saffron-yellow specimen he received from Tangier ab. *aurantiaca*.

I have one specimen taken in Algeria which is **not** *populi austauti*, but true *populi populi*.

2 Mauretania, ex. coll. Grun-Grshimailo.

24 Meridje, Morocco, including the types of ab. *staudingeri* Aust., ab. *incarnata* Aust., and ab. *mirabilis* Aust.

25 Aïn Sefra, W. R. and E. H. and Faroult, May—July 1913–1915.

18 Le Kreider, Prov. Oran, April 1916, Rotrou.

1 Sidi-bel-Abbès, July 1912, Rotrou.

1 Alger, May 1908, Dr. Nissen (labelled W. R. and E. H.).

1 Hammam R'ihra, July 1916, Faroult.

34 Batna, May—July 1909–1914, A. Nelva.

2 Tunis, Dr. A. Koenig, 1886–1887.

1 larva (half-grown), 2 pupae, Meridje, Dr. Staudinger.

3 adult larvae, a number of freshly-hatched larvae, and 1 pupa, Aïn Sefra.

2 pupae and 6 pupa-cases, Batna.

The Tring series of 108 specimens was selected from some 250 examples from the various localities quoted.

The British Museum has 11 specimens: 7 Algiers, Lecch coll. (*austauti*); 4 Aïn Sefra (ab. *staudingeri* and ab. *mirabilis*), Faroult, ex Tring Museum.

### 3. *Amorpha populi populi* (Linn.).

*Sphinx populi* Linnaeus, *Syst. Nat.* edit. x. p. 489, No. 2 (1758) (Sweden).

The specimen detailed below had evidently been imported in the egg stage with young poplar-trees.

1 Perrégaux, Prov. Oran, 1916, Faroult.

### 4. *Smerinthus ocellatus atlanticus* (Aust.).

*Smerinthus atlanticus* Austaut, *Le Natural.* vol. xii. p. 190 (1890) (Oudja (Oudjda ? recte, W.R.)).

We never came across this insect ourselves, in spite of having worked a lamp in many places where poplars and willows abound.

The Tring Museum possesses 49 specimens of this insect; but it must not be thought that this small number as compared with *p. austauti* denotes that it is rarer than that species, for it is often much more abundant; it is only an accident that the Tring Museum has never received this insect in quantity.

4 Meridje, Morocco, including Austaut's types of *atlanticus* and form. temp. *aestivalis*.

4 Algeria, Bohmann (form. *aest. aestivalis*).

- 2 "S. Algeria"!! (Batna ? W. R.), August 1900, Dr. Standfuss.  
 1 Algiers ?.  
 1 Hussein Dey, May 1909, Captain Holl.  
 15 Batna, A. Nelva.  
 2 Sidi-bel-Abbès, April 1916, Rotrou.  
 20 Le Kreider, Prov. Oran, April 1916, Rotrou.  
 1 larva, 4 pupae, Batna, Faroult.  
 1 larva, 1 pupa-case, Sebdon.  
 1 larva, Meridje.

The British Museum has 5 specimens from Le Kreider ex Tring Museum. The second or summer brood appears to be paler and with a more cinnamon-rufous wash, and therefore appears much less grey than the spring brood. This second brood is the form. aest. *aestivalis* of Austaut.

#### 5. *Deilephila nerii* (Linn.).

*Sphinx nerii* Linnaeus, *Syst. Nat.* edit. x. p. 490. No. 5 (1758) (Europe).

Mr. Charles Oberthür has no direct evidence of the occurrence of this fine insect in Mauretania, and so says that it must remain for him doubtful. In the autumn of 1907 our Arab guide and shikaree, Sliman ben Larbi, of Biskra, found several larvae of *D. nerii* on the oleander bushes in the river-bed at El Kantara, but, unfortunately, all the pupae died without yielding a perfect insect. I have one larva received from Faroult which he declared came from near Alger.

- 1 larva, Alger, Faroult.

#### 6. *Herse convolvuli* (Linn.).

*Sphinx convolvuli* Linnaeus, *Syst. Nat.* edit. x. p. 490. No. 6 (1758).

This insect is by no means common in Mauretania. We have only seen it once in Algeria; I captured one on the cinematograph screen in the Café Glacier at Biskra in 1908.

- 10 Mazagan, August 1901, W. Riegenbach.  
 1 Sidi-bel-Abbès, August—September 1916, Rotrou.  
 12 Batna, 1909—1914, A. Nelva.  
 1 Biskra, April 1908, W. R. and E. H.  
 11 St. Germain, near Tunis, August—September 1905, E. Blanc.  
 1 larva, Alger ?, Faroult.

The British Museum has no Mauretanian examples.

#### 7. *Sphinx ligustri nisseni* (Rothsch. and Jord.).

*Sphinx ligustri nisseni* Rothschild and Jordan, *Novit. Zool.* vol. xxiii. p. 253 (1916) (Hammam Meskoutine).

Up to the time of writing, the single specimen taken by Dr. Nissen remains the only recorded specimen from Mauretania, though Victor Faroult asserts that he took a specimen in Tunisia some years ago; but this specimen seems to have vanished together with a specimen of *Arctia caja*, also said by Faroult to have been captured in Tunisia.

- 1 Hammam Meskoutine, April 1914, Dr. Nissen.

8. *Sphinx pinastri pinastri* Linn.

*Sphinx pinastri* Linnaeus, *Syst. Nat.* edit. x. p. 492. No. 20 (1758) (Europe).

Mr. Charles Oberthür records 1 ♀ taken by Harold Powell near Lambessa. We have only met with this species at Hammam R'ihra. In 1908 at the foot of an overturned *Pinus halepensis* I found a dead pupa, and that was the only evidence we had till I caught a ♂ and a ♀ flying round the honeysuckle hedge (*Lonicera*) near the Grand Hotel in 1913.

Faroult found three larvae in 1916, one of which he prepared, one died in the pupa, and the third emerged as a very small and pale ♂ specimen. There appears to be no difference from typical European specimens; but a larger series from various parts of Mauretania may later on show this to be a distinct form after all.

1 ♂, 1 ♀ Hammam R'ihra, May—June 1913, W. R. and E. H.

1 ♂ Hammam R'ihra, ex larva, 1916, Faroult.

1 larva, 1 pupa, Hammam R'ihra.

There are no Mauretanian examples recorded, except Mr. Oberthür's specimen and the three in the Tring Museum.

9. *Celerio nicaea castissima* (Aust.).

*Deilephila nicaea* var. *castissima* Austaut, *Le Natural.* vol. v. p. 360 (1889) (Sebdou).

The ab. *carnea* Aust. has a decided rufous-cinnamon suffusion.

We never found this insect ourselves. Harold Powell says that the melanic form of the larva is extremely rare in a state of nature, but that when the larvae are reared in captivity a very large proportion become melanic. He says the change is only apparent after the last moult. This is slightly different from what I have to record. The single melanic larva preserved by Faroult from "Puits Baba" was found adult and after its last moult, and was not the product of captivity.

The 10 larvae from Afflou had no indications as to being already melanic when found. But the difference from those recorded by Harold Powell consists in the fact that this series begins with the second instar and goes up to the full-fed larva, and they all, from the smallest to the largest, are melanic; which shows that some larvae of *nicaea castissima* become melanic **before** the last moult.

A specimen of the perfect insect from "Puits Baba" is also melanic; it has the forewings entirely dark bronzy green, except a pink discoellular stigma and a pinkish patch above the inner margin from which an oblique line of a few pinkish spots runs to apex. The dark submarginal band of the hindwings is enormously expanded. I have an entirely similar specimen of the European *C. euphorbiae euphorbiae*. The Tring series of 48 specimens was selected from about 150 examples. Faroult has a number of living pupae from Afflou which should emerge in June and July of this year.

1 Meridje, Morocco, ex Austaut coll.

3 Sebdou, including the types of *castissima* Aust. and ab. *carnea* Aust.

2 Khenchela, June 1911, Faroult.

42 Puits Baba, 1913, Faroult.

- 1 larva, Khenehela, Faroult.  
 6 larvae, 4 pupae, Puits Baba (1 larva melanic), Faroult.  
 10 larvae, Aflou (melanic), Faroult.

The British Museum has 1 Meridje, Cercle d'Oudjda, Austaut, ex Leech coll.

10. *Celerio euphorbiae mauretania* (Stdgr.).

*Deilephila mauretania* Staudinger in Staudinger and Wocke's *Catal. Lepid. Eur. Fauneng.* edit. ii. p. 36. No. 466 (1871) (Mauretania, Madagascar).

We never took this race ourselves, except a single specimen at Khenehela.

- 1 Felder coll.  
 1 "Mauretania," ex Grum-Grshimailo coll.  
 35 Batna, July 1909-1914, A. Nelva.  
 13 Khenehela, May-June 1911-1912, W. R. and K. J. and Faroult.  
 11 Lambessa ex larva, L. Kuhlmann, (larvae collected June 1905, full-fed; emerged at Frankfort-on-Maine, July-August 1905).  
 1 Hammam R'ihra, May 1916, Faroult.  
 3 Aïn Draham, Faroult.  
 9 St. Germain, near Tunis, August-September 1915, E. Blanc.  
 2 Tunis, April-June 1916, E. Blanc.

The British Museum has 1 "Algeria," ex Leech coll.

11. *Celerio euphorbiae deserticola* (Bartel).

*Deilephila mauretania* ab. *deserticola* Bartel in Ruhl, *Palaeark. Grossschm.* vol. ii. p. 79 (1899) (loc. typ. restr. Biskra, W. R.).

This pale desert form replaces *e. mauretania* south of the Atlas, and runs up into the "Hauts Plateaux" in the provinces of Alger and Oran. We have taken it in most parts of its range which we have visited. Hartert saw many larvae in May 1912 north of El-Golea.

- 3 "Mauretania," Grum-Grshimailo coll.  
 9 Aïn Sefra, May-July 1913-1915, W. R. and E. H. and Faroult.  
 22 Guelt-es-Stel, ex larva 1913, Faroult.  
 3 Bou Saada, May 1911.  
 1 Laghouat, April 1911, W. R. and E. H.  
 1 Ghardaïa, April 1911, W. R. and E. H.  
 1 ♂ north of El-Golea, April 21, 1912, E. H. and C. H.  
 1 Oued Nça, April 1914, E. H. and C. H.  
 39 Biskra, March-May 1885 and 1908-1914, L. Bleuse and W. R. and E. H. (July ex larvae, W. R. and E. H.).  
 16 larvae, Biskra (2 W. R.).  
 1 larva, Guelt-es-Stel, Faroult.  
 1 larva, Aïn Sefra, W. R. and E. H.

The British Museum has 6 specimens: 4 Algeria ex Leech coll.; 2 imagines and 2 larvae, Hammam-es-Salahin, Biskra, April 1904, Lord Walsingham (the two imagines are darker and less sandy than the greater number of *e. deserticola*, approaching more *e. mauretania*).

11a. *Celerio euphorbiae* mauretanicæ × *C. lineata* livornica.

We have taken two specimens of the above hybrid which compare very well with the **artificially bred** hybrid between *C. e. euphorbiae* × *C. l. livornica*.

The one from Oran was taken by myself at the electric light in the "Place," and the one from Hammam R'ihra was caught by Hilgert.

1 Oran, April 1913, W. R. and E. H.

1 Hammam R'ihra, May 1913, W. R. and E. H.

12. *Celerio lineata* livornica (Esp.).

*Sphinx livornica* Esper, *Schmett.* vol. ii. p. 88 (1779) (Europe).

This is by far the commonest hawk-moth in Mauretania; in Algeria it was often a perfect pest when we were collecting with a lamp, and at the honey-suckle hedge at Hammam R'ihra it was in such numbers that we could have taken over a hundred every night, and at Oran and Biskra round the lamps it was sometimes almost as common. The larva is very variable, but the curious black and gold variety which is the normal form round Marsilles is very rare in Mauretania. The larva I found at Ghardaïa is pale apple green and looks much like the larva of *C. centralasiae*. Hartert found the larvae feeding (in the bed of the Oued Mya) on *Asphodelus tenuifolius*. The Tring Museum has a series of 250 Mauretanian examples.

4 Mazagan, Morocco, April 1901, W. Riggenbach.

1 Fenson, Morocco, April 1901, W. Riggenbach.

1 Seksawa, Morocco, April 1905, W. Riggenbach.

2 Mogador, Standinger.

10 Zoudj-el-Beghal, Morocco, July 1914, Faroult.

1 Colomb Bechar, Mareh—April 1913, Faroult.

2 Djebel Mekter, Aïn Sefra, May 1913, E. H. and C. H.

30 Aïn Sefra, May 1913–1915, W. R. and E. H. and Faroult.

8 Masser Mines, June 1914, Faroult.

2 Lalla Marnia, May 1914, Faroult.

20 Oran, April 1913, W. R. and E. H.

1 Oudjda, May 1914, Faroult.

8 Environs d'Alger, May—July 1904–1908, W. R., E. H., and Dr. Nissen.

50 Hammam R'ihra, May 1913–1916, W. R. and E. H. and Faroult.

1 Djebel Zaccar above Miliana, August 1916, Faroult.

15 Gueltes-Stel, April 1912–1913, W. R., K. J., and Faroult.

4 Tilghempt, April 1912, Faroult.

6 Bou Saada, May 1911, Faroult.

3 Oued Nça, April—June 1912–1914, E. H. and C. H.

1 South Oued Mya, April 1912, E. H. and C. H.

1 In-Salah, April 1912, E. H. and C. H.

16 north of and at Aïn Guettera, April 1912, E. H. and C. H.

6 north of El Golea, Mareh 1912, E. H. and C. H.

1 Bordj Chegga, February 1912, E. H. and C. H.

33 Biskra, Mareh—April 1908–1914, W. R. and E. H.

1 El Kantara, June 1911, Cheli Brahim.

14 Khenchela, June 1911, Faroult.

3 Souk Ahras, April 1914, W. R. and K. J.

6 Aïn Draham, August—September 1912, Faroult.

1 larva, Marcouna, Faroult.

1 larva, Ghardaïa, W. R. and E. H.

1 larva, Aïn Scfra, W. R. and E. H.

2 larvae, Hammam R'ihra, Faroult.

Several young larvae north of Aïn Guettera, March 1912, E. H. and C. H.

The British Museum has 1 specimen: Biskra, Rev. A. E. Eaton (bred from a larva feeding on *Asphodelus pendulinus*; emerged June 1897).

### 13. *Hippotion celerio* (Linn.).

*Sphinx celerio* Linnaeus, *Syst. Nat.* edit. x. p. 491. No. 10 (1758) (Europe).

We only met with this species once in Algeria, when Hilgert caught a rather poor specimen at the honeysuckle hedge in Hammam R'ihra.

8 Sidi-bel-Abbès, August—September 1916, Rotrou.

5 Mazagan, Morocco, April 1901, W. Riggenbach.

1 Rabat, A. Théry, 1914.

20 Batna, April—May 1909—1914, A. Nelva.

1 Hammam R'ihra, May 1913, W. R. and E. H.

3 Environs d'Alger, September 1906, Dr. Nissen.

1 Blida (ex larva October 1916, emerged January 1917), Faroult.

The British Museum has no Mauretanian examples. The Tring Museum has 39 Mauretanian specimens.

### 14. *Pergesa porcellus colossus* (Bang-Haas).

*Melospilus porcellus* var. *colossus* Bang-Haas, *Iris*, vol. xix. p. 129 (1906) (Tenet-el-Haad).

This insect appears to be rare in Mauretania. We met with it only once at Blida les Glacières, when a fairly good ♂ came to light.

1 Blida les Glacières, June 1908, W. R. and K. J.

1 Djebel Zaccar above Miliana, June 1916, Faroult.

1 Batna, 1908, Master-Saddler Taillefer (poor specimen).

### 15. *Macroglossum stellatarum* (Linn.).

*Sphinx stellatarum* Linnaeus, *Syst. Nat.* edit. x. p. 493. No. 26 (1758).

Although it is widespread and common in all parts of Mauretania, our series at Tring is poor in number as well as in condition, totalling only 34 examples.

7 Mazagan, Morocco, April 1900—1902, W. Riggenbach.

2 Rabat, 1914, A. Théry.

2 Aïn Scfra, May 1913, W. R. and E. H.

1 Saïda, May 1913, W. R. and E. H.

1 Oran, April 1913, W. R. and E. H.

4 Environs d'Alger, May—June 1905—1908, W. R., E. H., and Dr. Nissen.

3 Blida les Glacières, W. R. and K. J., 1908.

7 Hammam R'ihra, April—August 1908—1916, W. R., E. H., K. J., and Faroult.

- 1 South Oued Mya, May 1912, E. H. and C. H.
- 2 Biskra, March 1908–1911, W. R. and E. H.
- 2 El Kantara, March 1908, W. R. and E. H.
- 2 Souk Ahras, April 1914, W. R. and K. J.

16. *Haemorrhagia tityus tityus* (Linn.).

*Sphinx tityus* Linnaeus, *Syst. Nat.* edit. x. p. 493. No. 24 (1758).

We never found this species, and the Tring Museum possesses no Mauretanian examples.

17. *Haemorrhagia fuciformis fuciformis* (Linn.).

*Sphinx fuciformis* Linnaeus, *Syst. Nat.* edit. x. p. 493. No. 28 (1758) (Europe).

We found this species at Hammam R'ihra, where Hilgert caught a fine specimen in May 1911. In our "Revision of the Sphingidae," *NOVIT. ZOOL.* vol. ix. Suppl. p. 455 (1903), we give among the localities for this species "North Africa," but so far as I have been able to ascertain the only Mauretanian examples available for examination are my two from Hammam R'ihra, for Mr. Oberthür only quotes our "North Africa."

- 2 Hammam R'ihra, May—June 1913–1916, W. R., E. H., and Faroult.

The British Museum has no Mauretanian examples of any of the last four species. In the *Intern. Entom. Zeitsch. Stuttg.* vol. xxiii. p. 105, Dr. Seitz gives a list of 11 *Sphingidae* as occurring in Algeria, of which the only one we at Tring have no definite records of is *Hippotion osiris* Dalm.; as this occurs sporadically and at long intervals in Spain, there is no reason to doubt its occasional occurrence in Mauretania. Dr. Seitz then proceeds to state that the occurrence of *H. fuciformis*, *P. porcellus*, *C. vesperilio*, and *Proserpinus proserpina* Pall. in Mauretania rests on erroneous identifications. As we have seen, *H. fuciformis* and *P. porcellus colossus* are natives of Algeria, and I see no reason why *Proserpinus* should not be discovered there as well; but I do not believe that *C. vesperilio*, which is a high Alpine species extending from Switzerland to Persia, will be found within our limits. There is, however, a lot of lepidopterologically unexplored mountain country both in Algeria and Tunis, and nearly the whole of Morocco is virgin ground; so that many and great surprises no doubt await us. In his article Mr. Meade-Waldo records *Acherontia atropos*, Tangier, September 1901; *Amorpha populi austauti*, ab. *incarnata*, Tangier; *Celerio lineata livornica*, April and May 1901, Tangier; *Hippotion celerio*, Tangier, September 1901; and *Macroglossum stellatarum*, very common everywhere.

Mr. de Joannis records *Celerio lineata livornica* as taken at the Oued Kadamellet (north of Air), September 1905, by M. R. Chudeau.

## ZYGAENIDAE.

### [*Zygaena favonia-loyselis* group.]

Mr. Oberthür, in Fasc. XII. pp. 222–223 of his *Etudes Comparées*, in discussing the three forms of the *trifolii* group found in Algeria, is of opinion that modern lepidopterists have united too many forms under the specific entity *trifolii*, and that when the genitalia have been carefully studied we shall find that the group of forms placed under the specific entity *Zygaena trifolii* Esp. will prove to

belong to several species. In this I am inclined to heartily agree with him. I now, however, have to point out that in view of his opinion on the *trifolii* group, his treatment of the *favonia* group appears very inconsistent. He quite consistently treats *loyselii* as a good species on evidence which, to my mind, is quite conclusive, but he has lumped all the remaining named forms as aberrations of *favonia*. As I will explain later, this treatment is quite an impossible one, for should, after all, these forms *thevestis*, *staudingeri*, *vitrina*, and *valentini* turn out to belong to *favonia* specifically, several of them must rank as subspecies and **not** as aberrations. I consider, however, that *vitrina* and *thevestis* are good species. First of all, Mr. A. Nelva assured me that he had bred *vitrina* and that it had a larva somewhat intermediate between that of *favonia* and *loyselii* and the food plant was an *Eryngium* with **blue** flowers, while *favonia* and *loyselii* feed exclusively on the *Eryngium campestre*, which has **yellow** flowers.

Mr. Oberthür states quite truly that at Batna and Lambessa and Khenchela the form *thevestis* is very rare and quite sporadic, while at Aflou and Géryville this form preponderates and *favonia* is the one of sporadic occurrence. Mr. Oberthür refers us to his *Études d'Entomologie*, livr. xiii., and he has assumed that *thevestis* is only an aberration or form of *favonia*, as one was taken in copula with a typical *favonia*. This to my mind is **no evidence** at all; the *Zygaenas*, in my opinion, which Dr. Jordan confirms, are a family still as it were in the melting-pot, and quite in a transition stage of development. We find characters developed on one side and not on the other, and in many specimens (that is, a larger proportion than in other families) of one and the same species a mixture of characters quite abnormal. As a consequence we also find a greater tendency for all sorts of *Zygaenas* to copulate with one another, though hybrids in a state of nature are rarely produced from such mixed intercourse. I have, however, among my *loyselii* two which have pale red collars, but the hairs on the tegulae and patagia are white as in *thevestis*. These, I think, are clearly hybrids between *loyselii* and *thevestis*. I received 478 *Zygaenas* of this group from Guelt-es-Stel from Victor Faroult, and of these 460 were *thevestis* and 18 *loyselii*; **not** a single one was *favonia*. I have from elsewhere 2 *thevestis* from Khenchela out of 132, 1 from Batna out of 287, 2 from Marcouna out of 48, 1 from Chelia out of 20, and 1 from Lambessa out of 7.

Of this group the Tring Museum possesses 1,240 examples, besides some 400 or 500 duplicates, of which 100 are *loyselii*, and 1,140 *favonia-vitrina-thevestis*. Of the series from the west of Algeria from Masser Mines—Nedroma of 250, 5 are true *favonia* and 245 are *staudingeri*, i.e. have a pink ring on **one segment** of the abdomen only. I have this form otherwise only from Hammam R'ihra, where some of the examples have even partly lost the pink ring altogether; of the 41 specimens from this place in the Tring series, 19 are of the form *staudingeri*. I have come to the conclusion, therefore, that in this group *loyselii*, *vitrina*, *thevestis*, and *favonia* are four distinct species, while *confluens* Dz. is an aberration of *loyselii*, and *staudingeri* is a subspecies of *favonia* occurring as an aberration in the east and as a subspecies in the west of the range; *valentini* is an aberration of *favonia*, while the Moroccan forms must be separated as subspecies. It only remains to find out what designation these latter should bear. M. Blachier has described from Morocco a *Zygaena favonia* var. *aurata* in which the ground-colour is greenish golden, but there are specimens which

are not at all like this, while I have 2 *favonia* from Batna which have the ground-colour exactly like *aurata* Blachier. My 5 from Mogador are not like *aurata*, but very dark, similar in colour to *sarpedon* ab. *vernetensis* Oberth.; *aurata* Blach. and a form almost like typical *favonia* were got by Mr. Meade-Waldo about 12,000 feet on Tizi Gourzá in July 1901, where they were very abundant. It would therefore appear that two races of *favonia* occur in Morocco: first, the high mountain form, which, however unfortunately, must stand as *Z. favonia aurata* Blach.; second, the Atlantic Coast form, which requires a new name.]

#### 18. *Zygaena zuleima* Pierret.

*Zygaena zuleima* Pierret, *Ann. Soc. Entom. France*, vol. vi. p. 22. tab. I. f. 8 (1837) (Bône).

We found this insect very scarce and local, and it was only on our sixth visit to Algeria in 1914 that we dropped across it accidentally in the Arab cemetery at Souk Ahras, where it positively swarmed.

- 1 Oran, April 1913, W. R. and E. H.
- 12 Environs d'Alger, Dr. Nissen and Captain Holl.
- 1 Environs d'Alger, March 1912, W. R. and K. J.
- 2 Maison Carée, March 1910, Captain Holl.
- 2 Hammam R'ihra, May 1911–1913, W. R. and E. H.
- 1 Constantine, May 1908, W. R. and E. H.
- 139 Souk Ahras, April 1914, W. R. and K. J.
- 6 Djebel Djeloud, March 1912, Tunisia, Staudinger.
- 1 Djebel Ressay, March 1912, Staudinger (yellow aberration).
- 6 Mauretania, Grum-Grshimailo coll. and Staudinger.
- 2 ?
- 2 cocoons.

The yellow aberration appears not to have been recorded before. The specimen from Djebel Ressay is a ♀ and the red is replaced by buffish yellow. I name it ab. *flavescens* ab. nov.

The British Museum has 10 specimens: 2 labelled Spain !! and 4 Morocco ?! Leech coll.; 2 Algiers, Frey coll.; 2 Teniet-el-Haad, May 1892, G. Lewis.

The Tring series totals 173 specimens.

#### 19. *Zygaena loyselii* Oberth.

*Zygaena loyselii* Oberthür, *Etud. Entom.* liv. i. p. 34. t. 4. f. 4 (1876) (Lambessa).

Although we collected *Zygaenas* in considerable numbers in several districts where *loyselii* occurs, we never caught a specimen; though after Mr. A. Nelva showed me how to look for them, I found several larvae at Batna.

- 19 Guelt-es-Stel, May 1913, Faroult.
- 14 Puits Baba, May 1913, Faroult.
- 16 Djelfa, May 1913, Faroult.
- 38 Batna, May—June 1911–1912, A. Nelva.
- 4 Lambessa, May—June 1885–1912, L. Bleuse and A. Nelva.
- 1 Khenchela, June 1911, Faroult.
- 6 Mauretania, Grum-Grshimailo coll. and Staudinger.

Of the 98 specimens enumerated above, 10 are ab. *confluens* Dz. One Guelt-es-Stel example has the ground-colour of the forewings deep steel blue.

The British Museum has 2 "Algiers"! Leech coll.

#### 20. *Zygaena loyselii occidentalis* Oberth.

*Zygaena loyselii occidentalis* Oberthür, *Etud. Lépidop. Comp.* Fasc. XII. p. 208 (1916) (Géryville).

We never found this insect in the west of Algeria, as we were too early at Oran, Lalla Marnia, and Tlemcen, and at Saida we only caught 2 *Zygaenas* altogether.

1 Géryville, May 1886, Lt. Lahaye.

1 Lalla Marnia, May 1914, Faroult.

The British Museum has 1 Géryville, Leech coll.

#### 21. *Zygaena favonia favonia* Frr.

*Zygaena favonia* Freyer, *Neu. Beitr. Schmett.* vol. v. p. 76. t. 428. f. 1 (1845) (Turkey!?).

Freyer described *favonia* from a specimen captured by Dr. Wagner, but evidently not realising that Dr. Wagner had also made extensive journeys in Algeria, he gave a wrong locality. *Z. valentini* Brd. appears to be the typical form and *favonia* only an occasional very dark aberration, but *favonia*, having been published two years before, must stand.

We collected *favonia* first at Hammam R'ihra in 1908, where most of the specimens had only one pink ring, and we have taken it at Khenchela, Saïda, and Hammam Meskoutine among other places. Through the help of Mr. A. Nelva, I found a few larvae of this species myself at Batna and later at Hammam Meskoutine. The Tring series numbers 587 examples.

5 Masser Mines, June 1914, Faroult.

7 Environs d'Alger, 1909, Captain Holl.

7 Forêt de Yakouren, May 1909, Mrs. Walsh.

22 Hammam R'ihra, May 1908-1911, W. R., E. H., and K. J.

131 Khenchela, May-June 1911-1912, W. R., K. J., and Faroult.

46 Djebel Mareouna, June 1911, Faroult.

19 Djebel Chelia, June 1911, Faroult.

6 Lambessa, June 1885, L. Bleuse.

10 Hammam Meskoutine ex larva (larva found May 1914, emerged at Tring June 1914).

2 Aïn Draham, July 1911, Faroult.

34 Environs de Tunis, March-June 1911-1915, Staudinger and E. Blanc.

35 Djebel Ressas, Tunisia, April 1912, Staudinger.

2 Djebel Djeloud, Tunisia, March 1912, Staudinger.

(1 Djebel Ressas is the yellowish ab. *powelli* Oberth. and 1 Djebel Djeloud example is a bright clear yellow.)

287 Batna, May-June 1911-1912, Nelva.

1 Géryville, May 1885, Lt. Lahaye.

2 Mauretania, Staudinger.

1 Morocco!! Grun-Grshimailo coll.

The ochre-yellow form alone has been named ab. *powelli* by Mr. Oberthür, so I propose for the clear bright yellow form the name of ab. *flava* ab. nov.

The British Museum has 8 specimens: 2 Algiers, Frey coll.; 2 Mauretania, Leech coll.; 3 Constantine, Crowley bequest; 1 Shietla, Tunisia, G. C. Champion.

## 22. *Zygaena favonia staudingeri* Aust.

*Zygaena cedri* var. *staudingeri* Austaut, *Petites Nouv. Entom.* vol. ii. p. 243 (1878) (Nemours).

We never took this form in the west, but found it as an aberration at Hammam R'ihra.

Mr. Oberthür has confused this race with *vitrina* Stdgr., which I consider a distinct species, for reasons stated before. I have never seen *vitrina*, which appears to be confined to the province of Constantine, with only one pink abdominal ring; it always has two and generally three such rings; while, on the contrary, from wherever I have seen true *favonia*, I have seen occasionally specimens with single rings and in the extreme west of Algeria only 2 per cent. or 20 per 1,000 have more than one ring. I therefore consider that *f. staudingeri* (which differs from *favonia favonia* in the single abdominal ring) should be treated as a local subspecies and not **only** as an aberration.

1 Saïda, May 1913, W. R. and E. H.

1 Tifrit, May 1913, W. R. and E. H.

236 Masser Mines, June 1914, Faroult.

19 Hammam R'ihra, May 1908-1911, W. R., E. H., and K. J.

## 23. *Zygaena favonia littoralis* subsp. nov.

♂♀. Differs from *f. favonia* in the ground-colour of the forewings being as dark as in *sarpedon vernetensis*, i.e. sooty green-grey, while the red spots and the hindwings are of a dark purplish blood-red. There is a single abdominal ring as in *f. staudingeri*.

*Habitat.* Atlantic littoral of Morocco.

5 Mogador, Staudinger.

## 24. *Zygaena favonia aurata* Blachier.

*Zygaena favonia aurata* Blachier, *Bull. Soc. Entom. France*, vol. lxxiv. p. 213 (1905) (Moroccan Atlas).

I have seen two specimens of this form collected by Mr. Meade-Waldo on Tizi Gourzá, Moroccan Atlas, about 12,400 ft., in July 1901, together with a specimen which is intermediate between *favonia staudingeri* and *favonia littoralis*. In his article Mr. Meade-Waldo says both forms were very common. For the moment I retain these two forms under *favonia* as a local race; but I believe when we get more material *aurata* will prove a distinct species, alongside of which occurs a local race of *favonia*.

This other form I propose to name for the present *f. aurata* form. dimorph. *intermedia* form. nov.; but if *aurata* proves, as I believe it will, to be a distinct species, it will then have to stand as *favonia intermedia* Rothschild.

Of this *intermedia* there are in the British Museum, in addition to Mr. Meade-Waldo's Tizi Gourzá specimen, seven others labelled "Morocco," Leech coll.

25. *Zygaena thevestis* Stdgr.

*Zygaena thevestis* Staudinger, *Berl. Entom. Zeitschr.* vol. xxxi. p. 33 (1887) (Lambessa, Tebessa).

I have stated above that I consider this a distinct species which is very rare in the province of Constantine, fairly common in the province of Oran, and very abundant on the "Hauts Plateaux" of the central province. That it has been observed in copula with *favonia*, I must again repeat, is no evidence of specific identity, as many species of *Zygaena* have been observed in copula with very diverse other species, and even with *Procris*, and yet no one disputes their specific rank.

We have only taken a single *thevestis*, and that at Khenehela. The British Museum has no examples. The Tring series totals 292 examples.

- 1 Mauretania, Staudinger.
- 285 Guelt-es-Stel, June 1913, Faroult.
- 1 Batna, 1909, Nelva.
- 1 Djebel Chelia, June 1911, Faroult.
- 2 Djebel Marcouna, June 1911, Faroult.
- 2 Lambessa, June 1885-1912, Nelva and L. Blouse.

26. *Zygaena vitrina* Stdgr.

*Zygaena favonia* var. *vitrina* Staudinger, *Berl. Entom. Zeitschr.* vol. xxxi. p. 32 (1887) (Constantine).

We never found this insect ourselves, nor have any of my correspondents found it except Mr. A. Nelva, who has bred a few from larvae feeding on a **blue-flowered** *Eryngium*. The British Museum has no examples.

- 7 Mauretania, Grum-Grshimailo coll. and Staudinger.

27. *Zygaena seriziati* Oberth.

*Zygaena seriziati* Oberthür, *Etud. Entom.* liv. i. p. 33 (1876) (Collo).

We have never taken this species ourselves, not having collected in the localities where it is found; in fact, in the only one of these we have visited (Bône) we stayed only a few hours on our way back from Lac Fezara.

- 2 Collo, May 1887, Dr. Seriziat, Grum-Grshimailo coll.
- 9 Mauretania, Grum-Grshimailo coll. and Staudinger.
- 32 Lella Kredidja, June-July 1907-1912, Dr. Nissen.

The specimens in which the hindwings have the red reduced to a spot at the base and one on the disc have been named ab. *nigra* Dz. All my series from Lella Kredidja are of this form, and moreover the red spots on the forewings are very small.

The British Museum has 16 specimens: 4 Collo, Frey coll.; 5 Philippeville, May 1904, Lord Walsingham; 2 Algeria, Herring, 1874; and 5 ex Leech coll. labelled 3 "Algers"!!! and 2 "Spain"!!! The Tring series totals 43.

28. *Zygaena syracusia* Zell.

*Zygaena syracusia* Zeller, *Iris*, vol. xl. col. 301. No. 68 (3) (1847) (Sicily).

The same remarks apply to this species as to *seriziati*, namely, that we ourselves never took it; but, unlike that species, the cause is not the same,

for we have collected in many of the localities *syacusiac* inhabits, but we never had the luck to find it.

Mr. Oberthür is convinced that this form and the last are quite distinct from *trifolii*, in which I agree with him. I also agree that Spanish *australis* and *syacusiae* are very different; but I cannot see any difference between my few Khenchela specimens and the Batna-Lambessa ones. I have too few from Khenchela to assert positively that they are the same—perhaps the facts are that both *australis* and *syacusiae* occur at Khenchela; but I can say this, that I have never seen a single Algerian specimen with such pointed forewings nor with the “ground-colour” so green as my Central Spanish specimens. As I have no specimens from Hammam R’ihra, my three Khenchela specimens are the only Mauretanian specimens I have, with a definite locality, which belong to *syacusiae*, according to Mr. Oberthür’s localities, but I can only repeat they agree exactly with those I have from Batna, Lambessa, and Djebel Chelia, of which the ground-colour is sometimes green and sometimes more blue. I therefore can only suppose that either all mine are *australis* or else that name cannot be applied to any form from south of the Mediterranean. This latter is decidedly my view of the case and the one I adopt here. Six specimens from Batna are veritable dwarfs (length of forewing 11 mm., expanse 25 mm.; while the largest specimen from Batna has length of forewing 17 mm., expanse 39 mm.).

112 Batna, May—October 1910–1915, Nelva and Faroult.

6 Lambessa, June 1885, L. Bleuse.

3 Khenchela, June 1911, Faroult.

6 Djebel Chelia, June 1911, Faroult.

9 Hussein Dey (Environs d’Alger), May—October 1908–1910, Captain Holl.

2 Mauretania, Staudinger.

5 Environs de Tunis, April—June 1916, E. Blanc.

The latter five specimens are rather different from the rest, being decidedly much bluer, and the five red spots on the forewing are much smaller.

The British Museum does not possess this insect, from Mauretania.

## 29. *Zygaena algira algira* Dup.

*Zygaena algira* Duponchel in Godart’s *Pap. France*, vol. iii. Suppl. ii. p. 86. No. xxxiii. (1835) (Alger).

Mr. Oberthür has renamed the insect **figured** by Herrich-Schaeffer as *algira*, and which is also the insect **described** by Duponchel as *algira*, as *bachaga* in his *Etudes Comparées*. This he has done solely because Duponchel’s **figure** does **not** agree with his description, and Mr. Oberthür only acknowledges figures. The insect on Plate VII. fig. 6 is that of a *Zygaena* with white collar and whitish patagia combined with a red streak on the inner margin of the forewings, while the dark markings do not agree with those of *algira* in shape or number. It is quite possible that this figure represents a chance hybrid between *felix* Oberth. and *algira* Dup.; but whatever it may be it does **not concern** the question of the name *algira*, for notwithstanding the efforts of Mr. Oberthür and his friends, the largest number of entomologists of the world will always continue to abide by the International Rules of Zoological Nomenclature, and these state that in the case of a description and figure purporting to be both of the same insect but in reality

representing two distinct species, the **description** and **not** the figure decides to which of the two species the name refers.

Until we discover a *Zygaena* like the figure of Duponchel, this latter will remain doubtful; but there can be no doubt to what insect Duponchel's **description** refers, and even Mr. Oberthür acknowledges that he has specimens from Sebdlou, Khenchela, and Bainen which only differ from typical *hilaris* of Europe by the red streak along the inner margin of the forewings, and thus agreeing absolutely with Duponchel's **description**. I therefore am unable to follow Mr. Oberthür's reasoning, and consider that his name *bachaga* must either be sunk as an absolute synonym or else be used as an **aberrational** name only to designate the specimens with very heavy black markings and pale rings round the dark spots.

We have taken this insect in special abundance at Alger and Hammam R'ihra, and we found that in the Alger series the specimens with heavy black markings were much more abundant than in the Hammam R'ihra series. In West Algeria it appears to be much rarer than in East Algeria, for I have only one specimen from Oran; and the only place we found it ourselves was on the Djebel Mekter, and out of a series of 98 *Zygaenas* from there, 7 were *algira* and 91 *marcouana*. I brought back a large number of cocoons of this species to Tring, and bred a fine series, as well as a large number of two or three species of Hymenopterous and two of Dipterous parasites.

15 Djebel Zaccar, above Miliana, June 1916, Faroult.

7 Djebel Mekter, Aïn Sefra, May 1913, E. H. and C. H.

1 Oran, ex coll. Grun-Grshimailo.

37 Environs d'Alger, March—June 1907–1912, W. R., K. J., and Dr. Nissen.

1 ex larva (larva Alger, emerged Hammam R'ihra, May 1908; aberration with most of black patches coalescent).

7 ex larva (larva Alger, emerged Marscille, June 1908).

13 ex larva (larva Alger, emerged Digne, June 1908).

226 ex larva (larva Alger, emerged Tring, June—July 1912).

186 Hammam R'ihra, May 1908–1916, W. R., E. H., K. J., and Faroult.

51 Hammam Meskoutine, May 1914, W. R. and K. J.

5 Philippeville, Kuhlmann.

1 Souk Ahras, April 1914, W. R. and K. J.

1 Aïn Draham, Tunisia, July 1911, Faroult.

2 Mauretania, Staudinger.

3 larvae, Alger.

6 cocoons, Alger.

16 No. 1 Ichneumon?, Alger (hatched Digne and Marseille).

46 No. 1 Ichneumon?, Alger (hatched at Tring).

3 No. 2 Ichneumon?, Alger (hatched Digne and Marseille).

101 No. 2 Ichneumon?, Alger (hatched at Tring).

3 No. 3 Ichneumon?, Alger (hatched at Tring).

1 Tachinid No. 1, Alger (hatched at Tring).

8 Tachinid No. 2, Alger (hatched at Tring).

2 Tachinid No. 2, Alger (hatched Digne and Marseille).

The Tring series consists of 562 specimens. The British Museum possesses 11 examples: 2 Algeria, Frey coll.; 6 Algiers, Leech coll.; 2 Crowley bequest; and 1 Bowring ex Linnean Society donation, 1863.

30. *Zygaena algira exigua* Seitz.

*Zygaena algira* ab. *exigua* Seitz, *Grossschm. Erde*, vol. ii. p. 29. pl. 8. row a. (1909) (High Atlas, Algeria).

Dr. Seitz, although he states that the form he calls *exigua* is the High Atlas race of *algira*, has only treated it as an aberration. The form found round Batna, Lambessa, and Khenchela is clearly an *algira* form, but it is, as Dr. Seitz says, generally smaller than coastal *algira*, and a number of individuals have a magenta or purplish tinge which is never found in *algira* from the littoral. I therefore think it is necessary to keep it separate as a local race.

69 Environs de Batna, May 1911–1914, A. Nelva.

36 Lambessa, June 1885–1912, L. Bleuse and Nelva.

3 Khenchela, May–June 1911–1912, Faroult, W. R., and K. J.

2 Mauretania, ex coll. Grun-Grshimailo.

The Tring series comprises 110 examples.

31. *Zygaena marcouna marcouna* Oberth.

*Zygaena marcouna* Oberthür, *Etud. Entom.* liv. xii. p. 27 (1889) (Marcouna).

We have never taken the typical *marcouna*, which appears to be confined to the Aurés Mountains and is very rare.

4 Mauretania, ex coll. Grun-Grshimailo, and Staudinger.

32. *Zygaena marcouna excelsa* subsp. nov.

This form differs from *marcouna marcouna* in being larger, the wings broader, and the red much brighter and tinged with mauve.

*Habitat.* Djebel Mekter, 1,600–1,900 metres = 5,200–6,175 ft., near Aïn Sefra.

84 Djebel Mekter, May 1913, E. H. and C. H.

33. *Zygaena felix* Oberth.

*Zygaena felix* Oberthür, *Etud. Entom.* liv. i. p. 36 (1876) (Boghari, Lambessa).

Mr. Charles Oberthür is of opinion that this *Zygaena* is a distinct species and not, as Staudinger and others have stated, a subspecies of *hilaris*. It is certainly very different from typical *hilaris*, and is moreover excessively variable individually. Specimens occur with and without the abdominal pink ring and with and without white or buff rings round the red spots on the forewings; sometimes these pale rings are so expanded as to make the ground-colour white or buff; in some the red patches are pale pink, in others the whole of the red on fore- and hindwings is a mauve-pink, and again others have this colour intense deep red. The typical *felix* has the abdomen entirely black and the red of the forewings margined narrowly with white; similar specimens but with a pink abdominal ring are ab. *mauretunica* Stdgr.; while specimens with the white margins much expanded are ab. *faustula* Stdgr. We took this species in quantity at Khenchela and one solitary example at Hammam R'ihra.

1 Hammam R'ihra, May 1908; W. R. and K. J.

2 Magenta, June 1886, Lt. Lahaye.

3 Titen Yaya, June 1915, Rotrou.

- 3 Djelfa, May—June 1913, Faroult.  
 1 Forêt de Djelfa, June 1913, Faroult.  
 255 Environs de Batna, May—June 1908–1912, Taillefer, A. Nelva, and Faroult.  
 214 Khenchela, May—June 1911–1912, W. R., K. J., and Faroult.  
 4 Lambessa, June 1885, L. Bleuse.  
 1 Djebel Marcouna, June 1911, Faroult.  
 8 Djebel Chelia, June 1911, Faroult.  
 1 "Algérie," Deyrolle.  
 9 Mauretania, Grum-Grshimailo coll. and Staudinger.

The Tring series comprises 502 specimens. There are no specimens of this species in the British Museum.

### 34. *Zygaena carniolica orana* Dup.

*Zygaena orana* Duponchel in Godart's *Pap. France*, vol. iii. Suppl. ii. p. 145. t. 12. f. 8 (1835) (Oran).

We have only found this insect ourselves once, when I captured a single specimen at Tlemcen. I have the very poor series of 12 examples; quite insufficient to demonstrate the characters of the race. It never has an abdominal ring.

Mr. Meade-Waldo quotes *c. orana* from Larvishe, April 1902.

- 1 Tlemcen, April 1913, W. R. and E. H.  
 1 Masser Mines, June 1914, Faroult.  
 1 Oran ex Grum-Grshimailo coll.  
 2 Titen Yaya, April 1915, Rotrou.  
 6 Mauretania, Staudinger.  
 1 "Algérie" Deyrolle.

### 35. *Zygaena carniolica allardi* Oberth.

*Zygaena allardi* Oberthür, *Etud. Entom.* liv. iii. p. 41. pl. 5. f. 5 (1878) (Marcouna).

We have taken this race ourselves at Khenchela, where we found it slightly less abundant than *Z. felix*. It is always distinguishable from *c. orana* by the abdominal ring, which though sometimes very faint is always present.

- 2 Mauretania, Staudinger.  
 314 Khenchela, May—June 1911–1912, W. R., K. J., and Faroult.  
 2 Lambessa, June 1885, L. Bleuse.  
 1 Djebel Chelia, June 1911, Faroult.  
 78 Environs de Batna, June 1910–1912, Nelva and M. Bartel.  
 2 "Algérie," Deyrolle.

The British Museum has one specimen, Khenchela, April 1906, Lord Walsingham. Among the Tring series of 399 specimens is one in which the basal half of the forewings resembles *c. orana ab. powelli* and the outer half *carniolica lahaye*.

### 36. *Zygaena carniolica limitans* subsp. nov.

This form occurs along the littoral from Philippeville to Tunis. It is very small, has no abdominal ring, the ground-colour of the forewing is very dark, and the spots distinct. Resembles most *c. orana*, but colours darker and duller

and the forewings shorter and more rounded. Type Bône, May 9, 1911. 1 specimen in British Museum, Collo, Constantine, Frey coll.

15 Bône, May 1911.

32 Tunis, April—June 1911–1915, Kuhlmann and E. Blanc (2 Deyrolle).

47 examples in all are at Tring.

### 37. *Zygaena carniolica lahayei* Oberth.

*Zygaena orana lahayei* Oberthür,           ?           ?           ?           ?           ?

I have been quite unable to make out where Mr. Oberthür first published the name *lahayei*. It would be of the utmost use to entomologists and save an infinity of trouble if when writing about species or varieties, whether of their own creation or those of others, all entomologists made it a rule, as we now do at the Tring Museum, to quote the original description as well as the name.

It was supposed by Mr. Oberthür that *c. lahayei* was confined to the Géryville district, but Faroult sent it to me from the neighbourhood of Djelfa.

5 Géryville, June 1886, Lt. Lahaye.

22 Djelfa, June 1913, Faroult.

14 Forêt de Djelfa, June 1913, Faroult.

1 "Mauretania," Staudinger.

The Tring series is small, only 42 specimens. There are 3 specimens in the British Museum, Géryville, Leech coll.

### 38. *Zygaena carniolica maroccana* subsp. nov.

♀. I should under ordinary circumstances strongly deprecate describing subspecies from a single specimen, especially as *Zygaenas* are so variable; but in this instance the differences are too palpable for error.

The specimen came in a small collection from Mogador, the whole of which was sold to me by Messrs. Staudinger and Bang-Haas.

This specimen differs at first from all Mauretanian forms of *carniolica* by its large size. It equals in size the ♀♀ of the fine Syrian race described and figured by Mr. Oberthür as *carniolica praestans* (*Etud. Lépid. Comp. Fasc. IV. p. 637* (1910) (Akbès); *Etud. Entom. liv. xx. pl. 7. ff. 115, 116* (1896)).

It differs from *c. praestans* in having less white round the first five red spots of the forewing, but the most striking difference is the very enlarged almost quadrate sixth spot, which is entirely without any white ring.

*Habitat.* Mogador.

1 ♀ Mogador, Staudinger.

### 39. *Zygaena theryi* Joann.

*Zygaena theryi* de Joannis, *Bull. Soc. Entom. France*, 1908. p. 203 (Environs de Philippeville).

My description of this fine *Zygaena* appeared just a few weeks later than that of the Abbé de Joannis, so that my name of *nisseni* has to give way to that of *theryi*. I described it as a subspecies of *lavandulae*, but Mr. Oberthür considers it to be a distinct species, forming the transition from *Zygaena* to *Arichalca* Wallengren.

It will require a careful morphological comparison to prove the truth or

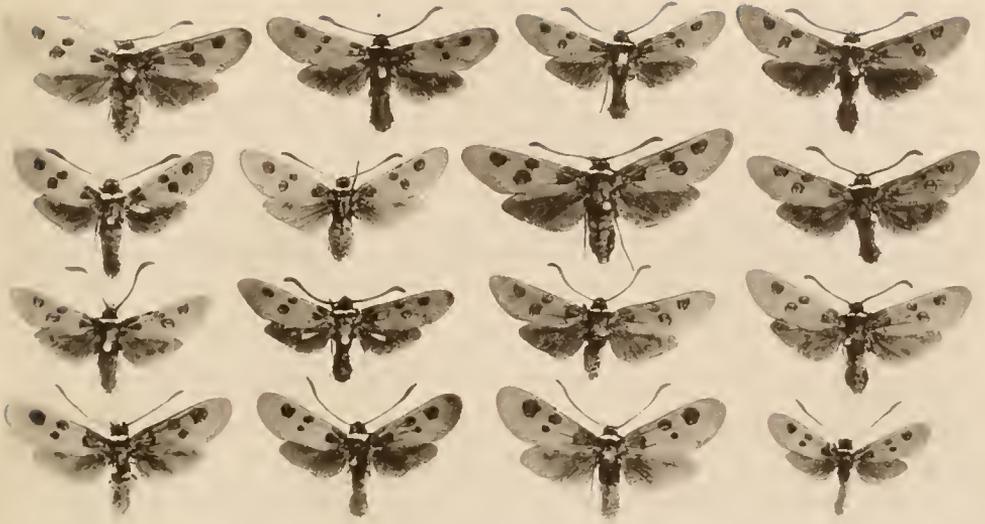


EXPLANATION OF PLATE X.

First row and first two figures of second row : *Zygaena lavandulae*, Esp.

Third and fourth figures of second row and third row : *Zygaena lavandula* ab.  
*consobrina* Ger.

Fourth row : *Zygaena théryi* Joan. Larvae of *Zygaena théryi* on a species of  
*Coronilla*, on Djebel Zaccar in North Algeria, June 1917.



*Zygæna theyri* with larva, and *Z. lavandulæ*



otherwise of this transitional position suggested by Mr. Oberthür, but I have now come to the conclusion that Mr. Oberthür is right in his opinion as to the specific distinction of *theryi* and *lavandulae*. The rounded wings and different relative proportions of the red spots are characters which strike one at first sight as well as the longer antennae.

I have not been able to find any record of the capture of *Z. theryi* except the type captured by Mr. A. Thery as above, 1 single specimen captured by Mr. Dayrem at Hammam R'ihra, and the 400 or 500 specimens captured by ourselves, Faroult, and Dr. Nissen also at Hammam R'ihra. I have given or exchanged 6 with Mr. Dziurzynski, 6 with Mr. Burgeff, 2 with the British Museum, 4 with Mr. Joicey, and 2 with Mr. Oberthür. Dr. Nissen may have sent some to Count Turati, but beyond this none have been distributed.

300 Hammam R'ihra, May 1908–1916, W. R., E. H., K. J., and Faroult.

We captured the bulk of the 430 specimens taken by us, when sitting on the open flowers of *Cistus*, and on a species of *Lavendula*, round about and in the pine wood near "La petite Suisse," and mostly on the pink flowers of *Cistus albidus*. The British Museum has 2 from this series. To show that I did not change my opinion as to the specific distinctness of *Z. theryi* without good reason, the material of *lavandulae* I compared with the 300 picked specimens of *theryi* consists of 110 specimens from the Riviera and the neighbourhood of Marseille.

#### [PROCRIS.

Dr. Jordan has divided *Procris* into three sections: I. antennae pointed, the last joint only without a free tooth; II. antennae blunt or less pointed, at least three joints besides the end one without free teeth; III. antennae ending in a knob.

There appear to be at least four if not five species in Mauretania of which the largest and smallest belong to the first group, and their nomenclature is comparatively easy. But one at least of the others is very perplexing.]

#### 40. *Procris globulariae notata* (Zell.).

*Atychia notata* Zeller, *Isis*, vol. xl. col. 294. No. 64 (2) (1847) (Syracuse, Sicily).

Mr. Charles Oberthür has mixed up *cognata* and *notata*; the former is, so far as we know at present, not found in North Africa, and has quite distinct genitalia. However, there are several more *Procris* as yet unrecorded from Mauretania, and I believe some further discoveries are still to be made.

Mr. Oberthür has confused *cognata* and *notata* because he, as he has stated, has ignored descriptions without figures. As Mr. Oberthür rightly says, Boisduval's name *cognata* of 1840 is a *nomen nudum*, but Mr. Oberthür does not even allude to Zeller's *notata* of 1847 and Herrich-Schaeffer's *cognata* of 1856. Zeller's *notata* has priority over Rambur's *soror* of 1858, while the latter's *cognata* cannot stand as Herrich-Schaeffer gave that name two years previously to a different species. We have taken this insect in numbers at light at Khenchela, but I have otherwise a very poor Mauretanian series; moreover, so far as I can make out, there is only 1 Mauretanian ♀ in the Tring Museum.

- 2 Moroccan Frontier, May 1914, Faroult.
- 1 Lalla Marnia, April 1914, Faroult.
- 1 Guelt-es-Stel, May 1913, Faroult.
- 90 Khenchela, May 1912, W. R. and K. J.
- 5 Lambessa (4 ♂♂, 1 ♀), M. Bartels.
- 2 Hammam Meskoutine, April—May 1914, W. R. and K. J.

The Lalla Marnia specimen is small and very blue.

Mr. Oberthür considers that there are two races of *cognate* in Algeria: a larger, duller, more transparent form from Seb dou, Lambessa, and Ain Draham, and a smaller, brighter, and more densely scaled form from Aflou.

My series, apart from Khenchela examples, is too small to enable me to judge on this question, but I can clearly perceive, from the Khenchela series, that Mr. Oberthür is quite right when he says that the **length** of the pectinations of the antennae is not a constant and therefore not a valid character. The Guelt-es-Stel ♂ is a dwarf (length of forewing, 14 mm.; expanse, 31 mm.; ordinary ♂♂, length of forewing, 19 mm.; expanse, 42 mm.).

The Tring series comprises 101 Mauretanian specimens.

#### 41. *Procris cirtana cirtana* Lucas.

*Procris cirtana* Lucas, *Explor. Scient. d'Alg., Anim. Arctic.* vol. iii. p. 373. No. 76. pl. 3. f. 2 (1849) (Constantine, Koudiah-Ati).

We ourselves have taken this tiny species at Hammam R'ihra, Khenchela, Hammam Meskoutine, and Tlemcen. The blue form is ab. *bakeri* Kirby = *orana* B. Baker nec Aust. Mr. Oberthür informs us that he possesses the type-specimen of *Procris orana* Aust., and that he has convinced himself that it is identical with *cirtana*. If this is really the case, the following species must receive a new name, for it is certainly not *cirtana* Lucas. Until, however, we can compare it morphologically with the ♀ type of Austaut, I prefer to retain the name of Austaut for the smaller form of what Oberthür calls *tenuicornis*. The Tring series comprises 77 specimens.

- 11 Mauretania, Grum-Grshimailo coll. and Staudinger.
- 5 Tlemcen, May 1913, W. R. and E. H.
- 4 Environs d'Alger, Captain Holl.
- 3 Blida les Glacières, June 1909, Captain Holl.
- 27 Hammam R'ihra, May 1908–1911, W. R., E. H., and K. J.
- 25 Khenchela, May 1912, W. R. and K. J.
- 1 Hammam Meskoutine, May 1914, W. R. and K. J.
- 1 Ain Draham, June 1909, Faroult.

#### 42. *Procris orana orana* (Aust.).

*Ino orana* Austaut, *Le Natural.* vol. ii. p. 284 (1880) (Oran).

The type of *orana* Aust. was collected at Oran in April by Dr. Codet, and is in Mr. Charles Oberthür's collection. The latter, as stated before, declares it to be identical with *cirtana*, in which case the present insect requires a new name; the figure given by Mr. Oberthür is, however, very different from *cirtana* Luc., and without a close morphological comparison with a ♀ of the present species I

prefer to give it the benefit of the doubt and apply the name to the western form of the insect Mr. Oberthür calls *tenuicornis*.

- 4 Mauretania, Grum-Grshimailo coll. and Staudinger.
- 5 Djelfa, May 1913, Faroult.

#### 43. *Procris orana algerica* subsp. nov.

*Procris orana* var. *algerica*, Staudinger in litt.

Differs from *orana orana* in being larger and deeper and richer in colour.

*Habitat.* Province of Constantine.

Two Batna ♂♂ stand out conspicuously from the rest by the strong, glittering metallic sheen of their forewings resembling that of the thorax of *Procris chloris*. On dissection these will probably prove to be a new species, but at present I can only place them here. The Tring series numbers 152.

- 9 Khenchela, May—June 1911–1912, W. R., K. J., and Faroult.
- 22 Djebel Chelia, June 1911, Faroult.
- 33 Djebel Marcouna, June 1911, Faroult.
- 86 Environs de Batna, 1913–1914, A. Nelva.
- 2 Mauretania, Staudinger.

There are specimens showing blue as well as green and golden green suffusion.

#### 44. *Procris bellieri prasina* subsp. nov.

Differs from *bellieri* by the total absence of blue, this colour being replaced by brilliant brassy green, and by its large size. Length of forewing, 16 mm. Expanse, 35.5 mm.

*Habitat.* Aïn Draham, Tunisia.

The antennae are very long and thick, and very blunt owing to the great extent of fusion of the anterior joints.

- 2 Aïn Draham, June 1909, Faroult.

In addition to these I have 1♂ and 2♀♀ from Khenchela and 1♀ from Aïn Draham of a *Procris* I am at present unable to identify.

### AMATIDAE.

#### 45. *Dysauxes punctata servula* (Berce).

*Noctia servula* Berce, *Ann. Soc. Entom. France*, ser. 4. vol. ii. p. 386 (1862) (Hyères).

This race of *punctata* is so distinct that Mr. Oberthür considers it specifically so, and possibly it may be; but as true *punctata* has not been taken with it, I prefer for the present to consider it only subspecifically distinct. It appears to be very rare, and we only came across it once at Hammam Meskoutine.

- 1 Djelfa, May 1913, Faroult.
- 1 Hammam Meskoutine, May 1914, W. R. and K. J.

## HETEROGYNIDAE.

46. *Heterogynis affinis* Rambur.

*Heterogynis affinis* Rambur, *Ann. Soc. Entom. France*, vol. v. p. 586 (1836) (S. Spain).

*Heterogynis canalensis* Chapman, *Trans. Entom. Soc. Lond.* 1904. p. 71 (Canales de la Sierra).

It is most difficult from imagines to identify any of the three species of *Heterogynis*, but I have bred series of true *penella* from the Riviera, Digne, etc., and I found a large number of larvae and pupae (cocoons) at Hamman R'ihra, and therefore as the latter agree with Dr. Chapman's cocoons of *canalensis* I have come to the conclusion that the Algerian *Heterogynis* is *affinis* and **not** *penella*, as Mr. Oberthür believes. I did not succeed in breeding many Hamman R'ihra imagines, as most of the cocoons were destroyed by an accident. The Tring series number 103.

98 ♂♂ Oued Hamidou, June 1912, Faroult.

5 ♂♂ Hamman R'ihra, May 1908–1911, W. R., K. J., and E. H.

2 ♂♂ cocoons.

## LIMACODIDAE.

47. *Cochlidion codeti* (Oberth.).

*Limacodes codeti* Oberthür, *Bull. Soc. Entom. France*, 1883. p. 48 (Sebdu).

We have never found this ourselves, and I have received it from Guelt-es-Stel, Masser Mines, and Oued Hamidou.

1 Masser Mines, June 1914, Faroult.

23 Guelt-es-Stel, May—October 1913, Faroult.

2 Oued Hamidou, June 1912, Faroult.

[*Cerura interrupta* and *bifida*.]

Mr. Oberthür records both *interrupta* and *bifida* from Algeria. This I believe to be an error; for, owing to various species extending over countries from Algeria to Wladivostock having the antemedian broad band occasionally interrupted, it has been the custom on the continent to lump a number of species together as *interrupta*.

The history of *interrupta* is as follows: H. Christoph in the *Stettiner Entomologische Zeitung* for 1867, p. 233, describes a new *Cerura* from Sarepta as *Harpya interrupta* sp. n. and gives the following diagnosis: "Alis anticis cretaceis basi margineque postica nigropunctatis, fascia (♂) in medio late interrupta, (♀) utrinque sinuata nigra—posticis albidis. Exp. al 47 mm. Long. corp. 20 mm."

Christoph in the detailed description lays great stress on the **chalk-white** ground-colour, **large** size, **robust** build, and **much broader** wings as compared with *Cerura bifida*. He also points out that his ♂ only has the band broken into two spots, while the ♀ has a complete band though constricted in the centre. After this, in 1882 in the *Horae Societatis Entomologicae Rossicae*, S. Alphéraky described a *Harpya petri*, p. 37. t. 1. fig. 36, which is much greyer and has a complete band. Dr. K. Grünberg in Seitz, *Grossschmetterlinge der Erde*, cites this as a dimorphic form of *interrupta*, and declares that the latter occurs in Sarepta, Caucasus, the whole of Asia Minor, Persia, Kurdistan, Syria, and Tunis.

I, of course, cannot tell what material Dr. Grünberg had before him at the time he wrote, but I have at present in the Tring series 48 specimens said to be *interrupta* from the following localities: Ili district; Repetek, Turcomania; Maralbashi; Aksu; Yuldus; Urumtschi; Sarepta; Askabad (Aschabad); Naryn, Gultsha, Osch, Irsyn, Sajan; Layed; Pompejefka, Little Chingan Mountains; Chabarovsk, Ussuri Railway; Beirut, Syria; also Batna, Khenchela, and Bou Saada in Algeria. These fall at first sight into six distinct groups: true *interrupta* from Sarepta, Askabad, and Naryn; *petri* from Aksu, Yuldus, Maralbashi, and Repetek; **a new form** from Irsyn, Layed, Pompejefka, and Chabarovsk; *syra* Gr.-Grsh. from Beirut; **a new form** from Ili; and last, but not least, the Algerian form, of which there are eighteen examples. *C. syra* Gr.-Grsh. is described *Annuaire Mus. Petersb.* vol. iv. p. 471. No. 18 (1899) (Syria), and two other species or forms have been described of this group, viz. *ludoviciae* Püngl., *Iris*, vol. xiv. p. 180. No. 58. pl. ii. f. 15 (1901) (Chinese Turkestan); and *intercalaris* Gr.-Grsh., *Annuaire Mus. Petersb.* vol. iv. p. 470. No. 17 (1899) (Thien-Tsing, China). *C. syra* is characterised by its pale pink forewings and strongly reduced dark markings of the forewings, while *ludoviciae* has yellowish white forewings, and the dark marks have no trace of orange margins, which are distinctly present in *syra*. *C. intercalaris* resembles *petri*, but has not got the very strongly pectinated antennae of that form and has strongly marked orange edges to the band.

All these forms, *syra*, *petri*, *ludoviciae*, **the two new forms**, and *intercalaris*, do not affect the question of the Mauretanian form, except the latter in respect to the yellow and orange edges of the band.

The Mauretanian *Cerura* as represented by my 18 specimens vary very much: there are some with broken bands, some with even unbroken bands, and others with bands more or less constricted in the middle; further, there are specimens with and without the orange-yellow margins to the bands both as regards specimens with broken or unbroken bands, and there are some with only a vestige of yellow; however, in my series there are none with as much yellow or orange as in certain European individuals of *bifida*. I have therefore come to the conclusion, first of all, that there are **no** *interrupta* Christ. in Mauretania at all; and secondly, that there is **only one** species of *Cerura* so far known from there. It remains to be seen what that species is.

So far, I think, there can only come into question two species, *bifida* Huebn. and *intercalaris* Gr.-Grsh. The description given by the author, Mr. Grün-Grshimailo, of the latter is as follows: "Antennae nigrae; thorax inter scapulos griseo-pilosus; caput, prothorax, et alae anticae supra dilute ochraceo-grisei; abdomen et alae posticae pallidiores, subalbidae; fascia transversa anticarum grisea angusta, intus sinuata extus ferre porrecta, tenuiter dilute-ochraceo marginata, pictura cetera valde oblitterata, vix indicata, puncta centrale et discoidale nulla. ♀—16 mm."

From this description it will be seen that *intercalaris* is very different from the Algerian *Cerura*, for *intercalaris* is described as having all the other markings except the band almost absent, *i.e.* barely indicated, while the Algerian specimens have all these markings plainly shown, though they do not stand out so boldly as in typical *bifida*, owing to the greyer ground-colour.

Mr. Oberthür states that the 3 ♀♀ he considered to be *bifida* out of his series of 7 Algerian *Cerura* belong to the form named by Boisduval in his *Genera*

et *Index Methodicus*, 1840, p. 84. No. 655, *Dicranura furcula* var. *urocera*, and the locality given being Montpellier. As Mr. Oberthür has De Boisduval's collection, I suppose he had the type of *urocera* before him, but I cannot see from the series before me of *bifida* from north of the Mediterranean—viz. 63 from Bexley, Kent; Crimmitsehau; Strausberg, Berlin; Germany (Grum-Grshimailo coll.); Liebenau, Bohemia; Poschiavo, Italian Alps; Tarasp, Engadine; Silva Plana, Engadine; Herculesbad, Hungary; Caunterets, Pyrénées; Gèdre, Pyrénées—any specimens like my Algerian series. The specimens of *urocera* I have from Tarasp are nearest to the Algerian ones in shade of "ground-colour," but the bands in these Engadine specimens are much broader, and, moreover, not a single European specimen shows any sign even of constriction in the band. I therefore have come to the conclusion that the Algerian *Cerura* is a form of *bifida* with a strong tendency to the interruption of the band, and that it is as yet an unnamed form.]

#### 48. *Cerura bifida interspersa* subsp. nov.

Differs from *bifida urocera* Boid. in the band being narrower when fully developed in the ♀♀, usually being strongly constricted in the middle. The ♂♂ usually have the band either interrupted at median vein or else reduced to a narrow line, but one ♂ from Khenchela and one from Bou Saada have the band entire, though slightly concave, both basad and distad.

*Habitat.* Algeria, Tunisia ?

11 Batna, May—June 1910–1912, A. Nelva and M. Bartel.

3 Khenchela, May—July 1911–1912, W. R. and K. J. and Faroult.

5 Bou Saada, March—May 1912, Faroult.

The Tring series totals 19.

#### 49. *Dicranura vinula delavoiei* Gasch.

*Dicranura vinula* var. *delavoiei* Gaschet, *Ann. Soc. Entom. France*, ser. 5, vol. vi, p. 522 (1876) (El-Esmau, Algeria).

Mr. Oberthür considers this to be a distinct species from *vinula*, but as it replaces it geographically and exhibits no very striking differences I prefer to treat it at present as a subspecies only.

We ourselves have only taken it at Khenchela, Timgad, and Oran, in single examples at each latter place and a pair at Khenchela.

5 Le Kreider, Prov. Oran, April 1916, Rotrou.

2 Magenta, Prov. Oran, April 1916, Rotrou.

1 Oran, April 1913, W. R. and K. J.

6 Environs d'Alger, April 1905–1910, Dr. Nissen and Captain Holl.

1 Boghari, May 1913, Faroult.

6 Guelt-es-Stel, May 1913, Faroult.

12 Environs de Batna, 1909–1912, A. Nelva.

2 Khenchela, May 1912, W. R. and K. J.

1 Timgad, May 1909, W. R. and E. H.

4 larvae, Khenchela and Hammam R'ihra, Faroult.

4 cocoons, 7 pupae, and a batch of eggs, Khenchela, Faroult.

The series at Tring numbers 36.

50. *Hybocampa powelli* Oberth.

*Hybocampa powelli* Oberthür, *Bull. Soc. Entom. France*, 1912, p. 339 (Lambessa).

This species is not represented at Tring. Besides the two specimens in Mr. Oberthür's collection, I have seen one in the late Captain Holl's collection, and I saw one in 1914 in the possession of Mr. A. Nelva at Batna, but could not persuade him to part with it as he thought it was a new species.

51. *Pterostoma palpina* (Linn.).

*Phalaena palpina* Linnaeus, *Fauna Suec.* edit. Alt. (1761).

I have never seen a Mauretanian example of this insect.

52. *Phalera bucephala bucephalina* Stdgr.

*Phalera bucephala* var. *bucephalina* Staudinger, *Cat. Lépid. Palaear. Fauneng.* part i, p. 111. No. 858 b. (1901) (Tangier).

We have never taken this insect ourselves.

2 Tangier, Staudinger.

1 Aïn Draham, Faroult (autumn 1911).

53. *Ichthyura pigra powelli* (Oberth.).

*Pygaera powelli* Oberthür.

We never found this insect ourselves.

2 Batna, September 1912, A. Nelva.

54. *Thaumetopoea pityocampa* (Schiff.).

*Phalaena pityocampa* Schiffermüller, *Syst. Verz. Schmett. Wien*, p. 58 (1776) (Vienna).

We have seen many nests and larvae of this species, but never took any imagines, as we have not been in Algeria so late in the year.

16 Guelt-es-Stel, August—September 1912–1913, Faroult.

1 Sidi Ferruch, A. Théry.

21 Sakamudi, August 1912, Faroult.

4 Batna, 1911–1912, A. Nelva.

The 4 Batna examples are only about two-thirds the size of the others. Tring possesses altogether 42 Algerian examples.

55. *Thaumetopoea herculeana* (Ramb.).

*Cnethocampa herculeana* Rambur, *Faune Andal.* pl. 14. ff. 5, 6 (1839) (Cadiz); *Cat. Syst. Lépid. Andal.* pp. 384, 385 (1866).

The same remarks apply to this species. In 1914 (NOVIT. ZOOL. vol. xxi. p. 313) I called the Algerian form of *herculeana* subspecies *colossa* Bang-Haas, but on carefully going into the question I find that equally large specimens occur all over the range of this species, so if retained at all Bang-Haas's name can only stand as ab. *colossa*.

228 Guelt-es-Stel, September—October 1912–1913, Faroult.

2 Mazagan, Morocco, October 1902, W. Rigggenbach.

2 Rabat, Morocco, 1913, A. Théry.

## LIPARIDÆ.

This family has been renamed **Lymantriidæ**, because it has been stated that Ochsenheimer's genus *Liparis* could not stand because it was preoccupied by *Liparis* Artedi, a genus of fishes. This extraordinary assertion is due to the fact that, before the issue of the Rules of Nomenclature by the International Commission, while zoologists in general adopted 1758, the date of the tenth edition of Linnaeus's *Systema Naturæ*, as the nomenclatorial starting-point, the ichthyologists, while also adopting 1758, admitted names given by certain pre-Linnaean authors as valid. Now, however, the International Commission has fixed the date 1758 as the valid starting-point for all and every branch of zoology.

The genus of fishes *Liparis* was bestowed by Artedi in 1738, while *Liparis* Ochsenheimer dates from 1810, therefore *Liparis* Ochs. is not ante-dated by *Liparis* Art., as the latter is before 1758 and so is nomenclatorially non-existent. The type of *Liparis* Ochs. as restricted by Germar 1811 is *monacha* Linn., while the type of *Lymantria* Hübn. is also *monacha* Linn., while *dispar* Linn. is the type of *Porthetria*. As *Liparis* is the older genus and moreover the whole group was included in it by its author, the family must stand as **Liparidæ** and not **Lymantriidæ**. The type of *Orgyia* Ochs. as restricted by Germar is one of the species usually included under *Dasychira* Steph. 1829. Ochsenheimer himself points out that his last 2 species *antiqua* and *gonostigma* are atypical, and Germar founded the new genus *Notolophus* for them, which leaves *Orgyia* as the older name of *Dasychira*.

**Notolophus dubia, N. splendida, and N. josephina.**

Dr. E. Straud in Seitz, *Grossschmetterlinge der Erde*, has united these three forms together with six other forms and two aberrations under the specific entity *dubia* Tausch., and makes it range from Spain through Morocco, Algeria, Egypt, Palestine, Syria, Armenia, Russia, Siberia, Transcaspia, Turkestan, and Thian Shan, to Transbaicalia. In the *Etudes de Lépidoptérologie Comparée*, Messrs. Oberthür and Harold Powell discuss these forms in so far as they affect the Mauretanian fauna at great length. They start by separating *josephina* at once as a quite distinct species, and then proceed to discuss the bearings of *dubia* and *splendida*. They arrive at the, to me, extraordinary conclusion that all Spanish examples are referable to *splendida*, while the Algerian examples, other than *josephina*, are all referable to *dubia*.

Now, *dubia* Tausch. was described in the *Mémoires de la Société Impériale de Moscou*, vol. i. 1806, and came from Moscow.

*Notolophus splendida* was figured by Rambur in his *Faune Entomologique de l'Andalousie*, 1842, Lépidoptères, plate 1, 5. ff. 3-6 and d, giving figures of 2 ♂♂ and ♂ underside, 1 ♀, and a larva. In my copy of the work, which was never finished, the text of the Lépidoptères is numbered 213 to 336 and ends up with *Sesia rhingiaeformis*, so that there is no description. In his *Catalogue Systématique des Lépidoptères de l'Andalousie* Rambur refigures *Notolophus splendida*, plate ii. ff. 4, a, b, c, and describes it at length pp. 284-289, where he gives a comparative table of differences between it and *dubia*, laying special stress on the morphological differences.

I have, taking the forms together, 135 ♂♂ and 6♀♀, from the following localities: Andalusia; Oran; Alger; Blida les Glacières; Guelt-es-Stel; El Mesrane; Batna; Mauretania !!; Pontus; Sarepta; Larnaca, Cyprus; and Ili District, Turkestan. On comparing these, one thing is at once clear: you must either lump them all as races of one very variable species or else divide them into three species—two each with several races and one (*josephina*) confined to the Mauretanian littoral and tell. I consider, from the material at my disposal, that the question is not yet by any means solved, though I consider all the facts point to there being three species; but I do not at all agree with Messrs. Oberthür and Powell when they say that *splendida* is a Spanish species, while Algerian (*i.e.* Mauretanian) specimens all belong to *dubia*. If this were the case, it would, on the contrary, go strongly to prove them all to be races of a single species. I have, however, true *splendida* from Algeria, Spain, and South Russia, and I have *dubia* from Algeria and South Russia, so I feel certain in my own mind that *splendida* and *dubia* are two distinct species. The case of *josephina* is somewhat different: first of all, the name *algorica* Lucas will have to stand for it instead of *josephina*, as the latter was given thirty-one years later; then, if this insect were confined entirely to the littoral, I should say it was only a very distinct race of *dubia*, but it is found at Hammam R'ihra also, while we find *splendida* also quite close at Blida, therefore I think it as well to keep it as a species, **although** a true *dubia* form has not yet come to light from Blida and neighbourhood.

*Notes on Rambur's "Faune Entomologique de l'Andalousie."*

I need not apologise to my readers for including a bibliographical notice here, because this work is little known, and yet of immense importance in working out Mauretanian lepidoptera. Mr. Oberthür says that he believes that copies of this work containing all the text and all the plates that were published (for the work was never completed) are at the present time unobtainable. He acknowledges that his own is incomplete, though it was Rambur's presentation copy to Mr. A. de Graslin. He gives the following collation of his copy:

TEXT.	PLATES.
<i>Coleoptera</i> , 144 pages.	<i>Coleoptera</i> , 4 (Nos. 1, 2, 19, 20).
<i>Orthoptera</i> , 96 pages.	<i>Orthoptera</i> , 6 (Nos. 1, 2, 3, 4, 6, 7).
<i>Lepidoptera</i> , pages 213-272 inclusive.	<i>Neuroptera</i> , 1 (No. 9).
	<i>Lepidoptera</i> , 7 (Nos. 8, 10, 11, 12, 14, 15, 18).

Hagen in his *Bibliotheca Entomologica*, vol. ii. p. 59 (1863) gives the year of publication as 1842, and the number of parts issued as 4, and the collation as follows:

TEXT.	PLATES.
<i>Coleoptera</i> , 144 pages.	<i>Coleoptera</i> , 4.
<i>Dermaptera</i> } 176 pages.	<i>Neuroptera</i> , 1.
<i>Orthoptera</i> } 176 pages.	<i>Lepidoptera</i> , 8.
<i>Hemiptera</i> } 176 pages.	<i>Dermaptera</i> } 7.
	<i>Orthoptera</i> } 7.
	<i>Hemiptera</i> } 7.

Our Tring Museum copy collates as follows :

TEXT.	PLATES.
<i>Coleoptera</i> , pages 1-144.	<i>Coleoptera</i> , pls. 1, 2, 19, 20.
<i>Dermaptera</i> } pages 1-212.	<i>Dermaptera</i> } Pls. 1, 2, 3, 4, 5, 6, 7.
<i>Orthoptera</i> } pages 1-212.	<i>Orthoptera</i> } Pls. 1, 2, 3, 4, 5, 6, 7.
<i>Hemiptera</i> } pages 1-212.	<i>Neuroptera</i> , pl. 9.
<i>Lepidoptera</i> , pages 213-336.	<i>Lepidoptera</i> , Pls. 8, 10, 11, 12, 14, 15, 17, 18.

So that our copy has 116 pages more of *Orthoptera*, etc., than Mr. Oberthür's and 64 pages of *Lepidoptera*, while it has pls. 5 of *Orthoptera* and 17 of *Lepidoptera* which are wanting in his copy.

Hagen states that the text of the *Lepidoptera* was never published, and only that of the *Hesperiidæ* ever printed (fide Lederer); but my 123 pp. of text begin with 26 pages of general history and 96 pages of systematic work, commencing with *Papilio podalirius* and ending with *Sesia rhingiaeformis*.

In 1872 Mr. P. Mabille published in the *Annales de la Société Entomologique de France* a complete bibliography of all the publications of Rambur; and from this it would appear that our Tring copy is complete. There is also a complete copy in the Natural History Museum (British Museum). The copy in the British Museum (Bloomsbury) is very incomplete; it has half the *Dermaptera-Orthoptera-Hemiptera* section missing and also the whole of the *Lepidoptera*. The Zoological Society of London's copy is also incomplete, pp. 177-212 of the *Dermaptera-Orthoptera-Hemiptera* and pp. 213-336 of the *Lepidoptera* being wanting.

#### 56. *Notolophus algerica* (Lucas).

*Trichosoma algericum* Lucas, *Explor. Scient. Alg. Zool.* vol. iii. p. 376. No. 82. pl. 3. f. 6. (1849)  
(Environs d'Alger).

*Orgyia josephina* Austaut, *Le Naturaliste*, vol. ii. p. 212 (1880) (Oran).

It has been the custom to look upon Lucas's insect as unrecognisable, and to ignore it; though Dr. Straud in Seitz puts it down as a form of *dubia* and actually ventured to give an aberrational name to the description of an aberration given by Lucas. Although the drawing in the *Exploration* is very bad and evidently taken from a faded or rubbed specimen or more likely still from a starved abortive individual, the description and figure together leave no doubt in my mind that the insect described by Lucas is the same as that described by Austaut. However, the **description** shows that the type of *josephina* had much more reduced pale marking of the forewings than the type of *algericum*, and this is confirmed by **examination** of the actual type now at Tring; but, not being quite so devoid of marking as the described aberration of Lucas, I think we may say that the coastal form of the *dubia* group in Algeria must stand as follows: *Notolophus algerica* (Lucas) eum ab. *josephina* Aust. et ab. *obliterella* Straud. I quite agree that for the present we cannot do otherwise than treat *Notolophus algerica* (Lucas) as a distinct species, as Mr. Oberthür has done.

The Tring series numbers 13 ♂♂ and 5 ♀♀.

2 ♂♂, 1 ♀ Oran, March—April 1880-1913 (type Austaut ♂ and 1 ♀; 1 ♂ W. R. and E. H.)

4 ♂♂, 4 ♀♀ Environs d'Alger, Captain Holl.

2 ♂♂ Hammam R'ihra ex larva (larva April), 1912, W. R. and K. J.  
5 Mauretania (1 ex Grum-Grshimailo coll.).

The British Museum has 11 examples: 5 Mogador; 5 Algeria, Leech coll.; 1 Esynir, Morocco, 1889, Commander Walker.

#### 57. *Notolophus dubia umbripennis* Strand.

*Orgyia dubia* ab. *umbripennis* Strand in Seitz, *Grossschm. Erde*, vol. ii. p. 119. pl. 19 c. (1910) (Batna).

It is most unfortunate that here again an aberration and not the typical race from the Province of Constantine of *dubia* has received a name just as in the case of the inland Algerian race of *Euchloë ausonia*. The ab. *umbripennis* has the same relation to the typical form of *dubia* from Prov. Constantine as ab. *scleniaca* F. de W. has to typical *dubia*.

Typical Algerian *dubia* differ from *dubia dubia* as follows: the cream-coloured area of forewing much more extended, owing to the dark bands being narrower and the cream-white much purer, not clouded with grey.

*Habitat.* Province of Constantine, except littoral; type locality, Batna.

As I have explained before, Messrs. Oberthür and Powell are in error in considering that of the three species of the *dubia* group only *dubia* and *algorica* (*josephina*) occur in Mauretania, and the origin of this error is because they failed to realise that the form *isolatella* Straud and one or two others were forms of *splendida* and **not** of *dubia*. Tring Museum has 92 ♂♂.

1 ♂ Guelt-es-Stel, September 1912, Faroult.

1 ♂, 2 ♀ cocoons El Mesrane, June 1913, Faroult.

90 ♂♂ Environs de Batna, 1911-1912, A. Nelva.

The specimen from Guelt-es-Stel is very small and has the dark markings and bands of the forewings very narrow.

#### 58. *Notolophus dubia deserticola* Powell.

*Orgyia dubia deserticola* Powell in Oberthür, *Etud. Lépidop. Comp.* Fasc. XII. pp. 265, 266 (1916) (Kebala).

The type ♂ and some ♀♀ in Mr. Oberthür's collection are all the specimens that have been recorded.

#### 59. *Notolophus splendida isolatella* Strand.

*Orgyia dubia* forma *isolatella* Strand in Seitz, *Grossschm. Erde*, vol. ii. p. 119. pl. 19 c. (1910) (Batna).

The general type of *splendida* from the Provinces of Constantine and Alger have the black transverse bands and outer portion of the forewing narrower than in the figure of *isolatella* in Seitz, but I have one labelled "Mauretania" ex Grum-Grshimailo coll. and three bred specimens from Blida les Glacières which agree perfectly with this figure. The two from the Djebel Ichali are exactly similar to two ♂♂ I have from the Black Sea littoral ex coll. Grum-Grshimailo and which were labelled var. *turcica* by him, but they are much brighter orange-

yellow in ground-colour than Asia Minor and Persian *turcica* Led. All the Blida *Notolophus* of this group I have seen belong to *splendida*, both my three and those collected by Captain Holl and Dr. Nissen. I collected a large number of cocoons in 1908 at Blida les Glacières, but they all emerged on our journey home and spoiled themselves except the three enumerated below.

- 1 ♂, 1 ♀ "Mauretania," Grum-Gshimailo coll.
- 3 ♂♂ Blida les Glacières, W. R. and K. J. (ex larva, larvae June 1908).
- 2 Environs de Batna, Djebel Ichali, May 1912, Nelva.

#### 60. *Notolophus splendida orana* Powell.

*Orgyia dubia orana* Powell in Oberthür, *Etud. Lépid. Comp.* Fasc. XII. pp. 264, 265 (1916) (Djebel Amour, Sebdu).

There are no specimens of this form at Tring.

#### 61. *Notolophus panlacroixii* Oberth.

*Orgyia panlacroixii* Oberthür, *Etud. Entom.* liv. i. p. 41. pl. iii. f. 5 (1876) (Tuelagh).

On page 273 Mr. Oberthür states that **no entomologist** had remarked about the discrepancy between the figure of this insect and the description (due to grease), and draws the conclusion, to fit his theory as to name-validity and figures, that no one reads descriptions when a figure exists. This is a most unjust deduction to make in this instance, as I will endeavour to explain.

The type of *N. panlacroixii* collected by Mr. Gaston Allard has remained unique to the present day, in spite of the extensive collecting in Algeria during the forty-one years since its capture. This being the case, it is evident that no entomologist was likely to spend much time over either plate or description as soon as he found that any specimens he had were not *panlacroixii*.

I, however, wish to point out one fact connected with this group of *Notolophus*. When comparing my series with those in the British Museum, I examined a long series of *Notolophus leechi* Kirby (*prisca* Leech nee Staudinger) from West China which had been in the Leech collection and included Kirby's type. I found in these that the two transverse lines on the disc of the forewing, which resemble those of *panlacroixii* in some specimens by being joined at the inner margin, are very variable. In some they are wide apart, as in *anceps*, at the inner margin, while in others they gradually converge till they become joined on the inner margin; between these extremes there is a complete intergradation. This being the case with *leechi*, it is in my opinion quite conceivable that *panlacroixii* is only an aberrant specimen of the local race of *trigotephras*, though a long series with intergradations would be required to prove it. I therefore must for the present treat this insect as a distinct species.

#### 62. *Notolophus trigotephras anceps* Oberth.

*Orgyia anceps* Oberthür, *Etud. Entom.* liv. ix. p. 37. pl. iii. f. 5 (1884) (Tangier).

This race appears confined to Tangier, and the Tring Museum has no specimens.

63. *Notolophus trigotephras transiens* Stdgr.

*Orgyia trigotephras* var. *transiens* Staudinger in *Cat. Lépid. Palaearc.* Staud. and Rebel, p. 114. No. 888 b. (1901) (Mauretania).

This is the most widely spread of the Mauretanian forms of *trigotephras*, being found in the Provinces of Alger and Constantine and also in Tunisia.

1 ♂ Hussein Dey, June 1908, Captain Holl.

5 ♂♂ Blida les Glacières, July 1908, Captain Holl.

1 ♂ Tala Rana, July 1910, Dr. Nissen.

3 ♂♂ Batna, Nelva.

2 ♂ Oued Hamidou, June 1912, Faroult.

3 ♂♂ Hammam Meskoutine, W. R. and K. J. (ex larva, larvae May 1914, emerged at Tring).

13 ♂♂ Ain Draham, July 1911, Faroult.

The Tring Museum series comprises 28 ♂♂.

63a. *Notolophus trigotephras holli* Oberth.

*Orgyia trigotephras holli* Oberthür, *Etud. Lépid. Comp. Fasc. XII.* p. 276 (description), p. 278 (name in explanation of figures) (1916) (El Biar).

This form has also been taken at Hussein Dey.

64. *Notolophus trigotephras sebdouensis* Oberth.

*Orgyia trigotephras sebdouensis* Oberthür, *Etud. Lépidop. Comp. Fasc. XII.* p. 276 (description), p. 278 (explanation of plate) (1916) (Sebdou).

This is the largest of the Mauretanian races of *trigotephras*. It is nearest to *t. auceps* in respect to its ground-colour, but differs much by the white supra-tornal white patch being almost or quite absent and in the discal transverse lines being more prominent. Mr. Oberthür states that this insect is somewhat smaller than *N. panlaeroixii*, but the drawing of that insect shows forewing 16 mm. in length and expanse 35 mm., and my specimen of *t. sebdouensis* from the Grum-Grshimailo collection shows exactly identical measurements.

1 ♂, 1 ♀ Sebdou, June 1886, Austaut.

1 ♂ Mauretania, Grum-Grshimailo coll.

[*Arctornis chrysorrhoea* (Linn.) and *Nygmia phaeorrhoea* Don.

It has hitherto been accepted that our familiar "Goldtail Moth" should be called *Porthesia similis* Fuessly (*Verz. bekannt. Schwerz. Ins.* p. 35. No. 662 (1775)), because this ante-dated Fabricius's name *auriflua* (*Mant. Ins.* 125 (1787)); moreover, this name *auriflua* was itself ante-dated by Esper's *auriflua* (*Schmett.* vol. iii. p. 207. pl. 39. f. 6 (1785)), applied to a different insect.

Mr. Oberthür draws attention (*Etud. Lépidop. Comp. Fasc. XII.* p. 281 (1916)) to the fact that Linnaeus's description of his *Phalaena chrysorrhoea* says "abdominis apice barbato luteo," and that this applies to the "Goldtail" and not to the "Browntail Moth," to which this name has been applied practically universally for the last hundred years.

But true to his obsession as to figures alone giving validity to a name, he refuses to discuss the question, and calmly adopts the name *Euproctis chrysorrhoea* Hübn., which is undoubtedly the **Browntail**, and treats Linnaeus's name

as a *nomen nudum*. However, I have carefully gone into this question; the first and therefore the proper quotation of *Phalaena chrysoorrhoea* Linn. is **not**, as Mr. Oberthür gives it, "*Syst. Nat. edit. x. reform* (Joannis Joachimus Langius), vol. i. p. 502. No. 28 (1760)," but "*Syst. Nat. edit. x. vol. i. p. 502. No. 28* (1758)." Now, Linnaeus gives as his first quotation *Raj. ins.* 156. No. 1. 15, which means Joannis Raius, *Historia Insectorum*, p. 156. P.M. 15. No. 1 (1710), where the perfect insect is described as follows: "Phalaena media, alis niveis, cauda obtusa lanugine densa pulva obsita." This description might fit either of our two insects, but Raius adds a very long and most careful description of the larva, which is too extensive to quote verbatim, but the first sentence is decisive, "Lineae tres è coccineis seu rubris maculis compositae, una hinc inde in lateribus supra pedes, tertia in medio dorso, à capite a caudam producuntur." The statement that the larva has three scarlet lines, one situated **above** the **feet** on each side of the body, whereas the "Browntail's" larva has **no lateral red lines**, clearly proves Raius to have described the "Goldtail Moth" and **not** the "Browntail Moth," so Linnaeus's name *chrysoorrhoea* must be restricted to the "Goldtail."

The proper name for the "Browntail Moth," therefore, must now engage our attention. It had long been pointed out that as Esper had used the name *auriflua* in 1785 for the "Browntail," Fabricius' name *auriflua* (*Mant. Ins.* vol. ii. p. 125. No. 145 (1785)) could not be employed for the "Goldtail Moth," and that Fuessly's name *similis* (*Verz. d. i. bekannt. Schmett.* p. 35. No. 662 (1775)) must be used for that species. Now, however, I think I have proved that the "Goldtail Moth" must stand as *Euproctis chrysoorrhoea* (Linn.), and at first sight it would appear that Esper's name of *auriflua* (*Schmett.* vol. iii. p. 207. pl. 39. f. 6 (1785)) must be applied to the "Browntail Moth," but, unfortunately, the name *auriflua* was applied to the "Goldtail Moth" in 1776 by Schiffermüller and Denis (*Syst. Verz. Schmett. Wien*, p. 52. No. 4). The only other name clearly applicable to the "Browntail Moth" is *Phalaena phaeorrhoea* Donovan (*Nat. Hist. Brit. Ins.* vol. xvi. p. 39. pl. 555 (1813)). Therefore the "Browntail Moth" must stand as *Nygmia phaeorrhoea phaeorrhoea* (Don.).

The fact that we have proved that the name *chrysoorrhoea* Linn. belongs to the "Goldtail Moth" carries with it some generic changes as well as specific. We see that *auriflua* Schiff. and Den. applies to the "Goldtail," but the type of the genus *Euproctis* Hübner is given by him as *auriflua* Schiff., and I found on reference to **Hübner's own copy** of Schiffermüller and Denis's *Systematisches Verzeichniss der Schmettenlinge der Wiener Gegend* evidence to prove this. This name *Euproctis* (Hübner, *Verzeichniss bekannten Schmetterlinge*, p. 159. Coitus 2 (1827)), and which ante-dates *Porthesia* (Stephens, *Illustrations of British Insects, Houstellata*, vol. ii. p. 65 (1828)), is unfortunately also antedated by Germar's name *Aretornis* (*Syst. Gloss. Prod. sist. Bomb.* 1811, p. 18), which therefore must be used for the "Goldtail" *chrysoorrhoea* Linn., so that we have to seek the oldest generic name for the "Browntail." This would appear to be *Artaxa* (Walker, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum*, p. 794, genus 7 (1855)), but Hübner's name *Nygmia* is 23 years older. [I may here add that not only does Raius's description of the larva prove Linnaeus to have designated the "Goldtail Moth" and **not** the "Browntail" by the name *chrysoorrhoea*, but Linnaeus's own mention of the larva, "Larva nodosa, pilosa, nigra, **rubro lineata**," cursory as it is, also proves this to be the case.]

65. *Nygmia phaeorrhoea xanthorroea* (Oberthür).

*Euproctis chrysorrhoea* forma *xanthorroea* Oberthür, *Etud. Lépidop. Comp.* Fasc. XI. p. 282 (1916) (Algeria, Tunisia).

We have never taken this insect ourselves, as it appears later in the year than we stayed in Algeria. The Tring series of 16 is very small.

- 1 Masser Mines, June 1914, Faroult.
- 2 Blida les Glacières, July 1906, Captain Holl.
- 13 Aïn Draham, July 1911, Faroult.

The British Museum has 3 specimens, Meade-Waldo coll. In his article Mr. Meade-Waldo gives Tangier.

66. *Liparis atlantica* (Ramb.).

*Liparis atlantica* Rambur, *Faune Entom. Andal.* pl. 15. f. 7 (1842) (Andalusia).

*Psilura atlantica* Rambur, *Cat. Syst. Lépidop. Andal.* pp. 277-278 (1858) (Andalusia ♂, Algeria ♀).

We have taken this insect in several places during our travels in Algeria, but it was at Hammam Meskoutine alone that we found it was very abundant. The Guelt-es-Stel series for the greater part are very small. The variation is individually very great.

- 1 Mogador, Morocco, Staudinger.
- 1 Oued Raham, near Mazagan, April—May 1903, W. Rigggenbach.
- 1 Morocean Frontier, May 1914, Faroult.
- 1 Nedroma, May 1914, Faroult.
- 2 Colomb Beehar, March—April 1912, Faroult.
- 6 Aïn Sefra, May 1913, W. R. and E. H.
- 22 Sidi Ferrueh, A. Théry.
- 13 Hammam R'ihra, May 1908-1913, W. R., E. H., K. J., and Dr. Nissen.
- 11 Sakamudi, August 1912, Faroult.
- 6 El Hamel, May 1912, Faroult.
- 1 El Messrane, June 1913, Faroult.
- 251 Guelt-es-Stel, May—October 1913, Faroult.
- 100 Bou Saada, April—May 1911-1912, Faroult.
- 2 Djebel Këndada, May 1912, Faroult.
- 2 Biskra, March—April 1908-1909, W. R., E. H., and Faroult.
- 2 El Kantara, April—May 1909-1911, W. R., E. H., and Faroult.
- 2 Khenehela, May 1912, W. R. and K. J.
- 1 Constantine, Staudinger.
- 71 Hammam Meskoutine, May 1914, W. R., E. H., and K. J.
- 2 Aïn Draham, August 1910, Faroult.

The Tring Museum totals 498 examples.

The British Museum has 2 examples labelled Tunis, Staudinger.

67. *Liparis mus* Oberthür.

*Lymantria mus* Oberthür, *Etud. Lépidop. Comp.* Fasc. XI. (Planches), Explan. Pls. p. 22. pl. ccexxxx. No. 4723 (1916) (El Outaya).

I have no *Liparis* which agrees exactly with Mr. Oberthür's figure, though some Guelt-es-Stel specimens approach it closely; I therefore, for the present,

keep it separate, but personally I believe it is only a starved specimen of *L. atlantica*.

68. *Liparis oberthuri* Lucas.

*Lymantria oberthuri* Lucas, *Ann. Soc. Entom. France*, vol. lxxv. p. 26. pl. 3. ff. 6, 7 (1906) (Nefta, Tunisia).

We have taken 2 ♂♂ of this pretty little species ourselves; it appears to be very rare.

- 1 Bordj M'geitla, near El Oued, April 1909, W. R. and E. H.
- 1 Oued Saadana, May 1912, E. H. and C. H.

69. *Porthetria dispar* (Linn.).

*Phalaena dispar* Linnacus, *Syst. Nat.* vol. i. p. 501. No. 27 (1758) (?).

This insect appears later in the year than we have been in Algeria. It is exceedingly common, but I have a very poor Mauretanian series.

- 11 Tala Rana, July 1908, Dr. Nissen.
- 27 Environs de Batna, Nelva and Taillefer.
- 1 Aïn Draham, July 1911, Faroult.

70. *Ocneria signatoria nisseni* (Rothsch.).

*Lymantria nisseni* Rothschild, *Novit. Zool.* vol. xix. p. 125. No. 1 (1912) (Khenchela).

If Mr. Oberthür did not persist in considering names with descriptions only invalid, usually ignoring them altogether, he would have found out that his *signatoria algerica*, described and figured in his Fascicule XI. of the *Etudes Comparées* in April 1916, was ante-dated by nearly four years by my *nisseni*.

Mr. Oberthür remarks that he does not know the ♂, having only 5 ♀♀: it is very strange, but although the Tring Museum contains 71 examples, they are all without exception ♀♀, as is the case with my three typical *signatoria* from Central Asia. I also find that all the *Ocneria rubea* we have captured ourselves in Algeria are ♀♀.

- 1 Khenchela, June 1911 (type), Faroult.
- 3 El Mesrane, June 1913, Faroult.
- 1 Msila, May 1915, Faroult.
- 66 Aïn Sefra, August 1915, Faroult.

71. *Ocneria rubea* (Schiff. and Den.).

*Phalaena rubea* Schiffermüller and Denis, *Syst. Verz. Schmett. Wien*, p. 51. No. 2 (1766) (Vienna).

We captured a small series of this species at Hammam Meskoutine, all ♀♀; one of these has the forewings suffused with smoky brown, only the costal edge, inner margin, and fringe being pink. The ♂ from Masser Mines is entirely suffused with smoky grey, only on the disc of the hindwings a little pink shows through. The Aïn Draham ♀ is very large.

- 1 ♂ Masser Mines, June 1914, Faroult.
- 11 ♀♀ Hammam Meskoutine, May 1914, W. R. and K. J.
- 1 ♀ Aïn Draham, July 1911, Faroult.

71bis. *Casama uniformis* (Rothsch.).

*Oeneria uniformis* Rothschild, *Novit. Zool.* vol. xx. p. 118. No. 22 (1913) (S. Oued Mya).

This insect is very close to *Casama innotata* Walk., but exhibits constant differences.

- 1 ♀ S. Oued Mya, May 1912, E. H. and C. H.
- 1 ♂ Amgid, February 1914, Geyr von Schweppenburg.
- 1 ♀ Ji-n-tabarik, April 1914, Geyr von Schweppenburg.
- 2 ♀♀ Aïn Tahart, April 1914, Geyr von Schweppenburg.
- 2 ♀♀ Tahlilout, April 1914, Geyr von Schweppenburg.

72. *Albarracina warionis warionis* (Oberth.).

*Bombyx warionis* Oberthür, *Etud. Entom.* vi. p. 75. pl. ii. f. 6 (1881) (Oran).

We first captured a specimen of this species in 1909 on our journey to El Oued; and in 1912 Dr. Hartert got four specimens on his expedition to In-Salah, and he captured the species again on the Oued Nça in 1914.

- 1 ♂ Bordj Ferjan, April 1909, W. R. and E. H.
- 7 ♀♀ Oued Nça, April—June 1912–1914, E. H. and C. H.

## LASIOCAMPIDAE.

73. *Chonderostega powelli* Oberth.

*Chonderostega powelli* Oberthür, *Etud. Lépidop. Comp.* Fasc. VI. p. 336. pl. cxxxii. ff. 1162–1164 (1912) (Géryville).

We found a larva at Boghari which unfortunately died, but I was able to preserve it, and it is a fine specimen. It differs from the two larvae sent by Faroult and also from the figure of Mr. Oberthür by having the hair thicker and much more grey; but one of Faroult's larvae is intermediate between it and the figure, while the second larva is exactly like the figure.

- 2 ♂♂, 4 ♀♀ Guelt-es-Stel, September 1913, Faroult.
- 1 larva, Boghari, April 1911, W. R. and E. H.
- 2 larvae, Guelt-es-Stel, March 1913, Faroult.

74. *Chonderostega constantina* Aurivillius.

*Chonderostega constantina* Aurivillius, *Iris*, vol. vii. p. 137. No. 7 (larva) (1894) (Mauretania (Constantine fide Staudinger)).

*Chonderostega constantina* Oberthür, *Bull. Soc. Entom. France*, 1898, p. 230 (imago ♂♀) (Prov. Constantine).

- I only have 1 ♀ of this species.
- 1 ♀ Constantine, Staudinger.
- 3 larvae, Constantine, Staudinger.

75. *Chonderostega tingitana* Powell.

*Chonderostega tingitana* Powell in Oberthür, *Etud. Lépidop. Comp.* Fasc. XII. pp. 303–304 (1916) (Tangier).

- Only known from the ♂♀ in Mr. Oberthür's collection.

76. *Clisiocampa neustria flavescens* (Grünb.).

*Malacosoma neustria flavescens* Grünberg in Seitz, *Grossschm. Erde*, p. 151 (1911) (Algeria).

The only place from which the Tring Museum has received this species is Masser Mines.

4 ♂♂, 1 ♀ Masser Mines. June 1914, Faroult.

77. *Malacosoma alpicola lutea* (Oberth.).

*Bombyx luteus* Oberthür, *Etud. Entom.* liv. iii. p. 44 (1878) (El May Oran).

Mr. Oberthür has told us, from material in his collection, that he finds West Algerian and East Algerian ♀♀ of *lutea* more or less alike, while the ♂♂ are very distinct; the East Algerian ♂♂ being dark with two light discal transverse lines, while the West Algerian ♂♂ are light with two dark discal transverse lines. From this it appears that Mr. Oberthür's experience has been different from mine, else he would have realised that the problem of the Mauretania representatives of the European *franconica-alpicola* group of moths was a very different one from what he thought. In 1912 Dr. Jordan and I collected a large number of larvae of these insects at Khenchela and in 1913 Faroult did the same at Guelt-es-Stel. Of both lots many larvae died before spinning up and pupating, and of the rest the largest number died or the imagines got spoilt owing to our very rough journeys home. However, I succeeded in breeding 3 ♂♂ and 1 ♀ from Guelt-es-Stel and 4 ♂♂ and 4 ♀♀ from Khenchela. In 1914 Faroult sent me some cocoons of these insects from Boghari, from which 5 ♂♂ and 1 ♀ emerged. The resulting insects form a most interesting series: 4 ♂♂ and 1 ♀ from Boghari and the 3 ♂♂ and 1 ♀ from Guelt-es-Stel and 1 ♀ from Lambessa are typical *lutea*, i.e. the ♂♂ have the disc of the forewings cream-yellow with the two transverse lines mauve-brown, and the ♀♀ are entirely rich golden yellow; the 1 ♂ from Boghari and 4 ♂♂ from Khenchela have the disc of the forewings mauve-brown, with the two transverse lines cream-yellow; the ♀♀, however, also show a great difference—two of these ♀♀ are liver-brown, washed with olivaceous or greenish and with an indistinct yellowish transverse band, the remaining two are blackish chocolate-brown. Before reading Mr. Oberthür's article I had determined in my own mind that I was dealing with two distinct races of one species, but after reading his article and looking up his previous works on the subject, I carefully re-examined my nineteen specimens, and I was at once struck by three points: first, Mr. Oberthür had got typical *lutea* ♀♀ from Khenchela and Lambessa and a typical *lutea* ♂ from Biskra; secondly, I had got dark ♂♂ and ♀♀ quite unlike typical *lutea* from Khenchela; and thirdly, I had got three typical *lutea* ♂♂ from Boghari and one dark ♂ similar to those from Khenchela. The fact thus demonstrated that typical *lutea* as well as dark-coloured examples occurred at Boghari and Khenchela clearly proved that what we were dealing with were not two local races of one species, as two local races of the same species cannot occur together in one place. Therefore we had either a case of dimorphism to deal with or the dark and light examples were specimens of two distinct species. This question can only be decided by the examination of the genitalia or by breeding both dark and light individuals from eggs laid by a single ♀.

Pending such decision, I prefer to keep them as separate species, one repre-

senting in Mauretania *Malacosoma franconica* Esp. and the other *Malacosoma alpicola* Stdgr.

4 ♂♂, 1 ♀ Boghari, May 1913–1914, Faroult (ex larva hatched Hammam Meskoutine).

3 ♂♂, 1 ♀ Guelt-es-Stel. May 1913, Faroult.

1 ♀ Lambessa, Staudinger.

2 larvae, 4 cocoons, and 2 pupae, Guelt-es-Stel, Faroult.

#### 78. *Malacosoma franconica brunneo-olivacea* subsp. nov.

♂. Differs from *f. franconica* in having the cream-yellow discal lines of the forewings much more strongly developed. ♀. Differs from *f. franconica* in being either liver-brown washed with olive or dark chocolate-brown **not** maroon-red.

*Habitat.* Algeria.

1 ♂ Boghari, May 1913, Faroult (ex larva).

4 ♂♂, 4 ♀♀ Khenchela, May 1912. W. R. and K. J. (ex larva, larva Khenchela, emerged Tring).

2 larvae, 2 cocoons, Khenchela, W. R. and K. J.

#### 79. *Achnocampa ilicis* Ramb.

*Achnocampa ilicis* Rambur, *Cat. Syst. Lépidop. Andal.* p. 362. pls. 5. f. 4 and 14. f. 1 (1866) (Andalusia).

We never received or found this species.

#### 80. *Diplura loti algeriensis* (B. Baker).

*Bombyx loti* var. *algeriensis* B. Baker, *Entom. Month. Mag.* vol. xxi. p. 242 (1885) (Guelma).

*Bombyx brunnea* Oberthür, *Etud. Entom.* livr. xiii. p. 29. pl. 6. f. 39 (1890) (Prov. Oran).

We have never come across the imago of *l. brunnea*, but we found a larva at Saida which, as it was almost dead, I preserved. The Batna ♂ is much damaged.

1 ♂ "Algeria," Bartel.

1 ♂, 3 ♀♀ Batna, 1909–1914, Nelva.

1 ♀ Lambessa, Deyrolle.

1 ♀ Lalla Marnia, October 1912, Rotrou.

1 ♀ Sidi-bel-Abbès, August 1912, Rotrou.

1 larva, Saida, May 1913, W. R. and K. J.

#### 81. *Diplura loti simulatrix* Chrét.

*Diplura simulatrix* Chrétien, *Le Naturaliste*, vol. xxxii. (ser. ii. vol. xxii.) p. 78. No. 2 (1910) (Tunisia).

I have never received this form. Mr. Chrétien has described *simulatrix* as a species distinct from *loti*, and an examination of the genitalia and other structures may prove him to be right. Mr. Oberthür has alluded to Mr. Chrétien's insect under his *brunnea* = recte *algeriensis* B. Baker (*Etud. Entom. Comp. Fasc. XII.* p. 326 (1916)), and treats it as a local race of *algeriensis*, which he considers a distinct species from *loti*; this again may or may not prove to be the case. However, one thing is clear, typical *Diplura loti* does not occur in North Africa; and as

*algeriensis* and *simulatrix* replace this species geographically in Algeria and Tunisia respectively, I feel bound for the present to treat both as subspecies of *loti*.

[*Pachygastria serrula* (Guen.) and its allies.

This little group of species is very difficult to make out, but fortunately I have a good series of the two Palestine forms *dauidis* Stdgr. and *serrula palaestinensis* Stdgr. for comparison. The type of Guenée's *serrula* was said to have been brought from Andalusia by Lorquin, but there appears to be some doubt as to the correctness of the locality (see Oberthür, *Etudes d'Entomologie*, livraison vi. pp. 73, 74). The figure of the type (*Ann. Soc. Entom. France*, pl. x. fig. 2) is not good, too red and not pure grey enough.

The next record of *serrula* is from Mt. Tessala, Prov. Oran, where it was discovered by Mr. Austaut in 1880. Mr. Oberthür describes it and figures the ♂ and larva (*Etud. Entom. livr. vi. p. 73. pl. iii. Nos. 6 and 6a*) from Mr. Austaut's specimens. These figures are not very good. Since then a number of forms (*aegyptiaca* Oberth., *maroccana* Stdgr., and *undulata* Stdgr.) have been described; in addition to this Staudinger has described *dauidis* and Oberthür *bomilcar* with a var. *hamilcar*, which these authors consider good species. As regards *dauidis*, Herr Paulus, its discoverer, stated that its larva was feeding in company with that of *s. palaestinensis* and did not differ from it. Comparing *dauidis* and *palaestinensis* and *hamilcar* and *undulata* = *bomilcar*, we at once see that they bear exactly the same relationship to one another, and I have no doubt that *dauidis* is the extreme pale form of *serrula palaestinensis*, just as *hamilcar* is the extreme pale form of *serrula undulata*. If Mr. Oberthür had looked up the original descriptions of Staudinger's vars. *maroccana* and *undulata* (*Iris*, vol. vii. p. 265), instead of merely reading the diagnosis in the Catalogue of 1901, he would have perceived that the *maroccana* fitted his ♂ figure of *serrula* very well, while the *undulata* was his *bomilcar*. The Tring Museum possesses a ♂♀ out of Austaut's collection labelled "*B. serrula* V<sup>te</sup> *brunnea* Oran, type Austaut." This is apparently one of the specimens obtained on Djebel Tessala. Staudinger's type of *maroccana* was also from the Austaut collection from somewhere near the Moroccan frontier; it apparently is only an aberration with less grey mixture in the brown and the transverse bands almost absent.]

82. *Pachygastria serrula serrula* (Guen.).

*Bombyx serrula* Guenée, *Ann. Soc. Entom. France*, ser. 3. vol. vi. p. 454. t. 10. fig. 2 (1858) (Andalusia ?!).

*Bombyx serrula* Oberthür, *Etud. Entom. livr. vi. p. 73. t. iii. ff. 6 ♂ and 6a larva* (♂ = ab. *maroccana* Staudinger) (1881) (Djebel Tessala).

4 ♂♂, 2 ♀♀ Mauretania, Grun-Grshimailo coll.

1 ♂, 1 ♀ Oran, Austaut (labelled V<sup>te</sup> *brunnea* type).

4 ♂♂ Perrégaux, Prov. Oran, October 1915, Faroult.

1 larva, Aïn Sefra, W. R. and E. H.

The British Museum has 8 Algiers !!

The Tring Museum series consists of 9 ♂♂ and 3 ♀♀ = 12.



EXPLANATION OF PLATE I.

No.

- |            |       |  |                  |              |
|------------|-------|--|------------------|--------------|
| 1, 16.     | ♂ ♀   | <i>Pachygasteria josua rancheri</i> (Blach.)   | Nov. Zool. XXIV. | p. 364       |
| 2.         | Larva | <i>P. trifolii mauretunica</i> (Stdgr.)        | Nov. Zool. XXIV. | - - p. 365   |
| 3.         | Larva | <i>P. josua josua</i> (Stdgr.)                 | Nov. Zool. XXIV. | . . . p. 364 |
| 4.         | Larva | <i>P. josua rancheri</i> (Blach.)              | Nov. Zool. XXIV. | - - - p. 364 |
| 5, 6.      | ♂♂    | <i>P. serrula serrula</i> (Guen.)              | Nov. Zool. XXIV. | . . . p. 362 |
| 7, 8.      | ♀♀    | <i>P. serrula palaestinensis</i> (Stdgr.)      | Nov. Zool. XXIV. | - - p. 362   |
| 9, 10, 11. | ♂ ♀♀  | <i>P. serrula undulata</i> (Stdgr.)            | Nov. Zool. XXIV. | . . . p. 363 |
| 12, 19.    | ♂ ♀♀  | <i>P. s. serrula</i> ab. <i>brunca</i> (Aust.) | Nov. Zool. XXIV. | - - p. 362   |
| 13, 14.    | Larva | <i>P. serrula undulata</i> (Stdgr.)            | Nov. Zool. XXIV. | . . . p. 363 |
| 15.        | Larva | <i>P. serrula palaestinensis</i> (Stdgr.)      | Nov. Zool. XXIV. | pp. 362, 363 |
| 17, 18.    | ♂ ♀   | <i>P. josua josua</i> (Stdgr.)                 | Nov. Zool. XXIV. | - - - p. 363 |



F. W. Frohner, del



83. *Pachygastria serrula undulata* (Stdgr.).

*Bombyx serrula* var. *undulata* Staudinger, *Iris*, vol. vii. p. 265 (1894) (Biskra).

*Lasiocampa bomilcar* Oberthür, *Etud. Lépidop. Comp.* Fasc. XI. Expl. Planches, p. 21. No. 4718-4720. pl. ccxxix. ff. 4718-4720 (1916): Fasc. XII. p. 328 (1916) (M'Chounech).

Mr. Oberthür considers this a distinct species because of the non-dentate transverse band and the more elongated wings of the ♀; two of my females, however, have distinctly dentate transverse bands, while a typical *serrula serrula* ♀ in the British Museum has the band absolutely **non-dentate**. The larva from Biskra differs from those of *s. serrula* and *s. palaestinensis* in the **interspaces** between the segments of the body being **black, not slate-blue**. This form is largely parthenogenetic, but, as is almost invariably the case in parthenogenetic reproduction in insects, the eggs of virgin ♀♀ produce only ♀♀.

The dimorphic form *hamilcar* Oberth. is entirely yellowish cream colour with dark transverse thin bands, and evidently is in the same relation to *s. undulata* as *dauidis* Stdgr. is to *s. palaestinensis*. The Tring series totals 20.

2 ♂♂, 2 ♀♀ Bou Saada, September 1912-1913, Faroult.

16 ♀♀ El Outaya ex larva (larva March 1911, emerged Ain Draham, September 1911), W. R. and E. H.

6 larvae, El Outaya, W. R. and E. H. and Faroult.

[Mr. Oberthür in his *Etudes Comparées*, Fasc. XII. pp. 331-334, interpolates here the two species of *Lambessa* between—

84. *Pachygastria serrula* and *Pachygastria trifolii*.

This is so out of place that I feel bound to reverse this order, **in spite** of my previous statement that I was keeping to Mr. Oberthür's order of the species.]

[The small group of species consisting of *trifolii* Linn. and its allies *eversmanni* Ev., *josua* Stdgr., *concolor* Chr., and *grandis* Stdgr., are a most complicated and puzzling lot of forms, and it is quite possible that they may one day all prove to be local and other forms of one protean species *trifolii*, but for the present I think it is perfectly correct to treat them as four or five species of which *trifolii* is split up into a great number of local races. Mr. Oberthür (*Etud. Lépidop. Comp.* Fasc. XII. p. 336. 1° Tanger.) says that he believes that what he figured in Fasc. XI. pl. ccxxix. ff. 4721-4722 as *Lasiocampa josua vaucheri* Blachier is not that insect, but a Tangier local race of *trifolii*, for which he proposes the name of *trifolii vaucheri*. This name is **absolutely inadmissible**, for it is distinctly laid down in the International Rules of Nomenclature that **no two** species or subspecies of a **single** genus can bear the same name. Mr. Oberthür further says he has **not** any specimen like the drawing in the *Ann. Soc. Entom. France*, pl. 2. fig. 4. I have a ♂ and ♀ from Tangier, and the ♂ is identical with fig. 4 and the ♀ almost so with fig. 5. Dr. Grünberg in Seitz figures as *josua* from Algeria a ♂ of *serrula undulata*, while he figures *dauidis* as *serrula palaestinensis*. In the text he keeps *josua* as a separate species, and with the Maroccan subspecies *vaucheri*. He figures as *dauidis* a pale form of *grandis* not in the least like the series I have of true *dauidis* from the Grum-Grshimailo collection, which agree absolutely with Staudinger's description, *Iris*, vol. vii. p. 266 (1894). This frequent confusion in the plates, giving totally different insects in the

figures to those belonging to the names of species in the text, is a serious blot on Dr. Seitz's great work; it arises from Dr. Seitz arranging the plates independently of the author's. Although I think eventually *josua* will prove to be only a form of *trifolii*, I keep it separate here as the larva is also different.]

#### 85. *Pachygastria josua vaucheri* (Blach.).

*Lasiocampa josua* var. *vaucheri* Blachier, *Ann. Soc. Entom. France*, vol. lxxv. p. 23. pl. 2. ff. 4, 5 (1906) (Tangier).

The larvae both of typical *josua* and of the form from Mauretania differ from the larvae of the various *trifolii* races by being much blacker, the paired white segmental spots are much more conspicuous, and the hairs are scantier and brown, yellowish brown, or dark grey, **not** golden yellow or silver grey. Aïn Draham specimens I have are quite as large and robust as the Tangier examples. The Tring Museum has 25 examples.

- 1 ♂, 1 ♀ Tangier, Vaucher (ex Staudinger).
- 1 ♂ Mazagan, Morocco, August 1903, W. Riggenschach.
- 1 ♂ Rabat, 1914, A. Théry.
- 1 ♀ Masser Mines, August 1914, Faroult.
- 2 ♂♂ Guelt-es-Stel, October 1913, Faroult.
- 8 ♂♂, 1 ♀ Aïn Draham, September 1911, Faroult.
- 1 ♂, 1 ♀ Environs d'Alger, Dr. Nissen and Captain Holl.
- 1 ♂ Bordj-bou-Arréridj, October 1912, Faroult.
- 6 ♂♂ Batna, September—October 1912, Nelva.
- 1 larva, Lac Fetzara, May 1909, W. R. and E. H.
- 1 larva, Aïn Sefra, May 1913, W. R. and E. H.

I unfortunately overlooked Mr. Blachier's description and described some aberrant Guelt-es-Stel *trifolii mauretanicum* as *josua deleta*, misled in part by Seitz (*NOVIT. ZOOL.* vol. xxi. p. 314. No. 49 (1914)).

#### 86. *Pachygastria trifolii cocles* (Hübner).

*Bombyx cocles* Hübner, *Samm. Europ. Schmett.* No. 332-335 (1831) (?).

The Mauretanian coastal and tell race of *trifolii* has received numerous names; but although it is very variable, I think it is all referable to *cocles*, and the forms named *seitzii*, *jugurthina*, etc., are all mere casual aberrations of *cocles*. We have taken the larvae of this insect, but were never in Algeria at the time of flight of the imago.

- 49 Mazagan, Morocco, September 1902-1903, Riggenschach.
- 5 Rabat, Morocco, 1914, A. Théry.
- 2 Zoudj-el-Beghal, November 1914, Faroult.
- 1 Masser Mines, November 1914, Faroult.
- 1 ♂ Lalla Marnia, October 1914, Faroult.
- 2 Perrégaux, November 1915, Faroult.
- 18 Environs d'Alger, Dr. Nissen and Captain Holl.
- 1 Media, November 1912, Faroult.
- 64 Aïn Draham, Tunisia, September 1911, Faroult.
- 3 larvae, Hammam R'irha, W. R. and K. J.
- 1 larva, Environs d'Alger, W. R. and K. J.

I have a large number (some 50 or 60), unset as yet, received in 1916 from Perrégaux, Hammam R'ihra, Sidi-bel-Abbès, etc., besides the above 143.

The British Museum has 1 ♀ Algiers, Leech coll.

### 87. *Pachygastria trifolii mauretanic*a (Stdgr.).

*Bombyx trifolii* var. *mauretanic*a Staudinger, *Iris*, vol. iv. p. 262 (1891) (Lambessa).

This appears to be the "Hauts Plateaux" and "mountain" race of *trifolii*, as opposed to the "coastal" one. Though extremely variable, it is characterised as a rule by its washed-out appearance, due to the large admixture of yellow and grey scales, and in the many hundreds I have seen there has **never** been a single rufous or chocolate-brown specimen, such as are frequent among the coastal *t. cocles*.

902 Guelt-es-Stel. September—October 1912–1913, Faroult.

125 Environs de Batna, September—October 1909–1915, Nelva.

7 Bordj-bou-Arréridj, September 1912, Faroult.

2 larvae, Boghari, W. R. and E. H.

4 larvae, Guelt-es-Stel, W. R., K. J., and Faroult.

1 larva, Batna, Nelva.

1 larva, Boudj-bou-Arréridj, Faroult.

The Tring Museum series totals 1,034.

### [*Lambessa staudingeri* B. Baker and its allies.

Dr. Grünberg and Mr. Oberthür place these in the genus *Lasiocampa*, but they certainly form a very distinct group of insects, and I feel certain the genus *Lambessa* ought to be upheld as distinct. Mr. Oberthür further on p. 333 of Fasc. XII. of his *Etudes Comparées* accuses me of paying no attention to the variability of *Lambessa staudingeri* because I described a *Lambessa decolorata sordidior* and accentuates the fact that I gave no figure. Mr. Oberthür then proceeds to give a French translation of what I said.

I can only once more repeat that Mr. Oberthür as well as many other entomologists have failed to realise that in Mauretania there are two quite distinct species of *Lambessa*: one with an apterous ♀ and the ♂ with shorter antennae = *staudingeri* B. Baker, and the second one in which the ♀ is full-winged and the ♂ has very long antennae.

It therefore remains for me to try to unravel the nomenclature of the various forms of the genus *Lambessa*. Mr. Bethune Baker described *staudingeri*, *Entom. Month. Mag.* vol. xxi. p. 242 (1885) (Lambessa), and in the Fasc. V. (part i.), plate lxxv. Nos. 621–625 Mr. Oberthür figured five *staudingeri* from the neighbourhood of Sebdu. As I have never seen **any** *Lambessa* or *Khenchela* examples so strongly washed with brown, I described or rather named this Sebdu race **from Mr. Oberthür's figures** *staudingeri castaneolavata* (NOVIT. ZOOLOG. vol. xxi. p. 314 (synopsis of forms under No. 51) (1914) (Sebdu)). These are the first descriptions of the only two wingless forms of *Lambessa*. We now come to the winged forms: the earliest described is *decolorata* Klug. (*Symb. Phys. Ins.* ii. folio vi. p. 3. No. 1. pl. xx. f. 1 (1832) (vicinity of Alexandria)). This is a ♀ fully winged and of a uniform yellowish cinnamon-brown colour. The next

described form of this group is *datini* Mab. (*Bull. Soc. Entom. France*, 1888, p. 42 (Gabès)); this is uniform mouse-grey, tegulae and base of wings whitish.

The next described form was my *virago* (NOVIT. ZOOLOG. vol. xix. p. 118 (1912) (Biskra)). I unfortunately was so struck by the resemblance of the ♂ to *staudingeri* that it never occurred to me to look up the *decolorata* of Klug, and Mr. Oberthür's figures of *datini* are so unlike my specimens that I also did not consider that insect related to my *virago*. The single ♂ of *virago* is pale buffish grey, while the ♀♀ are cinnamon brown-grey.

The last of this group to be described is *d. sordidior* Rothsch. (NOVIT. ZOOLOG. vol. xxi. p. 314. No. 51 (1914) (Guellet-es-Stel)). The colour of the general run of the males is dirty grey-brown with a slight cinnamon tinge and suffused with sooty black-grey, as if smoked; the ♀♀ are clearer, less smoky brown.

This is the insect Mr. Oberthür takes me so to task over, for having named. I can only say anyone examining the series I have would have done the same. I must, however, confess that a ♂ and 2 ♀♀. received after the paper was written, are rather disconcerting; in fact, they entirely agree with the Biskra examples of *virago* in colour. This, however, is something often found in two closely allied local races of **one** species, that is, that some specimens closely or entirely resemble the whole mass of the other race, therefore until I get Biskra specimens agreeing with *sordidior* and in such numbers that they prove that *virago* and *sordidior* are merely individual aberrations, I shall consider them two closely allied subspecies of the Egyptian *decolorata* Klug. In my synopsis of the forms I included *grisea* Grünb. as a third species, but on carefully looking at the **description** and the **figure**, I perceive this insect has a stigma on the disc of the forewing, and I have come to the conclusion that it belongs to the *serrula* group of *Pachygastrina*, and is not a *Lambessa* at all. Therefore only two species of *Lambessa* occur in the Palaearctic region, though several occur in tropical Africa.

Mr. Oberthür received from El Kantara a ♀ of my *virago* and a ♀ from Bou Saada somewhat similar to it which he has identified as the only other two known specimens of *datini* besides the type ♂♀ from Tunisia (see *Etud. Lépidop. Comp.* Fasc. XII. p. 332 (1916)).

The synopsis of the forms of *Lambessa* is as follows :

I. **LAMBESSA DECOLORATA DECOLORATA** Klug.

Egypt.

a. **L. decolorata albescens** subsp. nov.

Palestine.

♂. Forewings cream-buff, hindwings cinnamon colour; ♀ entirely cream white. (2 ♀♀, 3 ♂♂, and 3 larvae in Tring Museum.)

b. **L. decolorata datini** Mab.

Tunisia.

c. **L. decolorata virago** Rothsch.

Biskra, Algeria.

d. **L. decolorata sordidior** Rothsch.

Bou Saada and Guellet-es-Stel, Algeria.

II. **LAMBESSA STAUDINGERI STAUDINGERI** B. Baker.

Prov. Constantine, Algeria.

a. **L. staudingeri castaneolavata** Rothsch.

Prov. Oran, Algeria.]

88. **Lambessa decolorata datini** (Mab.).

*Bombyx datini* Mabille, *Bull. Soc. Entom. France*, 1888. p. xlii. (Gabhès).

The original ♂♀ types remain unique to this day.

89. **Lambessa decolorata virago** Rothsch.

*Lambessa virago* Rothschild, *Novit. Zool.* vol. xix. p. 118 (1912) (Biskra).

I collected the larvae of this form at Biskra in 1911, and the five examples (1 ♂, 4 ♀♀) were reared for me by Faroult, emerging September 1911 at Aïn Draham.

- 1 ♂, 4 ♀♀ Biskra (ex larva, larva March 1911), W. R. and E. H. (type).
- 3 larvae, Biskra, W. R., E. H., and Staudinger.
- 1 larva, El Outaya, Faroult.

90. **Lambessa decolorata sordidior** Rothsch.

*Lambessa decolorata sordidior* Rothschild, *Novit. Zool.* vol. xxi. p. 314. No. 51 (1914) (Guelt-es-Stel).

The first specimens I received were some ♀♀ sent to me by Dr. Nissen, who collected them in 1911, and sent them to me to know what they were. After that Faroult collected a number of ♂♂ and ♀♀. Faroult also sent one ♀ from Bou Saada which is undoubtedly *sordidior*.

52 ♂♂, 26 ♀♀ Guelt-es-Stel, September—October 1911—1913, Dr. Nissen and Faroult.

- 1 ♀ Bou Saada, 1912, Faroult.

91. **Lambessa staudingeri staudingeri** (B. Baker).

*Bombyx staudingeri* B. Baker, *Entom. Month. Mag.* vol. xxi. p. 242 (1885) (Lambessa).

We only found the larvae of this insect at Khenchela, and bred 2 ♀♀ and a number of crippled, useless ♂♂.

- 1 ♂, 1 ♀ Mauretania, Grum-Grshimailo coll.
- 3 ♂♂ Bordj-bou-Arréridj, 1912, Faroult.
- 1 ♂ Setif, 1911, Faroult.
- 102 ♂♂, 1 ♀ Batna, September 1909—1915, A. Nelva.
- 2 ♀♀ Khenchela, ex larva Khenchela (larva May 1912, emerged September at Tring), W. R. and K. J.
- 2 larvae, Khenchela, W. R. and K. J.

The Tring series numbers 107 ♂♂, 4 ♀♀.

92. *Lambessa staudingeri castaneolavatus* Rothsch.

*Lambessa staudingeri castaneolavatus* Rothschild, *Novit. Zool.* vol. xxi. p. 314. No. 51 (Synopsis of *Lambessa*) (1914) (Sebdou).

Mr. Oberthür received a number of ♂♂ of this form from Aflou and the vicinity of Sebdou from Harold Powell. It is the western race of *staudingeri*, which appears to be confined to the Province of Constantine. We never caught or received this insect.

[THE MAURETANIAN SPECIES OF *CHILENA* AND THEIR RELATIVES.

These species fall naturally into two well-marked groups, first those with white wings and bodies, viz. *oberthüri* Luc., *hilgerti* Rothsch., and *virgo* Oberth.; and secondly those with grey wings and bodies, viz. *geyri* Rothsch., *malacosomoides* Rothsch., and *lucasi* Oberth.

Of the first or "White Group," in addition to the three Mauretanian species, there are two other Palaearctic species, *obliquata* Klug. and *pura* Warr., both from the Egyptian region, while of the second or "Grey group" there are also two other Palaearctic species, viz. *sordida* Ersch. and *proxima* Stdgr. There are, of course, a number of other non-Palaearctic species of *Chilena* mostly from tropical Africa.

Of the "White Group" the three Mauretanian species differ considerably from the two Egyptian ones, for while *virgo* is quite white, the other two have **two** transverse lines, whereas the two Egyptian ones both have only a single line. The question of course arises, Are the two banded Algerian species *oberthüri* and *hilgerti* distinct? I answer that, without examining and comparing the actual specimens side by side, there are many so-called "Species-Lumpers" who would maintain they are the same; but I think I can prove they are distinct. In *oberthüri* Luc. the outer of the two transverse lines starts from the apex and reaches vein 1 near the tornus, being somewhat angled at vein 5; the inner line is sinuate very broad and does not reach much beyond vein 2, while it starts from vein 7; moreover, the basal half of the wing is strongly dusted with greyish scales with exception of the cell, while the tarsi are white. In *hilgerti*, on the other hand, the outer line starts from vein 9 **below** the apex and runs much more obliquely to vein 1 fully one-third behind the tornus; the inner line is very faint in both ♀♀ and runs parallel to the outer from costa to vein 1; the whole of the wings are tinged with buff, the hindwings less so, and the tarsi are uniform pale cinnamon-grey. Another striking difference between the Egyptian and Algerian "White" species is that while *obliquata* Klug. has golden-yellow tarsi and *pura* orange tarsi ringed with black, the Algerian ones have them white or grey. Of the "Grey Group" only *lucasi* Oberth. is anywhere near the other Palaearctic species, both *geyri* and *malacosomoides* being very distinct.]

93. *Chilena oberthüri* Lucas.

*Chilena oberthüri* Lucas, *Bull. Soc. Entom. France*, 1909. p. 71 (Tunisia).

*Chilena oberthüri* Lucas, *Ann. Soc. Entom. France*, vol. lxxix. p. 477. pl. 18. f. 9 (1910) (Tozeur, Zarcine).

We never obtained this form. Mr. Oberthür records a ♀ from El Outaya, Algeria.

94. *Chilena hilgerti* Rothschild.

*Chilena hilgerti* Rothschild, *Novit. Zool.* vol. xx. p. 119. No. 25 (1913) (Oued-el-Abiod).

The two ♀♀ caught by Dr. Hartert have up to the present remained the only ones recorded.

2 ♀♀ Oued-el-Abiod, north of In-Salah, April 1912, E. H. and C. H.

95. *Chilena virgo* Oberthür.

*Chilena virgo* Oberthür, *Etud. Lépidop. Comp.* Fasc. XII. p. 340. No. 2 (1916) (El Outaya).

We have never seen or received this species.

96. *Chilena lucasi* Oberthür.

*Chilena lucasi* Oberthür, *Etud. Lépid. Comp.* Fasc. XII. p. 341. No. 3 (1916) (Beni-Ounif).

We never received this species.

97. *Chilena malacosomoides* Rothschild.

*Chilena malacosomoides* Rothschild, *Ann. Mag. Nat. Hist.* (8). xvi. p. 249. No. (13) (1915) (Oued Tamoudat, north of Idelès).

Herr Geyr von Schweppenburg's type remains the only recorded specimen.

1 ♂ Oued Tamoudat, north of Idelès, March 1914, Geyr von Schweppenburg.

98. *Chilena geyri* Rothschild.

*Chilena geyri* Rothschild, *Ann. Mag. Nat. Hist.* (8). xvi. p. 249. No. (12) (1915) (south of Bledet-Ahmar).

Herr Geyr von Schweppenburg sent 10 specimens, 1 of which is in the British Museum and 1 I gave to Dr. Nissen. The ♂ 50 kilometres north of Ouargla is very small, and the grey scaling on the basal two-thirds of the wing is much reduced.

7 ♂♂ 25 kilometres south of Bledet-Ahmar, December 1913, Geyr von Schweppenburg.

1 ♂ 50 kilometres north of Ouargla, December 1913, Geyr von Schweppenburg.

99. *Metanastria digramma* (Meade-Waldo).

*Macrothylacia rubi* subsp. *digramma* Meade-Waldo, *Trans. Entom. Soc. London*, 1905. p. 390. No. 86. pl. xix. f. 10 (Tangier).

I have no Mauretanian examples, but a fine series taken by my brother and Dr. Jordan at Cintra and Monchique Algarve in Portugal. My brother was the first collector to take the ♂. Unlike *rubi*, the ♂ is identical in colour with the ♀. I consider this insect to be a distinct species from *rubi* because the discal transverse lines are much wider apart and because ♂♀ are alike, whereas they are dissimilar in *rubi*. The larva in Portugal is much brighter and more variegated with bright golden yellow than the larva of *rubi*.

Mr. Meade-Waldo in his article records it from Tangier and Babara. There are 7 or 8 ♀♀ in the British Museum, Meade-Waldo, Tangier.

100. *Epicnaptera suberifolia* (Dup.).

*Lasiocampa suberifolia* Duponchel in Godart, *Pap. France*, Suppl. IV. p. 79. No. cclxxxix. pl. 57. f. 3 (1842) (Digne Andalusia).

I possess only one example of this species from Prov. Oran.

1 Masser Mines, July 1914. Faroult.

[*Pachypasa limosa limosa* (Devill.).

*Bombyx limosa* Devilliers, *Ann. Soc. Linn. Paris*, vol. v. p. 478 (1826) (Montpellier).

Mr. Oberthür tells us he has specimens of this species from Hyères, Marseilles, Montpellier, Vernet-les-Bains, Barcelona, Sebdou, Aflou, and Lambessa, and that the Aflou form is distinct. Besides a lot of old or doubtful material, I have a fine series from Marseilles, 1 from Guelt-es-Stel, and 7 from Alger (1 we got ourselves, and 6 from Captain Holl). On comparing the Alger specimens with those from Marseilles, they all show a browner ground-colour, though not so brown as those from Aflou, therefore they must be separated; and I am convinced that typical *limosa* does not occur in Algeria.]

101. *Pachypasa limosa intermedia* subsp. nov.

♂♀. Differ from *limosa limosa* in being more mouse-grey or brownish grey, **not** silver-grey.

*Habitat.* Alger (Mr. Oberthür's Lambessa and Sebdou examples also belong to this race).

This insect was only once found by us. On the morning of our departure from Alger in June 1912, when, owing to the sailors' strike at Marseilles, we had to go *via* Port Vendres, a fine ♀ was picked up near the foot of a large cypress tree in Mustapha Supérieur.

1 ♀ Environs d'Alger, June 1912, W. R. and K. J.

3 ♂♂, 3 ♀♀ Hussein Day, Alger, November 1911, Captain Holl.

102. *Pachypasa limosa powelli* Oberth.

*Pachypasa limosa powelli* Oberthür, *Etud. Lépidop. Comp. Fasc. XII*. p. 343 (1916) (Aflou).

This form is browner than either *l. limosa* of Europe or *l. intermedia*, especially on the hindwings.

1 ♂ Guelt-es-Stel, September 1912, Faroult.

103. *Taragama repanda repanda* (Hübner).

*Bombyx repanda* Hübner, *Europ. Schmett. Bomb.* ff. 274, 275, 346 (1827) (Spain).

We have only taken this insect at Alger, where I got a number of ♂♂ one evening by "sembling" with a freshly emerged ♀ lent me by Dr. Nissen alive. I also bred one ♂ from a cocoon found by myself near El Biar. The Tring series from Maurctania comprises 49 examples.

1 ♂ Algeria ?!

46 ♂♂, 17 ♀♀ Environs d'Alger, May—October 1908, W. R., K. J., and Dr. Nissen (1 Faroult, no date).

1 ♂, 1 ♀ Guelt-es-Stel, September 1912, Faroult.

2 larvae and 7 cocoons, W. R. and K. J. and Faroult.

The British Museum has 1 North Africa, Sand coll. ex Leech coll.

#### 104. *Taragama repanda tenebrosa* subsp. nov.

♂. Differs from ♂ of *repanda repanda* in being larger and much darker, almost black.

*Habitat.* Tangier (type coll. by Meade-Waldo, British Museum).

Mr. Meade-Waldo records this insect from Tangier, Rabat, and Tetuan. There are 3 in the British Museum: 2 Meade-Waldo and 1 Colonel Irby, all Tangier.

### LEMONIIDAE.

#### 105. *Lemonia vallantini* (Oberth.).

*Bombyx vallantini* Oberthür, *Etud. Entom.* livr. xii. p. 28. pl. vi. f. 33 (1890) (Bône).

We found the larva of this fine species at Hammam R'ihra. Total at Tring, 53.

1 ♂ Bône, November 1891, Dr. Vallantin ex Grum-Grshimailo coll.

1 ♂ Djebel Djelland, Tunisia, Staudinger.

2 ♂♂, 2 ♀♀ Batna, Nelva coll.

44 ♂♂, 2 ♀♀ Environs d'Alger, November—December 1907–1912, Dr. Nissen, Captain Holl, and Faroult.

1 ♂ Blida les Glacières, November 1915, Faroult.

5 larvae, Hammam R'ihra, W. R., E. H., and Faroult.

#### 106. *Lemonia philopalus* (Donzel).

*Bombyx philopalus* Donzel, *Ann. Soc. Entom. France*, vol. xi. p. 198. t. 8. f. 2 (1842) (?).

We found the larva of this insect at Guelt-es-Stel, April 1912. Tring series comprises 101.

1 ♂ Mauretania, Grum-Grshimailo coll.

1 ♂ Foum Tatahouine, S. Tunisia, Staudinger.

88 ♂♂, 10 ♀♀ Guelt-es-Stel, November—December 1912–1913, Faroult.

1 ♂ Lalla Marnia, November 1914, Faroult.

2 larvae, Guelt-es-Stel, W. R. and K. J.

1 larva, Lalla Marnia, Faroult.

### SATURNIDAE.

[Mauretanian *Saturnia* forms. *S. atlantica* Lucas was figured and described *Explor. Scient. Alger.* vol. iii. p. 379. t. 3. f. 4 (1848); *numida* Aust., *Naturalist*, 1883, p. 359, and *maroccana* Aust., *Naturalist*, 1894, p. 56. In addition to these *pavonia-major* Linn. occurs in West Algeria and Morocco.

There has always been a dispute as to what *numida* and *maroccana* were. As the types of both these forms are in the Tring Museum, the matter is easily settled. The two specimens of *numida* are labelled as coming from Nemours. They are as large as *pavonia-major*, and have the outer margins and apex of wings suffused with olive-yellow as in *pavonia-major*, but the basal three-fifths of hindwings are much paler and the oblique zigzag double line running outside the ocellus of the forewing is not contiguous to the ocellus as in *pavonia-major*, but is well outside the ocellus and very sharply zigzag as in *atlantica*. When Dr. Jordan and I saw these specimens we at once said these must be hybrids; two years ago I obtained from Mr. Watson of Manchester two artificially bred *atlantica* × *pyri* in which the ♂ parent was *atlantica*; these are much smaller than the two *numida* and more like *atlantica*. I am now therefore convinced that *numida* Aust. is the reverse cross to *atlantipyri* Niep (sic!!), i.e. ♂ *pavonia-major* × ♀ *atlantica*.

As regards *maroccana* Aust. the type-specimen is labelled Tlemcen!! and I can see no difference between it and typical *atlantica*. Dr. Vallantin (*Bull. Soc. Entom.* 1898) described an aberration of *atlantica* as var. *motheri* from Djidjelli; it is very dark and strongly washed all over with pink. I have seen a similar specimen in the collection of the late Captain Holl. I have only seen one *pavonia-major* from Mauretania (Oran), but Mr. Oberthür has one from Oudjda and one from Aïn Draham.]

#### 107. *Saturnia atlantica* Lucas.

*Saturnia atlantica* Lucas, *Explor. Scient. Alg. Zool.* vol. iii. p. 379, t. 3. f. 4 (1848) (Luc Tonga, Lacalle).

We have taken this at Alger, and I had two damaged specimens brought me at Souk-Ahras, one only of which could be preserved.

1 Souk Ahras, April 1914, W. R. and K. J.

12 Environs d'Alger, April—May 1908, W. R., E. H., Dr. Nissen, and Captain Holl.

1 Algeria ?

9 Aïn Draham, Faroult.

2 Tlemcen, Austaut (type of var. *maroccana* Aust.).

4 no locality.

5 larvae, 2 cocoons, Aïn Draham, Faroult.

3 larvae, Hammam R'ihra, Faroult.

The total at Tring is 29.

#### 107a. *S. atlantica* ♂ × *S. pavonia-major* ♀.

1 ♂, 1 ♀ bred in Germany (per Mr. Watson).

#### 107b. *S. pavonia-major* ♂ × *S. atlantica* ♀ (*Saturnia numida* Aust.).

1 ♂, 1 ♀ Nemours, Austaut (types of *S. numida*).



"*Saturnia atlantipyri* Niep." (*S. atlantica* ♂ × *S. pavonia-major*)  
(Bred in captivity).

"*Saturnia numida* Aust." (*S. pavonia-major* ♂ × *S. atlantica* ♀).  
(Type. Wild caught at Nemours, W. Algeria.)



108. *Saturnia pavonia-major* (Linn.).

*Phalaena pavonia-major* Linnaeus, *Syst. Nat.* edit. x. p. 497. var.  $\beta$ . (1758) (?).

We only came across this species once when the landlord of the hotel at Oran gave us a specimen which had flown into his office the day before our arrival. Curious to relate, it is in fine condition, only wanting one antenna.

1 ♂ Oran, April 1913, W. R. and E. H.

(In the first section of this paper (*Rhopalocera*) I did not indicate the sexes of the Tring series; I have put them in in this section wherever I thought it was of importance.)

While this article was going through the press, I received a large number of lepidoptera from Mr. Rotrou, among which were: 160 *Smerinthus ocellatus atlanticus* from Le Kreider, April 1917; and 82 *Amorpha populi austauti* also from Le Kreider, April 1917. This brings the series in the Tring Museum up to 207 and 196 respectively. There were also among them 20 *Dicranura vinula delavoieii* from Magenta, April 1917, and 25 *Saturnia pavonia-major* from Détrie near Sidi-bel-Abbès, April 1917.

(To be continued.)

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NEW SOUTH AMERICAN *GEOMETRIDAE*.

By LOUIS B. PROUT, F.E.S.

SUBFAM. OENOCHROMINAE.

1. *Ergavia burrowsi* spec. nov.

♂, 44-49 mm. Head olive-buff, the face irrorated with red \* and black; palpus black. Antenna dentate, the teeth at longest scarcely one-half the diameter of the shaft; ciliation and single bristles normal. Thorax and abdomen above olive-buff, the thorax in front strongly mixed with red, and slightly with black, the abdomen weakly tinged with red on posterior half of the segments and with diminutive red-and-black crests. Hindtibia with a single spur.

*Forewing* olive-buff, in places with slight dark irroration; a weak, very ill-defined reddish shade in the middle (about from  $R^3$  to  $M^2$  in their proximal half), traceable still more faintly to hindmargin; basal raised tuft fairly strong, red mixed with black; discal tuft strong but not very wide, predominantly black; three red, in places black-mixed, costal patches, the basal about 5 mm. long, the central bounded proximally by the antemedian line, distally by the postmedian, posteriorly by  $M$ , the third subapical, reaching  $SC^2$ ; some similarly coloured costal strigulation and irroration between the median and postmedian and beyond the distal patch; lines chiefly expressed by dark costal spots, the median spot rather elongate, a little beyond the cell-patch (generally nearer to the postmedian than to the antemedian), oblique inward; antemedian line somewhat excurved in anterior half of wing, marked by a dark dot or minute dash on  $M$ , then incurved but almost obsolete, except for dots on fold and  $SM^2$ ; median obsolete; postmedian exceedingly weak, sometimes obsolete, its course always indicated by small or minute vein-dots; extremely oblique outward to  $R^1$ , where it is 3-4 mm. from termen, incurved between radials, oblique inward to about three-fifths hindmargin, the dots on  $R^3$ ,  $M^1$ ,  $SM^2$ , and hindmargin nearly in alignment, an inward curve between  $M^1$  and  $SM^2$ ; subterminal line faintly paler, scarcely traceable except between radials and near tornus, where it crosses ill-defined reddish patches; termen with strong black dots; fringe traversed by some reddish mottling which suggests a thick, irregular line.

—*Hindwing* with termen moderately strongly dentate, the tooth at  $R^2$  scarcely appreciable except in the fringe; olive-buff, the proximal half strongly, a band proximal to the subterminal more feebly, shaded with red and with some blackish strigulation or irroration; cell-mark white, rarely conspicuous; a rather strong, thick, wavy black line just beyond, from  $R^1$  to hindmargin and indicated on midcosta by a blackish spot; a less definite red, black-mixed line 1.5 mm. beyond and parallel with the preceding, expanding into more rust-coloured spots between  $R^1$  and  $R^3$  and especially between  $R^2$  and  $R^3$ ; postmedian line fine, blackish, marked with very strong black teeth on the veins, that on  $R^2$  generally elongate; a very fine pale distal edging to this line; termen with black dots.

\* None of the markings described as "red" are very bright—scarcely more than "liver-brown."

Underside reddish, clouded with grey in proximal half or sometimes more or less throughout (especially on hindwing), otherwise with grey irroration; costal margin of forewing rather lighter, with rather strong irroration; both wings with rather sharp black discal lunule and vague grey subterminal cloudings, corresponding to the reddish ones of upperside; terminal dots very weak or almost obsolete.

Calama, Rio Madeira, below Rio Machados, August—October 1907 (W. Hoffmanns). 7 ♂♂ in coll. Tring Museum.

The genitalia have been examined by my kind friend the Rev. C. R. N. Burrows, to whom I dedicate the species, and show a great difference from the following species in the form of the gnathos, the shorter, hairy uncus, and especially in the penis; the manica is strongly spined, the vesica without the characteristic cornuti of *piercei*.

### 2. *Ergavia piercei* spec. nov.

♂, 45–48 mm. Very similar to the preceding, distinguished as follows:

*Forewing* more uniformly shaded with reddish, at least in the median area, and as minute strigulae on the principal veins; costal patches scarcely noticeable, the basal sometimes wanting; costal spots equidistant or even with the median nearer to the antemedian; in well-marked specimens an additional line indicated (at least posteriorly) about 2 mm. proximal to the postmedian; terminal dots smaller.—*Hindwing* with the double line just beyond cell much weaker, greyish or reddish, never mixed with black, the outer not expanding into spots between the radials; postmedian slightly more distally placed, with minute dots (never long teeth or wedges) on the veins and nearly always with a deeper sinus inward between the radials.

Underside on an average paler than in *burrowsi*, with postmedian line well indicated; cell-mark of forewing sometimes shortened, that of hindwing generally wanting.

Calama, Rio Madeira, below Rio Machados, August—October 1907, 15 ♂♂, including the type; Allianea, below San Antonio, Rio Madeira, November—December 1907, 7 ♂♂; all in coll. Tring Museum, collected by W. Hoffmanns.

Dedicated to Mr. F. N. Pierce, to whom also I am deeply indebted for help in the investigation of Geometrid genitalia.

Vesica with seven strong, broad cornuti. It is right to mention that the specimen dissected was from Allianea, but there is no difference between the series from the two localities named.

### 3. *Ergavia endoeasta* spec. nov.

♂, 48 mm. Closely similar to the two preceding, especially to *piercei*, of which I should have supposed it a subspecies but that the antennal teeth are longer, nearly equalling the diameter of the shaft.

*Forewing* rather duller, very confusedly marked, the double postmedian, however, indicated by ill-defined spots rather than dots; cell-mark thin; pale subterminal line fairly distinct; termen with short black lunules in place of the dots.—*Hindwing* more weakly marked than in the allies; terminal lunules as on forewing.

Underside nearly as in weakly marked *piercei*, but with the discal streak of forewing sharply expressed.

San Esteban, N. Venezuela, June 1909 (S. M. Klages). Type in coll. Tring Museum.

*E. illineata* Warr., unknown to me and described from a single ♀ from French Guiana, probably belongs to this group and not to that of *roseivena* Prout (= *calvina* Warr., nec Druce), with which its author compares it. It may even be that one of my species will prove a race thereof, although as none of them has the discal tuft "red-brown" and the group is evidently rich in closely similar forms, this is by no means probable.

#### 4. *Ergavia venturii* spec. nov.

♂, 36 mm. In structure and markings akin to *brunnea* Schaus. Body and wings rather darker and duller.

*Forewing* rather narrower; a small areole present, as in *liraria* Guen.; R<sup>2</sup> arising less near R<sup>1</sup> than in the example of *brunnea* before me; the raised cell-tuft less developed; median area more heavily irrorated; postmedian line less acutely angled on R<sup>1</sup>, less deeply incurved between this and R<sup>2</sup>.

Ocampo, El Chaco, Argentina, January 1906 (Venturi). Type in coll. Tring Museum.

Superficially recalls *stigmaria* Walk. even more than *brunnea* Schaus, except for the white cell-mark of hindwing.

### SUBFAM. HEMITHEINAE.

#### 5. *Racheospila rufoseriata* spec. nov.

♂, 31 mm. Face brown-red, the lower edge more rosy, a narrow oblique white-yellow band at each side separating the two shades. Palpus fully one-and-a-half times diameter of eye, third joint moderate, partly concealed by projecting hairs of second joint; white at base, upper part and end of second joint brown-red, third joint darker and duller. Vertex white; occiput green. Antenna white proximally, tinged with brown-red distally; pectinations about twice as long as diameter of shaft. Thorax and base of abdomen green above; abdomen with four white, red-edged dorsal spots, the first large, the second small and weak, the last two moderate. Foretibia and tarsus (the latter paler) brownish, spotted with white; hindtibial process reaching fully to the middle of the rather long first joint of tarsus.

Wings shaped as in *alboseriata* Warr., or very slightly broader.

*Forewing* with SC<sup>1</sup> free or anastomosing slightly with C. R<sup>1</sup> connate, M<sup>1</sup> rather widely separate: light yellowish green; costal edge white, at proximal and apical extremities slightly underlined with red; antemedian brown-red dots on SC, M and SM<sup>2</sup>, that on M farthest from base, close to origin of M<sup>2</sup>; a moderate brown-red cell-dot; a postmedian row of brown-red vein-dots, incurved posteriorly, that on M<sup>2</sup> 4 mm. distant from termen, slightly elongate; minuter white dots accompanying this series distally; a very fine red terminal line, very slightly interrupted at the veins; fringe pure white proximally, dirty white distally.—*Hindwing* with M<sup>1</sup> rather widely separate; similar to forewing, the postmedian dots more elongate, especially on R<sup>3</sup> and M<sup>1</sup>.

Underside mostly whitish; forewing in the costal region (except extreme edge) greener, base of costa somewhat mixed with reddish, a minute and rather weak cell-dot, terminal line chiefly developed in anterior part and extending round the apex as a costal dash between SC<sup>3</sup> and SC<sup>4</sup>; fringe as above.

Huancabamba, Cerro de Paseo, E. Peru, 6,800 ft. Type in coll. L. B. Prout. Near *alboseriata* Warr., the pectinations and apparently the palpus shorter.

#### 6. *Racheospila variifrons* spec. nov.

♀, 28 mm. Face green below, red above. Palpus slender, over two-and-a-half times diameter of eye, third joint very long; reddish above, pale beneath. Crown green, mixed with white between the antennae. Thorax and abdomen green above, whitish beneath.

*Forewing* shaped as in *bryata* Feld. or slightly narrower; SC<sup>1</sup> free, approaching C, R<sup>1</sup> connate, M<sup>1</sup> connate; bright green, slightly more yellowish than in *bryata*, costal edge narrowly reddish; lines very indistinct, rather thick, paler green; antemedian from one-fifth costa, oblique outward to cell-fold, here and again at submedian fold angled outward; postmedian from costa just before two-thirds, lunulate-dentate, receding from termen behind M<sup>2</sup>, reaching hind-margin at about three-fifths; a minute red, black-mixed cell-dot; traces of a red terminal line at end near apex only; fringe whitish yellow proximally, more grey-white distally.—*Hindwing* shaped as in *bryata*, or with termen even straighter; cell very short, M<sup>1</sup> stalked; like forewing but without antemedian line.

Underside whitish green, unmarked; costal region of forewing proximally with very slight reddish-smoky suffusion; apical fringe of forewing darkened.

Parana, Entre Rios, Argentina. Type in coll. Tring Museum.

Misidentified by Warren as *bryata* Feld. (= *flavifimbria* Warr., syn. nov.), which is only known to me from Bogota; in that species the face is wholly green, the vertex white, the antemedian line much straighter, the postmedian less recurved behind M<sup>2</sup>.

#### 7. *Chloropteryx anisoctena* spec. nov.

♂, 22–26 mm.; ♀, 28–30 mm. Face dull reddish. Palpus in ♂ extending little beyond frons, with third joint short; in ♀ with second joint reaching slightly beyond frons, third joint nearly as long as diameter of eye; dark above, pale beneath. Vertex white; occiput green. Antenna in ♂ on the outer side with serrate teeth; on the inner side shortly pectinate, the branches nearly twice as long as diameter of shaft; in ♀ almost simple on the outer side, very shortly pectinate on the inner, the branches about as long as diameter of shaft. Hindtibia of ♂ with strong hair-pencil and short terminal process. Thorax and abdomen concolorous with wings, abdomen with a dark, pale-erected dorsal patch.

*Forewing* dull grey-green, varying slightly in tone (from that of *pallescens* Warr. almost to that of *subrufescens* Warr.); costal edge ochreous, rather heavily dotted with black; lines whitish, weak except on the veins, where they form rather larger, whiter dots; antemedian deeply excurved in cell (almost reaching the dark grey-green cell-dot) and rather less deeply in submedian area; postmedian from a little before two-thirds costa, forming anteriorly a gentle

outward curve, angulated inward at  $R^2$ , lobed outward at  $R^3-M^1$ , then receding to  $M^2$ , curving, falling almost vertically on hindmargin beyond two-thirds; terminal line black, interrupted by whitish dots at the veins; fringe ochreous whitish, with elongate blackish spots (dashes) opposite the veins.—*Hindwing* with abdominal margin long, tail rather strong; first line obsolete; cell-mark elongate; the rest as on forewing.

Underside whitish, slightly opalescent, the forewing and a small terminal area on hindwing towards apex with a rosy tinge; no distinct markings; terminal line and fringe as above, but both intensified at tornus of forewing and apical region of hindwing.

San Esteban, N. Venezuela, June—July 1909 (S. M. Klages). A good series in coll. Tring Museum. A single ♂ from Sapueay, Paraguay, October 1904 (W. Foster), was mixed by Warren with *pallescens* Warr. (see Nov. Zool. xvi. 76). True *pallescens* (from Oconeque, Carabaya) has normal bipectinate ♂ antenna, but is not, as was suggested, an aberration of *subrufescens* Warr., the ♂ lacking the hindtibial hair-pencil which is developed in that species.

#### SUBFAM. STERRHINAE.

##### *Semaepopus* H.-Sch.

*Semaepopus* H.-Sch., *Samml. Aussereur. Schmett.* i. (pt. 13-17. fig. 327. 1855. indescr.) pp. 25, 36 (1856).

*Cnemodes* Guen., *Spec. Gén. Léop.* x. 5 (1858).

*Issa* Walk., *Journ. Linn. Soc.* ix. 198 (1867).

*Dichromatopodia* Warr., *Nov. Zool.* ii. 94 (1895).

*Dysephyra* Warr., *Nov. Zool.* ii. 94 (1895).

*Heterephyra* Warr., *Nov. Zool.* ii. 95 (1895).

*Charommataea* Hulst., *Tr. Amer. Ent. Soc.* xxiii. 302 (1896).

*Xenostigma* Warr., *Nov. Zool.* vii. 165 (1900).

*Paradmeta* Warr., *Nov. Zool.* xiv. 221 (1907).

*Parazeuxis* Warr., *Nov. Zool.* xiv. 221 (1907).

*Dasycosymbia* Grossbeck, *Journ. N.Y. Ent. Soc.* xx. 283 (1912).

I cannot find any solid basis for generic separation of any of the above, which have mostly been founded on minor sexual characters or slight differences in shape or pattern. Possibly even *Trygodes* Guen. (*Spec. Gén. Léop.* ix. 426) will also have to be merged with them. The ♂ antennae show the finest intergradations from the heavily pectinated to almost simple, ciliated. The stalking of  $SC^2$  of the forewing, which would separate off *Dysephyra*, is usually (though not invariably) constant for individual species, but would in any case yield rather unnatural groupings, as it occurs not only in a sprinkling of species with the *Dysephyra-Heterephyra* facies (*justata* Walk., *rubida* Warr., *ella* Hulst.—the type of *Charommataea*—etc.), but also in "*Parazeuxis*" *puntigera* Dogn., in *Semaepopus incolorata* Warr., *oenopodiata* Guen., and *trygodata* Warr. (Nov. Zool. xi. 36, as *Craspedia*).

##### 8. *Semaepopus semicaeca* spec. nov.

♂, 34-36 mm. Head and body mostly concolorous with wings; vertex and base of antenna darkened; palpus rather short, somewhat reddened on outer side, pale beneath. Antennal pectinations fine and rudimentary, surmounted by moderate tufts of cilia. Hindleg with strong pencil of hair from femoro-tibial joints and strong red and white tufts on tibia and tarsus.

*Forewing* with SC<sup>2</sup> from cell, R<sup>2</sup> from before middle of DC; vinaceous buff, with very fine olive-grey irroration; costal edge very finely rufous; markings nearly as in *viridiplaga* Walk., but with the cell-spot sharp, not elongate, the median line not succeeded by a dark shade, sinuosities of postmedian rather less deep.—*Hindwing* with minute white, finely black-edged cell-spot; median line farther beyond it than in *viridiplaga*, slightly curved or bent about M<sup>1</sup>.

Forewing beneath pale at base and especially along hindmargin; costal edge proximally more broadly red than above; cell-spot and the two lines beyond present. Hindwing beneath pale as far as the postmedian line; costal edge tinged with red; median line indicated anteriorly; a small dark cell-dot and postmedian line present.

Calama, Rio Madeira, below Rio Machados, August—October 1907 (W. Hoffmanns). 6 ♂♂ in coll. Tring Museum.

#### 9. *Semaepus ladrilla flavicans* subsp. nov.

♂ ♀, 34–35 mm. Smaller than *l. ladrilla* Dogn. (*Ann. Soc. Ent. Belg.* xxxvii. 161 = *illimitata* Warr., Nov. Zool. vii. 156), and essentially different in the colour, both of body and wings, which is yellowish clay-colour above, buff beneath.

North Venezuela: San Esteban. Type ♀ and others in coll. Tring Museum. Also from Las Quiguas, in the same district (coll. Brit. Mus. et coll. L. B. Prout).

Without knowledge of the local conditions, it is useless to attempt to account for the occurrence of this modification of so widely distributed a species in so restricted an area, and we are perhaps dealing with a separate species; but the agreement, except in size and colour, seems exact, and I have preferred to regard the distinction as racial only.

#### 10. *Semaepus euthyoria* spec. nov.

♂, 28 mm. Face mixed with black. Palpus blackish, beneath ochreous. Vertex and base of antenna strongly mixed with red; antennal ciliation scarcely as long as diameter of shaft. Thorax and base of abdomen above concolorous with wings; anal end and underside pale.

*Forewing* with apex rather blunt, termen curved, little oblique anteriorly; SC<sup>2</sup> from cell; saturn-orange (really orange with thick red irroration); costal edge narrowly dark fuscous or blackish; lines dull dark reddish; antemedian from beyond one-fourth costa to before one-third hindmargin, slender, gently curved; median firm, only very slightly curved, well beyond cell-mark; postmedian from within 3 mm. of apex to 1 mm. from tornus, rather slender, rather deeply lunulate-dentate, between the radials somewhat sinuate inward, the tooth outward at R<sup>2</sup> very slight, those at R<sup>3</sup> and M<sup>1</sup> rather approximated to the termen; cell-dot small, white, finely red-ringed; terminal line red, interrupted by orange-yellow dots at the veins, slightly thickened between; fringe red, with a fine yellow line at base and an ill-defined one beyond middle.—*Hindwing* with termen full, rounded; as forewing, but without antemedian line.

Underside paler yellowish, with hindmargin of forewing whitish; the forewing mostly, the hindwing between postmedian line and termen and more

faintly in costal region, flushed with red; cell-dots greyish, not very sharp; median and postmedian lines well developed.

Calama, Rio Madeira, below Rio Machados, August—October 1907 (W. Hoffmanns). 2 ♂♂ in coll. Tring Museum.

Very distinct in the conspicuous, almost straight median line.

#### 11. *Semaeopus dorsionata* spec. nov.

♂, 28 mm. Face blackish, paler below. Palpus with third joint minute; red mixed with black, narrowly whitish beneath. Vertex and base of antennal shaft reddish; antennal ciliation even, about as long as diameter of shaft. Thorax and abdomen above deep salmon-buff, the second—fifth abdominal tergites each with a white, irregularly blackish-margined central spot; beneath pale. Hindleg short, the tibia and tarsus thickened, together little longer than the femur, whitish; a long pencil of buff hair from femoro-tibial joint, a whiter tuft from end of tibia above the tarsus, reaching the end of the latter.

Wings shaped as in the preceding species.

*Forewing* with SC<sup>2</sup> from cell; deep salmon-buff (buff with dense reddish irroration); lines not very sharply expressed; antemedian from one-fourth costa, oblique outward, angulated in cell, then straightish (slightly wavy) to one-third hindmargin; median and postmedian lunulate-dentate, parallel, about equidistant from one another, from the cell-mark and from the termen, somewhat bent outward (and with longer teeth—especially the postmedian) at R<sup>1</sup> and M<sup>1</sup>; cell-mark rather long and narrow, reddish; terminal dark line interrupted at the veins.—*Hindwing* with a few scattered black dots except in distal area; no antemedian line; cell-mark broken into two black spots, that on DC<sup>2</sup> the larger; distal half marked as on forewing.

Underside much paler, especially the posterior part of forewing and whole hindwing; markings feebly reproduced, the cell-mark of hindwing obsolete but not interrupted.

Goyaz (town), January 1906 (G. A. Baer). Type in coll. Tring Museum.

#### 12. *Semaeopus luridata subrugosa* subsp. nov.

♂, 26 mm. Slightly shorter-winged than *I. luridata* Warr. (Nov. Zool. xiv. 219), from S.E. Peru. Above otherwise scarcely distinguishable, the outer line of the forewing not so deeply indented, the dark terminal blotch between the radials consequently less elongate proximally. Hindwing beneath, except a pale distal border of 2 mm. width, covered with rough orange-rufous scaling.

Calama, Rio Madeira, below Rio Machados, August—October 1907 (W. Hoffmanns). 2 ♂♂ in coll. Tring Museum.

#### 13. *Semaeopus hypoderis* spec. nov.

♂, 35 mm. Face and palpus rufous, mixed with blackish; palpus pale ochreous beneath, third joint quite short. Vertex cream-colour; occiput narrowly reddish. Antennal ciliation scarcely fasciculate, not longer than diameter of shaft. Patagia and base of tegula cream-colour, spotted with red; thorax and abdomen above otherwise mostly dull dark brown, with a slight olive

tinge, a few cream-coloured spots on metathorax and base of abdomen. Underside and legs pale, the foreleg reddened on inner side; hindtibia with strong tufts and a single spur; hindtarsus thickened, abbreviated, strongly tufted.

*Forewing* fairly broad, termen curved;  $SC^2$  from cell; cream-colour, with rufous irroration, but mostly occupied by the extended dark, olive-tinted brown markings; a costal spot and one or two irregular lines near base; a broad band (averaging nearly 4 mm.) before middle, its proximal edge oblique inward and somewhat sinuous, its distal touching the cell-mark, incurved behind cell, somewhat oblique outward to hindmargin beyond middle; a red subcostal spot in middle of this band; cell-mark elongate, of the ground-colour but dark-edged its proximal edge on  $DC^{2,3}$ , slightly incurved, its distal tridentate (on the radials); a broad (4–5 mm.) distal border, bounded proximally by a chain of whitish, rufous-edged spots, which is slightly incurved between the radials and outbent between  $R^3$  and  $M^1$ ; a moderately large subapical patch of the ground-colour bounded behind by  $R^1$  and a second (submarginal) from before  $M^1$  to behind  $M^2$ , each of these patches followed at distal margin by a pair of small spots; terminal line at these points rufous; fringe strongly dark-spotted.—*Hindwing* with termen subcrenulate,  $SC^2$  very shortly stalked; almost entirely dark-clouded, the ground-colour only showing in a very small basal patch and an elongate subtornal one which crosses  $M^1$  and is accompanied at distal margin by three small pale spots; on the dark area stand two black discal dots, a strongly curved blackish central line and a very indistinct postmedian, edged distally by a few reddish scales, slightly sinuous anteriorly and forming a sharp outward angle behind  $R^3$ .

Both wings beneath buff to buff-yellow, with weak rufous irroration, the dark markings chocolate, on forewing nearly as above, but with the proximal band fading out behind cell (the posterior region shiny pale grey), on hindwing confined to a subbasal patch and a broad terminal band from apex nearly to  $R^3$ ; both wings showing in addition well-developed crenulate median and postmedian lines, the former strongly outbent well beyond the cell.

La Oroya, Rio Inambari, S.E. Peru, 3,100 ft., December 1905, wet season (G. R. Ockenden). Type in coll. Tring Museum. Near *commaculata* Warr. (Nov. Zool. iv. 435).

#### 14. *Semaepus catamompha* spec. nov.

♂, 27–28 mm. Much smaller and decidedly paler than the preceding. Face and palpus mostly pale. Thorax above not or scarcely darkened.

*Forewing* with the antemedian dark band narrower and ill-defined; cell-mark quite different, consisting of a pair of black dots, as on hindwing; a median line, strongly incurved, well beyond (as on underside); distal border narrower, interrupted at the medians, the whitish proximal spots before and behind  $M^1$  enlarged (especially the former), the subapical distal patch reaching  $R^3$ , consequently accompanied at termen by *three* pale spots.

Underside with the cloudings quite weak and restricted, the subbasal of hindwing virtually wanting.

Buenavista, E. Bolivia, 750 m., July–October 1906, type, August 1906—April 1907, paratype (Steinbach). In coll. Tring Museum.

15. *Semaeopus geminilinea* spec. nov.

♂, 22–24 mm. Similar to *mitranaria* Walk. (*List Lep. Ins.* xx. 241).

*Forewing* darker, the irroration being much stronger and mixed, especially in anterior region, with grey; costal edge partly blackened; veins partly darkened; median line stronger, followed distally (at 5 mm.) by a second, similarly formed line; the oblique subapical line (from costa to termen at R<sup>3</sup>) accompanied distally by some grey shading.—*Hindwing* strongly shaded in middle with whitish pearl-grey; tornal patch of ground-colour much less sharply defined, being shaded—especially at tornus—with grey, the line which bounds it proximally rather strongly dentate.

Underside darker than in *mitranaria*, median line of hindwing much more proximally placed (close to cell-mark).

Calama, Rio Madeira, below Rio Machados, August–October 1907 (W. Hoffmanns). 2 ♂♂ in coll. Tring Museum. Also an old and damaged ♂ merely labelled “S. America.”

16. *Semaeopus plumbeostrota* spec. nov.

*Heterophya plumbeostrota* Warr., MS.

♂ ♀, 27–30 mm. Larger than *geminilinea* Prout.

*Forewing* broader, with distal margin more strongly curved; markings similar, including the geminate median line; antemedian line angulated on M; cell-mark less oblique than in *mitranaria* and *geminilinea*; a similar mark within the cell; the space between these, together with the entire posterior half of wing from the antemedian to the postmedian line occupied by a violaceous-plumbeous suffusion; tornus and subapical band similarly suffused.—*Hindwing* without the whitish pearl-grey shading, thus coloured more as in *mitranaria*, but with the ill-defined distal area of *geminilinea*; distal edge of basal patch more curved than in either of the allies, tornal patch broader.

Aroewarwa Creek, Maroewym Valley, Surinam, April 1905, ♂ type, May 1905, ♀; San Esteban, Venezuela, June 1909, ♀; Fonte Boa, Amazonas, August 1906, ♀. All in coll. Tring Museum, collected by S. M. Klages. Also a ♀ from Rio Chucurras, Rio Palcazu, E. Peru, 320 m. (W. Hoffmanns) in the same collection.

17. *Semaeopus exypna* spec. nov.

♂, 32 mm. Face black on upper half, pale fawn-colour on lower. Palpus with third joint very short; black, beneath pale fawn-colour. Antenna pectinate, the branches mostly over twice diameter of shaft. Thorax, abdomen, and legs fawn-colour; fore-femur and tibia blackened on inner side; hindleg with very long pencil of pale, slightly ochreous-mixed hair, reaching almost to end of tarsus, tibia and proximal part of tarsus dilated and thickly clothed, the slender exposed end of tarsus extremely short.

*Forewing* with termen waved, more oblique in posterior part than in anterior; SC<sup>2</sup> arising well before end of cell; fawn-colour, with very fine and inconspicuous darker irroration; antemedian and median lines rather weak, irregularly crenulate; antemedian oblique outward from beyond one-fourth costa, marked with a dark dot on crossing SC (at base of SC<sup>1</sup>), with a pronounced

double projection in cell, then oblique inward to about one-third hindmargin; median from nearly three-fourths costa to five-ninths hindmargin, slightly incurved between the radials and again between  $M^1$  and  $SM^2$ ; postmedian line blacker, near termen, exceedingly slender, deeply—though not acutely—dentate, the outward teeth (on the veins) slightly thickened, the inward (in the cellules) partly marked with black dots, especially those before  $R^1$  and before  $R^2$ , which are deeper than the others; cell-dot small, inconspicuous, brownish; terminal line very fine, brownish, marked with slightly elongate (or subtriangular) dots between the veins; fringe with minute dark dots opposite the veins.—*Hindwing* with termen crenulate, slightly toothed at  $R^2$ ; lines of forewing continued, the antemedian near the base, the median little beyond middle of wing; cell-spot rather large, black, white-pupilled.

Forewing beneath slightly smoky in proximal part, first line wanting; cell-spot grey, larger and more conspicuous than above; markings beyond it nearly as above. Hindwing beneath paler; first line wanting, median weak, the rest nearly as above.

Pozuzo, Huanuco, E. Peru. Type in coll. L. B. Prout.

#### 18. *Semaepus rubida orbistigma* subsp. nov.

♂, 34–38 mm. Larger than *r. rubida* Warr. (Nov. Zool. iv. 439), from Venezuela, strongly marked.

*Forewing* with the cell-mark enlarged into a round or broad-oval black ring, whitish grey in centre; postmedian line rather more bent, on both wings more strongly thickened at hindmargin.

Huancabamba, Cerro de Pasco, E. Peru (E. Boettger). Type and others in coll. Tring Museum; paratype in coll. L. B. Prout. Also from Cushi, prov. Huanuco; Santo Domingo, Carabaya; Chulumani, Bolivia.

#### 19. *Semaepus vestita* spec. nov.

♂ ♀, 30–32 mm. Face dull reddish, somewhat mixed with grey. Palpus dull reddish, beneath pale ochreous; third joint minute, darkened. Crown mostly yellow-whitish, narrowly red between antennae. Antennal joints in ♂ scarcely projecting; ciliation scarcely longer than diameter of shaft. Thorax and abdomen reddish above, more ochreous beneath. Hindleg in ♂ similarly clothed to that of *caecaria* Hb. (= *punctata* Stoll, nom. praeocc.).

*Forewing* with  $SC^2$  arising from stalk of  $SC^{2-6}$ ; vinaceous cinnamon, slightly shaded over in parts with olive-grey; lines grey, not very sharp; antemedian from just beyond one-fourth costa, rather oblique outward, curved in cell, then mainly vertical, but somewhat sinuous, to one-third hindmargin; median well beyond cell, bent outward at  $R^2$  (— $M^1$ ), rather strongly inbent in submedian area; postmedian from about three-fourths costa, dentate outward on the veins (the extremities of the teeth slightly thickened), incurved between  $M^2$  and  $SM^2$ , somewhat approaching termen at  $SM^2$ ; cell-dot small, white, with slight grey circumscription; termen with dark reddish dashes between the veins and minute pale dots at vein-ends; fringe with a very fine pale line at base.—*Hindwing* similar, with first line wanting, cell-dot rather more distinctly dark-edged.

Forewing beneath pale reddish, at costal margin brighter and more ochreous,

at hindmargin nearly to tornus whitish; markings of upperside (except first line) present, not strong. Hindwing beneath more yellowish, with costal edge brighter ochreous and distal area concolorous with underside of forewing; cell-dot and postmedian line indicated in grey.

Venezuela: San Esteban, June 1909 (S. M. Klages); type ♂; Cucuta, paratype ♀; both in coll. Tring Museum. A worn ♂ from Fonte Boa, Upper Amazon, June 1910 (S. M. Klages) seems also to belong here.

In some respects similar to *Anisodes nudaria* Guen. (*Spec. Gén. Lép.* ix. 417; Oberth., *Et. Lép.* xii. t. 396. f. 3361), under which name I gather it has stood, with a query, in the Dognin collection. Few structural clues were given for that species, but it would seem to be evidently a true *Anisodes*; in no *Semaepus* could the ♂ hindtibia possibly be described as "naked." The name *vestita* has been adopted, not because of anything exceptional (for this genus) in the clothing, but in contradistinction to *nudaria*.

#### 20. *Semaepus vestita asymphora* subsp. nov.

♂ ♀, 33-34 mm. Face blackish. Wings less red than in *v. vestita* Prout (supra), of an almost uniform fawn-colour, without the grey cloudings; postmedian line and generally the median finer; hindwing beneath nearly concolorous with forewing, median line present.

Tinguri, Carabaya, S.E. Peru, 3,400 ft., January 1905, wet season (G. R. Ockenden), type in coll. Tring Museum; August 1904, dry season, 2 ♀♀. Huanca-bamba, Cerro de Pasco (E. Boettger), La Oroya, Carabaya, December 1905 (G. R. Ockenden), also in coll. Tring Museum. Yahuarmayo, S. Peru, 1,200 ft., April 1912, in coll. British Museum.

Possibly a separate species—forewing slightly blunter at apex, etc.

As ab. (?) *punctulifera* (spec. div. ?) I describe a rather puzzling form which is also distributed in Peru, with coloration intermediate towards that of *v. vestita*, postmedian line of both wings on the whole with shallower lunules, but these almost obsolete, *black dots at the extremities of the teeth*, on the other hand, developed above and beneath. As the antennal shaft looks slightly thicker, the joints more projecting, the ciliation slightly longer, I suspect this may prove a separate species, but the differences are so intangible that it will require further research to satisfy me I may not have been deceived.

Yahuarmayo, S. Peru, 1,200 ft., April 1912, type in coll. L. B. Prout; Pozuzo, E. Peru, in coll. L. B. Prout; Chaquimayo, S. Peru, in coll. British Museum.

#### 21. *Semaepus tergilinea* spec. nov.

♂, 25 mm. Head and body concolorous with wings, face more mixed with rufous, palpus and collar with ochreous. Structure of the *sigillata* group (*Dichromatopodia* Warr.); hindtibia with the inner tuft purple-red. Abdomen with a fine, clear fawn-coloured mediodorsal line, the rest of the dorsal surface rather strongly irrorated.

*Forewing* pale fawn-colour, with minute, rather inconspicuous greyer irroration; a narrow cell-mark, covering the entire length of DC<sup>2+3</sup>, and two almost straight lines free from irroration, slightly tinged with buff; first line from SC before one-third, oblique to hindmargin beyond two-fifths; post-

median just beyond three-fourths, slightly less oblique than termen; a fine dark terminal line, slightly interrupted at the veins, accompanied proximally by an equally fine pale line.—*Hindwing* not bent at  $R^3$ ; first line wanting; cell-mark as on forewing; postmedian line curved parallel with termen.

Underside much paler, markings scarcely indicated, costal margin of forewing slightly reddish, extreme edge more ochreous.

San Esteban, N. Venezuela, June 1909 (S. M. Klages), 3 ♂♂ in coll. Tring Museum. Buenavista, E. Bolivia, 750 m., August 1906—April 1907 (Steinbach). Distinguishable at a glance by its colour and abdominal line.

### 22. *Semaecopus* (?) *purpureoplaga* spec. nov.

♂, 30 mm. Face red, above and for a distance down the middle dark brown. Palpus ochreous mixed with red, a dark mark on second joint. Antenna not dentate, ciliation longer than diameter of shaft. Vertex, thorax, and abdomen buff, the collar and pectus, fore- and middle-legs marked with red. Hindtibia moderately long, with hair-pencil, the upperside slightly fringed; tarsus strongly abbreviated.

*Forewing* with costa arched;  $SC^2$  from cell,  $R^3$  not noticeably before middle of DC; buff or pinkish buff, proximally vinaceous buff; lines rather fine, raw sienna or inclining to ochreous, not reaching costa; antemedian indistinct, arising in cell, incurved behind; median excurved beyond cell-dot, incurved and thickened behind; postmedian irregularly lunulate-dentate, forming a moderately strong proximal curve from behind  $R^2$  to behind  $M^2$ ; cell-dot strong, black; some confluent greyish-purple blotches shortly beyond the postmedian, that between the radials small, one between  $R^3$  and  $M^2$  and one from fold to tornus large; terminal line purple, interrupted at the veins.—*Hindwing* with termen little convex, rather recalling the shape of a *Leptoctenopsis*;  $SC^3$  separate; first line wanting; median shade crossing (and thickened around) the cell-mark; postmedian similar to that of forewing; purple blotches smaller and weaker; cell-dot white, slightly elongate, very finely black-edged.

Underside without markings; forewing largely tawny or tawny-ochreous, its distal and hindmargin, with the whole of the hindwing, paler and more pinkish.

“Brazil” (? Amazons). An old specimen in coll. Tring Museum.

The shape and the hindleg more suggest a *Somatina* than a normal *Semaecopus*.

### 23. *Trygodes basisignata* spec. nov.

♀, 31 mm. Palpus with second joint reaching well beyond frons, third joint long. Antennal ciliation one-half as long as diameter of shaft. General coloration as in *physicata* Feld. (*Reise Novara, Lep. Hep.* t. 128. f. 8) or *niobe* Druce, occiput spotted with blackish.

*Forewing* with a small, blackish-green spot at extreme base just in front of M, closely followed by two others (in front of and behind base of cell); lines distinct, grey, olive-mixed; antemedian extremely oblique outward subcostally (almost parallel with costa), from SC into cell nearly vertical but slightly dentate, oblique inward to M, nearly straight to hindmargin at two-sevenths; a conglomeration of olive-green central spots, narrowly separated by  $DC^1-R^1$  and by  $DC^{2-3}$ ; anterior spot (between  $SC^3$  and  $DC^1-R^1$ ) wedge-shaped, those

in and outside the cell boot-shaped, the feet pointing in opposite directions (inward between cell-fold and M, outward between  $R^2$  and  $R^3$ ); a rather large roundish spot between  $SM^2$  and base of  $M^2$ ; postmedian and subterminal lines lunulate-dentate, their course nearly as in *niobe* but with the bends exaggerated, the space between them somewhat pale; distal area shaded with reddish grey, especially between the radials and at tornus; some small pale spots at termen itself, well developed at apex; terminal line and fringe as in *niobe*.—*Hindwing* without basal spots and first line; cell-patch recalling that of *physciata*, but more like an animal's head, the neck (between M and  $SM^2$ ) narrower, the anterior part (at SC) broken into short ears.

Underside quite similar to that of *physciata*.

La Oroya, Rio Inambari, S.E. Peru, 3,100 ft., December 1905, wet season (G. R. Oekenden). Type in coll. Tring Museum.

#### 24. *Trygodes viridiplena* spec. nov.

♂ ♀, 42–47 mm. Face light reddish brown, with a variable admixture of darker scales in middle. Palpus with second joint scarcely reaching beyond face, third joint moderate, slightly longer in ♀ than in ♂; reddish above, ochreous-whitish beneath. Vertex mixed with pink, occiput with olivaceous. Antenna in ♂ scarcely dentate, with ciliation little longer than diameter of shaft; in ♀ with ciliation over one-half diameter of shaft. Collar and front of thorax mixed with ochreous and strongly spotted with black; thorax above otherwise vinaceous pink with a slight purple tinge and with sparse and minute black dots; abdomen above more reddish; both beneath more or less ochreous; tufts of coxae and hindtibia variegated, as in the allies.

*Forewing* with the terminal teeth rather strong; fleshy whitish, along the costal margin brighter pink; some slight, irregular dark marks at base; a large green patch in end of cell (quadrate or even more extended longitudinally than transversely), only narrowly separated by DC from a large quadripartite one beyond (extending from  $SC^3$  to  $M^1$ ) and by M from a supplementary spot between base of  $M^1$  and  $M^2$ ; a very large green patch on hindmargin, separated from the last-named only by  $M^2$ , its proximal part reaching nearly to base and entering the cell, its distal boundary rather beyond middle of wing; an olive-brownish postmedian line close beyond the green patches, formed about as in *physciata* Feld.; subterminal line farther from the termen than in any of the other species, deeply lunulate-dentate and irregular, the inward curve between the radials generally deep, always marked with black at the proximal extremities of these lunules and generally of some of the others; a broad (between  $SC^4$  and  $SC^3$  narrowed), strongly dentate-edged band beyond this, the teeth on  $R^3$  and  $R^2$  reaching the termen; pale terminal area very slightly dusted and with the veins brown; terminal line black, thickened between the veins.—*Hindwing* with the green patches in and beyond the cell corresponding to those of the forewing; the hinder patch also large, but prolonged **distally**, its proximal edge curving outward till it reaches  $SM^2$ , along which it runs to near tornus, its distal edge bending abruptly at  $M^2$ , along which it runs for over 3 mm., again bending abruptly to join the proximal (posterior) edge near tornus; a fawn-coloured shade between the green patches and costa; outer part nearly as on forewing, the fawn-coloured shade beyond subterminal line narrower.

Underside with similar but more sombre (dark grey) markings.

San Esteban, N. Venezuela, June—August 1909 (S. M. Klages). 8 ♂♂, 2 ♀♀ in coll. Tring Museum.

A slight modification of this species, with the green patch beyond the cell broken into four separate wedges, is figured by Druce (*Biol. Centr. Amer., Lep. Het.* ii. t. 51. f. 6, 7) from Chiriqui as "*musivaria* H. S."

#### 25. *Trygodes niobe desolata* subsp. nov.

♂ ♀. Rather browner (less pinkish) than *n. niobe* Druce (*Biol. Centr. Amer., Lep. Het.* ii. 106. t. 51. f. 9, 10); all the spots small, **very pale green**.

Venezuela: San Esteban, July 1909 (S. M. Klages), 3 ♂♂, including type; June 1909, 1 ♀; Valencia, 1 ♀. All in coll. Tring Museum.

*T. niobe niobe* is known to me from different localities in Costa Rica and Peru, and will presumably be found in Colombia and Ecuador.

#### 26. *Tricentra allotmeta* spec. nov.

♂ ♀, 19–21 mm. Very close to *T. carnaria* H.-Sch. (*Samml. Aussereur. Schmett.* i. fig. 194 = *laciniata* Warr., *Nov. Zool.* xiv. 223, syn. nov.).

*Forewing* with costal and distal areas more eluded with grey; subterminal yellow line finer, placed a little farther from the termen, the interneural yellow dashes which run in from the termen longer.—*Hindwing* with the yellow line quite differently placed, bending rather sharply at R<sup>1</sup> and thence running straight across the wing to hindmargin 2 mm. from tornus; distal area as on forewing.

Underside with distal area less clear, showing traces of (or even a moderately well developed) pinkish cloud down its centre.

Carabaya, S.E. Peru: Rio Huacamayo, 3,100 ft., June 1904, dry season, type ♂; La Oroya, Rio Inambari, 3,100 ft., November—December 1905, wet season, 2 ♂♂, January 1906, wet season, 1 ♀. All in coll. Tring Museum, collected by G. R. Ockenden.

I do not think this can be a mere aberration of *carnaria*, as there is no sign of intermediates; nor is it likely to be a seasonal form, though the only two La Oroya *carnaria* which I have seen were taken at other periods of the year—September 1904, dry season, and March 1905, wet season.

#### 27. *Tricentra devigescens* spec. nov.

♂, 16 mm. Face light yellowish grey. Vertex and upperside of thorax and abdomen concolorous with wings; underside much paler and more ochreous. Hindtibia with the proximal spur less long than in most species.

*Forewing* light seal-brown, inclining to grey; apical region cream-colour, with slight dark dusting, at costal edge rather more ochreous; the boundary-line between the two colour areas is somewhat lunulate-dentate and runs from before two-thirds costa fairly straight to termen behind M<sup>1</sup>; small white dots on DC<sup>2</sup> and DC<sup>3</sup>; fringe cream-colour, dark-spotted opposite the veins in posterior part.—*Hindwing* with termen slightly sinuate, at least between the radials and at tornus; ground-colour and discal dots as on forewing; no apical patch; a lunulate-dentate cream-coloured submarginal line within 1 mm. of

termen, inbent between the radials and behind  $M^2$ ; fringe dark-spotted throughout.

Underside with distal area of hindwing pale from subterminal line to termen, forewing more as above.

Aroewarwa Creek, Maroewym Valley, Surinam, April 1905 (S. M. Klages). Type in coll. Tring Museum. A second example from La Union, Rio Huacamayo, Carabaya, S.E. Peru, 2,000 ft., November 1904, wet season (G. R. Oekenden), is slightly larger.

#### 28. *Tricentra flavifigurata* spec. nov.

♂, 19–20 mm. Face pale straw-colour, spotted with umber; palpus pale beneath. Vertex and thorax and abdomen above vinaceous, mixed with umber; underside straw-colour.

*Forewing* with termen very slightly concave anteriorly to  $M^1$ , here prominent, thence very oblique; vinaceous, here and there with umbreous cloudings, in distal part with some yellow admixture, giving it a vaguely olivaceous tinge; a thick, but not sharply defined, burnt-umber line from beyond one-fourth costa to beyond one-third hindmargin, strongly outbent in middle; an elongate naples-yellow cell-mark, thickening at its posterior end; a dark costal spot just beyond, indicating the commencement of a very weak, dentate line; a dentate yellow subterminal line, commencing at about five-sevenths costa (here accompanied proximally by a slight dark spot), very oblique outward to  $R^1$ , slightly so to  $R^2$ , thence rather close to termen; a strong dark dot on fold proximally to the subterminal line; fringe yellow, with a strong dark dot opposite  $M^1$ .—*Hindwing* with termen faintly waved, very slightly concave between the radials; vinaceous, mixed with umber in proximal half (especially at base), with yellow distally to the subterminal line; a large, complex naples-yellow patch in middle, namely an S-shaped mark just outside the cell confluent in its posterior half with a large patch in and just behind the distal half of the cell and proximally projecting a little into the anterior half thereof; on this patch stand in places some minute dark irrorations, particularly in the anterior half of the S-shaped mark; subterminal yellow line more nearly parallel with termen (at nearly 1 mm. distant), rather deeply inbent between the radials.

Forewing beneath somewhat vinaceous, at costa redder, at base and hindmargin pale, cell-mark cream-colour; distal border for 1 or 2 mm. (most broadly at apex, most narrowly in middle) cream-colour, from  $R^1$  to hindmargin separated from ground-colour by a smoky band; a spot on fringe as above. Hindwing beneath mostly cream-colour, a complete smoky band continuing that of forewing.

La Oroya, Rio Inambari, Carabaya, S.E. Peru, 3,100 ft., November–December 1905, wet season (G. R. Oekenden). Type in coll. Tring Museum. Also from Rio Huacamayo, Carabaya, 3,100 ft., June 1904, dry season.

#### 29. *Tricentra citrinaria* grisescens subsp. nov.

Both wings with the dark parts of an almost uniform grey, with a slight purplish tinge, the hindwing entirely without the rufous shades of *c. citrinaria* Warr. (Nov. Zool. xiv. 222). The yellow submarginal band on both wings is broad and pale, sharply defined, though on the hindwing the grey ground-colour is slightly mixed with yellow between the middle and this band.

Fonte Boa, Upper Amazon, May 1906 (S. M. Klages); type ♂ and another in coll. Tring Museum. St. Jean de Maroni, French Guiana, July; a ♂ in coll. L. B. Prout.

### 30. *Ptychopoda combinata* spec. nov.

♂ ♀, 20–26 mm. Face red-brown, mixed (except below) with blackish. Palpus ochreous, on outer side mixed with red-brown and black. Crown creamy white, narrowly edged behind with black. Antennal shaft ochreous, the first few joints white; ciliation even, scarcely longer than diameter of shaft. Collar orange. Front of thorax vinaceous, mixed with orange-buff; thorax and abdomen otherwise concolorous with wings, the abdomen with two or three blackish medio-dorsal spots, on the middle segments. Hindtibia in ♂ relatively long, dilated, with long hair-pencil from base; tarsus strongly abbreviated.

*Forewing* with areole rather small, all the subcostals well- or long-stalked from its apex; dirty white, with salmon-buff and sparse vinaceous and black irroration; costal edge narrowly orange-buff; markings salmon-buff, almost entirely overlaid with black, consisting of large spots much as in *Pt. complexaria* Schaus (*Tr. Amer. Ent. Soc.* xxvii. 257); antemedian spot in cell rather small, that behind it large, somewhat crescentic, but broad, its convex side turned towards the base, that at hindmargin small, oblique; median series similar, but the first two larger, the one in (at end of) cell posteriorly confluent with a narrower extracellular mark, behind which (at base of  $R^3-M^1$  and between the medians) stand two small lunules; postmedian formed about as in *complexaria*, with rather marked proximal thickening between the radials and between  $M^2$  and  $SM^2$ , slighter thickening between  $R^2$  and  $M^1$  and a thick dot or dash at hindmargin; beyond (leaving free a rather thick, sinuous pale line) stands an irregular row of elongate interneural dark marks between  $R^1$  and hindmargin, the first two and last three wedge-shaped, those between  $R^3$  and  $M^2$  larger and broader; subterminal line zigzag, white, rather thick, bounded proximally by these spots; a rather thick lavender line at termen; fringe pinkish proximally, yellow distally.—*Hindwing* ample, with termen evenly rounded;  $SC^2-R^1$  quite shortly stalked; to beyond the postmedian line white, with rather sparse irroration, distally more buff, with strong irroration; a minute but distinct cell-dot; lines very fine and indistinct, shaped as in *fervens* Butl. (*Tr. Ent. Soc. Lond.* 1881, p. 340); subterminal line weak and interrupted anteriorly; terminal and fringe as on forewing.

Underside whitish, with more or less strongly ochreous veins, costal and distal margins and fringes, the costal margin of forewing rather broad, more reddish proximally; forewing with the spots showing through in grey and with the anterior part of an ochreous postmedian line.

Surinam: Aroewarwa Creek, Maroewym Valley, July 1905 (type), March and April 1905 (S. M. Klages); French Guiana: St. Jean de Maroni; Upper Amazon: Fonte Boa, May and July 1906, Codajas, April 1906 (S. M. Klages); all in coll. Tring Museum.

Strongly recalls *complexaria* Schaus, in which, however, the termen of the hindwing is irregularly bent, whereas in the present species it is at least as regular as in *fervens* Butl.

31. *Ptychopoda xanthodeta* spec. nov.

♂, 18 mm. Face dull red. Palpus slender, with terminal joint distinct, not minute; blackened on outer side. Crown yellow, irrorated with red. Antennal shaft partly darkened; ciliation very long. Thorax above deep yellow; abdomen above slightly paler; underside still paler. Foreleg long, femur and tibia blackened on inner side; hindtibia slightly shorter than femur, somewhat thickened, with hair-pencil, tarsus very slender, as long as tibia.

*Forewing* rather broad, costa gently arched distally, apex round-pointed, termen oblique, straight anteriorly, then slightly curved; areole long, SC<sup>1</sup> arising before its end; white, with yellow irroration; costal margin as far as SC mostly liver-coloured, but rather irregularly, with the extreme edge darkened; basal region mostly yellow; lines thick, yellow, very ill-defined, the postmedian and two subterminals less so; postmedian and proximal subterminal parallel, incurved between the radials, dentate outward on R<sup>1</sup> and M<sup>1</sup>, slightly interrupted just behind M<sup>1</sup>; distal subterminal close to termen, almost touching it in places, less thick than the others, becoming thinner posteriorly; fringe mixed with yellow, especially anteriorly.—*Hindwing* with termen very slightly concave between the radials, otherwise fairly regular; as forewing, or slightly clearer, costal margin concolorous.

Forewing beneath with slight reddish-smoky suffusions anteriorly, especially in cell, whitish posteriorly; two weak, ill-defined, rather thick darker lines indicated in distal area between costal margin and M<sup>1</sup>. Hindwing beneath whitish, unmarked.

San Antonio, W. Colombia, 5,800 ft., December 1907 (M. G. Palmer). Type in coll. L. B. Prout.

32. *Ptychopoda callipepla* spec. nov.

♂ ♀, 12–13 mm. Face and upperside of palpus purplish. Vertex and base of antenna more rosy; antennal joints in ♂ slightly projecting, the ciliation very long and fine. Thorax in front cadmium yellow, behind rosy; abdomen above rosy, mixed with dark plum-colour, sometimes wholly overlaid with the latter shade; anal extremity yellow; underside paler.

*Forewing* with SC<sup>1</sup> arising before apex of areole, M<sup>1</sup> generally stalked; yellow, with a spot of deeper yellow at base; a subbasal pink fascia, more or less strongly overlaid, except at its edges, with dark plum-colour; a large, round-oval subapical patch extending from costa to M<sup>2</sup>, its central part blackish, mixed with iridescent blue and slightly with pink (producing a general effect of dark plum-purple), its circumference geranium pink, the proportion of the two colours variable.—*Hindwing* rather narrow and elongate, SC<sup>2</sup> and M<sup>1</sup> both stalked; a moderately broad yellow distal border, slightly broadest at apex and extending some distance along costa; the rest of the wing dark plum-purple, bordered distally (to a variable width, correlated to the coloration of the forewing) with geranium pink.

Underside similar, though slightly paler.

Jamaica, August 1898 (W. J. Kaye), type ♂, and Moneague, January 20, 1905 (Lord Walsingham), paratype ♀, both in coll. British Museum. Also 2 ♀♀, merely labelled "Jamaica," in coll. Tring Museum.

33. *Cyloppoda gibbifrons* spec. nov.

♂, 32 mm. ; ♀, 37–39 mm. Face (especially in the ♂) even more strongly protuberant than in *postica* Walk. (*List. Lep. Ins.* ii. 371) ; black above, becoming pale below. Orbital rim white, mixed with a few yellow scales. Palpus the same, with third joint and part of upperside of second joint blackish ; rather short, with third joint rather small. Antennal pectinations much shorter than in *postica*—less than twice diameter of shaft. Crown black. Thorax and abdomen above black ; tegula with a yellow spot in front. Breast white, mixed with yellow. Abdomen yellow on side, white beneath. Legs predominantly grey to blackish ; hindleg in ♂ whitish, the tibia with a pair of very short, very thick terminal spurs, tarsus at least half as long as tibia.

*Forewing* with areole double ; bright gamboge-yellow ; the black costal border in ♂ 1.5 mm. broad, in ♀ 2 mm. ; in addition, a few scattered black scales behind this and nearly always a blackening of vein M ; the usual black distal region and enclosed yellow spot, the latter quite narrow at C, widening rather rapidly, entering the cell, but not deeply, ending at M<sup>2</sup> ; apical fringe white. —*Hindwing* with the black border in both sexes on an average a little wider than in *postica*, narrowing rather suddenly at tornus.

Underside similar, the distal border of the hindwing in ♂ slightly narrowed.

Venezuela : Suapure, March 1, 1899, type ♂, February—March 1899, 7 ♀♀ (S. M. Klages) ; Maipures, Orinoco, December 1898, 1♂ (Cherrie). All in coll. Tring Museum.

In *postica* Walk., apart from the above-mentioned distinctions, the black distal border of the forewing bends obliquely inward at hindmargin, which is not, or scarcely, the case in *gibbifrons*. Like *postica* Walk., *latiflava* Warr. (Nov. Zool. xii. 312), and a few others, this species is intermediate between true *Cyloppoda* and *Flavinia* \*), agreeing with the former in the double areole, with the latter in the less elongate palpus. Perhaps all form a single genus ; compare variability of areole in the following species.

34. *Cyloppoda expansifascia* spec. nov.

♂, 39 mm. Similar to *latiflava* Warr. (Nov. Zool. xii. 312). Palpus, as in that species, with third joint rather short. Antennal pectinations shorter than in *latiflava*—scarcely twice diameter of shaft. Hindtibia with strong ochreous tufts. Abdomen beneath yellowish white.

*Forewing* with areole generally double ; coloration as in *latiflava* ; the black posterior border proximally reaching, distally just crossing SM<sup>2</sup> ; the yellow proximal patch less triangular than in *latiflava*, its distal border more oblique, rounded rather than angled where it meets the costal border at SC, rounded also at its outer end (between M and SM<sup>2</sup>) ; the transverse black band in consequence expanding strongly, though gradually, anteriorly and rather abruptly posteriorly ; distal yellow patch moderately broad.—*Hindwing* with the black distal border slightly broader than in *latiflava*, above extending a little way along costal margin, beneath running narrowly along this margin halfway to base ; abdominal margin above and beneath narrowly black in distal half

\* *Flavinia* Walk., *List. Lep. Ins.* ii. 369 (1854), = *Atryia* (Hb. Zutr. ii. 31, indeser.) H.-Sch., *Samml. Aussercur. Schmett.* i. 19 (1856).

(in *latiflava* only the fringe is here blackened); SC usually blackened at base, at least beneath.

Bolivia: Charaplaya, 65° W. long., 16° S. lat., 1,300 m., June 1901 (Simons). Type in coll. Tring Museum. Also from Peru: San Remon, 3,000 ft., June—August 1903; Rio Colorado, 2,500 ft., July—August 1903 (Watkins and Tomlinson), in coll. British Museum et coll. Joicey.

In two San Remon examples the areole is broad, undivided. *C. brevipilaga* Dogn. (*Ann. Soc. Ent. Belg.* 1. 108), if I have rightly determined a ♂ from Charape, N. Peru (in it I should not call the black border of hindwing "broad"), has the proximal yellow patch of forewing shorter and not entering the cell, SC of hindwing not blackened at base, antennal pectinations rather less short and stout (areole double).

### 35. *Cylopeda nigrivena* spec. nov.

♀, 39–42 mm. Face black. Palpus with second joint reaching about to frons, third joint moderate, rather robust; black, first joint beneath whitish. Cheek white. Vertex black. Thorax and abdomen mostly black or blackish; tegula with a yellow line or narrow streak from base; pectus marked with yellow; abdomen with a yellow lateral stripe.

*Forewing* moderately broad, with apex moderately rounded; areole double; yellow, with rather broad black borders and black band from tornus to midcosta; vein M black.—*Hindwing* with moderately broad costal and distal borders and a narrower, proximally tapering abdominal border, which does not reach the base.

Underside similar; posterior border of forewing grey rather than black, median vein only *dusted* with black; the extreme costal margin of hindwing from base to middle usually yellow.

Brazil: Novo Friburgo, type; "Tipueca" (? Tijueca). In coll. Tring Museum.

I at first took this for an aberration of *dubia* Sehaus (*Proc. Zool. Soc. Lond.* 1892, p. 286), but that has the areole single; moreover, the costal yellow edge of hindwing beneath is much reduced or wanting and the palpus appears somewhat stouter.

## SUBFAM. LARENTIINAE.

### 36. *Eois hyriaria* (Warr.).

*Psilocambogia hyriaria* WARR., *Nov. Zool.* i. 396 (1894).

As often occurs in Warren's earlier work, the type-specimen is not indicated in the published account. The type label, however, is affixed to the ♀, and as this alone bears a locality label (St. George's [? British Guiana], November 1891, C. W. Ellacombe), this is the best selection. According to Warren's manuscript, the species sinks to *contractata* Walk. (*List. Lep. Ins.* xxii. 671), from the Amazons. I have not yet made a critical comparison, but see nothing against the union.

The generic name *Eois* Hb. belongs to the few South American species of the *Cambogia* group with non-pectinate ♂ antenna; should the distinction, as I fear, prove to be subgeneric only, Guenée's well-known name of *Cambogia* will have to sink.

SUPPLEMENTAL NOTES TO MR. CHARLES OBERTHÜR'S  
*FAUNE DES LÉPIDOPTÈRES DE LA BARBARIE*, WITH  
 LISTS OF THE SPECIMENS CONTAINED IN THE TRING  
 MUSEUM.

(Continued from p. 373.)

By LORD ROTHSCHILD, F.R.S., PH.D.

**DREPANIDAE.**

[*Drepana binaria* (Hufn.).

MR. OBERTHÜR, while stating that *binaria uncinula* Borkh. is not only found in Algeria but also in the south of Europe, seems to hint that in Mauretania the form *uncinula* and its extreme *oranaria* Strand with intermediates are all that occur. The Tring Museum possesses 29 Mauretanian examples and not a single one is *uncinula*. The example taken by Dr. Jordan and myself at Guelt-es-Stel is a very large and strongly characterised *oranaria*; 1 Guelt-es-Stel taken by Faroult and 5 taken by him at Aïn I raham are pale yellowish brown; 2 taken near Alger by ourselves, 2 taken at Tala Rana by Dr. Nissen, and 3 taken at Aïn Draham by Faroult are brownish-cinnamon colour; while 15 from Aïn Draham are more or less intermediate between the two last. This strong variation in Mauretania would lead me to consider all the forms of *binaria* as simply individual aberrations of a highly variable species, but the fact remains that the brownish-orange form found in the northern parts of Europe is apparently absent from the Mediterranean regions, so for the present I shall retain the southern form as a subspecies under the name of *uncinula*.]

109. *Drepana binaria uncinula* (Borkh.).

*Phalaena uncinula* Borkhausen, *Syst. Besch. Europ. Schmett.* vol. iii. p. 461 (1790) (Italy).

This insect appears to be rare in Mauretania; we have only taken three ourselves.

- 2 Guelt-es-Stel, April 1912-1913, W. R., K. J., and Faroult.
- 2 Environs d'Alger, February-May 1908, W. R., E. H., and K. J.
- 2 Tala Rana, September 1910, Dr. Nissen.
- 23 Aïn Draham, July-August 1911, Faroult.

110. *Cilix glaucata glaucata* (Scop.).

*Phalaena glaucata* Scopoli, *Entom. Carn.* p. 221 (1763) (Carniolia).

I have no specimens from Mauretania in which the glaucous smear is wanting as shown by Mr. Oberthür.

- 1 Masser Mines, June 1914, Faroult.
- 2 Hammam Meskoutine, April 1914, W. R. and K. J.
- 3 Souk Ahras, April 1914, W. R. and K. J.

I mentioned in my introductory notes to the first part of this article that it was very disconcerting to find in the middle of a Fauna of Barbary the

descriptions of a number of Thibetan *Drepanidae*, but Mr. Oberthür has gone further than this and has described a new species of *Cilix* from Ta-Tsien-Lu in the text of the paragraph relating to *Cilix glaucata*.

### MEGALOPYGIDAE.

Dr. Jordan has written a preliminary article on these (NOVIT. ZOOLOG. xxiii. pp. 350-358 (1916)); and as I hope he will soon be able to write more exhaustively and finally on this group, I am leaving them out of this paper. I will only state that we now have at Tring considerably more than 1,000 ♂♂ of the various species of *Somabrachys*, and that we see nothing as yet to alter our opinion that there are only 3 species with a large number of aberrations, and not, as Mr. Oberthür believes, at least 18 species and 2 subspecies.

### ARCTIIDAE.

#### Arctianae.

#### 111. *Ocnogyna boetica albescens* (Oberth.).

*Trichosoma boetica* ab. *albescens* Oberthür, *Etud. Lépidop. Comp.* Fasc. XIII. p. 8. pl. cdxv. f. 3745 (1917) (Lambèze).

It is unfortunate that the name *mauretanica* given to the Mauretanian form of this insect is preoccupied, so that Oberthür's name given to an aberration is the only available one. The Mauretanian race of *O. boetica* is, when a long series is examined, generally larger and always with the white markings purer and more pronounced than in the typical Spanish form.

I have 2 Aïn Draham specimens which are enormous, fully two-fifths larger than any Spanish specimens.

76 ♂♂ Environs de Batna, 1909-1912, Nelva coll.

1 ♂, 2 ♀♀ Sebdu, 1880-1882, Dr. Codet ex coll. Grum-Grshmailo.

1 ♂ Boghari, November 1912, Faroult.

6 ♂♂, 4 ♀♀ Hussein Dey, December 1912, Captain Holl.

1 ♂, 4 ♀♀ Souk Ahras (larvae April 1914, emerged Tring, November 1914), W. R. and K. J.

In British Museum, 2 ♂♂, 1 ♀ "Algiers," Heyne.

#### 112. *Ocnogyna adaena mauretanica* (Lucas).

*Trichosoma mauretanica* Lucas, *Explor. Scient. d'Alg.* Zool. Anim. Art. vol. iii. p. 376. pl. 3. f. 5 (1849) (Cecre de Lacalle).

Fabricius in *Mant. Ins.* vol. ii. p. 123. No. 130 (1787) described the typical form of this insect from Spain which was later on called *pierreti* by Rambur, *Bull. Soc. Ent. France*, 1841, p. xxvii. pl. 5. f. 1 (Andalusia).

The Mauretanian examples fall into 3 subspecies, the above from the coast and Hauts Plateaux east of Alger to Tunis, one from Alger and neighbourhood, and one from Djerba Islands, Tunisia.

1 ♂ Bône, Max Bartel.

10 ♂♂, 2 ♀♀ Mauretania, Staudinger and Grum-Grshmailo coll.

In the British Museum, 2 ♂♂, 1 ♀, Bône, Algeria.

113. *Ocnogyna adaena huegenini* (Oberth.).

*Trichosoma huegenini* Oberthür, *Etud. Entom.* liv. iii. p. 42 (1878) (Alger).

This is the Alger form with hardly any marks on the forewing and two oblique bars on the hindwing which Mr. Oberthür also called *gandolphii*. It is the most constant form.

13 ♂♂, 3 ♀♀ Environs d'Alger, Dr. Nissen, Captain Holl.

1 ♂ Medea, 1884, Dr. Kobelt.

1 ♂ Alger, M. Bartel in the British Museum.

114. *Ocnogyna adaena pallida* subsp. nov.

♂. Differs from the other forms of *adaena* in the very pale forewings and in the pale portions of the hindwings, being greyish white **not** yellow or orange.

♀. Differs in being dirty grey **not** black.

*Hab.* Djerba Island, Tunisia.

1 ♂, 1 ♀ Djerba Island.

In the British Museum is 1 ♂ from El Esnam.

[Mr. Oberthür places *breveti* Oberth. next, but as that belongs to another genus it must follow *Ocnogyna*].

115. *Ocnogyna pudens* (Lucas).

*Trichosoma pudens* Lucas, *Ann. Soc. Entom. France*, ser. iii. vol. i. p. 410. pl. 33. f. 1 (1853) (Spain).

This is a very variable species, the ground-colour varies from deep brown-grey to bright rufous and the forewings vary from being almost devoid of dark markings through grades showing a few scattered dark spots to definite discal bands of spots, and finally to complete dark transverse bands. The Tring Museum possesses 31 specimens.

1 ♂ Mauretania, Grum-Grshimailo coll.

6 ♂♂ "Algiers," Staudinger.

1 ♂, 1 ♀ Environs d'Alger, Captain Holl.

1 ♀ El Biar, Alger, Captain Holl.

15 ♂♂, 4 ♀♀ Blida les Glacières, April—June 1908—1916, W. R. and K. J., Dr. Nissen, Captain Holl, Faroult.

2 ♂♂ Hammam R'ihra, May 1912, W. R. and K. J.

In the British Museum are 3 ♂♂ : 1 Algeria, Mrs. de la B. Nicholl, 1 Algeria and 1 Bône, Dr. Vallantin.

116. *Ocnogyna leprieuri* (Oberth.).

*Spilosoma leprieuri* Oberthür, *Etud. Entom.* liv. iii. p. 43. pl. 5. f. 2 (1878) (Bône).

We have never taken this rare insect, and I have never received it from any of my Algerian correspondents.

2 ♂♂, 1 ♀ Philippeville, Staudinger.

In the British Museum are 1 ♂, 1 ♀ from Philippeville.

117. *Phragmatobia faroulti* Rothsch.

*Phragmatobia faroulti* Rothschild, *Ann. Mag. Nat. Hist.* (8) viii. p. 233. No. 5 (1911) (Bou Saada).

The type specimen, a very perfect ♂, has remained unique to the present day. Mr. Oberthür omits this entirely from his *Faune*, as usual, I suppose, because he considers it non-existent, owing to its not having been figured.

1 ♂ Bou Saada, May 1911, Faroult.

118. *Phragmatobia breveti* (Oberth.).

*Trichosoma breveti* Oberthür, *Bull. Soc. Entom. France*, 1882. p. clxxiv (Tlemcen).

We have taken this ourselves on three occasions; it is nowhere very common but appears to be most numerous at Bou Saada. The ♀ appears to be unknown.

- 1 Aïn Sefra, May 1913, W. R. and E. H.
- 53 Bou Saada, April 1911, Faroult.
- 1 Biskra, March 1909, W. R. and E. H.
- 2 El Kantara, March 1911, W. R., E. H., and Faroult.
- 2 Aflou, September 1916, Faroult.

One of the Bou Saada specimens has the hindwings yellow instead of pink, and the forewings are suffused with yellow; I propose the name ab. *flava* ab. nov. for it.

In the British Museum is 1 Bou Saada ex Tring Museum.

119. *Phragmatobia powelli* (Oberth.).

*Trichosoma powelli* Oberthür, *Bull. Soc. Entom. France*, 1910. p. 333 (Géryville).

Mr. Oberthür, in his *Etudes Comparées*, Fasc. XIII. p. 9, is now of opinion that this insect is only an aberration of *P. breveti*. I have only seen one specimen of *powelli*, a ♂ captured by Dr. Nissen at Aïn Sefra in May 1913, when we were there together. It is so unlike any of the 55 specimens I have of *breveti* that for the present I prefer to keep it separate.

Mr. Oberthür considers these three insects and the following to belong to the genus *Ocnogyna* = *Trichosoma*; but their neuration undoubtedly places them in *Phragmatobia*. The question of the **abortive wings** of ♀ *powelli* I think we may disregard, as in the genus *Cymbalophora*, which is a very well characterised and circumscribed genus, *pudica*, *powelli*, *diva*, and *oertzeni* have ♀♀ with fully developed wings; while *rivularis* and *haroldi* have ♀♀ with abortive wings.

120. *Phragmatobia occidentalis* (Rothsch.).

*Maenas breveti occidentalis* Rothschild, *Novit. Zool.* vol. xvii. p. 119. No. 845a (1910) (Mazagan).

This species differs from *P. breveti* in its much stouter build; in the forewings having much fewer spots and frequently a complete subterminal curved transverse black band, and in the hindwings being duller and browner and having a heavier submarginal band of black patches. Some specimens, however, are more spotted than others.

- 3 Mwhoila, near Mazagan, Morocco, W. Riggenbach.
- 23 Mazagan, January—October 1902–1903, W. Riggenbach.

121. *Phragmatobia fuliginosa kroumira* Oberth.

*Phragmatobia fuliginosa* form. *kroumira* Oberthür, *Etud. Lepid. Comp.* Fasc. XIII. p. 11. t. cdxxxv. f. 3751 (1917) (Ain Draham).

We have never taken this species.

6 Environs de Setif, 1911, Faroult.

3 Khenchela, June 1911, Faroult.

43 Ain Draham, August—September 1911, Faroult.

[*Apantesis fasciata* and its allies.

Mr. Oberthür is convinced that *fasciata* Esp., *dido* Wagn., and *oberthuri* Oberth. (Stdgr. in litt.) are three very distinct species. I confess that I cannot convince myself of this, for the three forms replace one another geographically: *fasciata* being only found north of the Mediterranean; *oberthuri* being confined to Algeria west of Hammam Meskoutine and in the Province of Alger; and *dido* is only found east of Hammam Meskoutine and in Western Tunisia. It might be urged that while in Europe we have three distinct races of *fasciata*, there appears to be no connecting link between that form and *oberthuri* (which link would be expected in the Oranais); this is true, but the character of the pattern of the wings is so similar and their geographical distribution so regular that I feel almost certain they are merely geographical races of one species.]

122a. *Apantesis fasciata oberthuri* (Oberth.).

*Chelonia oberthuri* Oberthür (ex Staudinger in litt.), *Etud. Entom.* liv. xiii. p. 27. pl. 7. ff. 47-48 (1890) (Lambèze).

We only took this insect once at night at Blida les Glacières, but Dr. Hartert found a full-grown larva on Djebel Mahmel from which I bred a fine ♀.

1 ♀ Djebel Mahmel (ex larva). E. H.

2 ♂♂ Blida les Glacières, June 1908, W. R. and K. J.

28 ♂♂, 34 ♀♀ Blida les Glacières (all reared from the eggs of 1 ♀), Captain Holl.

2 "Algeria" in the British Museum.

122b. *Apantesis fasciata dido* (Wagn.).

*Euprepia dido* Wagner, *Reiser Regent Algier*, vol. iii. p. 209. t. 9 (1841) (Algeria).

We have never taken this insect nor did Faroult send it to me. One of the ♂♂ has the ground-colour of the forewings brown-grey **instead** of liver-brown.

5 ♂♂, 2 ♀♀ Ain Draham, Staudinger.

1 ♂ Le Tarif, Tunisia.

2 "Tunis" in the British Museum.

123a. *Arctia villica arabum* (Oberth.).

*Chelonia villica arabum* Oberthür, *Etud. Lépid. Comp.* Fasc. IV. p. 678. No. 447. pl. liii. f. 447 (1910) (Bougie).

We have taken this insect at Hammam R'ihra and Blida les Glacières. We did not find it very rare, but the number of bad specimens was very large, so

that the number retained for the collection is not very great in proportion to those seen or captured.

- 16 Blida les Glaicières, June 1906-1908, W. R., K. J., and Dr. Nissen.
- 18 Hammam R'ihra, May 1908-1911, W. R., E. H., and K. J.
- 7 Djebel Zaccar above Miliana, June 1916, Faroult.
- 2 Oued Hamidou, June 1912, Faroult.

123b. *Arctia villica angelica* (Boisd.).

*Chelonia villica* var. *angelica* Boisduval, *Gen. et Ind. Meth. Europ. Lépid.* p. 42 (1829) (Spain).

This form I do not possess from Mauretania, and I believe it has hitherto only been recorded from Spain. However, there are two ♂♂ from Tangiers in the British Museum which are identical with my series of *angelica* collected by Dr. Jordan in Portugal and are absolutely distinct from *arabum*.

124. *Cymbalophora pudica* (Esper).

*Bombyx pudica* Esper, *Schmett.* vol. iii. p. 177. pl. 33. f. 4 (1784) (?).

I described the Mauretanian form as *pudica magnifica*, *NOVIT. Zool.* vol. xxi. p. 354. No. 316. I find, however, that my diagnosis only fits the series I have from Aïn Draham, and I have since received specimens from north of the Mediterranean quite as large and bright as any Aïn Draham ones. I therefore have come to the conclusion that I cannot maintain my *magnifica*. We have never taken this insect.

- 1 Mazagan, Morocco, October 1902, W. Riggenbach.
- 34 Rabat, A. Théry.
- 3 Tangier, September—November 1908.
- 7 Environs d'Alger, September 1905—1908, Dr. Nissen.
- 3 Guelt-es-Stel, September 1912, Faroult.
- 1 Perrégaux, October 1915, Faroult.
- 72 Aïn Draham, September 1910—1911, Faroult.
- 1 Sidi-bel-Abbès, October 1916, Rotrou.
- 1 ♂ Morocco, Meade-Waldo, in the British Museum.

125. *Cymbalophora powelli* Oberth.

*Cymbalophora powelli* Oberthür, *Bull. Soc. Entom. France*, 1910. p. 333 (Géryville).

We have never been in Algeria in the autumn so have never taken this species.

- 1 ♂ Géryville, September 1910, H. Powell ex coll. Oberthür.
- 118 ♂♂, 10 ♀♀ Guelt-es-Stel, September—October 1912-1913, Dr. Nissen and Faroult.
- 2 Guelt-es-Stel in British Museum ex Tring Museum.

126. *Cymbalophora haroldi* Oberth.

*Cymbalophora haroldi* Oberthür, *Etud. Lépid. Comp.* Fasc. V<sup>2</sup>. p. 123 (1911) (Aflou).

On pages 197-198 Fasc. VI. of his *Etudes Comparées*, Mr. Oberthür draws attention to the opinion expressed by Mr. Harold Powell on page 221 of the same Fascicule that *haroldi* is **generically** distinct from *pudica* and proceeds to

adopt for *haroldi* the generic term *Tympanophora* of Laboulbène. Now, Mr. Oberthür in Fasc. VI. of his *Etudes Comparées*, on pp. 149-151, tells us most precisely that in 1864 Rambur and Laboulbène quite independently of one another erected for the species *pubica* Esper the genera *Cymbalophora* and *Tympanophora*, both having reference to the peculiar stridulating organ of the ♂. Rambur's name of *Cymbalophora* has several months' priority. The International Rules of Nomenclature, however, declare that "generic" as well as "specific" names which apply to one and the same species or group of species are synonyms and cannot be used for anything else at a future time. Therefore Mr. Oberthür's use of *Tympanophora* for *haroldi*, now that he considers it different generically from *pubica*, is absolutely inadmissible, as *Tympanophora* is an **absolute synonym** by "**Monotypy**" of *Cymbalophora*, the latter having priority by several months. The erection of a new generic name for *haroldi* does not, however, in my opinion, arise; for Sir George Hampson, to whom I submitted my *haroldi*, says that it decidedly belongs to *Cymbalophora* and stands nearest to *rivularis*, with which it shares the phenomenon of abortive wings in the ♀.

1 ♂ Guelt-es-Stel, September 1913, Faroult.

2 ♂♂, 1 ♀ Afrou, September 1911, H. Powell ex coll. Oberthür.

The specimen from Guelt-es-Stel is identical with Mr. Oberthür's fig. 1046, pl. exix. *Etud. Lépid. Comp.* VI.; one of the 2 ♂♂ from Afrou is like fig. 1045 of the same plate, while the second is intermediate both in size and colour; the ♀ is intermediate in shape between the 2 ♀♀ ff. 1048 and 1049 on above plate, but has more black on the forewings than either. While at Afrou this insect is so abundant as to be a perfect pest and scourge, devouring all the barley, on the Hauts Plateaux of the Provinces of Alger and Constantine it appears very rare, the only specimens recorded being my single Guelt-es-Stel ♂ and 2 ♂♂ taken by Harold Powell at Lambessa. (In addition to my above remarks on *Tympanophora* it is quite precluded from use in Mr. Oberthür's sense, as it was applied to a genus of *Orthoptera* by White in 1841.)

#### 127a. *Euprepia libyssa libyssa* Püngl.

*Euprepia libyssa* Püngler, *Societ. Entom.* xxii, p. 25 (1907) (Magenta).

On p. 162 of Fasc. VI. of his *Etudes Comparées*, Mr. Oberthür records the fact that Count Turati had already discovered that the names *caligans* Turati and *powelli* Oberthür were antedated by *libyssa* Püng.; but that he, Mr. Oberthür, declined to accept *libyssa* as valid because it was unaccompanied by any figure. Count Turati described his *caligans* from Sicily, and Mr. Oberthür tells us that on comparison with his series it proves to be a somewhat different local race, therefore the two forms must stand as follows:

*Euprepia libyssa libyssa* Püngl., Mauretania, and *Euprepia libyssa caligans*, Trti., Sicily.

1 ♂ Sebdu, October 1907, H. Powell ex coll. Oberthür.

20 ♂♂ 2 ♀♀ Guelt-es-Stel, September and October 1913, Faroult.

128a. *Euprepia cribraria chrysocephala* (Hübner).

*Bombyx chrysocephala* Hübner, *Europ. Schmett.*, vol. ii. Bomb. ii. f. 251 (1827) (? Spain).

We only took this insect in 1908 at light in Mustapha Supérieur.

3 Mwhoila, Oun-er-Rebia, Morocco, April 1901, E. H.

1 Zoudj-el-Beghal, E. Morocco, July 1914, Faroult.

22 Masser Mines, May—June 1914, Faroult.

10 Environs d'Alger, May 1906–1908, W. R., E. H., and Dr. Nissen.

1 Bou Saada, May 1912, Faroult.

3 Aïn Draham, July—August 1911, Faroult.

One ♂ from Aïn Draham is absolutely uniform dull white except the grey hindwings, for the yellow of the head and anal tuft is wanting.

129. *Utetheisa pulchella* (Linn.).

*Phalaena pulchella* Linnaeus, *Syst. Nat.* edit. x. vol. i. p. 534. No. 238 (1758) (South Europe, Mauretania).

This insect is fairly abundant everywhere north of the desert, but is not much seen as it is very sluggish of flight. Hartert found it even south of Ghardaïa on *Zizyphus* bushes in oeds in the stony desert. The Tring series from Mauretania of 606 is very variable as regards size, and the extent of or suppression of the black and red markings of the forewings. Those specimens where the black spots are almost or quite suppressed and the red strongly augmented are ab. *bicolor* Oberth.

15 Mazagan, Morocco, July—September 1900–1902, W. Riggenbach.

62 Zoudj-el-Beghal, July 1914, Faroult.

1 Moroccan Frontier, May 1914, Faroult.

1 Masser Mines, June 1914, Faroult.

1 Nedroma, May 1914, Faroult.

152 Lalla Marnia, May—July 1914, Faroult.

152 Aïn Sefra, May 1913–1915, W. R., E. H., and Faroult.

1 Titen Yaya, June 1915, Rotrou.

5 Saïda, May 1913, W. R. and E. H.

12 Msila, May 1915, Faroult.

7 Perrégaux, October 1915, Faroult.

1 El Mesrane, June 1913, Faroult.

1 Forêt de Bainen, June 1908, W. R. and K. J.

7 Environs d'Alger, May—June 1905–1908, W. R., K. J., and Dr. Nissen.

8 Maison Carrée, June 1908, W. R. and K. J.

10 Hammam R'ihra, May—June 1908–1916, W. R., E. H., and K. J., and Faroult.

5 Boghari, May 1913, Faroult.

8 Aïn Oussera, May 1913, Faroult.

70 Guelt-es-Stel, May—July 1913, Faroult.

4 Puits Baba, May 1913, Faroult.

11 Djelfa, May 1913, Faroult.

1 Ghardaïa, May 1912, E. H. and C. H.

2 Oued Abiod, May 1912, E. H. and C. H.

- 6 El Hadadra, May 1912, E. H. and C. H.  
 1 El Meksa, April 1912, E. H. and C. H.  
 2 Biskra, April—June 1908–1912, W. R., E. H., and C. H.  
 5 Bou Saada, May 1911, Faroult.  
 16 El Kantara, June 1909–1911, Cheli Brahim.  
 8 Environs de Batna, June 1910–1912, Nelva.  
 1 Khenchela, May 1912, W. R. and K. J.  
 1 Setif, August 1911, Faroult.  
 1 El Hamel, May 1912, Faroult.  
 3 Ouéd Hamidou, June 1912, Faroult.  
 1 Sidi Ferruch, June 1911, A. Théry.  
 4 Hammam Meskoutine, May 1914, W. R. and K. J.  
 20 Aflou, October 1916.

The British Museum has 1 Tangiers and 1 Mogador, Leech, and 1 Tozeur, Tunisia, G. C. Champion.

#### Lithsiinae.

##### 130. *Phryganopsis unipuncta* Hampson.

*Phryganopsis unipuncta* Hampson, *Ann. Mag. Nat. Hist.* (7). xv. p. 333 (1905) (Hamman-es-Salahin).

This minute species would have escaped the notice of all collectors but those of so-called "Microlepidoptera." The only known specimens are the 2 ♂♂, 4 ♀♀ in the British Museum from Hamman-es-Salahin, near Biskra, collected by Lord Walsingham.

##### 131. *Ilema bipuncta* (Hübner).

*Bombyx bipuncta* Hübner, *Europ. Schmett.* vol. ii. ff. 286, 287 (1827) (Europe).

There are no specimens of this species in the Tring Museum.

##### 132. *Ilema uniola* (Rambur).

*Lithosia uniola* Rambur, *Cat. Syst. Lépid. d'Andal.* p. 209 (1866) (Andalusia).

Staudinger and most others have placed this species under *caniola* Hübner., but, as Mr. Oberthür points out, it is quite distinct from *albeola* Hübner. (the whitish race of *caniola*) and is a distinct species. Mr. Oberthür, however, suggests that my *interposita* (see infra) was identical with *uniola*. This is not so, for though somewhat allied they are perfectly distinct. My *interposita* is a much darker insect and has no trace of yellow, either on the head, thorax, or anal segment.

5 ♂♂, 2 ♀♀ Aïn Draham, August—September 1911, Faroult.

##### 133. *Ilema interposita* Rothschild.

*Ilema interposita* Rothschild, *Novit. Zool.* vol. xxi. p. 354. No. 314 (1914) (Guelt-es-Stel).

This insect so far has only been taken by us on one occasion in 1912 at Guelt-es-Stel. Both Dr. Nissen and Faroult failed to get it subsequently; though the former took some when he was with us in 1912.

80 Guelt-es-Stel, April 1912, W. R. and K. J.

In the British Museum are the remaining 6 specimens captured by ourselves.

134. *Ilema caniola* (Hübner).

*Bombyx caniola* Hübner, *Europ. Schmett.* vol. ii. f. 220 (1827) (Europe).

Of this species we took a number at Hammam R'ihra and Hammam Meskoutine. The Tring series consists of 64 specimens.

- 13 Oued Hamidou, May—June 1912, Faroult.
- 9 Hammam R'ihra, May 1913, W. R. and E. H.
- 6 Bou Saada, June 1912, Faroult.
- 36 Hammam Meskoutine, May 1914, W. R. and K. J.

135. *Ilema sordidula* (Rambur).

*Lithosia sordidula* Rambur, *Cat. Syst. Lépid. d'Andal.* p. 210 (1866) (Andalusia).

Mr. Oberthür raises what he considers the debatable point of the identity or otherwise of *sordidula* Rambur and *marcida* Mann. The latter came from Sicily, and Mr. Oberthür points out that a Sicilian specimen he possesses differs from Algerian specimens of *sordidula* by the uniform leaden grey hindwings. I have no Sicilian or Spanish *Lithosids* of this group, so I cannot compare my Algerian specimens with topotypical material; but I have been carefully through these Algerian insects with Sir George Hampson, and he is of opinion that the specimens enumerated below are true *sordidula*.

- 4 Hammam R'ihra, May 1913, W. R. and E. H.

[*Ilema lutarella pygmeola* (Doubl.).

*Lithosia pygmeola* Doubleday, *Zoologist*, vol. v. p. 1914 (1847) (Great Britain).

Mr. Oberthür has identified 3 specimens of a form of *Ilema lutarella* which he has from Aïn Draham with *l. pygmeola* Doubl. This he does, because, although he says they lack all traces of the black shade on the hindwings characteristic of the British race *pygmeola*, yet he has **two!** British specimens also lacking this. Now, it is well known that **geographical** races (= **Subspecies**) of one and the same species are not fixed and unalterable entities, and very often individuals crop up in the area of one **race** which are almost or quite identical with those of **another**. Under these conditions it is generally thought quite sufficient to establish a valid local race or subspecies if from 75 to 80 per cent. of the individuals, in a special geographical area, show the characters differentiating the race from the individuals of other areas. As, however, I have not personally seen Mauretanian examples of any form of *lutarella*, I do not propose to give a new name to this race, and simply record it as—

136a. *Ilema lutarella* subsp. ?

- 3 specimens from Aïn Draham in coll. Oberthür.]

137. *Ilema lurideola* (Zinken).

*Lithosia lurideola* Zinken, *Allgem. Literaturzeitung*, 1817. p. 68 (1817) (?).

This is the oldest name for *plumbeola* Herr.-Sch., which name Mr. Oberthür by mistake attributed to Hübner.

I have no Mauretanian examples, but Mr. Oberthür received 3 examples taken at Lambessa by H. Powell.

138. *Paidia conjuncta* (Staud.).

*Nudaria murina* var. *conjuncta* Staudinger, *Iris*, vol. iv. p. 249 (1891) (Mardin).

This is a perfectly distinct species from *murina*.

1 ♂ Alger, January 1914, Faroult.

139. *Apaidia rufeola* (Rambur).

*Lithosia rufeola* Rambur, *Ann. Soc. Entom. France*, vol. i. p. 271. pl. 8. f. 12 (1832) (Corsica).

1 Sidi Ferruch, A. Théry.

6 Hammam R'ihra, May 1911–1913, W. R. and E. H.

5 Hammam Meskoutine, May 1914, W. R. and K. J.

140. *Apaidia mesogona* (Godt.).

*Callimorpha mesogona* Godart, *Lepid. France*, vol. iv. p. 396. pl. 40. f. 6 (1822) (France).

There are in the British Museum 5 specimens, Tangier, April–May 1901–1902, Lord Walsingham coll.

**Nolinae.**141. *Celama chlamitulalis* (Hübner).

*Pyralis chlamitulalis* Hübner, *Europ. Schmett. Pyr.* ff. 160. 181 (1827) (Europe).

1 Environs d'Alger, May 1912, W. R. and K. J.

2 Hammam Meskoutine, May 1914, W. R. and K. J.

142a. *Celama cristulalis subchlamydula* (Staud.).

*Nola Subchlamydula* Staudinger, *Horae Soc. Entom. Ross.* vol. vii. p. 107. pl. 1. ff. 6. 7 (1871) (Attica, Greece).

I have no specimens of this. Mr. Oberthür records it from Aflou and Lambessa.

143a. *Celama centonalis atomosa* (Brem.).

*Glaphyra atomosa* Bremer, *Bull. Acad. Scien. Pétersb.* vol. iii. p. 491 (1861) (East Siberia).

This subspecies, according to Mr. Oberthür, occurs at Géryville; it is not represented at Tring.

144. *Celama squalida* (Staud.).

*Nola squalida* Staudinger, *Berl. Entom. Zeit.* vol. xiv. p. 102 (1870) (Malaga).

1 ♂ Guelte-es-Stel, April 1912, W. R. and K. J.

145. *Nola cucullatella* (Linn.).

*Phalaena cucullatella* Linnaeus, *Syst. Nat.* edit. x. vol. i. p. 537 (1758) (Sweden).

We never found or received this species.

146. *Roeselia togatulalis* (Hübner).

*Pyralis togatulalis* Hübner, *Europ. Schmett. Pyr.* p. 20. f. 130 (1837) (Europe).

- 1 Masser Mines, June 1914, Faroult.
- 1 Aïn Sefra, July 1915, Faroult.
- 1 Khenehela, June 1911, Faroult.
- 2 Aïn Draham, September 1911, Faroult.

## [CYMBIDAE.

Mr. Oberthür has followed the old-fashioned and exploded custom and placed directly after the *Arctiadae* the genera *Sarothripus*, *Nycteola*, and *Earias* under the family heading as above. In order not to produce too serious a break in the sequence in the present article, and to enable the easy comparison of Mr. Oberthür's *Faune de Barbarie* and my notes, I shall leave them here, but they are emphatically **Noctuidae** and belong to the three subfamilies *Stictopterinae*, *Sarothripinae*, and *Acontianae*, which stand between the *Erastrinae* and *Euteliae* on the one hand and the *Catocalinae* on the other.]

**NOCTUIDAE.****Stictopterinae.**147. *Nycteola falsalis* Herr.-Sch.

*Nycteola falsalis* Herrich-Schäffer, *Deutsch. Ins.* vol. i. t. 166. f. 1 (1829) (Germany).

- 2 Environs d'Alger, May 1908, W. R. and K. J.
- 8 Sîdi Fernch, A. Théry.
- 8 Hammam R'ihra, May 1908-1913, W. R., E. H., and K. J.
- 25 Hammam Meskoutine, April 1914, W. R. and K. J.

The British Museum has 1 Hammam-es-Salahin, March 1904, Lord Walsingham.

**Sarothripinae.**148. *Sarothripus revayana* (Scopoli).

*Tortrix revayana* Scopoli, *Annus Nat. Hist.* vol. v. p. 116 (1772) (Germany).

Among the 13 specimens from Mauretania at Tring are 6 of the ab. *glaucana* Lampa.; 1 of the ab. *fusculana* Schmid.; 4 of the ab. *obscura* Warr.; and 2 of the ab. *ilicana* Fabr.

- 1 Masser Mines, June 1914, Faroult.
- 2 Aïn Sefra, July 1915, Faroult.
- 1 Hammam Meskoutine, May 1909, W. R. and E. H.
- 9 Aïn Draham, July-September 1911, Faroult.

The British Museum has 4 specimens of the ab. *ilicana*, Philippeville, November 1905, Lord Walsingham.

**Acontianae.**149. *Earias chlorophyllana* Staud.

*Earias chlorophyllana* Staudinger, *Iris.* vol. iv. p. 249 (1891) (Mardin).

There is no specimen of this species at Tring.

150. *Earias albovenosana* Oberth.

*Earias albovenosana* Oberthür, *Etud. Lépid. Comp.* Fasc. XIII. p. 27. pl. cdxxxvi. ff. 3767, 3768 (1917) (Lambèze).

151. *Earias chlorion* Rambur.

*Earias chlorion* Rambur, *Cat. Syst. Lépid. Andal.* livr. ii. pl. xv. f. 6 (1866) (Andalusia).

I agree with Mr. Oberthür in considering this quite a distinct species from *insulana* Boisd.

2 Biskra, 1911.

152. *Hylophila africana* Warr.

*Hylophila africana* Warren in Scitz, *Grossschmett. Erde*, vol. iii. p. 298. pl. 53 m. (1913) (Ain Draham).

1 ♂, 1 ♀ Ain Draham (♂ July 1911, Faroult), 1 ♀ M. Bartel.

This species was quite overlooked by Mr. Oberthür, or else he thought the locality erroneous. Mr. Warren never saw the ♂.

## HEPIALIDAE.

153. *Hepialiscus algeriensis* de Joan.

*Hepialiscus algeriensis* de Joannis, *Bull. Soc. Entom. France*, 1903, p. 223 (St. Charles, Philippeville); *Ann. Soc. Entom. France*, pl. 2. f. 8.

We have never been in Algeria when this insect and the following appear.

124 Ain Draham, September—October 1911, Faroult.

154. *Hepialus tunetanus* Oberth.

*Hepialus tunetanus* Oberthür, *Etud. Entom. Comp.* Fasc. XIII. p. 29. pl. cdxxxvi. f. 3771 (1917) (Ain Draham).

3 Ain Draham, September 1911, Faroult.

## COSSIDAE.

155. *Cossus cossus* (Linn.).

*Phalaena cossus* Linnaeus, *Syst. Nat.* edit. x. p. 504. No. 40 (1758) (Sweden).

We never found this insect in Algeria.

1 Lalla Marnia, May 1914, Faroult.

1 Oued Hamidou, June 1912, Faroult.

156. *Cossus aries* Püngl.

*Cossus aries* Püngler, *Iris*, vol. xv. p. 145. pl. VI. f. 22 ♂ (1902) (Palestine).

We took the first specimen of this great rarity at Tilghempt in 1911, where Faroult again found it the following year. It seems widely spread, being recorded from Palestine and Egypt as well as from Tunisia and the Provinces of Constantine and Alger. It is evidently a desert and Hauts Plateaux insect and is generally found in the neighbourhood of terebinth trees, though it evidently

also feeds on other plants, as at Biskra and southwards there are no terebinths at all.

- 3 Tilghempt, April 1911–1912, W. R., E. H., and Faroult.
- 2 Oued Nça, April 1914, E. H. and C. H.
- 1 Kef-el-Dor, March 1912, E. H. and C. H.

#### 157. *Hypopta reibellii* Oberth.

*Hypopta reibellii* Oberthür, *Etud. Entom.* livr. i. p. 40. t. 4. f. 1 (1876) (Biskra).

- 3 Mauretania, Grum-Grshimailo coll.
- 9 Algeria, Staudinger, etc.
- 1 Aïn Sefra, July 1915, Faroult.

#### 158. *Dyspessa vaulogeri* (Staud.).

*Hypopta vaulogeri* Staudinger, *Iris*, vol. x. p. 155. pl. 5. f. 13 (1897) (Chellala).

We captured a considerable number at Aïn Sefra, 24 in all, and so did Dr. Nissen, but very few in good condition. The ♂ proves it to be closely allied to *Dyspessa suavis*.

- 6 ♂♂, 18 ♀♀ Aïn Sefra, May 1913, W. R. and E. H.

#### 159. *Dyspessa saharae* Luc.

*Dyspessa saharae* Lucas, *Bull. Soc. Entom. France*, 1907. p. 197 (1903) (Zarcine).

I have examined again carefully the figure of this insect, which is very coarse and crude, and I cannot, any more than Mr. Oberthür, venture to say positively what it is. I, however, have more than a shrewd suspicion that it represents a much rubbed specimen of *vaulogeri*. Perhaps Mr. Oberthür will compare my forthcoming figures of ♂♀ of the latter with this picture, and then give us a deciding vote.

#### 160. *Dyspessa suavis* Staud.

*Dyspessa jordana* var. *suavis* Staudinger, *Iris*, vol. xii. p. 355. pl. 5. f. 7 (1899) (Biskra).

- 1 ♂, 3 ♀♀ Bou Saada, May 1911–1912, Faroult.
- 1 ♂, 1 ♀ El Mesrane, June 1913, Faroult.
- 1 ♀ El Arich, east of Guerrara, April 1914, E. H. and C. H.
- 1 ♀ Kef-el-Dor, April 1909, W. R. and E. H.
- 3 ♀♀ halfway between Ouargla and El Golea, March 1912, E. H. and C. H.

In the British Museum 1 ♀ Hammam-es-Salahin, May 1903, Lord Walsingham.

#### 161. *Dyspessa fuscula* Staud.

*Dyspessa fuscula* Staudinger, *Iris*, vol. v. p. 283. No. 41. pl. 3. f. 10 (1892) (Tunis).

The members of the genus *Dyspessa* allied to *ulula* Borhh. are most difficult to determine, and have led to much controversy. Herr Püngler and many of his colleagues consider them all aberrations of *ulula*, while others think they are all distinct. I am of opinion that the greater number, viz. *marmorata*

Ramb.; *algeriensis* Ramb.; *fuscula* Staud.; *kabylaria* Bang-Haas; and *pallidata* Staud., are good species. The only doubtful one of this number is *algeriensis* Ramb. If the insect figured by Oberthür, *Etud. Entom.* livr. iii. pl. 5. f. 1, is really Rambur's *algeriensis*, then it is quite distinct, but I am not in a position to decide this without comparing the insect I have identified as *algeriensis* with Rambur's type. The reason I am unable to do without actual comparison, is that while I have a long series (14) of ♀♀, my 4 ♂♂ are in very poor condition, and, as is well known, ♀♀ of this group are not easy to determine when one has to compare them with figures or descriptions of ♂♂.

- 2 ♀♀ Guelt-es-Stel, May 1913, Faroult.
- 1 ♂, 1 ♀ Biskra, Staudinger.
- 1 ♂, 1 ♀ Khenchela, June 1911, Faroult.

#### 162. *Dyspessa kabylaria* Bang-Haas.

*Dyspessa kabylaria* Bang-Haas, *Iris*, vol. xix. p. 143. pl. 5. f. 10 (1906) (Gafsa).

- 1 ♂, 19 ♀♀ Khenchela, May—June 1911—1912, W. R. and K. J. (♀♀); Faroult (♂).
- 1 ♂ Biskra, Staudinger.
- 4 ♂♂ Gafsa, Tunisia, Staudinger (co-types).
- 1 ♂ Gabès, Tunisia, Staudinger.

#### 163. *Dyspessa algeriensis* (Rambur).

*Eudagria algeriensis* Rambur, *Cat. Syst. Lépid. d'And.* p. 331 footnote (1866) (Algeria).

I have identified as *algeriensis* a series of small individuals darker and more distinctly marked than *fuscula*, but I am still in doubt about them.

- 2 ♂♂, 11 ♀♀ Guelt-es-Stel, April—May 1913, Faroult.
- 1 ♂, 3 ♀♀ Bou-Saada, April 1912, Faroult.
- 1 ♂ Khenchela, May 1912, W. R. and K. J.

In the British Museum is 1 ♀ El Kantara, May 1903, Lord Walsingham.

#### 164. *Dyspessa ulula pallida* subsp. nov.

♂. Is much paler than *ulula ulula*, and the white spots very much dilated and fainter, sometimes the ground-colour is entirely suffused with the white.

♀. Almost as dark as in *ulula infuscata* from Amasia.

- 3 ♂♂ Bône, Staudinger.
- 1 ♀ Teniet-el-had, Staudinger.
- 4 ♂♂, 2 ♀♀ Hammam Meskoutine, May 1909, W. R. and E. H.

#### 165. *Dyspessa marmorata* (Rambur).

*Eudagria marmorata* Rambur, *Cat. Syst. Lépid. d'Andal.* p. 332. pl. 5. f. 6 (1866) (Andalusia).

We found this very abundant in Hammam R'ihra, but only caught ♂♂, the ♀♀ never coming to the light.

- 82 ♂♂ Hammam R'ihra, May 1908—1913, W. R., E. H., and K. J.
- 36 ♂♂ Oued Hamidon, May—June 1912, Faroult.

32 ♂♂ Guelt-es-Stel, May—June 1913, Faroult.

4 ♂♂ Bou Saada, Faroult.

2 ♂♂ Zoudj-el-Beghal, July 1914, Faroult.

2 ♂♂ Environs d'Alger, June 1905, Dr. Nissen.

In the British Museum is 1 ♂ "Mauretania."

165a. *Dyspessa marmorata maroccana* subsp. nov.

♂. Very much darker brown than *m. marmorata*, the pale spots being almost entirely confined to the marginal and submarginal areas.

♀. Much darker than Rambur's figure and the white marks smaller.

*Habitat.* S.W. Morocco.

9 ♂♂, 1 ♀ Mazagan, Morocco, April 1902, W. Riggenbach.

1 ♂, 8 ♀ Seksawa, Morocco, April 1905, W. Riggenbach.

1 ♀ Rahama, Morocco, May 1903, W. Riggenbach.

1 ♀ Djebel Cheddar, May 1902, W. Riggenbach.

166. *Dyspessa affinis* sp. nov.

♀. Closely allied to *suavis* Staud., but smaller and much darker. Thorax and abdomen grey-brown.

Forewing dark grey-brown with a few paler scales. Hindwings paler grey-brown.

Length of forewing: 12 mm. Expanse: 28 mm.

*Habitat.* Ain Sefra, May 7, 1912, W. R. and E. H. 1 ♀.

167. *Holcocerus mauretanicus* (Lucas).

*Cossus mauretanicus* Lucas, *Bull. Soc. Entom. France*, 1907. p. 343 (Tozeurs); *Ann. Soc. Entom. France*, 1910. pl. 18. f. 4.

Mr. Oberthür, *Etud. Comp.* Fasc. XIII. p. 33, suggests that this **may be** his *powelli*. The figure is so coarse and crude that it cannot be identified with anything I know, though the outlines and size resemble *powelli*; but the very careful description differs so from *powelli*, that I do not think it at all advisable to unite them, but quote this as a species till we get Tunisian material for comparison.

168. *Holcocerus powelli* Oberth.

*Holcocerus powelli* Oberthür, *Etud. Lépidopt. Comp.* Fasc. VI<sup>3</sup>. p. 333. pl. lxxix. ff. 722, 723 (1911) (Géryville).

I have only received this insect from Faroult.

90 ♂♂, 26 ♀♀ Guelt-es-Stel, July—August 1913, Faroult.

169. *Holcocerus faroulti* Oberth.

*Holcocerus faroulti* Oberthür, *Etud. Lépidopt. Comp.* Fasc. VI, p. 326. pl. lxxi. f. 658 (1911) (Mograroua).

Only the 2 ♂♂ sent by Faroult to Mr. Oberthür have so far been recorded.

170. *Zeuzera pyrina* (Linn.).

*Phalaena pyrina* Linnaeus, *Fauna Suecica*, edit. ii. (Altera), p. 306 (1761) (Sweden).

We never got this insect.

5 ♂♂, 3 ♀♀ Khenchela, June 1911, Faroult.

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*Nygmia charmetanti* (Mab. & Vuill.).

*Artaxa charmetanti* Mabille & Vuillot, *Bull. Soc. Ent. France*, 1890. p. 204 (Hassi-bou-Kouba).

This species was accidentally omitted from the former section of my "Notes." It was originally taken south of Ouargla, and a second specimen was captured in May 1907 at Biskra by Monsieur Chrétien.

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While this article was going through the press I received several parcels of lepidoptera from Algeria. Among them were three more *Amorpha populi populi* from Perrégaux and a number of *Drepanidae*, among which was a *Cilix glaucata* without the glaucous smear. I also received two more *Pergesa porcellus colossus* and some *Arctia villiea arabum* from Djebel Zaccar.

## NOTES AND DESCRIPTIONS OF SOUTH AMERICAN BIRDS.

BY ERNST HARTERT AND ARTHUR GOODSON.

1. *Pachyrhamphus peruanus* sp. nov.

♀. Crown ash-grey, over the eyes a dull greenish line, hind-neck and nape ash-grey, rest of upper surface yellowish green as in *P. viridis*; tail and wings as in the latter, *i.e.* with a rufous patch on the upper wing-coverts. Sides of head and the throat pale grey; chest-band and sides of breast olivaceous green with yellow edges to the feathers, not uniform yellow as in *P. v. viridis* and *cuvieri*. Rest of under surface white with a greyish tinge on the breast—not creamy as in *P. v. viridis* and *cuvieri*. Wing, 73 mm.

Hab. Chanchamayo, state of Cuzco, South-eastern Peru, 1,500 metres.

Type: ♀ Chanchamayo, January 1905, collected by C. O. Skunke.

The grey head and somewhat undecided superciliary line point towards immaturity, and it is probable that the specimen—unfortunately only the one female has been received—is not fully adult, but it is not like young *P. viridis*, which agree with it only in having the top of the head greyish. Probably *P. peruanus* will have to rank as a subspecies of *viridis*, but without knowing the male, this must remain uncertain. The collector marked the eyes as grey (“pardo”), bill and feet plumbeous.

2. *Forms of Blacicus brachytarsus* (Scl.).

It has already been said by Mr. Ridgway (*Birds of North and Middle America*, iv. p. 527) that specimens from Colombia, Venezuela, and Trinidad are “considerably greyer” above than those from Central America. Our series from Trinidad and the State of Cumana is certainly paler and slightly (we should not say considerably) more greyish above, the crown generally less brownish, and they are also paler underneath, the breast being less olivaceous and the abdomen paler yellow. Moreover, they have a longer wing: ♂ 75–80, ♀ 72–76 mm., if correctly sexed, while Central American specimens measure ♂ 72–75, ♀ 67–72 mm., if correctly sexed.

No name appears to be referable to this form except Taczanowski's *andinus*. This name is adopted by Berlepsch (Nov. Zool. 1908, p. 128) and Hellmayr and Seilern (*Archiv f. Naturg.* lxxviii. 1912. p. 84). It is difficult to believe that, in consideration of the other local forms, these birds should be exactly the same, but from comparison with a Bolivian male we are unable to find the slightest difference. *Tyrannula bogotensis* Bonaparte cannot possibly be this bird, as there are great discrepancies in the diagnosis, and *Planchesia fuliginosa* of the same author is only Gmelin's *Muscicapa fuliginosa*, in which no *Blacicus* can be recognised (cf. Berlepsch, *l.c.* p. 129).

We cannot unite with these birds our series from Cayenne and Surinam. They are smaller, wings ♂ 70.5–72.5, ♀ 67–69 mm. The colour of the upper-side is slightly more greyish and the crown is not so dark, less in contrast with the back. Underside as in the Cumana and Trinidad birds. We call this bird:

*Blacicus brachytarsus guianarum* subsp. nov.

Type: ♂ near Paramaribo, Surinam, 6.ix.1900. B. Chunkoo coll. (In the Tring Museum.)

In Nov. Zool. 1902, p. 50, Berlepsch and Hartert discussed a ♀ from Alt-gracia on the Orinoco River. This specimen is indeed very small and rather olive above, but, of course, we cannot say anything more about it until a series from Altgracia is available.

Specimens in the Tring Museum.

Guatemala, Costa Rica . . . . .	6
Venezuela, Trinidad . . . . .	23
Cayenne, Surinam . . . . .	9
Orinoco . . . . .	1

3. *Elaenia gaimardii trinitatis* subsp. nov.

The forms of *Elaenia gaimardii* have been reviewed by the late Count Berlepsch—for many years our teacher and mentor in South American ornithology—in the *Proceedings of the Fourth International Orn. Congress*, pp. 419–422. He distinguished three subspecies: *Elaenia gaimardii gaimardii*, *E. g. guianensis*, and *E. g. bogotensis*. The first he accepted as ranging from Bolivia and N.E. Peru to the Orinoco, Venezuela (Puerto Cabello), Trinidad, Brazil as far as Mattogrosso and the Rio Negro; *E. g. guianensis* as British Guiana, Cayenne, and N. Brazil (Pará); *E. g. bogotensis* as Colombia (Bogotá collections and Sta. Marta). This distribution is somewhat peculiar, and the series in the Tring Museum does not bear it out.

Our birds from the Orinoco basin differ strikingly from two skins from Pará and two from Goyaz, which seem to agree perfectly with each other. The Orinoco birds do not seem to be distinguishable from *guianensis* unless the underside is still of a richer yellow. On the other hand, five from Cumana (North Venezuela) seem to be exactly like *bogotensis* from Bogotá collections, which is altogether paler than *guianensis*. The Trinidad birds (eleven skins collected by André) are nearest to *bogotensis*, but differ in having the upperside duller, more olivaceous, not so greenish; the crown is white, as a rule without the slightest tinge of yellow; the sides of the crown is deeper blackish; the ashy-white colour of the throat seems to extend farther back to the chest, and the abdomen is paler sulphur-yellow. The wings vary much in length; barring some apparently wrongly sexed specimens, the wings seem to measure 58–60 mm. in females, 62–65 in males.

Type of *E. g. trinitatis*: ♂ Caparo, Trinidad, 20.iv.1902, E. André coll. (Tring Museum.)

4. *Hirundinea bellicosa pallidior* subsp. nov.

Comparing eight skins of *Hirundinea bellicosa* from the provinces of Tucuman, Salta, and Catamarca, all three in the north-western part of Argentina, with twenty-one from south-eastern Brazil and one from Paraguay (Colonia Rissó near the Rio Apa), it is obvious that the former are paler, especially on the underside, the upper wing-coverts have more rufous and the primaries are

not so deep black, the terminal bar to the rectrices, especially on the lateral feathers, is less wide and, as a rule, somewhat less blackish. Wing: ♂ 112-115, ♀ 104-108.5 mm. The young is paler than the adult.

Type of *H. b. pallidior*: ♂ ad, Salta, Cachi, 2,500 m. 5. iv. 1905. José Steinbach coll., No. 49. "Iris yellowish brown, feet and bill black."

##### 5. *Tyrannus melancholicus occidentalis* subsp. nov.

Like *T. m. satrapa*, but underside paler yellow, upper tail-coverts apparently lighter also smaller.

Wing: ♂ 111, 111.5, ♀ 106, 106 mm.

Hab. San Blas, Tepic, N.W. Mexico.

Type: ♂ ad, San Blas, 20. iv. 1897.

Our specimens, two males and two females, were all shot from April 20th to 23rd, and are in rather worn plumage. Therefore the paler colour of the upper tail-coverts is open to doubt, but the shorter wings and paler yellow underside are undeniable. Probably specimens from Sinaloa belong to the same form, as Ridgway (*B. N. and Middle America*, iv. p. 701) gives for males from there the length of wings as 112.9, while in the other specimens of his large series they vary from 113 to 118.5 and 120, and are nearly all over 114 mm. None of Ridgway's females range below 109.5 (one only!) and they mostly go from 110 mm. upwards. The ♂ from Jalisco with a wing of 112.9 mm. must of course belong to our new form, as that place is not far from San Blas.

##### 6. *Myiozetetes cayanensis hellmayri* subsp. nov.

Differs from *M. c. cayanensis* from Cayenne and North Brazil (24 specimens from Cayenne, Surinam, Pará, and Goyaz in the Tring Museum) in having, as a rule, more rufous on the outer webs of the primaries and the upperside not so dark and more olivaceous.

Hab. West Ecuador, Cauca Valley in Colombia, and in Bogotá collections.

Type: ♂ ad, Cachabé, N.W. Ecuador, 10. xi. 1896. W. F. H. Rosenberg coll. (Tring Museum.)

Examined: 6 Cachabí, W. F. Rosenberg coll.; 2 San Domingo, W. Ecuador, W. Goodfellow coll.; 2 Nanegal, W. Ecuador, W. Goodfellow coll.; 1 Guayaquil, Dr. Powell coll.; 1 Cauca Valley, T. W. Paine coll.; 8 Bogotá skins.

In *Birds of North and Middle America*, iv. p. 444, Mr. Ridgway united *M. c. rufipennis* with *M. c. cayanensis* which he accepted as ranging from "Panama through Colombia, Venezuela, Trinidad, British Guiana, Surinam, Cayenne, to Ecuador, Eastern Peru, and the entire Amazon Valley, Bolivia, and South-western Brazil." To this distribution we cannot agree. We separate, as explained, the birds from Colombia and Ecuador (at least the western parts!), and there is no doubt at all that *M. cayanensis rufipennis* from Venezuela is quite distinct. On Trinidad it has never been found, and the specimen in the Strickland collection, said to come from Trinidad, is almost certainly wrongly labelled, like so many other skins, which were collected in Venezuela and shipped from Trinidad. Mr. Hellmayr, after whom we are naming our new subspecies, has given a review of the subspecies of *M. cayanensis* in his Revision of the Spix types (*Abh. Bayer. Akad. Wiss.*, II. Kl., XXII. Bd., III. Abt., 1906, p. 649). He already mentioned differences of the birds from Western Ecuador, but he considered Bogotá speci-

mens to belong to typical *cayanensis*. Our Bogotá examples do not differ from the W. Ecuadorian *hellmayri*, but it is quite possible that both the latter and *M. c. cayanensis* are found in Bogotá collections. The collections that are, or were, made by Indians and sent from Bogotá, are not all brought together near Bogotá; we know that the collectors used to go down into the valley of the Rio Meta—where typical *cayanensis* or *rufipennis* might possibly occur—and westwards into the Cauca Valley, where *hellmayri* is found.

We have three skins from Panama (2 Savannah near Panama, André coll., one Panama, Nelson coll.) which have hardly any rufous on the wing, and appear perhaps to be smaller (wing, ♂ 86, ♀ 84 mm.), while the upperside is rather greyish olive. We believe these to belong to another subspecies, but do not consider the material available sufficient for decision.

#### 7. *Forms of Leptopogon superciliaris.*

Twice recently remarks have been published on the subspecies of *Leptopogon superciliaris*, first by Ridgway (*Birds of North and Middle Amer.* iv. p. 466 (1907)), then by Hellmayr (*Proc. Zool. Soc. London*, 1911, vol. ii. p. 1132). Neither of these meet the case fully, as exhibited by the series in the Tring Museum. The colour of the tips of the wing-coverts is generally quite constant, as stated by Ridgway, and varies only slightly in certain localities, but not in a series, from the pale primrose-yellow of the Venezuelan form to the rich buff of the West Ecuadorian birds.

Two males from Huambo and Pezuzo, collected by Stolzmann and W. Hoffmanns, we take to be typical *superciliaris*. From these the West Ecuadorian form differs only slightly by the more olivaceous green throat and chest and a less cinereous crown. Specimens from Bogotá collections and Costa Rica seem to be identical with each other, unless the crown of the head in the latter is more greenish, less slaty; if separable from the West Ecuadorian form, which seems to have less white on the forehead, the Bogotá bird would, of course, have to be called *Leptopogon superciliaris poliocephalus*.

Our seven skins from Venezuela (Cumaná, Caripé, and Cumbre de Valencia near Puerto Cabello) differ from all these by their pale primrose-yellow tips to the outer webs of the greater upper wing-coverts and outer margins of the secondaries, and more whitish throat and more yellowish, less olivaceous, chest. The crown of the head is slate-coloured, more cinereous than in the West Ecuadorian race, but agrees with the skins from Bogotá collections, from which they merely differ by the pale spots to the wing-coverts and edges to the secondaries. The wings vary remarkably: ♂ Cumaná (André coll.), 69; ♂ Cumbre de Valencia (S. M. Klages coll.), 65 mm.; supposed females from Cumaná and Caripé, 61–72; ♀ Cumbre de Valencia, 63 mm.

We name the North Venezuelan form:

#### *Leptopogon superciliaris venezuelensis* subsp. nov.

Type: Cumbre de Valencia near Puerto Cabello, 14. i. 1910, S. M. Klages coll. (In the Tring Museum.)

We are not at all sure about two skins collected by Ockenden at Santo Domingo, Carabaya (in June), and Caradoc, Marcapata (in March). The former has the wing-spots quite pale, the latter more buff; the former has the

abdomen almost whitish, the latter certainly more yellow; probably this form differs again from *superciliaris*, as Ridgway (*l.c.*) also calls attention to the pale underside of a Bolivian specimen.

8. *The forms of Rhynchocyclus sulphurescens.*

1. *Rhynchocyclus sulphurescens sulphurescens* (Spix).

*Platyrrhynchus sulphurescens* Spix, *Av. Brasil*. ii. p. 10. pl. xii. fig. 1 (1825—"in sylvis Provinciae Rio de Janeiro, Piahy et flum. Amazonum." Terra typica: Rio de Janeiro).

We have 3 ♂, 2 ♀ from São Paulo, collected by Hempel, and 1 ♂ from Minas Geraes, collected by A. Robert.

The crown almost uniform with the back, but slightly darker and sometimes tinged with grey. Back bright olivaceous green. Wings: 68-70, 1 ♀ 66.5 mm.

2. *Rhynchocyclus sulphurescens assimilis* (Pelz.).

*Rhynchocyclus assimilis* Pelzeln, *Orn. Brasil*. p. 110 (1869—Rio Negro, North Brazil).

We have a series from Calama on the Rio Madeira, from Teffe, Rio Solimoës, and from Chamicuros, East Peru, and Xeberos, collected by Bartlett.

These birds differ chiefly by the more slaty-grey crown and darker upper surface. Wings from 62-71 mm.

3. *Rhynchocyclus sulphurescens pallescens* subsp. nov.

Upperside as in *Rh. s. sulphurescens*, but the green slightly brighter, underside considerably paler, more sulphur-yellow. Wings: 68.5, 65, 63 mm.

The Tring Museum has one specimen (evidently a male, but not sexed) from Santa Cruz, Bolivia, 21.viii.1889, No. 197, Gustav Garlepp coll. (type of *R. s. pallescens*!), and two skins, both sexed males, but smaller, collected by J. Steinbach at elevations of 450 and 750 metres in the province of Sara, Bolivia, in December 1905.

4. *Rhynchocyclus sulphurescens cherriei* subsp. nov.

Closely allied to adult *R. s. assimilis*, but the crown of the head not so slaty, more olivaceous, tinged with green; under-surface paler, more sulphureous; the yellow edges to the upper wing-coverts generally not so conspicuous and somewhat narrower. Wings 62-68.5, the latter measurement exceptional, generally only to 66 and 67 mm. The specimens with wings of 62 and 63 mm. probably all females, though partially sexed "males." *Rh. s. assimilis* is larger, the wings of the males ranging up to 70 and 71 mm.

Habitat: Cayenne, Surinam, British Guiana, Caura River, and Maipures on the Orinoco.

Type: ♂ ad. Cayenne, 2. xii. 1902. No. 1,001, Geo. K. Cherrie and B. T. Gault coll. "Iris pale greyish. Bill above black, below pale, nearly flesh-colour." (Tring Museum.)

Named after J. K. Cherrie, who collected most of our specimens. 15 specimens compared.

The specimen No. 11,407 from Maipures, Orinoco, has been erroneously enumerated as *Rh. poliocephalus* in Nov. Zool. 1902, p. 47. Both species occur in the same places.

Ridgway's *Rh. klagesi*, described from Maripa in Venezuela, *Proc. Biol. Soc. Washington*, xix. p. 115, 1906, is apparently a specimen of *Rh. poliocephalus sclateri*; the wing measurement (52 mm.) is too small for any *sulphurescens*. This has already been suggested by Hellmayr in the Record of Ornithological Literature for 1906 in the *Archiv für Naturgeschichte*.

5. *Rhynchocyclus sulphurescens berlepschi* subsp. nov.

Differs from *Rh. s. sulphurescens* in its lighter and more yellow underside, from *Rh. s. cherriei* in its lighter and more yellowish green upperside and much brighter yellow underside. The crown of the head is almost uniform with the back, and shows very little if any slaty tinge. It is nearest to *Rh. s. flavo-olivaceus*, but duller throughout and with the throat darker and more greenish. Wings, 67-69 mm.

Hab. : Northern Venezuela (Cumana, Puerto Cabello) and Trinidad.

Type : "♀" (probably ♂) Caparo, Trinidad, 9. iv. 1902. E. André coll. (Tring Museum.) "Iris dark brown. Bill above black, lower mandible dirty white. Feet black."

Ten from Trinidad, 3 from North Venezuela compared. Named in honour of the late Count Berlepsch, one of the greatest authorities on South American ornithology.

6. *Rhynchocyclus sulphurescens exortivus* Bangs.

*Rhynchocyclus sulphurescens exortivus* Bangs, *Proc. Biol. Soc. Washington*, xxi. p. 163 (1908—Santa Marta Mountains, Colombia).

We have unfortunately no specimens from Santa Marta. Half a dozen Bogotá skins in the Tring Museum and a (supposed) ♀ from Jimenez in W. Colombia (Merwyn G. Palmer coll.) have been named *exortivus* by Hellmayr. They have the crown of the head slaty-grey, forming a distinct cap, thus differing at a glance from *Rh. s. flavo-olivaceus* of Panama, as described by Bangs, and in fact from all the other forms, but we cannot see that these birds are paler generally than *R. s. sulphurescens*, except on the underside, where this is striking.

Bangs, *Proc. Biol. Soc. Washington*, xxiii. p. 72. 1910, described a new form as :

*Rhynchocyclus sulphurescens asemus*

from Jimenez, W. Colombia, Merwyn G. Palmer coll., but the description does not agree with our example from the same place and collection. We suspect that *asemus* is a form of *Rh. cinereiceps*, which would then not be a subspecies of *sulphurescens*, as suggested by Bangs, but a distinct species, occurring together with forms of *sulphurescens*.

We have a specimen identified by Hellmayr as *Rh. sulphurescens aequalialis* from West Ecuador which only differs from *cinereiceps* in having a slightly darker grey head and less extended grey throat. A Peruvian skin named *Rh. sulph. peruvianus* does not seem to differ from the Ecuadorian specimen. *Rh. megacephalus flavotectus* Hart., from N.-W. Ecuador, has been considered as a subspecies of *sulphurescens* by Berlepsch (*Proc. Orn. Congr.* 1905, p. 482), but we are convinced that this is a mistake.

7. *Rhynchocyclus sulphureseens flavo-olivaceus* Lawr.

*Rhynchocyclus flavo-olivaceus* Lawrence, *Ann. Lyc. Nat. Hist. New York*, viii. p. 8 ("1863"—Lion Hill, Panama). Cf. Ridgway, *Birds North and Middle America*, iv. 391.

Very light above and below, crown almost uniform with back.  
Panama.

9. *Note on the distribution of Platyrhynchus coronatus.*

In Nov. Zool. 1902, p. 607, one of us mentioned *Platyrhynchus coronatus* Sel. as being found at Lita and Cachyjaeu in N.-W. Eeuador. We find now that these two birds are not typical *P. coronatus*, described from East Eeuador, and extending to Western Brazil and Guiana, but that they belong to *Pl. coronatus superciliaris* Lawr., described from Panama, or to a new subspecies, closely allied to the latter. Our two West Eeuadorian birds are darker, especially on the chest and sides of breast, but we cannot decide from two specimens whether these differences are constant.

10. *Forms of Dendrocolaptes validus.*

Thanks to the kindness of Dr. Clubb in Liverpool we were able to compare the type of *Dendrocolaptes multistrigatus* Eyt. in the Derby collection, Liverpool Museum. It agrees absolutely with Colombian skins from Bogotá collections, and can therefore not have come from Peru, but from Colombia. The skin, as it is now, is in excellent condition, but has been mounted and dismounted. The subspecies of *Dendrocolaptes validus*, now that the identity of *multistrigatus* is cleared up (cf. Hellmayr and Seilern, *Arch. f. Naturg.* lxxviii. 1912, p. 117), will therefore have to stand as follows:

1. *Dendrocolaptes validus validus* Tsch.

Central and East Peru, and, according to Hellmayr, Western Brazil, also probably East Eeuador.

2. *D. validus plagosus* Salv. and Godman.

British Guiana and Cayenne to N.-E. Brazil.

3. *D. validus multistrigatus* Eyt.

Colombia: Bogotá collections and Antioquia. Hellmayr, in agreement with other authors, unites with these the form from the Andes of Merida in Venezuela. Three specimens in the Tring Museum, however, show the bars on the abdomen generally narrower and less continuous, more broken up, than in Colombian skins. It would, therefore, seem to be probable that they formed another subspecies, which would have to be called *D. validus berlepschi* (Mad.). (See *Dendroactastes berlepschi* Madarász, *Ann. Mus. Nat. Hungar.* i. p. 463, 1903.)

4. *D. validus seilerni* subsp. nov.

Differs—as described by Hellmayr and Seilern—as follows from *D. v. multistrigatus*: the throat is less uniform, the feathers being edged with oliva-

aceous brown, giving the throat a striped appearance, the light stripes on jugulum and chest are conspicuously narrower. The bars on the underside are finer and more broken up, as in our Merida specimens. The tail is slightly darker. Cf. *Arch. f. Naturg.* lxxviii. 1912, p. 117.

Hab. : San Esteban and Cumbre de Valencia.

Type : No. 2,803, Cumbre Chiquito near San Esteban, 19.xi.1909. S. M. Klages coll.

5. *D. validus costaricensis* Ridgw.

Costa Rica and Chiriqui.

Of *D. puncticollis*, which, according to Ridgway, is probably a subspecies of *validus*, we have no specimens in the Tring Museum.

11. *On a new subspecies of Picolaptes albolineatus.*

Comparing our series in the Tring Museum of what is called *Picolaptes albolineatus*, it is evident that there must be several distinct races ; of most of these our material is not large, and the differences are very slight, but birds from the littoral of North-eastern Venezuela stand out too strikingly to be ignored. We propose to call this form :

***Picolaptes albolineatus littoralis* subsp. nov.**

This subspecies differs from typical *albolineatus* from Colombia in the upper-side being pale, not deep rufous brown ; the ground-colour of the crown of the head being generally not so deep, and the light stripes as a rule wider. Underneath the light shaft-stripes are wider and more buff, less creamy white. Perhaps this new form is also larger, as the wing of one (male, doubtless, though not sexed) reaches 101 mm., but others are smaller. Females are much smaller, a difference of over 5 mm. The bill appears generally to be slenderer.

Hab. Coastal region of North Venezuela.

Type : ♂ ad., Quebrada Seeca, State of Cumana, Venezuela, 9.ii.1898. No. 143, Caracciolo coll. (Tring Museum.)

Of this form we have two specimens from the State of Cumana, two from Guiria on the Gulf of Paria, collected by Comte de Dalmas, and two taken by Albert Moequerys and said to come from Valencia ; these latter may, by some mistake, have been wrongly labelled, as a skin from San Esteban, inland of Puerto Cabello, is quite different, hardly differing from Bogotá skins. Judging from three skins, collected by André (cf. Hellmayr, Nov. Zool. xiii. 1906. p. 30), the Trinidad birds seem to agree with those from Cumana, being at least as pale on the upper-side, though the under surface appears to be more greyish.

Six skins from the Orinoco Valley, collected by Cherrie, agree on the whole very well with Colombian skins, but appear to be slightly more greyish underneath.

12. ***Xenops genibarbis ridgwayi* subsp. nov.**

While the South-American forms of *Xenops genibarbis* have been excellently reviewed by Hellmayr in Nov. Zool. 1907, pp. 54, 55, the Central-American ones have hitherto been united under the name *X. genibarbis mexicanus* Sel.,

though Ridgway (*Birds of North and Middle America*, v. p. 174) calls attention to the differences between specimens from British Honduras and Mexico and those from Costa Rica, and suggests that "the species almost certainly requires further subdivision."

Looking at our series from Guatemala, which agrees apparently with Mexican specimens, and Panama and Costa Rica, the difference between the former (from Guatemala) and those from Panama and Costa Rica is so striking, that one must wonder that they have not yet been separated. The specimens from southern Central America, *i.e.* Costa Rica and Panama, are much less rusty on the upperside, the crown of the head is not so brown, and the under surface considerably more olivaceous; these birds, as a matter of fact, differ at a glance, but are very closely allied to *X. genibarbis littoralis* of Western Ecuador and *X. genibarbis neglectus* Todd from Northern Venezuela. From *neglectus* they differ in having the upperside slightly browner, the under surface not quite so olivaceous, from *littoralis* in having the crown browner, less olivaceous, the breast and abdomen lighter, less brownish olive. When describing his *X. genibarbis neglectus* (*Proc. Biol. Soc. Washington*, xxvi. 1913, p. 173) Todd should have compared his new form also with *X. g. littoralis*, with which it agrees much better in the more olivaceous underside, unless he took specimens of our *ridgwayi* for typical *mexicanus*.

Habitat of *X. g. ridgwayi*: Costa Rica, Panama, and the little islands of Iguaros, Sevilla, Almijas, and Medidor.

Type: ♂ Tocoumé, Panama, 7.iii. 1899. E. André coll. "Iris very dark brown. Beak black, base of lower mandible pale. Feet dark slate" (André).

We have examined 14 skins from the above-said islands, Panama and Costa Rica, collected by J. H. Batty, E. André, J. Watson, Underwood and Cherric. Of *littoralis* the Tring Museum possesses 5, of *neglecta* 2 specimens, the latter from Las Quigas near San Esteban, the type locality, and the Cumbre de Valencia, collected by S. M. Klages.

### 13. Note on *Xenops rutilus heterurus*.

In Nov. Zool. 1908, p. 147, Count Berlepsch quoted specimens from Cayenne as *X. r. heterurus*, though stating that they were smaller than Bogotá specimens, and had more black in the tails than *X. r. rutilus*. The fact is that the Cayenne specimens and others from Surinam differ strikingly from *X. r. heterurus* in size and shape of bill and colour of underside. They would form a distinct new subspecies, unless they might be *X. tenuirostris*, which is unknown to us. The extent of black in the tail varies a good deal.

### 14. Note on *Glyphorhynchus cuneatus castelnaudi* Des Murs.

The distribution of the various forms of *G. cuneatus* is evidently very little understood at present. Most authors have treated all the birds from Brazil to Cayenne and the Orinoco as typical *cuneatus*, while Peruvian and Ecuadorian birds were separated as *G. cuneatus castelnaudi*. Bogotá (Colombian) specimens were called *castelnaudi* by Hellmayr in 1911 (*P. Z. S.*, 1911, p. 1152), but Brabourne and Chubb (*List B. S. Amer.* p. 248) called them typical *cuneatus*.

*G. c. cuneatus* is probably restricted to Eastern Brazil and is distinguished

from *castelnaudi* by its considerably larger bill. This is striking in a series from Pará which agree with those from Bahia.

*G. castelnaudi* has been described from Peru and seems to extend to Colombia.

Specimens from Cayenne, the Orinoco Valley, British Guiana, and Surinam are in no case typical *cuneatus* as they have smaller bills and a more uniform and brighter rufescent throat. They are very closely allied to *castelnaudi*, but differ in having the breast and abdomen more brownish, not quite so dark, and the throat generally more rufescent, the upper part of the throat being in many specimens almost uniform rufous. The bill is generally less powerful, especially if seen from below. We propose for this form the name :

***Glyphorhynchus cuneatus simillimus* subsp. nov.**

Type: ♂ Ipousin, Approuague River, Cayenne, 6. i. 1903. No. 13,020, Geo. K. Cherric coll.

**15. *Xiphorhynchus nanus demonstratus* subsp. nov.**

It has already been pointed out by Hellmayr and Seilern (*Archiv f. Naturg.* lxxviii. pp. 110, 111, 1912) that specimens from Northern Venezuela differ from typical *nanus* from Panama. There is no doubt that this is the case, the ground-colour of the crown being less black, the buff spots on the head and nape generally wider, the underside being more rusty yellowish. Hellmayr and Seilern called attention to some other differences, which we cannot find to exist at all, as they are quite variable, and to the smaller size of the North-Venezuelan birds. This latter character is doubtful. Six Venezuelan males have the wings 105-110 mm., two females 97 and 99, while Panama males have wings of 110-114, but females 93-97 mm.

Habitat of *X. n. demonstratus* : North-western Venezuela from Tocuyo to Puerto Cabello.

Type: ♂ ad. San Esteban Valley, 11. xi. 1909, No. 2,823, S. M. Klages coll. (In Tring Museum.)

Mr. Hellmayr treats *X. nanus* as a subspecies of *guttatus*, but it is perhaps safer to be a bit hesitating at present in grouping these forms.

Bangs (*Proc. Biol. Soc. Washington*, xxiii. p. 72, 1910) described, apparently from a single specimen (!) a *X. rosenbergi* from the Cauca Valley in Western Colombia. We have from the same valley a specimen collected by the late J. H. Batty, sexed "♀" but with a wing of 114 mm., so that it must be a male! If this is the bird described by Bangs, then the description is rather misleading, for it should not have been compared with the rather different *chunchotambo*, which has much more rounded scaly spots on the throat and jugulum and a straighter bill. Our specimen from the Rio Cauca resembles so closely the typical *nana* from Panama, that we are unable to state any differences at all.

Ridgway (*Birds North and Middle America*, v. p. 251) extends the range of *nana* to Colombia, but does not mention Venezuela at all.

ON THE FORMS OF *COTURNIX COTURNIX*.

BY ERNST HARTERT, PH.D.

IN the *Cat. B. Brit. Mus.* (xxii. pp. 230-240) two species and one subspecies of palæarectic Quails were admitted :

1. *Coturnix coturnix* : " Europe, Asia (except the south-west corner, Siam, etc.), Africa."

2. Subsp. a. *Coturnix capensis* : " South Africa, south of about 15° S. lat., Mauritius, Madagascar, Comoro Islands, Cape Verd Islands, Canaries, Madeira, and Azores."

3. *Coturnix japonica* : " Japan, Manchuria, S.E. Mongolia, and China, as far south as Canton. Specimens have also been obtained in Bhootan and Karen-nee."

Our friend the author of volume xxii. was at the time satisfied with the results of his study of the genus, for he says : " Perhaps no species of Game Birds has been more confused, and their changes of plumage less understood, than the Common Quail (*Coturnix coturnix*) and its near ally the Japanese Quail (*C. japonica*) ; and I am pleased that I have now at last discovered definite and well-marked characters by which both the males and females of these two species may be readily distinguished, while the intermediate forms are, as I shall presently show, undoubtedly the results of interbreeding." Dr. Stejneger has already, long ago, pointed out that he did not show that his supposed hybrids were hybrids, but merely said they were, while, in fact, there was, in our opinion, no reason whatever for this theory. From the distribution admitted for *capensis* (rectius *africana*), it is, among others, difficult to understand how Indian Quails could be regarded as the results of hybridisation of *C. coturnix coturnix* and *capensis*. It will be seen that, though in the "habitat" the sweeping statement "Africa" is made, not a single skin from that continent, except two from Egypt, was known to be in the British Museum in 1893, when vol. xxii. of the *Cat. B.* was published. The fact is, that it only breeds in Egypt and in Africa Minor, *i.e.* in the fertile districts of Marocco, Algeria, Tunisia, and Tripoli. It passes through the Nile Valley and winters in great numbers in parts of Abyssinia, and has been recorded from the White Nile, Kordofan, and Reichenow mentions one as obtained by Emin at Mahagi in Uganda. The Quail also passes through the Western Sahara south of Algeria, and must winter in the districts immediately south of the Sahara, but the only western localities on record seem to be as follows : Rendall says that they were common on the Gambia in February and March, but it seems that skins were not preserved. There is, however, a skin of a female in the British Museum, which was recorded as *africana* in the *Cat. B.* p. 238, but it belongs to *C. c. coturnix*. Shelley and Buckley say that they shot one at Acera, but did not preserve it ! Verreaux gives as locality the Casamanze, but before the specimen is re-examined, one cannot be certain about it. Boyd Alexander shot a ♂ near Mafoni (at "Marou"), south-west of Lake Chad in Northern Hausaland, on November 21st, 1904, which I have examined.

As the occurrence of the South African Quail in all these districts is not

known, a pairing of European and African Quail cannot take place, unless one surmises that the former make a circular flight round the Atlantic Islands (Madeira, Azores, Canaries), where close allies of *C. c. africana* (= *capensis*) are found; but even then there would be no sensible explanation how the results of their wickedness could reach such extraordinarily different places as Cape Colony, Gibraltar, England, Austria, Hungary, Greece, and India: all places where, according to Mr. Ogilvie-Grant, "intermediate forms," *i.e.* hybrids (cf. his explanations on p. 231, and the labels in the British Museum), are found. The fact is, that the supposed hybrid specimens from South Africa are less typical *C. c. africana*, and those from Europe red-faced varieties of the type of the so-called *Coturnix baldami* and others; mostly the former can be distinguished by their shorter wings, though otherwise, in coloration, light varieties of *C. c. africana* and dark ones of *C. c. coturnix* are sometimes difficult to distinguish.

The European *C. c. coturnix*, besides nesting in Europe and North Africa, extends in Asia as far east as Lake Baikal, but not farther eastwards. Mr. Ogilvie-Grant said that it occurred in Asia "except the south-west corner, Siam, etc.," but he evidently meant south-east corner; he admits skins from China and Japan as *C. c. coturnix*, and in the same places ever so many hybrids between the latter and *japonica*. This is a mistake. On p. 230 he gave one to understand that he was going to explain the changes of plumage in the *C. c. japonica*, but he has not done so, and evidently himself misunderstood them. He accepts that the adult male—apparently at all seasons—has the "sides of the head, chin, and throat uniform dull brick-red, without a trace of the anchor-shaped mark," while adult females and young males have the throat-feathers elongate and lanceolate. Now the moults of the Quails are very interesting: there is a complete moult of the entire plumage after the breeding season, but there is also another, partial, moult in the spring; this latter moult is apparently restricted to the head, neck, back, and chest, and it seems to be very irregular, some signs of moult being found in winter, while even in May Mr. Witherby shot moulting males in South-west Persia. In the European Quail this moult produces no evident difference in plumage at all, while in the eastern race, *C. c. japonica*, it produces a very marked change! The throat-feathers are elongate and lanceolate in winter, and in winter only. Every winter bird with trustworthy date, both male and female, has these elongate and lanceolate feathers, though they vary in length and pointedness, and every spring-bird has rounded, shorter, "ordinary" throat-feathers. Moreover, there are in the British Museum and in the Rothschild collection males which clearly moult from the hackle-throated plumage into the round-feathered, rufous-throated one. These birds, according to their state of plumage, are fully adult, and not at all juvenile individuals. In the adult males in spring the whole throat is dull brick-red, but the black anchor-shaped mark *is* sometimes indicated or even well developed. In the winter the male has the throat white, mostly with a more or less developed black mark along the middle; the female has no black mark on the throat, and differs, of course, from the male in having the crop and chest more or less spotted, like females of the other subspecies of Quails. The adult female in spring and summer is so much like that of *C. c. coturnix* that I am unable to give constant distinguishing characters, though *C. c. japonica* is generally smaller: wings, ♂ 98–102, ♀ 100–106, against ♂ 104–115, ♀ 106–117 mm. in *C. c.*

*coturnix*. Since *C. c. coturnix* is never found in East Asia, hybrids between it and *C. c. japonica* do not and cannot occur.

More difficult than the distinction between the western and eastern races, *C. c. coturnix* and *japonica*, are the forms which inhabit Africa and the Atlantic islands.

According to Mr. Ogilvie-Grant, *C. c. africana* (his *capensis*) inhabits "South Africa, south of about 15° S. lat., Mauritius, Madagascar, Comoro Islands, Cape Verd Islands, Canaries, Madeira, and Azores." This would be a most astounding distribution and requires much investigation and alteration. It would mean that the same form inhabited South Africa and the Cape Verd Isles, with no such Quail in an area of 25 degrees of latitude between the two areas, *i.e.* the Cunene River and the Cape Verd Islands. But, worse luck, the Quail, inhabiting the Cape Verd Islands is not at all of the group of *africana*! It is true that there is a male in the British Museum, presented by Bouvier, which belongs to *C. c. africana* and is labelled as coming from the Cape Verd Isles, but no date and no exact locality is given. I therefore do not accept this evidence at all, since more recently Boyd Alexander collected a nice little series on São Nicolau and other islands, and caught the downy young, showing that these Quails breed there in November! Now, these Quails are hardly distinguishable from the European *C. c. coturnix*, but they are smaller: wings, ♂ 99-106, ♀ 100-105 mm., against 104-115 and 106-117 mm. in *C. c. coturnix*. From the specimens examined I am not able to state constant differences in colour, but it seems that the throat is oftener spotted and the neck above more brownish. I name the Cape Verd Quail:

***Coturnix coturnix inopinata* subsp. nov.**

Type: ♂ ad., São Nicolau, 7. xi. 1897, Boyd Alexander coll. (In the Tring Museum.)

Proceeding northwards, we come next to the Canary Islands. From observations by various ornithologists, it seems certain that the European *C. c. coturnix* passes through these islands on migration while another form of the *africana* group is breeding and resident. From the material hitherto examined I am unable to separate the birds from the Canaries from those which inhabit Madeira.

The Madeira Quail resembles *C. c. conturbans*, but is larger; the upperside looks generally lighter, though the rump is in most specimens much darker, blacker, but the light shaft-stripes are wider, the upper wing-coverts darker and not so cinnamon-brown; the throat shows more white, and in the majority of specimens the middle of the abdomen is lighter and mostly quite white. The wings of Madeiran males measure 106-112, females 107-113 mm., in males from the Canary Islands, 107-110, once 104, once 103 mm. I was, however, only able to examine 3 males and 5 females from Madeira, altogether 9 ♂ and 3 ♀ from the Canary Islands, in the British, Tring (2 ♂), and Liverpool (1 ♂, 1 ♀ in the Tristram collection) Museums. Some Canary Islands males resemble more *C. c. conturbans*, especially the male in the Liverpool Museum. There is, as usual in Quails, much variation.

I name this form:

***Coturnix coturnix confisa* subsp. nov.**

Type: ♂ ad. 12. ix. 1903, Ponta de Pargo, Madeira. Received from Padre Sehmitz. (In the Tring Museum.)

In the last group of North Atlantic Isles, the Azores, Quails are also common and resident.

Now, the Azores birds are, strange to say, almost exactly like the South African *C. c. africana*, a fact which, in consideration of the enormous distance of their two areas, is most unexpected. There is, however, one difference: the outer aspect of the wings, that is to say, the upper wing-coverts and inner secondaries are of a more rusty cinnamon-brown tinge, while they are darker and generally more olivaceous in *C. c. africana*. There appears to be no constant difference in size, though the wings of twenty specimens measured do not reach beyond 105 mm., while they go to 109 mm. in *C. c. africana*. I propose to call the Azores Quail:

***Coturnix coturnix conturbans* subsp. nov.**

Type: ♂ ad. Santa Maria, 400 ft., 3. iii. 1903. W. R. Ogilvie-Grant coll. (In the Tring Museum.)

Last of all, let us consider the distribution of the real *C. c. africana*. As I have said above, according to Mr. Ogilvie-Grant it inhabits South Africa south of about 15° S. lat., Mauritius, Madagascar, Comoro Islands, Cape Verd Islands, Canaries, Madeira, and Azores. I have already discussed the Atlantic Islands, where other subspecies, but not typical *africana*, are resident. The birds, on the other hand, from the Comoro Isles, Madagascar, and Mauritius are, I am only too glad to agree, indistinguishable from South African ones, though I must say that I have seen only one single bird without history said to be from Mauritius, in the British Museum: there is no proof that it actually came from Mauritius, where it might not be at home at all. Mr. Ogilvie-Grant also enumerates a skin of a female from the Gambia, but this is, in my opinion, a specimen of the migratory European *C. c. coturnix*. Moreover, since the *Catalogue of Birds*, vol. xxii., was written, we have some evidence of the extension, in Eastern Africa, north of the Zambesi, while in the west it is not known to occur north of the Cunene River. There are several specimens in the British Museum from Nyassaland. Von Stegmann shot one south of the Karissimbi volcano (north of Lake Kivu), and Rudolf Grauer collected one on the foot-hills of the same mountain; Reichenow mentions a specimen from the Rugege forest; Crawshai obtained one north-east of Fort Smith, in Kikuyu; all these latter were single specimens, which seems to show that the bird is rare in all these places, but Dr. van Someren says that near Embu and Kyambu in British East Africa it is sometimes common.

There is also a skin in the British Museum, collected near Gibraltar by the late Colonel Irby. Mr. Ogilvie-Grant called it an "intermediate form between *Coturnix coturnix* and *C. africana*," but to me it seems to be a male of the South African *africana*; it agrees with the latter in colour, the wing-coverts being very deep brown, but the wing measures about 110 mm., which is very long for *africana*. It is marked "spring 1872," no exact date being given; the primaries of the left wing are torn out. Were Colonel Irby alive, he could

doubtless tell us how he got it, but he evidently did not shoot it, and one cannot but regret the absence of its full history. If it is a South African Quail, it cannot have been wild at Gibraltar; the same can be said if it should be an aberrantly dark Madeiran bird. That it is a hybrid is, in my opinion, absolutely impossible, nor is there any evidence, as it is typically dark and red for *africana*, not in the least intermediate between the latter and *C. c. coturnix*.

Colonel Irby tells us that Spanish shooters and bird-catchers distinguish between the resident and migratory Quails, and says that he also found them to be different. I have very little confidence in such vague statements of bird-catchers and shooters; they may have once established such a statement, possibly based on comparison of the breeding birds in spring with autumnal migrants, and then repeated it from generation to generation; but it is difficult to understand that an excellent observer and field-ornithologist like the late Colonel Irby should have omitted to collect specimens to show these differences. Apart from the dark varieties of Valencia (which occur also in Italy and elsewhere, also among cage-birds), there are comparatively many very bright-coloured birds among the half dozen Spanish Quails which I have been able to compare, but a series is nowhere available; there is, however, no probability that a separate subspecies occurs in Spain, since the birds from North-west Africa do not differ from *C. c. coturnix*.

We have now to distinguish the following races of *C. coturnix*:

*C. coturnix coturnix* (L.).

Europe to Yenisey and Lake Baikal, south to Marocco, Algeria, Tunisia, Egypt, and Persia, also in small numbers nesting in North-west India. Wintering chiefly in Northern Tropical Africa south of the Sahara (south to Gambia and Abyssinia), in Arabia and India.

? *C. coturnix corsicana* Tschusi.

Described from two winter birds, which were smaller and darker. Other Quails from Corsica (Laubmann, Hartert) are typical *C. c. coturnix*, but they may be migratory birds. Material from the spring and summer months must be compared in order to settle the question of a possible Corsican race.

*C. coturnix confisa* Hart.

Madeira and Canary Islands.

*C. coturnix inopinata* Hart.

Cape Verd Islands.

*C. coturnix conturbans* Hart.

Azores.

*C. coturnix africana* Temm. and Schleg.\*

South Africa, in the east north to Uganda; Madagascar, and Comoro Islands.

\* Called in the *Cat. B. Brit. Mus.* xxii. *C. capensis*, but it is now universally known that the earlier name *africana* had been overlooked, and Mr. Ogilvie-Grant uses it too in his recent writings, as in 1905 and 1912.

*C. coturnix erlangeri* Zedl.

Near Harar in Abyssinia. According to Erlanger and Zedlitz, with black instead of rufous jugulum.

*C. coturnix japonica* Jemm. and Schleg.

East Siberia from Dauria (Transbaikalia) to the Amur and Ussuriland, south to China and Japan. In winter to Hainan and Formosa, in small numbers to Burma and Bhutan. (Not known from the Loo-Choo (Riu-Kiu) Islands.)

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DESCRIPTION OF THE FEMALE OF *TROIDES*  
*ALLOTTEI* ROTHSCH.

BY H. M. PEEBLES, F.E.S., AND W. SCHMASSMANN, F.E.S.

*Head and thorax.* Velvety black, with no trace of red on sides below; abdomen grey on top, golden yellow on sides and below. Basal segment black with golden spot on each side, second segment darker on top than the remaining ones, black lateral spots on segments 3-7. Below segments 1-7 are divided by black.

*Forewing above.* Brownish black with spots in cell, apical and discal area suffused with brownish grey. In upper third of cell, close to the upper median, a quadrate spot of 3 mm., and at a distance of 3 mm. from the lower median an elongate spot of 7 mm. by 3 mm. opposite D<sup>4</sup>. In apical area a row of four elongated spots between SC<sup>3</sup> and R<sup>2</sup>, those between SC<sup>3+4</sup> and SC<sup>4</sup>-R<sup>1</sup> are wedge-shaped and pointed towards base but rounded towards apex. The other two are rounded off towards base but cut off oblique at the apical end. Three spots are nearly of same length, 15 mm., but the one between SC<sup>5</sup>-R<sup>1</sup> is 25 mm. long. Counting from costa, the basal termination of the spots Nos. 1, 3, and 4 form a straight line. Nos. 3 and 4 each with brownish spot. Between vein R<sup>2+3</sup>, at a distance of 15 mm. from margin, a small triangular spot of 3 mm., and 6 mm. from it a small submarginal spot, one of a row of four, of which those between veins SM<sup>1</sup>-R<sup>3</sup> are placed closer towards margin. Counting from hindmargin Nos. 1 and 4 are of equal size, 2 mm., No. 3 half the size, and No. 2 double the size in length but the same in width. There are three discal spots, of which the one between M<sup>1</sup> and M<sup>2</sup> is the largest, 22 mm. long and 7 mm. wide, cut off straight towards base, but pointed at marginal end close to vein M<sup>2</sup>, which applies also to the spot between SM<sup>1</sup> and M<sup>2</sup>, but which is only half the size. The third spot between R<sup>3</sup> and M<sup>1</sup> is the smallest, segment-shaped, and 3 mm. from cell. Row of four black submarginal spots of underside showing faintly on upperside.

*Hindwing above.* Basal half deep brownish black, veins and margin (3 mm.) the same colour. There are six discal spots and the same number of submarginal spots. The discal spots are of slightly lighter colour than those of the forewing; the submarginal spots are heavily shaded with brownish black. The discal spots do not touch the cell, which has no spot. Both wings have short white marginal fringes between veins.

*Forewing below.* Ground-colour deeper brownish black, markings the same as above but more whitish in colour.

*Hindwing below.* Nearly black, darker than forewing, markings as above with the exception of an additional discal spot between C and SC of grey colour. The submarginal spot between these veins pale yellow. The other discal spots whitish and the submarginal ones lighter than above.

Length of forewing: 97 mm. Expanse: 201 mm.

One specimen in coll. H. M. Peebles.

[Père Allotte, who sent me the ♂ type of the species, was convinced that it was a hybrid between *Troides priamus urvilleanus* and *Troides victoriae regis*. The underside of the ♀, and the neuration of the forewings in both ♂ and ♀, which is exactly intermediate between the above two species, gives a great confirmation of this idea; however, the fact of the two known ♂♂ being exactly alike and the great scarcity of hybrids in nature makes me doubt the correctness of this theory.—ROTHSCHILD.]

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## NEW AFRICAN GEOMETRIDÆ.

BY LOUIS B. PROUT, F.E.S.

## SUBFAM. OENOCHROMINÆ.

1. *Cartaletis libyssa natalensis* subsp. nov.

Abdomen with the white spots smaller than in *l. libyssa*, *l. monteironis*, and *l. ethelinda*, the black area which separates the dorsal and lateral rows broader than their diameter. Ground-colour slightly deeper than in *l. libyssa*.

*Forewing* with the black border on an average broader, its proximal edge very gently and almost evenly curved, or sometimes slightly bent about M<sup>1</sup> (never with the strong bend in front of M<sup>2</sup> which is so frequent in the other forms named); the contained white spots generally somewhat smaller, **the last one** (behind M<sup>2</sup>) **nearly always wanting** (if present, quite rudimentary).\*—*Hindwing* with the black border generally widened.

Griqualand to Pondoland. Type ♂, Durban (G. F. Leigh), in coll. Tring Museum.

This form has stood in the British Museum collection as *libyssa* and has consequently been mentioned under that name by Rogers, *Trans. Ent. Soc. Lond.* 1908, p. 522, as "the well-known south-eastern species." Hopffer, however, described and figured the species from Mozambique, and his form inhabits German East Africa, Zanzibar, etc., differing only from the form *monteironis* Druce in its deeper colour. The new form similarly differs only from *concolor* Warr. in its deeper colour, and it is not impossible that we are dealing with two species—*libyssa* = *monteironis* = *ethelinda* and *concolor* = *natalensis*. Warren labelled this Natal form *rubra*, but I have departed from my usual practice of adopting an available MS. name, inasmuch as the reddest race in the collective species (or group) is *ethelinda* Kirby, from Nyassaland.

## SUBFAM. HEMITHEINÆ.

2. *Prasinocyma tranquilla* spec. nov.

♂, 22 mm.; ♀, 26 mm. Face and palpus light red-brown; palpus in ♂ scarcely longer than diameter of eye, in ♀ fully one-and-a-half times as long, with third joint little elongate. Vertex narrowly white; occiput green. Thorax above green, beneath whitish; abdomen mostly whitish. Hindtibia in ♂ not dilated.

*Forewing* with SC<sup>1</sup> anastomosing with C; smooth, uniform malachite green, without white irroration or strigulation; costal edge narrowly pale ochreous; cell-dot very faintly indicated in darker green; fringe green proximally, white distally.—*Hindwing* with termen smooth, rounded, tornus not produced; concolorous with forewing, at base of costa more whitish; cell-dot as on forewing or scarcely indicated; fringe as on forewing.

\* It is curious that Hopffer's figure (of *libyssa* name-type) does not show this spot, but it is mentioned in his description; it is generally well developed in this and the nearly allied races.

Both wings beneath slightly paler, the posterior half of forewing inclining to whitish.

Diredaua, N.W. of Harar, 1914 (G. Kristensen). A long series, mostly ♂♂, in coll. Tring Museum.

The shade of green—almost identical with that of the forewing of *Rhadinomphax divincta* Walk.—distinguishes this species at a glance from its allies.

### 3. *Pseudhemitheia exomila* spec. nov.

♂, 24 mm. Face and palpus red. Vertex narrowly white; occiput green. Antenna with minute ciliation, less than half as long as diameter of shaft. Thorax and abdomen greenish above, whitish beneath; crests scarcely developed. Hindtibia with all spurs.

*Forewing* with apex very slightly produced, termen little oblique anteriorly, slightly gibbous in middle, oblique posteriorly; SC<sup>1</sup> connate or shortly stalked, anastomosing at a point with C; dull olive green, slightly irrorated with white; costal edge narrowly ochreous; a thick lunulate-dentate white postmedian line from near costa at nearly three-fourths, incurved between the radials and between M<sup>1</sup> and SM<sup>2</sup>, the outward teeth at R<sup>3</sup> and M<sup>1</sup> strong; fringe concolorous. —*Hindwing* with termen gibbous, slightly bent at R<sup>3</sup>, but not at R<sup>1</sup>; C closely approximated to SC for a short distance beyond the point of anastomosis; postmedian line as on forewing.

Underside whitish, shaded (especially on the forewing) with olive, the forewing with the costal region and both wings with the fringe deeper olive, the forewing with slight indications of the white postmedian line, proximally to which the olive shading is rather strong.

Bitye, Ja River, Cameroons, 2,000 ft., September—November 1911 (G. L. Bates). Type in coll. Tring Museum. Paratype (wet season, without date) in coll. Joicey, considerably rubbed, but with the postmedian line evidently rather less thick.

Quite aberrant in the presence of the median spurs and in several minor characters, but clearly belonging to the *Hemitheia* group and best referred for the present to *Pseudhemitheia*, on account of the minute palpus.

## SUBFAM. STERRHINAE.

### 4. *Somatina probleptica* spec. nov.

♂ ♀, 30–31 mm. Face black, narrowly white below. Palpus short, white above and on outer side brown with a few black scales. Antenna in ♂ dentate, with fascicles of longish cilia, in ♀ minutely ciliated. Vertex, thorax, and abdomen white; abdomen in ♂ rather elongate. Hindtibia in ♂ rather strongly dilated, a strong tuft of pale yellowish hairs from femoro-tibial joint, tarsus abbreviated (its extremity lost).

Wings shaped as in *figurata* Warr. (Nov. Zool. iv. 61).

*Forewing* with areole single in both the examples,\* SC<sup>5</sup> arising from extremity of areole (♀) or barely stalked (♂); white, without the grey irroration of *figurata*; lines grey, not very strong; antemedian almost obsolete, somewhat curved and sinuous, marked between SM<sup>2</sup> and hindmargin by two or three black

\* Cf. Nov. Zool. xxii. 328.

scales ; cell-mark brown, tripartite, somewhat interruptedly edged with silvery. the anterior element (at and beyond apex of arcole) crescentic, the posterior (at hinder angle of cell) round, almost completely silver-ringed, the distal (on  $R^2$ ) smaller ; median and postmedian lines formed nearly as in *figurata*, the teeth smaller ; proximal submarginal spots between  $R^2$  and hindmargin rather strong, distal small ; terminal line very fine, black, thickened into conspicuous black dots between most of the veins.—*Hindwing* without first line ; cell-mark pale brown, silver-edged except in front, reaching from  $R^1$  to  $M^1$ , its proximal edge slightly sinuate anteriorly, its distal gradually projecting to  $R^2$ , then sharply retracted ; markings of outer half corresponding to those of forewing.

Underside white, with the markings scarcely discernible.

N. Nigeria : Bauchi Province, Panyam, 1910 (G. T. Fox), type ♂ ; Baro, September 11, 1910 (Scott Macfie), paratype ♀. Both in coll. Brit. Mus.

##### 5. *Somatina virginalis* spec. nov.

♂ ♀. Superficially scarcely, if at all, distinguishable from *vestalis* Butl. (*Ann. Mag. Nat. Hist.* (4) xvi. 419), from Natal and the Cape. ♂ hindtibia strongly dilated, with a dense hair-pencil, spurs wanting, tarsus greatly abbreviated (in *vestalis* the ♂ hindtibia is not dilated and bears a pair of well-developed spurs and the hindtarsus is fully developed).

*Forewing* with the dark distal cloudings between the radials, which in *vestalis* are often (though not invariably) well developed, weak or wanting.—*Hindwing* usually with the discal patch continued (often without narrowing) to the abdominal margin, whereas in *vestalis* it is only connected with the abdominal margin by a single line.

Entebbe, Uganda. Type in coll. Tring Museum.

More widely distributed than its twin species, occurring in Sierra Leone, Congo, Angola, Unyoro, British and German East Africa, Nyassaland. The range of the two overlaps, for I have before me a single ♂ of *vestalis* collected by Dr. Ansoerge in Kavirondo (Makombi).

##### 6. *Problepsis digammata* Kirby.

*Problepsis digammata* W. F. Kirby, *Ann. Mag. Nat. Hist.* (6) xviii. 396 (1896) (nom. nov.).  
*Argyris latonaria* var. Walk., *List Lep. Ins. Brit. Mus.* xxiii. 807 (1861) (nec. Guen.).

Face black above, white below. Vertex white. Antenna in ♂ with short pectinations, commencing as mere teeth, becoming at longest less than twice diameter of shaft, all surmounted with long ciliation ; in ♀ shortly ciliated. Collar tinged with ochreous. Thorax and abdomen white. Foreleg slightly infuscated on inner side : hindtibia in ♂ rather long, moderately thickened, tarsus strongly abbreviated (less than one-fourth tibia).

*Forewing* white ; discal ocellus long and narrow, closed posteriorly (just behind  $M^2$ ), open anteriorly (at  $R^2$ ), its proximal side (that on DC) joined anteriorly to a supplementary mark which runs outward along  $R^1$  for about 3 mm. ; the outlines of these markings fuscous, mixed with metallic silvery, a filling-in of ochre-yellow between base of  $R^2$  and  $M^2$  and in the longitudinal streak of  $R^1$  ; a faint grey line from ocellus to hindmargin ; postmedian line brownish grey, somewhat wavy, a little incurved between  $M^1$  and  $SM^2$ , sharply

angled on  $R^1$ , becoming oblique inward anteriorly, but here usually weak or obsolescent; double subterminal line grey, rather weak, the proximal more or less broken into spots, course similar to that of postmedian but with the angle at  $R^1$  less strong; terminal line fine, continuous; fringe white, with slightly smoky central and distal lines (sometimes with their interspace also somewhat smoky).—*Hindwing* marked almost as in *aegretta* Feld., but without proximal line.

Underside white; costal edge of forewing tinged with ochreous.

Natal, common, the type ♂ from Durban, in coll. Brit. Mus., ex coll. Guentzius. Also from British East Africa, Pemba Island, Zanzibar, East Griqualand, Uganda, Sierra Leone, etc.

Probably the commonest African species of the genus, though only hitherto made known through Walker's very brief description. Misidentified by Warren as *aegretta*, the true *aegretta* being his *digammata* as published, though his earlier manuscript, used by Kirby, had applied the name *digammata* to the present species.

#### 7. *Problepsis similinotata* spce. nov.

♂, 34–38 mm. Extremely like the preceding, of which nearly the whole description is applicable. Face less clear white (more fuscous-mixed) in lower part. Antennal pectinations rudimentary throughout.

*Forewing* with the discal mark broader, its outer side being farther from cell and nearly or quite connected by some ochre-yellow shading with the end of the longitudinal streak of  $R^1$  (the general contour thus more recalling that of *meroceria* Saalm., *Lep. Madag.* 218. t. 5. f. 67); postmedian line stronger, rather brighter ochreous; proximal subterminal spots thickened between the radials and between  $M^2$  and  $SM^2$ .

Upper Congo: Yakusu, May 1900, type; Bopoto, May 1903. Both in coll. Tring Museum, collected by Rev. Kenred Smith.

A ♀ from Ogruga, River Niger, with terminal line obsolete, probably also belongs here, though rather smaller than would be expected for that sex (scarcely 34 mm.).

#### 8. *Problepsis aegretta insculpta* subsp. nov.

♂, 42 mm.; ♀, 46 mm. Larger than *aegretta* Feld. (*Reise Novara, Lep. Het.* t. 128. f. 14), from South Africa, all the markings stronger.

*Forewing* with the outlines of the ocellus complete, olivaceous brownish, edged proximally from SC to M with black.—*Hindwing* with the proximal and distal sides of the silvery cell-mark connected along the base of  $R^2$  by a silver streak.

Esearpment, British East Africa, 6,500–9,000 ft., March 1901, ♂ type; January 1901, ♀ (W. Doherty). Also a slightly worn example from Toro, Uganda, January 1902 (F. J. Jackson). All in coll. Tring Museum.

Probably Guenée's *latonaria* (*Spec. Gén. Lép.* x. 14) was a worn ♀ of *aegretta*, which varies in the direction of weakened markings even when in fine condition; his name would take priority.

9. *Problepsis flavistigma dilatistigma* subsp. nov.

♂ ♀, 45–50 mm. Larger than *flavistigma flavistigma* Swinh. (*Tr. Ent. Soc. Lond.* 1904, p. 564), from Sierra Leone. Hindwing with termen rather more regularly rounded, ocellus expanding behind M and R<sup>3</sup>, measuring 2 mm. at M<sup>1</sup> (in *f. flavistigma* 1 mm.).

Escarpment, British East Africa, 6,500–9,000 ft., October–November 1900, January 1901 (W. Doherty), ♂ type, another ♂, 3 ♀♀ in coll. Tring Museum, all with the lines feebly expressed, terminal line wanting; also a more strongly marked example from Nairobi. Here belongs also Swinhoe's second ♂ (*loc. cit.*).

Might be mistaken at first glance for a weakly marked form of *aegetta*, which, however, was taken in the same locality in a very strongly marked form (see *supra*). Distinguishable by the rather longer antennal pectinations (about four times the diameter of shaft, in *aegetta* nearly three times), longer tarsus (two-thirds tibia, in *aegetta* scarcely one-half), blacker face (lower half whitish in *aegetta*), position of median line of forewing (well beyond the discal mark instead of running to it) and almost entire absence of silvery scales at abdominal margin of hindwing. Possibly both *flavistigma* and *dilatistigma* are forms of *ochripicta* Warr (*Nov. Zool.* viii. 10), from St. Thomé, of which I know only the type ♂, with shorter, weaker ocelli (not crossing R<sup>2</sup>) and median line more distally placed (on forewing midway between ocellus and postmedian, on hindwing just beyond ocellus (in *flavistigma* crossing it)). The "Sierra Leone" example cited by Warren (*loc. cit.*) must certainly have been the British Museum specimen (acquired in 1899), which later served as Swinhoe's type of *flavistigma*, for no such specimen exists in the Tring Museum.

10. *Anacosymbia chrysoparalias* spec. nov.

♂, 26 mm. Face and upperside of palpus dull dark red; palpus beneath pale ochreous. Vertex and antenna yellowish white, the latter in places marked with rufous. Collar ochreous. Thorax and abdomen mostly concolorous with wings, front of thorax vinaceous, abdomen dorsally mixed with dark purplish. Hindtarsus as long as tibia.

*Forewing* vinaceous cinnamon, strongly mixed with rufous; costal edge to about three-fourths narrowly yellowish white; lines dark olive-grey, almost black; antemedian rather thick, ill-defined, sinuous; median thick, well beyond the cell-spot, rather strongly sinuous, the inward bend beyond the middle stronger than in *albivertex* Swinh. (*Tr. Ent. Soc. Lond.* 1892, p. 15); postmedian fine, lunulate-dentate, the lunule inward between M<sup>2</sup> and SM<sup>2</sup> deepest, slight inward bends near costa and between the radials; cell-dot large; a slightly interrupted blue-black terminal line.—*Hindwing* with slight olivaceous admixture in proximal area; antemedian line wanting; median continuing the antemedian of forewing, formed as in *albivertex* Swinh.; postmedian formed about as on forewing, continuing median of forewing; cell-dot elongate; terminal line as on forewing.

Underside pinkish buff, slightly more vinaceous in middle of forewing; both wings with a vague pinkish grey subterminal line, that of forewing nearly as above, that of hindwing as near termen as on forewing; terminal line feeble, olivaceous.

Gambaga, Gold Coast (Dr. Bury). Type in coll. Tring Museum.

Very similar to the Indian *albivertex*; smaller, redder, distinguishable also by the whitish costal edge, blackish terminal line, relatively slightly longer hindtarsus, etc.

11. *Ptochophyle apicirubra* spec. nov.

♂, 21 mm. Head and body ochre-yellow. Antennal shaft spotted with red; pectinations black.

*Forewing* rather short and broad, with costa somewhat arched; areole moderately long, SC<sup>1</sup> shortly stalked beyond, M<sup>1</sup> well separate; ochre-yellow, with scattered rufous dots in places (chiefly at base, proximal half of costa, across middle of wing and in tornal region); a large apical patch (at costa about 4 mm.; terminating on hindmargin at M<sup>2</sup>); brick-red mixed with dragon's-blood-red and blackish and containing a few dots and spots of the ground-colour; fringe concolorous with this patch and posteriorly with the ground-colour.—*Hindwing* with termen slightly bent in middle; M<sup>1</sup> about connate; ochre-yellow, dotted with rufous.

Underside concolorous, with less rufous dots (chiefly developed along costal margin of forewing) and with the apical patch more blackened.

Ambinanindrano, 50 km. W. of Mohanoro, Madagascar, December 5, 1914 (G. K. Kestell-Cornish). Type and another in coll. Tring Museum.

12. *Chrysocraspeda leighata holobapta* subsp. nov.

Both wings as far as the yellow border dull Indian purple; terminal purple dots well developed.

Kassai district, Congo Free State (Taymans). Type in coll. Tring Museum. Also from Rau, Nandi Country, February 24, 1899 (Dr. Ansorge), in the same collection.

*C. leighata leighata* Warr. (Nov. Zool. xi. 466) is only known to me from Natal.

SUBFAM. LARENTIINAE.

13. *Eupithecia subscriptaria* spec. nov.

♀, 20 mm. Head and body concolorous with wings. Palpus nearly twice diameter of eye; more heavily irrorated (thus appearing fuscous) except the first and a part of the second joint beneath. Fore and middle legs infuscated on one side, except the extremities of the joints. Abdomen above slightly belted with brown, but less markedly than in the European *scriptaria* Freyer.

*Forewing* dirty white, mostly rather closely irrorated with fuscous, leaving clear, or almost clear, the wavy transverse markings; at costal margin the irroration is somewhat condensed into ill-defined spots at the commencement of a rather well-marked subbasal line, a vague narrow band succeeding it, part of the median area (proximally to the cell-dot) and a postmedian line; the broadest and clearest white band arises at nearly one-third costa, is bent in cell and behind fold, the middle part of its course being strongly oblique inward, and separates the proximal from the median area; ill-defined whitish lines traverse the median area, those about and beyond the cell-dot being the thickest and most conspicuous; the double postmedian dark line which limits this area

is more distally placed than the corresponding lines in *scriptaria*, angled outward about  $R^1$  and inward at  $M^1$ ; distal area weakly clouded, the dentate subterminal line interrupted, rather near the termen, reaching it at tornus; cell-dot rather large, black; terminal dashes moderately strong; fringe somewhat chequered.—*Hindwing* with termen straight or very slightly concave from before  $R^1$  to  $R^3$ ; costal margin pale, the rest nearly as on forewing, though somewhat more weakly marked, except at abdominal margin; cell-dot small but distinct; the double whitish line which separates median from distal area fairly well developed, strongly bent inward about  $M^1$ .

Underside scarcely irrorated, thus appearing whiter, with slight fuscous suffusion on forewing except at posterior margin; cell-dots sharp; a single dark postmedian line and a proximal subterminal fairly well developed, especially the former.

E. Transvaal: White River, 1910 (A. J. Cooke). Type in coll. Brit. Mus. I have also seen a rather worn ♀ from Three Sisters, March 11, 1911, in coll. A. J. T. Jane.

#### 14. *Eupithecia infelix* spec. nov.

♂, 22–23 mm. Head and body above dark fuscous, on abdomen mixed with black, the face with a decided tinge of red; underside of body and legs light brownish. Palpus moderate, rough-scaled, pale at base, otherwise mixed with black on outer side. Antennal ciliation minute. Abdominal crests small, each succeeded by a small pale dot.

*Forewing* moderately elongate, costa slightly curved, apex not very sharp, termen strongly oblique, slightly curved; pale brown with a slight reddish tinge and with minute but copious dark grey irroration; costa with irregular black spots, the most prominent being at the proximal and distal boundaries of the median area; some short black dashes on M in median area, on SM nearly throughout and slightly on some of the other veins distally; the transverse dark markings otherwise not well developed, angulated in middle of cell and about  $R^2$ , posteriorly nearly parallel with termen, somewhat wavy; postmedian somewhat oblique inward at costa, angled inward subcostally; cell-spot black, conspicuous, somewhat elongate, slightly oblique outward; band distally to median area slightly paler and more brownish, with the intersecting line feeble; subterminal line white, consisting of small wedge-shaped interneurial markings from costa to  $M^2$  and a large, somewhat elongate subterminal mark between  $M^2$  and  $SM^2$ ; slight dark shading proximally and distally to these white markings; terminal line black, interrupted at the veins, somewhat thickened between; fringe largely clouded with grey, paler distally and with a fine, slightly interrupted and whitish line at its base.—*Hindwing* elongate, but with apex nearly rounded; rather paler than forewing, proximally and anteriorly less tinged with reddish; cell-dot black, not elongate; lines indicated at abdominal margin, two beyond the middle usually traceable across the wing, curved about  $R^3$ ; distal area occupied by a vague band, the subterminal line obsolete, excepting a roundish subtornal spot; terminal line weak; fringe rather pale, dark-chequered.

Underside less reddish-tinged; lines moderately strong at costal margin of forewing, the postmedian generally traceable throughout on forewing and

several lines sometimes on hindwing; both wings with distinct cell-dot (that of forewing sometimes less elongate than above) and indications of pale sub-tornal spot; termen and fringes nearly as above.

Transvaal (A. J. Cholmley), 2 ♂♂, 1 ♀ (including type ♂) in coll. Brit. Mus., Durban, September 1902 (G. F. Leigh), a ♂, somewhat damaged by grease, in the same collection.

An obscurely marked species, though less so than *lugubriaria* Swinh. (*Tr. Ent. Soc. Lond.* 1904, p. 573), with which it has much in common.

#### SUBFAM. GEOMETRINAE.

##### 15. *Mauna electa* spec. nov.

♂, 30–32 mm. Head and palpus red. Antenna nearly simple, slightly thickened. Thorax above red, mixed with purplish; beneath mostly pale, reddish in front. Abdomen whitish ochreous, tinged with red on venter and more strongly (though narrowly) on first few segments above. Legs whitish ochreous, the fore and middle pairs red on inner side, the forecoxa strongly red in front, hindtibia irrorated with red.

Wings shaped nearly as in *ardescens* Prout (*Ann. Transv. Mus.* v. 170, t. 25, f. 29), termen slightly more convex.

*Forewing* with  $SC^2$  connected by bar with  $SC^{2-4}$ ; orange-red, suffused nearly throughout (except along hindmargin) with purple, darkest in proximal area; lines blackish purple, very oblique, rather approximated, the antemedian obsolete anteriorly, feeble throughout, chiefly traceable as boundary of dark proximal shade; postmedian from close to apex to just beyond middle of hindmargin, slightly excurved.—*Hindwing* whitish ochreous, shading into reddish ochreous distally.

Both wings beneath whitish, costal edge of forewing bright ochreous, of hindwing (more broadly) roseate; both wings with distal margin roseate, broadly at apex, narrowing off posteriorly; this distal shading deeper on forewing than on hindwing.

Nyassaland: Mlanje Mountain, March 25, 1913, type; July 5, 1913, paratype (S. A. Neave). Both in coll. Brit. Mus.

##### 16. *Cleora proëmia* spec. nov.

♂, 32 mm. Face and palpus dark reddish brown; palpus about one-and-a-half times diameter of eye. Vertex and antennal shaft light wood-brown; pectinations long, only the few apical very abruptly shortened. Thorax and abdomen light wood-brown, with darker irroration; second abdominal tergite blackish brown, with a very small paler spot in the centre; succeeding tergites each with a small dark anterior spot. Legs partly infuscated; hindtibia not dilated.

*Forewing* with termen smooth, curved, becoming strongly oblique; fovea well developed;  $SC^1$  moderately or rather long stalked; light wood-brown, with fine darkened irroration; costal edge dark-spotted, in particular with three narrow, relatively long marks (the longest 1 mm.) at the origin of the lines; first at 4 or 5 mm. from base, the line itself only indicated by two small longitudinal (but rather oblique) dark dashes, just in front of M and  $SM^2$  respectively, the former as far from base as the costal mark, the latter twice as near

base; median shade sometimes obsolete, sometimes faintly traceable in grey-brown, its costal mark midway between base and apex, its course anteriorly very strongly excurved, passing considerably beyond the faint grey cell-spot, posteriorly sinuous, close to the postmedian; postmedian costal mark about 5 mm. from apex, the course of the line conspicuously indicated by small dark dashes just in front of the veins, sometimes slightly connected by a very fine grey thread, always accompanied by some pale scaling; from R<sup>2</sup> this line runs very obliquely inward, reaching hindmargin about the middle; a band of rather warmer brown scaling just beyond the postmedian, another just proximal to the subterminal; subterminal white, about parallel with termen, forming a series of fairly deep lunules, one or two subcostal and the two radial lunules filled in proximally with blackish; terminal dots black, very sharp; fringe unspotted.—*Hindwing* with termen waved to subrenulate; median shade rather strong, except at costa, well proximal to the cell-dot; cell-dot strong, black; postmedian line little beyond the cell-dot, strong but fine, shallowly lunulate-dentate, becoming weak at costa; distal area nearly as on forewing, but with the proximal spots of the subterminal line less dark.

Underside slightly darker and more reddish or purplish in tone. Forewing with costal margin pale, dark-spotted; cell-mark well developed, rather elongate, placed between two approximated, nearly parallel dark-grey lines, of which the distal is marked with very small dashes on the veins; two faint dark transverse shades in distal area; terminal marks rather more elongate than above, not quite so strong; a fine pale line at base of fringe.—*Hindwing* with corresponding markings, the first line rather more proximally placed, somewhat bent on entering cell.

Madagascar (Lloyd), September 1912, type, in coll. Janse; October 1912, paratypes, in coll. Janse et coll. L. B. Prout.

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*Scolopax rusticola rusticola* L.

*Scolopax rusticola mira* Hart

*SCOLOPAX RUSTICOLA MIRA.*

BY ERNST HARTERT, PH.D.

(Plate II.)

PLATE II. shows the most interesting *Scolopax rusticola mira* from the Island of Amami in the northern Loo Choo, or Riu Kiu, group of Japanese Islands, which I described *Bull. B. O. Club*, xxxvi. p. 64, March 1916.

The striking differences from *S. rusticola rusticola* are fully described in the *Bull. B. O. Club*. They are principally the darker, less rufous, and more olivaceous colour of the upperside, less heavily spotted quills, more brownish and more spotted or freckled sides, and it is a heavier, larger bird, with the bill thicker, wider, and generally longer, the wing about 5-7 mm. longer, tarsus about 1 cm. longer. The tip of the wing is shorter, the distance from the outer secondaries to the end of the primaries being at least 1-2 cm. less. The first abortive primary is much longer and wider. *S. rusticola mira* is therefore evidently a heavier bird with less power of flight.

Of this woodcock the Tring Museum has received from the late Alan Owston eleven specimens, collected in September, November, December, and January on the island of Amami. There can hardly be any doubt that it is the resident representative of *S. r. rusticola*.

I have (*l.c.* p. 65) fully explained my reasons for considering this bird a subspecies of *S. r. rusticola*, and I will here only repeat that it was done chiefly on account of a juvenile specimen shot in September, which is much redder than adult ones, thus closely resembling European woodcocks.

It is very interesting to see that the collectors also obtained a specimen of *Scolopax rusticola rusticola* on Amami, in winter, which is found on Tanega and Yakushima, where it is probably still nesting, as it does on Hondo.

We are much obliged to Major Henry Jones for making the beautiful drawing, and I may add that the colours of the original drawing have been very successfully reproduced on the colour-type plate.

## DESCRIPTION OF A NEW ARCTIID BY DR. H. C. NISSEN.

*Apantesis* else spec. nov.

DIFFERS from *A. dido* Wagn. in the darker brown of the forewings and in the larger pale spots, which are more cream white, *not* bright yellow. The hindwings are less uniform red than in *dido*, and paler, being somewhat mixed with yellow as in many *A. oberthuri*. It differs from *A. oberthuri* in being less blackish brown on the forewing. One specimen taken has the postmedian costal and inner marginal patches joined to form a band as in *A. oberthuri*; the rest have all spots separate as in *A. dido*.

*Habitat.* Tala-Rana, Grand Kabylie, Algeria, May 1917.

[The discovery of this form, which is intermediate between *dido* and *oberthuri*, proves my contention that they are both subspecies of the same species. I am sure that somewhere in the Province of Oran or in Morocco the intermediate form between *oberthuri* and the Portuguese race of *A. fasciata* will also be found, which will then prove what I have stated, viz. that *dido*, *oberthuri*, *esperi*, and *pyrenaica* are all subspecies of *Apantesis fasciata*. Mr. Oberthür, in his *Etudes Comparées*, says that Wagner does **not** state where he got his *dido*. Under the description on pp. 209, 210, it is true, no locality is given; but in the faunal notes on p. 207 Wagner definitely says he got *dido* in the vicinity of "Bône."—ROTHSCHILD.]

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A Journal of Zoology.

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.



VOL. XXIV.

No. 3.

PAGES 439—501.

PLATES IX. AND X.

ISSUED DECEMBER 31ST, AT THE ZOOLOGICAL MUSEUM, TRING.

PRINTED BY HAZELL, WATSON & VINEY, LD., LONDON AND AYLESBURY.

1917.

VOL. XXIV.

NOVITATES ZOOLOGICAE.

EDITED BY

LORD ROTHSCHILD, ERNST HARTERT, and KARL JORDAN.

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PLATES IX. AND X.

(Corrected explanation of Pl. IV. Explanation of Pl. X. For Pl. IX. cf. p. 372.)



# NOVITATES ZOOLOGICAE.

Vol. XXIV.

DECEMBER 1917.

No. III.

## ON THE CRESTED LARKS OF THE NILE VALLEY.

By DR. ERNST HARTERT.

WHEN, in the winter of 1903-1904, I wrote about the Crested Larks in *Vög. pal. Fauna*, pp. 227-40, I had only a very scanty material from the Nile Valley to study. It was therefore hardly possible to arrive at anything like a final and faultless account in such a difficult group. Since then I have been enabled to see fairly good series, though not at all complete ones from all parts of Egypt. I now come to the following conclusions.

The delta, apparently to Cairo, is inhabited by the darkest form :

### *Galerida cristata nigricans* Brehm.

South of Cairo occurs over a wide area a form which is not so very unlike *G. c. nigricans*, but differs from it at a glance in the paler, more whitish underside and the markings on the jugulum and chest being smaller and more sharply defined. This form was described by Nicoll & Bonhote (*Bull. B.O. Club*, xxiii. p. 101. 1909) as *Galerida cristata moeritica*, from specimens collected in the Fayum. Of the latter I have examined and have now before me several specimens, collected by M. J. Nicoll, one from Luxor, A. L. Butler leg., four from an island in the Nile near Khizam (about 14 km. north of Luxor), Upper Egypt, W. L. S. Loat leg., and a pair, collected at Assuan 24.iii.1850, by Oskar Brehm. These latter are the types of—

### *Galerida cristata maculata* Brehm.

(*Naumannia*, 1858, p. 208). Brehm said that his son Oskar shot a pair with one shot near "Assuan in Nubia," on March 24th, 1850. It is true that he adds "und Alfred ein Weibchen bei Masnou in Spanien am 1 Juni 1850." This latter specimen I have traced; the date is wrongly given. Alfred Brehm was not in Spain in 1850, when he collected with his brother Oskar on the Nile, but we went there 1856. The Masnou specimen was shot May 1st, 1856. It has first been named "*maculata*" by C. L. Brehm, but afterwards he crossed "*maculata*" out and altered it to "*striata*," a *nomen nudum* never published with a description. It is true that this bird is darker and more brownish than other Spanish Crested Larks, and closely resembles the Nile birds; but it belongs, of course, to *G. c. pallida*, the Spanish race, and the Assuan birds are undoubtedly the types of "*maculata*." Therefore this form must be called *G. cristata maculata*, and *moeritica* becomes a synonym. When I wrote Part II. of my book on the palaearctic birds, in 1904, I put *maculata* down as a synonym of *altirostris*; this

is undoubtedly wrong, but I had seen at the time no specimens of *maculata* except those two taken by Brehm half a century before.

South of the habitat of *maculata* lives a paler form, often with a thicker bill,

*Galerida cristata altirostris* Brehm.

Of this we have now in the Tring Museum specimens from "Nubia," Brehm coll., Kerma, Hon. N. C. Rothschild leg., Merowe on the Dongola bend of the Nile (not Meroë!), N. C. Rothschild leg. It appears to be, therefore, the true Nubian form, living south of Wadi Halfa along the "Dongola bend." C. L. Brehm, when first naming this form (*Vogelfang*, p. 124. 1855), said, "Oberägypten," and in 1858 (*Naumannia*, p. 209), he said, "Oberegypten, Nubien und bei Mureia in Spanien!" But C. L. Brehm's ideas of Upper Egypt and Nubia were not very fixed, and he had no regard for geographical distribution. As the type of the name *altirostris* must be regarded an adult male shot by A. E. Brehm in "Nubia," 21. ix. 1851. The label only says "Nubien," but the bird had been shot near Akaseh and not very far from Ambukol, according to A. E. Brehm's *Reiseskizzen*.

South of the Dongola bend we come into the region of the much paler

*Galerida cristata isabellina* Bp.

of which we have a series from the Lower Atbara, Shendi, and Khartum.

To repeat, we have thus in the valley of the Nile:

1. *G. cristata nigricans* Brehm.

(Synonym, *G. cristata deltae* Hart. 1897.)

Inhabits the delta of the Nile.

2. *G. cristata maculata* Brehm.

(Synonym, *G. cristata moeritica*, Nicoll & Bonh. 1909.)

Egypt south of Cairo and north of Wadi Halfa; exact limits not yet known, but extending north to Lake Menzaleh. I cannot separate the Fayoum birds.

3. *G. cristata altirostris* Brehm.

Nile Valley south of Wadi-Halfa and north of the Atbara, *i.e.* the "Dongola bend," Nubia.

4. *G. cristata isabellina* Bp.

(Synonyms, *flava* and *lutea* Brehm.)

Eastern Sudan, from the Bajuda steppe and the Atbara to the Blue and White Nile.

I am sorry to say that I cannot agree with the conclusions of Mr. Nicoll (*Ibis*, 1914, pp. 546-551). That he took a specimen which should not be considered as the type of *altirostris* to be the type specimen was perhaps my fault, as I formerly thought it might be the type. The Kom-Ombos bird was evidently once thought by Brehm to be the same as his *altirostris*, and in fact it is hardly distinguishable from it, but Kom-Ombos being in Upper Egypt and not in Nubia, we must for geographical reasons consider it to be a non-typical example of *maculata*. If we treat the forms and names as I do now, the distribution becomes

one which we might expect, simple and clear, moreover on the Kcm-Ombos specimen the name *altirostris* has afterwards been scratched out, probably by Brehm himself, and, perhaps by someone else again, under-punctuated, meaning that it should stand after all. In the Akasehch specimen the name *altirostris* has never been scratched out or altered.

*G. e. maculata* stands between *nigricans* and *altirostris*, some individuals being hardly distinguishable from either of these, but a series shows it to be distinct from both.

Nicoll and Lynes have shown, and specimens collected by Loat and Schrader confirm, that on Lake Menzaleh and near Damietta pale forms occur with dark typical *nigricans*. Evidently the latter is restricted to the black soil of the Nile-delta, while a paler form, which agrees with *maculata* (and not with *altirostris*) inhabits the drier districts east of the delta. It is therefore quite natural that they are found close together and even occasionally side by side, though I fancy that during the nesting season there will be a strict separation.

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## NOTES ON PHEASANTS.

BY ERNST HARTERT, PH.D.

1. "*Phasianus colchicus lorenzi*" = *P. colchicus colchicus*.

IN the *Ibis*, 1904, in his valuable review of the genus *Phasianus*, Mr. Sergius Buturlin described as a new subspecies *Phasianus colchicus lorenzi* from Eastern Transcaucasia, *i.e.* the basins of the Kura and Araxes Rivers. He does not say whether he examined only one male or a great many, he does not fix a "type," nor does he explain if he had freshly moulted autumn, winter, or worn summer birds, which last always, of course, look rather different from the autumn ones, after the moult. Females are not mentioned.

We have in the Tring Museum three males and one female from the months of December, February, and March, all in beautiful, unabraded plumage, from Elisabetopol (Jelisawetpol) and Tiflis, in the Kura Basin. A careful comparison of these specimens with typical *colchicus* reveals their absolute identity. They differ at a glance from their geographically nearest ally, *P. c. talischensis*, and from *P. c. septentrionalis*, but there are no differences from *P. c. colchicus*. Neither are, as Mr. Buturlin would have it, the feathers of the jugulum more narrowly margined with blue, nor is the abdomen brick-brown instead of black; this latter statement suggests to me that Mr. Buturlin may have had very few specimens, if more than one, because it is a variable character—in a male of *P. c. talischensis*, for example, the middle of the abdomen is brick-red, in another blackish, glossed with purplish blue. The sentence "pectore medio non viridescente, sed cupreo-rubro valde differt," I cannot understand at all, for surely the middle of the breast is not "greenish" in *P. c. colchicus*, but just as "copper-red" as in the males from the Kura basin. The dimensions are the same, and a female from the Kura agrees absolutely with others of *P. c. colchicus*.

I can, therefore, only admit three forms in the Caucasus region:

1. *P. colchicus colchicus* L., in Transcaucasia, from the eastern and southeastern shores of the Black Sea, the river basins of the Rion (the ancient Phasis) and the Tchhorok (Tscharuch) to the Kura and Araxes Basins. Nor is this distribution a very peculiar and unlikely one, as we have the following subspecies:

2. *P. colchicus septentrionalis* Lor., extending through the basins of the Kuban and Terek, from the Black Sea to the Caspian, though now extinct in the middle portion of its range, between Stavropol and Georgievsk.

3. *P. colchicus talischensis* Lor., from Lenkoran to North Persia, Ghilan and Eastern Masanderan.

2. *Phasianus colchicus komarowi* = *principalis*.

In the *Ibis*, 1904, pp. 381, 388, Buturlin separates *Phasianus principalis* and *komarowi*. The former was described by Sclater, *Proc. Zool. Soc. London*, 1885, p. 322, from "Bala Murghab," on the Murghab River, the latter by Bogdanow, *Bull. Acad. St. Pétersbourg*, xxx, p. 356, 1886, from specimens collected by Zarudny on the Tejend or Heri-rud River, but not as distinct from *principalis*, but because the author had not yet seen the description of the latter. Zarudny,

who had collected pheasants on both rivers, considered them to be one and the same form in his writings in 1889, 1890, 1896, and 1903. Ogilvie-Grant united both in 1893 and 1912, Alphéraky and Bianchi did the same in 1908. Evidently all these authors are right and Buturlin wrong. The only difference between the males of the two supposed forms is, according to the latter author, that the wide blackish ends to the flank-feathers have a greenish gloss in *komarowi*, a purplish gloss in *principalis*. This would admittedly be the only difference! Very little indeed, but—as Buturlin says—enough to separate the two forms, if constant. This, however, is not the case, as not all males from the Tejend have the gloss on the said feathers greenish, and some from Merw, on the Murgab River, show distinctly a greenish gloss as well. I compared four males from the Tedjen Valley with fifteen from the Murgab Basin. Buturlin says that *Ph. komarowi* is separated from *principalis* to the east “by a narrow belt of waterless plains.” He, of course, means the desert between the Upper Tejend and Murgab Rivers. This waterless belt is probably not wide enough to form an efficient boundary, in the face of the fact stated by Buturlin, that *Ph. principalis* ranges north-east to Repetek, which is farther out in the desert than the width of land between the Tejend and Murgab Rivers, and these rivers are wide sheets of waters when they are flooded in the spring.

### 3. On *Phasianus zarudnyi*, *gordius*, and *tshardjuensis*.

If Buturlin's latest views were correct, at least three species of *Phasianus* would inhabit the middle course of the Amu Darja or Oxus River, apart from *chrysomelas* in the delta, *i. e.* Khiva (Chiva), “as far as Petro-Alexandrovsk.”

In 1896 Zarudny described (in Russian!) as a new species *Phasianus medius*, inhabiting the valley of the Amu Darja from “Khiva to Chardjui.” Unfortunately the name *medius* was invalidated by *P. medius* Milne-Edwards 1870, and therefore Buturlin (*Ibis*, 1894, p. 390) correctly gave it a new name, calling it very justly *Phasianus principalis zarudnyi*, though *Ph. colchicus zarudnyi* would still have been better. This *P. c. zarudnyi* differs from *P. c. principalis* in having only a black spot at the tip of the scapulars or a narrow black line, not one of 2 or 3 mm. wide; on the sides of the neck is as a rule, though not always, a trace of a white collar, which is, however, never complete, being widely interrupted above and below, and sometimes quite absent. The coppery-purple edges to the chest-feathers are, as a rule, a shade darker, the wide black tips to the flank-feathers greenish. From the few specimens I was able to examine, it seems also that the feathers of the throat have green to blue-green, instead of purple edges. This form is said to inhabit the Middle Oxus Valley from Petro-Alexandrovsk to Chardjui, “and perhaps somewhat higher up the river.” This latter supposition seems to be justified, as we have a fine male from Kerki, a hundred miles farther up the river, which has no trace of a white collar, but is evidently a typical *zarudnyi*. According to Russian authors, *Ph. chrysomelas* is also found as far as Petro-Alexandrovsk; as there can, in my opinion, be no doubt that both *chrysomelas* and *zarudnyi* are subspecies of *Ph. colchicus*, these statements are open to doubt. They may be based on the occurrence of stray specimens, or on inexact labels. No pheasant would perhaps be shot literally at Petro-Alexandrovsk, which is a fortress or fort, but near there; if, therefore, both forms meet near that place, where

perhaps the natural conditions of the delta of the Amu Darja make place for those of the middle course of the river, specimens shot ten or twelve miles north and ten or twelve miles south might all be labelled Petro-Alexandrovsk, although not living in the same places.

In 1908 (*Ann. Mus. Zool. Acad. St. Pétersbourg*, xii. "1907." p. 440), Messrs. Alphéraky & Bianchi described *Phasianus gordius* from a single ♂ specimen from Karnas, 50 miles up the river from Kerki. The description fits, as Buturlin (*Ibis*, 1908. p. 573) correctly says, absolutely collarless specimens of *zarudnyi*, but he adds that the type specimen differs from the latter "in the purplish-red colouring of the chest extending to the uppermost part of the back and quite superseding there the golden ground-colour." At the same time (*Ibis*, 1908. p. 371) the author described another "new species" as *Phasianus tschardjuensis*, and of which he says that it differs from *gordius* in having the scapularies edged with a 1 to 2 mm. wide black line, and the purplish-red colouring not quite so much developed on the upper back.

The first of these two characters is undoubtedly variable, and therefore of no value if only one or two specimens are compared, the other is obviously not a strong point. I have, therefore, no doubt that *gordius* and *tschardjuensis* are one and the same bird, and this has also clearly been pointed out by Zarudny in the following year, but I cannot help suspecting that they are nothing else but *zarudnyi*. If there was another subspecies—there can be no question of species, considering the nature of the supposed differences, and that all these forms are only subspecies of *Ph. colchicus*—farther up the river than *zarudnyi*, which is said to live from Petro-Alexandrovsk to Chardjui "and perhaps somewhat higher up the river," how can there be a different race again at Chardjui and the same (or almost the same) at Karnas, while not this, but *zarudnyi* occurs at Kerki! These mysteries of distribution disappear at once if we suppose that *gordius* and *tschardjuensis* are the same as *zarudnyi*, and I believe that future unbiassed research will prove this to be the case.

Still higher up the river we find *bianchii*, a very distinct race, nearest to *chrysomelas* from the delta of the Oxus, but with much more developed green edges to the feathers of the jugulum, chest, and sides, and reduced golden sub-apical bars to the feathers of these parts.

In addition to these N. Zarudny has described (see Baron Loudon's translation of the original article in "Ssemja ochotnikow," a hunting-journal, in *Ornith. Jahrb.* 1910. p. 45) a bird which he calls *Phasianus jabae*. Of this he says that it rarely appears from the east in the country inhabited by *gordius*, but only as an occasional visitor, like *zarudnyi*, which exceptionally appears there from the west. This "*jabae*" is described as forming a transition from *bianchii* to "*gordius*," but the author repudiates the idea that it might be a hybrid between the two, because *bianchii* was not found where it occurred. Though I am the last person to jump to the conclusion that a bird which does not agree with the hitherto known forms is a hybrid, having in fact often ridiculed such rash statements, I cannot quite see the force of the above proof, because Zarudny evidently only knows some stray birds (possibly not more than a single specimen!), of which he expressly says that they (or it!) came from the "east," and eastwards of where his "*jabae*" was found is the home of *bianchii*. Now, the Tring Museum possesses a male which agrees with the description of "*jabae*," and which might be described as intermediate between *zarudnyi* and *bianchii*.

It was brought alive to the Zoological Gardens in London, where it died, from "Afghan Turkestan," whatever that may mean. The question must remain open, so far, whether this bird is a separate subspecies, or a hybrid between *bianchii* and *zarudnyi* (or "*gorlius*").

#### 4. *Phasianus colchicus trauchi*.

Since 1876, when *P. trauchi* was first described, from Tatung and Buhuk-gol in Kansu, three more forms have been named from Kansu; all these are, in my opinion, synonyms, *i.e.* :

*Phasianus holdereri* Schalow, *Journ. f. Orn.* 1901. p. 414. pl. 4, from Mint-chou, S.W. Kansu;

*Phasianus berezowskyi* Rothschild, *Bull. B.O. Club*, xii. p. 20. 1901, from Hui-Tsian or Hoi-Sian in S.E. Kansu; and

*Phasianus trauchi chonensis* Ogilvie-Grant, *Bull. B.O. Club*, xxxi. p. 16. 1912, from the Tau River in Chone, S.E. Kansu.

At the same time, considering the few specimens which Schalow, Rothschild, and Ogilvie-Grant had at their disposal for comparison, it is quite comprehensible and excusable that they should have thought to have new forms before them, though the two first authors might have been cautioned by the fact that they had only one single specimen of their supposed new species, and all three came from the area inhabited by *trauchi*, or not far away. The description of *holdereri* has only about a month priority over that of *berezowskyi*. *P. holdereri* was chiefly separated from *trauchi* on account of its wide white collar and lighter upperside, sides of breast, and tail, and it was supposed to stand between *P. torquatus* and *trauchi*.

*P. berezowskyi* was separated from *trauchi* because of its much lighter flanks and "bright shining golden-brown chest and breast," and some minor supposed differences.

Of "*P. trauchi chonensis*," Mr. Ogilvie-Grant, the author, had five or six to compare, and they certainly differ from the other specimens of *trauchi* in the British Museum, which were collected by Russian explorers farther north in Kansu, by the bronze-gold tinge on the mantle, the dark greenish bronze-red margins of the scapulars, and in Mr. Ogilvie-Grant's opinion also in the wider bars across the tail-feathers.

None of the characters on which the authors relied is constant, and *trauchi* is altogether a rather variable bird. I should not have been so confident and so sure about this, if we had not received from the late Alan Owston's Japanese collectors a series of not less than 28 adult males—from Ta-pai-shan in the centre of the Tsin-ling Range. This magnificent series, which I have been able to compare with twelve others in the Tring and British Museums, shows quite clearly how *trauchi* varies.

The crown of the head is sometimes quite brownish bronzy, but mostly of a dark green.

The white collar on the hind-neck is sometimes more than a centimetre wide and only interrupted in front, more often narrower and only indicated, and also often quite absent, without a trace of it.

The whole upperside varies in colour, more or less, the rump chiefly according to season, as the green and creamy bars of the feathers become much more conspicuous after the breeding season, when the edges are worn off. The

long middle rectrices are sometimes much lighter, sometimes darker, more tinged with rufous brown, and the width of the black bars is not constant. The underside is equally variable. The sides of the breast are sometimes much lighter, more "buffy golden-brown," especially in the type of *berezowskyi* and in worn summer birds. The colour of the chest and breast is also variable; sometimes these parts are so strongly washed with green and the feathers have such wide dark green edges, that they remind one strongly of *P. colch. vlangualii*—which is of course very different on the upperside. More often there is hardly any or very little green on the chest and breast, except along the middle of the latter.

Among the Tsin-ling males are specimens which agree absolutely with others collected in Kansu by Russian explorers and received from the Museum in St. Petersburg and from the late Th. Lorenz in Moscow, others which agree with the type of *berezowskyi* and with *chonensis*, as well as with *holdereri*, as far as I remember, having seen the latter some years ago, and judging from the description of Schalow. With regard to that, it is remarkable that the author named a bird shot on the same day, and therefore not far away—as one does not travel fast in those mountains—*P. strauchii*.

#### 5. On "Ring-necked" Pheasants.

Not so very long ago all the Ring-necked Pheasants of Eastern Asia were thought to be one and the same, except the Formosan Pheasant, *Phasianus colchicus formosanus*. When Ogilvie-Grant, in 1893, published the Catalogue of the Game-birds in the British Museum, he united them all, not having enough material to separate them. It was Rothschild who, in 1901 and 1903, first broke this spell.

In the former year (*Bull. B.O. Club*, xii. p. 21) he used for the Ussuriland Pheasant the name "*Phasianus torquatus mongolicus*," in 1903 (*op. cit.* xiii. p. 43) he corrected his mistake and called it *P. t. pallasii*, describing specimens collected by the brothers Dörries on the Lower Sidemi, Ussuriland. Soon afterwards followed Buturlin with quite a volley of names. He had compared and studied a good many specimens and for the first time discovered several very distinct forms, but he shot over the mark and created also some unnecessary synonyms.

There are among the "Ring-necks" two groups: one with wide cream-coloured superciliary stripes, one without. To the latter belongs *P. colchicus decollatus*, and often *formosanus*, in which it is narrow and not rarely wanting. *P. c. decollatus* can always be recognised by the want of any superciliary stripe, while an indication of a white neck-ring is not rare, and sometimes the latter is quite distinct, being interrupted behind and in front, or even, exceptionally, in front only! *P. c. decollatus* lives east of the habitat of *torquatus*, in the Chinese provinces of Kwei-chow, West Hunan, Eastern Yunnan and Setchuan to Ta-t sien-lu, apparently (?) south into Northern Tonkin.

Another form has a whitish superciliary stripe, but narrower than in *torquatus* and its allies. This form is a nomenclatorial monster without comparison. Buturlin (*Ibis*, 1904, pp. 383, 407, 408) first named it:

*Phasianus holdereri kiangsuensis*,

because he imagined that it occurred in Kiangsu, but, as his original descrip-

tion shows, and as he expressly says in *Ibis*, 1908. p. 583, he saw only one male which Radde had bought frozen in Kiahta, and of which he supposes that it was brought there from Kalgan, north-west of Peking, because it is known that Chinese traders are in the habit of bringing frozen pheasants from those districts to Kiahta. The author had received notes, in litteris, on pheasants from Kiangsu (Western China), and so it came about that a bird was named after Kiangsu, where it never occurs, and that the type of *kiangsuensis* is a bird of uncertain origin, bought in Kiahta! In the following year the same author, according to his own statement (*Ibis*, 1908. p. 581), named the same form *Phasianus schensinensis*, in the February number of a Russian periodical on shooting and hunting, called *Psovaia i Ruzheinaia Okhota*, p. 50, and this time from information in litteris about specimens from Kuku-Khota and Uliassutai, *i.e.* places which are **not** in Shensi, where this pheasant is not found! In 1908 another name was given to this bird by Alphéraky & Bianchi, who (*Ann. Mus. Zool. Acad. St. Pétersbourg*, xii. "1907." p. 456) described a specimen from Kuku-choto (Kuku-Khota) in South-eastern Mongolia as *Phasianus gmelini peuzovi*. It was certainly difficult to know what Buturlin meant by his *kiangsuensis* and *schensinensis*, but a careful perusal of all this literature and Buturlin's clear remarks in *Ibis*, 1908. p. 581, prove that *peuzovi* is the same bird, notwithstanding Alphéraky & Bianchi's protest, as *kiangsuensis*, and therefore the latter name must be used for it. This pheasant is so far only known to the Russian authors, but Lord Rothschild has received from Professor M. Menzbier a pheasant named *Phasianus peuzovi*, and said to have been obtained near Kalgan in Eastern Mongolia in August 1910. It has been mounted and came evidently through Th. Lorenz, whose excellent preparation it shows. I believe that this really is *peuzovi*, *rectius kiangsuensis*. This bird shows the peculiarities pointed out by Buturlin, but the whitish superciliary line is very narrow, being merely indicated, and the rufous edges to the scapulars are very much darker than in *P. c. torquatus*, *karpowi*, *pallasi*, and *hagenbecki*, being deep rufous with a purplish gloss, a striking character not mentioned by the Russian authors. Altogether our bird is so similar to *P. c. strauchi* that it may be said to differ from the latter only by the complete white ring round the neck, and the flank-feathers, which are light in the middle and dark on the edges.

This form must live in the districts of Kalgan and Kuku-choto in South-eastern Mongolia, according to Buturlin also near Uliassutai in North-western Mongolia, *i.e.* far away; it is said to have been shot there in June, when frozen birds cannot be transported!

*Phasianus colchicus torquatus* Gm. ex Latham. Restricted terra typica: S.E. China. Buturlin named this form *Phasianus holdereri gmelini*, because he is of opinion that the name *torquatus* cannot be restricted to any form, but this view cannot be upheld. Names of the Linnean period cannot be lightly given up. They must be upheld if it can possibly be done.

This form inhabits South-eastern China from Canton to Hunan, and, undoubtedly to the lower and middle course of the Yang-tse-kiang, perhaps north to Shantung!

*Phasianus colchicus karpowi* But. Described *Orn. Monatsber*, 1904. p. 3, from Te-lin in Southern Manchuria.

Very similar to *P. c. torquatus*, but the long flank-feathers darker, more brownish or rather more golden-brown.

Clark (*U.S. Nat. Mus.* xxxii, p. 468, 1907) separated the pheasant from Tsu-shima Island as *P. karpowi buturlini*. I have examined five adult males from Tsu-shima and find them not to differ from *karpowi*, the supposed differences pointed out by Clark being variable or non-existing. One adult male in the Tring Museum has the white ring interrupted in front for about 3.5 cm., the others have the ring complete.

*P. c. karpowi* inhabits Corea and Tsu-shima with Southern Manchuria, according to Buturlin north to Kirin, south to Lao-yang; possibly the distribution extends much farther south than Buturlin believes, and sometimes *karpowi* and *torquatus* are not easy to separate.

North of *karpowi* lives:

*Phasianus colchicus pallasii* Rothsch.

Synonyms: *Phasianus alpherakyi* Buturlin (*Ibis*, 1904, p. 399) and *Phasianus alpherakyi ussuriensis* id. (*Ibis*, 1904, p. 403). The author rejected Rothschild's name *pallasii*, because the latter, at the time, thought that the Corean pheasant (*karpowi*) was the same, but *pallasii* refers distinctly to the bird mentioned by Pallas as the "Mongolian variety," and the types were specimens from the Lower Sidemi River. Buturlin says that his *alpherakyi* inhabits Central Manchuria near the Sungari River, while his *alpherakyi ussuriensis* occurred round the Ussuri River near the shores of the Japan Sea; but the two supposed forms cannot be separated, as they are absolutely identical.

*Ph. colchicus pallasii* differs from *Ph. c. torquatus* and *karpowi* in its complete and wider white ring and generally lighter coloration, and it inhabits Ussuriland and the northern and middle parts of Manchuria. I have examined a fine series, among them ten beautiful adult males from the Sidemi River, collected by the brothers Dörries.

A very close ally of *pallasii* is *hagenbecki* (Rothschild, *Bull. B.O. Club*, xii, p. 20, 1901). It was originally described and separated by other authors under erroneous impressions, because the types are in strongly worn summer plumage, and the supposed differences from *pallasii* are due to their appearance as compared with fine males in fresh plumage from Ussuriland and Manchuria. Nevertheless there is a difference, for the black edges to the feathers of the jugulum and breast are continuous and distinctly wider, and the white spot under the ear-coverts, which is always present in *pallasii*, is generally absent.

The distribution of *hagenbecki* is not known, for the only specimens of which we have any knowledge are from Kobdo, Kara-ussu, and Achit-Nor, north of the Ektag (White-summit) Altai. It is very desirable to compare a series in fresh plumage and from other places.

"*Phasianus alaschanicus*" is only known to me from the descriptions of Alphéraki & Bianchi and Buturlin.

## 6. About the Species and Subspecies of Phasianus.

In the reviews of the true pheasants by Buturlin (*Ibis*, 1904 and 1908) and by Alphéraki & Bianchi (*Ann. Mus. St. Pétersbourg*, xii, 1908), the various forms are grouped into a number of species, many of which have several subspecies. I cannot agree to either of these groupings, which seem to me some-

what arbitrary,\* though I know that the authors and many other ornithologists will not agree with my view. I agree with Rothschild, Laubmann, and others, who consider all true pheasants subspecies of one and the same species. In my opinion, there can be no doubt whatever that all forms in the following list from *colchicus* to *turcestanicus* and *bergii* are subspecifically allied; another allied group are the grey-rumped forms from *elegans* to *satschuënsis*—but both groups are in some way connected by the rare *tari-mensis*. The transition from the brown-winged *colchicus* group to the white-winged *persicus* is beautifully developed.

One can have different opinions about *versicolor*, but I have preferred to treat it as a "species."

#### 7. List of Forms of "True Pheasants."

After a prolonged study of the genus *Phasianus*, I have arrived at the following list, but, as I was unable to compare the material in other European and Russian collections, several forms are only known to me from descriptions, and it is thus chiefly based on the material in the Tring and British Museums, the only ones in England which contain good series of Pheasants, and both very rich in specimens.

My list does not differ very widely from one published by Ogilvie-Grant in 1912 in *British Game Birds and Wildfowl* (Vol. I. of *The Gun at Home and Abroad*), and unknown to most ornithologists.

##### 1. *Phasianus colchicus colchicus* L. 1758.

Synonym: *Ph. colch. lorenzi* But. 1904.

South-eastern and eastern shores of Black Sea and thence eastwards along the Rivers Rion and Tehorok to the Kura and Araxes and their tributaries. Introduced in most countries of Europe, N. America, New Zealand.

##### 2. *Phasianus colchicus septentrionalis* Lor. 1888.

Northern slopes of Caucasus, especially valleys of Kuban, Terek, Kuma, south to Apheron, north as far as mouths of Wolga.

##### 3. *Phasianus colchicus talischensis* Lor. 1888.

Lowlands of Talisch (Lenkoran) to Ghilan and Masanderan in North Persia.

##### 4. *Phasianus colchicus persicus* Sew. 1875.

North-eastern Persia and south-western parts of Transeaspia.

##### 5. *Phasianus colchicus principalis* Sel. 1885.

Synonyms: *Ph. komarowii* Bogd. 1886.

*Ph. principalis bogdanowi* But. 1894.

Lowlands of Lower Murgab and Tedjen, streams coming from the Darah-Gaz and Kalat-i-Nadiri, north formerly to Geok-tepe and Ahal-tekke, east to Repetek, according to Buturlin.

\* For example, Alphéraki & Bianchi keep *talyschensis* specifically distinct from *P. c. colchicus*!

6. *Phasianus colchicus zarudnyi* But. 1894.

Valley of middle course of Amu-Daria (Oxus), but exact limits of distribution not yet certain.

? 7. *Phasianus colchicus gordius* Alph. & Bianchi 1908.

Synonym: *Ph. tschardjucnsis* But. 1908.

Vide antea. (Not seen.)

8. *Phasianus colchicus zerafschanicus* Tarnovski 1893.

Valley of Zerafshan in Buchara and Samarkand.

9. *Phasianus colchicus chrysomelas* Sew. 1875.

Delta of Amu-Daria (Oxus), at least to Petro-Alexandrowsk.

10. *Phasianus colchicus bianchii* But. 1904.

Mountains of Buchara, along Rivers Kafirnagan, Waksh, and Surkhan, and near Termes (Tarmys) on the Upper Amu-Daria.

? 11. *Phasianus colchicus jabae* Zar. 1909.

On the Amu-Daria, above Tchardjui. Possibly a specimen in the Tring Museum brought alive from "Afghan Turkestan" might belong to this form, which is possibly a hybrid between *zarudnyi* and *bianchii*: the type was obtained in a district where "*gordius*" is said to live, and where *zarudnyi* is said to appear sometimes from the west and "*jabae*" from the east!

12. *Phasianus colchicus michailovski* Zar. 1909.

Said to live "in the districts round the Pamir and possibly in the Pamir itself." According to description quite distinct. (Not seen.)

13. *Phasianus colchicus shawi* Ell. 1870.

Synonyms: *Ph. insignis* Ell. 1870.

*Ph. shawi chrysomeloides* Lorenz. 1909.

East Turkestan from Yarkand and Kashgar to the Lower Aksu and Chotan-Daria.

14. *Phasianus colchicus mongolicus* Brandt 1844.

Synonym: *Ph. brandii* Rothsch. 1901.

Province of Semiretchensk and greater part of Semipalatinsk in Russian Turkestan, and Kuldja, also the depressions of the Issik-Kul, Balkash, Ala-Kul, and Saissan-Nor with their affluents. ("*Ph. c. mongolicus*" is a misnomer, for it does not occur in real Mongolia.)

? 15. *Phasianus colchicus semitorquatus* Sew. 1875.

Southern part of Dsungaria, west to the depression of the Ebi-Nor and east, according to Buturlin, to Gutchen. I have examined skins from Manas. (From the material examined, this form appears to be quite recognisable, but,

according to Messrs. Alphéraky & Bianchi, who had the type before them, not separable. The authors quite correctly say that Sewertzoff compared his "*semitorquatus*" with specimens of *turcestanicus*, and not of the real *mongolicus*, but it does not follow from his mistake that the form is not separable.)

16. *Phasianus colchicus turcestanicus* Lor. 1896.

From the shores of Lake Aral through the valley of the Syr-Daria (Yaxartes) east to Gultsha (teste Buturlin), 5,000 feet high in the Alia-Tag, 140 km. south of Osh.

17. *Phasianus colchicus bergii* Zar. 1914.

"Noun Kair and Uialy Islands in Lake Aral." (Not seen.)

18. *Phasianus colchicus turimensis* Pleske 1883.

Tarim and Chertchen Valleys in East Turkestan, depressions of Lakes Bagrash-Kul and Lob-Nor.

19. *Phasianus colchicus elegans* Ell.

Mountains of South-western Setchuan, North-western Yunnan, and Northern Shan States, on the Salween River, at elevations of about 6,000 feet.

20. *Phasianus colchicus strauchii* Przew. 1876.

Synonyms: *Ph. holdereri* Schalow 1901.

*Ph. berczowskyi* Rothsch. 1901.

*Ph. strauchii chonensis* Ogilvie-Grant 1912.

Southern Kansu, north at least to the Tatung River, East Middle Shensi, where common in the Ta-pai-shan in the Tsin-ling Chain.

21. *Phasianus colchicus sühschanensis* Bianchi 1906.

Near Sung-pan and Tung-pei in Süh-shan, North-western Setchuan. Four specimens known: 2 in St. Petersburg, 1 Tring, 1 British Museum.

22. *Phasianus colchicus sohokhotensis* But. 1908.

Oasis of Soho-khoto near Chen-fan, 100 km. north-east of the Nan-shan or Richthofen Chain. The differences stated to exist by Buturlin appear to be slight, and specimens from the Tatung Mountains are said to be intermediate, but the apparently isolated locality seems to be in favour of a separate form. (Not seen.)

23. *Phasianus colchicus formosanus* Ell. 1877.

Formosa.

24. *Phasianus colchicus kiangsucnsis* But.

Synonyms: *Ph. schensinensis* But. 1905.

*Ph. gmelini pewzowi* Alph. & Bianchi 1908.

Kalgan and Kukai-khoto, one Uliassutai in North-western Mongolia. See antea!

25. *Phasianus colchicus decollatus* Swinh. 1870.

Chinese provinces of Koei-tehou, Western Hunan, Eastern Yunnan, and Setchuan to Ta-t sien-lu, perhaps also in Northern Tonkin.

26. *Phasianus colchicus torquatus* Gm. 1789.

Synonyms: *Ph. albo-torquatus* Bonnat. 1791.

*Ph. holdercri gmelini* But. 1904.

South-eastern China from Canton to Hunan, in any case to the Lower and Middle Yang-tse-kiang, possibly north to Shan-tung. (Introduced in Europe, St. Helena, etc.)

27. *Phasianus colchicus karpowi* But. 1904.

Synonym: *Ph. karpowi buturlini* Clark 1907.

Southern Manchuria to Corea and Island of Tsu-shima.

28. *Phasianus colchicus pallasi* Rothsch. 1903.

Synonyms: *Ph. alpherakyi* But. 1904.

*Ph. alpherakyi ussuriensis* But. 1904.

Ussuriland to the Amur and coasts of Japan Sea, Northern and Middle Manchuria. (See anteà.)

29. *Phasianus colchicus hagenbecki* Rothsch. 1901.

Kobdo, Kara-ussu, and Achit-Nor, north of the Ektag Altai.

30. *Phasianus colchicus alaschanicus* Alph. & Bianchi 1908.

Said to inhabit an oasis near the western slope of the Middle Ala-shan Chain. Described from one pair collected by Przewalski. According to the descriptions, very close to *hagenbecki*. Requires confirmation. (Not seen.)

31. *Phasianus colchicus vlangalii* Przew. 1876.

Eastern Tsaidam, between the South Kuku-Nor Mountains and the Tolai-Ula and Burkhan-Budda Chains.

32. *Phasianus colchicus satscheuensis* Pleske 1892.

Westernmost Kansu north of the Nan-shan, especially in the valleys of the Bulunzin and Dan-khe, on the Khala-tehi-Nor, in the oasis of Satchu (Satcheu), near Ang-si (An-su), Shao-wan, and Shanto-po.

33. *Phasianus versicolor* Vieill. 1825.

Synonym: *Ph. diardi* Temm. 1830.

Island of Hondo, Japan.

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NOTES ON *METANASTRIA DIGRAMMA* (M.-W.), WITH  
DESCRIPTIONS OF TWO NEW SUBSPECIES.

BY LORD ROTHSCHILD, F.R.S., PH.D.

ON p. 369, No. 99, of this current volume I stated that I considered *digramma* a distinct species from *rubi* Linn. on account of the ♂ and ♀ being alike, whereas in *rubi* they are dimorphic, and also because the transverse lines on the forewings were so much farther apart.

I have now had an opportunity of comparing my Portuguese specimens with the specimens collected at Tangier by Mr. Meade-Waldo, and several interesting points have resulted. The Portuguese specimens are at once distinguishable from the Tangiers ones by the white, **not** chestnut, cilia of the hindwings, and in the much broader and more distinct transverse lines on the forewings. The females also differ in having the antennæ shafts purer white and somewhat longer, and in the transverse lines of the forewings not being sinuate. The next point is very curious. The series taken by my brother N. Charles Rothschild at Cintra in Central Portugal is very different from the series taken by Dr. K. Jordan at Monchique in South Portugal. From this it results that we have three distinct races of *Metanastria digramma*, two of which I describe below.

*Metanastria digramma curvifascia* subsp. nov.

♀. Differs from *d. digramma* in being darker and richer chocolate rufous, and in the forewing being darker than the hindwing. The transverse bands of the forewings are much broader and more distinct. The postmedian band is not sinuate but evenly curved, so that the distal side is strongly convex.

♂. Has thorax and basal quarter of wing strongly suffused with yellowish cinnamon, and the hindwing darker than in the ♀. Cilia of hindwings in both sexes cream-white.

*Habitat.* Cintra, Portugal, 1 ♂, 5 ♀♀, 1 larva, April 1909 (N. C. Rothschild).

*Metanastria digramma parallelifascia* subsp. nov.

♀. Differs from *d. digramma* and *d. curvifascia* in the ground colour being still darker and richer, and in the two transverse bands of the forewing being straight and almost parallel. The postmedian line is not so broad as in *d. curvifascia*, but much more so than in *d. digramma*.

♂. Differs from ♂ of *d. curvifascia* in having no cinnamon suffusion on the thorax and forewings, and is similar to ♀ in coloration.

Cilia of hindwings in both sexes cream-white.

*Habitat.* Monchique, Algarve, Portugal, May 1910, 6 ♂♂, 3 ♀♀ (K. Jordan).

## A FEW NOTES ON THE BIRDS OF YEMEN.

BY ERNST HARTERT, PH.D.

IN the *Ibis*, 1917, pp. 129-186, appeared a valuable contribution to the ornithology of Arabia by W. L. Slater, called "The Birds of Yemen," and based on collections made by G. Wyman Bury in 1912 and 1913. As Mr. Slater mentioned, part of the 400 skins collected by Bury "were destined for the Tring Museum." As it is just as interesting to know what is contained in the latter collection, it would have been better if those skins in Tring had also been mentioned, especially as they are not always from the same localities and at least in one case not of the same subspecies. The following forms in the list of Mr. Slater are also represented in the Tring Museum :

- Cinnyricinclus leucogaster leucogaster.*  
*Onychognathus* ("Hagiopsar") *tristrami hadramauticus.*  
*Ploceus galbula.*  
*Estrilda rufibarba.*  
*Petronia dentata.*  
 " *Passer domesticus buryi.*"  
*Polioptila menachensis.*  
*Serinus uropygialis.*  
*Pseudaeanthis yemenensis.*  
*Emberiza hortulana.*  
*Emberiza cinerea semenowi.*  
 " *Fringillaria arabica,*" rectius *Emberiza tahapisi arabica.*  
*Mirafra cantillans.*  
*Galerida cristata tardinata.*  
*Motacilla alba alba.*  
*Motacilla flava flava.*  
*Motacilla boarula melanope,* rectius *M. cinerea melanope.*  
*Anthus trivialis trivialis.*  
*Anthus rufulus cinnamomeus.*  
 " *Anthus leucophrys captus,*" rectius *A. sordidus arabicus Hart.*  
*Cinnyris osca osca.*  
*Cinnyris babessinica hellmayri.*  
*Zosterops abyssinica arabs.*  
*Lanius minor.*  
*Lanius excubitor buryi.*  
*Phoneus niloticus,* rectius *Lanius senator niloticus.*  
*Fisicus nubicus,* rectius *Lanius nubicus.*  
*Encooetonus collurio,* rectius *Lanius collurio.*  
*Tshagra percivali.*  
 " *Cisticola cisticola aridula,*" recte *C. cisticola arabica Hart.*  
*Hippolais pallida.*  
 " *Sylvia blanfordi,*" rectius *Parisoma blanfordi distincta Hart.*  
*Sylvia atricapilla atricapilla.*

*Phylloscopus collybita abietinus.*  
*Scotocerca inquieta buryi.*  
*Prinia gracilis yemenensis.*  
*Turdus menachensis* (4 ♂ ad.).  
*Monticola solitarius solitarius.*  
*Monticola rufocinerea, rectius M. rufocinerea sclateri* Hart.  
*Accentor fagani.*  
*Cercotrichas melanoptera.*  
*Saxicola rubicola maura, rectius S. torquata maura.*  
*Cercomela melanura, rectius C. m. erlangeri.*  
*Oenanthe oenanthe oenanthe.*  
*Oenanthe yemenensis.*  
*Oenanthe leucomela, rectius Oe. pleschanka pleschanka.*  
*Crateropus (Argya) squamiceps yemensis.*  
*Pycnonotus xanthopygos (P. x. reichenowi).*  
*Muscicapa grisola, rectius M. striata striata.*  
*Tchitrea viridis, rectius T. viridis ferreti* an subsp. nov.  
*Cryptolopha umbrovirens yemenensis.*  
*Riparia rupestris.*  
*Hirundo rustica rustica.*  
*Hirundo rufula, rectius H. daurica rufula.*  
*Centropus superciliosus.*  
*Merops apiaster.*  
*Aerops albicollis, rectius Ae. albicollis major.*  
*Lophoceros nasutus forskalij.*  
*Haleyon leucocephala semicaerulea.*  
*Coracias abyssinicus abyssinicus.*  
*Melierax metabates, rectius M. canorus metabates.*  
*Astur sphenurus, rectius Accipiter sphenurus.*  
*Gypaëtus barbatus grandis* (1 ad., 1 juv.).  
*Milvus aegyptius, rectius M. migrans aegyptius.*  
*Totanus (rectius Tringa) ochropus.*  
*Totanus (rectius Tringa) hypoleucus.*  
*Vinago waalia.*  
 "Columba livia intermedia," rectius *C. l. palæstinae.*  
*Streptopelia senegalensis senegalensis.*  
*Numida philorhyncha ptilorhyncha.*

We have thus in Tring 70 species out of the 109 (or rather 110) (not 100, as Sclater says, p. 130) represented in the British Museum, and in addition :

*Acrocephalus streperus streperus.*  
*Phoenicurus ochruros phoenicuroides* (also in the Brit. Mus.).  
*Saxicola torquata rubicola.*

*Saxicola torquata indica* must also be added, the specimens being in the British Museum.

With regard to the very interesting *Note on the History of Arabian Ornithology*, which contains a history of the ornithological exploration of Yemen, it may be added that the Erlanger-Neumann expedition in 1899 went to Lahej.

where they collected very successfully for ten days. The species collected there are mentioned in Erlanger's writings and in Hilgert's *Katalog der Collection von Erlanger* (1908).

When incorporating our portion of the Bury collection I had an opportunity to compare all the species, and I found that in a few cases constant differences of the Arabian birds had hitherto been overlooked, so that I was obliged to describe some new subspecies. In a few other cases I found Selater's identifications incorrect, though in most instances they were perfectly correct.

In Selater's article trinomial nomenclature has been used most judiciously, and the names are correct as to priority. Only in a few instances binomials were used where trinomials would have been equally necessary as in others, as in the case of the Shrikes. In others, chiefly also in the Shrikes, too much genus-splitting is indulged in, in the latter almost amounting to "furor genericus" as our friend's unforgettable father humorously called it.

It is only about 18 or 19 species or subspecies that I have any remarks to make. All ornithologists are obliged to Mr. Selater for giving us this list of one of the most interesting collections from Arabia, a country which even now is only partially explored.

#### ***Onychognathus tristrami hadramauticus* (Lorenz and Hellm.).**

*Pilorhinus hadramauticus* Lorenz and Hellmayr, *Orn. Monatsber.* 1901. p. 30 (Yeshbum in S. Arabia).

The slightly disintegrated outer webs of some of the remiges, which are said to distinguish *Onychognathus* from *Amydrus* are no generic character, as they vary greatly, nor can the length of the bill and the more or less graduated tail serve to distinguish *Amydrus* and *Hagiopsar*. I must therefore unite *Onychognathus*, *Amydrus*, *Hagiopsar*, *Pyrrhocheira*, and *Cinnamopterus*, and the oldest name *Onychognathus* (not "*Oncognathus*" as Sharpe spelt it) must be used for this assemblage. Lorenz and Hellmayr went even farther, as they united the Arabian Red-winged Sparrow with *Pilorhinus*, but the nostrils being covered with bristly feathers, the short curved beak and rather square tail together may serve as an excuse for the separation of the latter genus.

The South-Arabian form is with difficulty separable from *O. tristrami tristrami* of South Palestine and Sinai. The rufous of the primaries is **mostly** darker, but in a few exceptional cases one cannot notice any difference, and the primary-coverts, as Mr. Selater said, are as a rule, though not constantly, dusky and rufous in the Palestine form, entirely black in the Arabian form; but the latter too is not quite constant, as in a male collected at El-Kubar in South Arabia by Bury the inner webs are mostly rufous. On one of the labels Bury remarks: "Local name Meyûm, presumably corruption of Meyûn, which is derived from the same root as Mynah."

#### **"*Passer domesticus buryi*" Lorenz and Hellm.**

Mr. Selater keeps the South-Arabian birds separate from *P. domesticus indicus*, but all the differences which he states are like those put forward by Lorenz and Hellmayr, peculiar to fresh unabraded winter birds, as compared with worn spring and summer birds. I have once more compared our South-Arabian sparrows, all collected by Bury in the Aden Protectorate and at Menakha and

Hajeilah, also two taken by Dodson at Lahej near Aden, and I am sorry to say that I cannot recognise their differences from *P. d. indicus*.

(I may here add that the boundary between *P. d. domesticus*, which, according to Zarudny, is still found in Ghilan and Masanderan in northern Persia, and *P. d. indicus* which inhabits at least the eastern parts of Transcaasia, must be somewhere in the latter province, as some specimens from there have the long wing of *P. d. domesticus*, while others appear to be intermediate.)

***Emberiza tahapisi arabica* (Lorenz and Hellm.).**

*Fringillaria arabica* Lorenz and Hellmayr, *Orn. Monatsb.* 1902, p. 55 (Yeshbum, S. Arabia); Selater, *Ibis*, 1917, p. 148.

I cannot see the necessity or advisability to separate the so-called *Fringillaria* from *Emberiza*. As to *E. arabica* it is undoubtedly a subspecies of *E. tahapisi*, and is much nearer to *E. t. tahapisi* than to the Socotran form, which is considerably paler.

***Anthus sordidus arabicus* subsp. nov.**

*Anthus leucophrys captus* (nec Hartert!) Selater, *Ibis*, 1917, p. 157.

The Pipit of South Arabia is very unlike *captus*, but after due consideration can be regarded as a subspecies of the same species. It has the same elongated bill and general structure, but differs at a glance by having the upper side considerably darker, the wide edges to the wing-coverts browner and darker, sides of the head darker, underside more brownish and much more heavily spotted on the chest. Eliminating a number of apparently wrongly sexed specimens I measure: 10 ♂ wings 195-101.5, 10 ♀ 89-94 mm. Type: "♀" ad. (apparently ♂) Menakha 29. i. 1913, No. 331 G. W. Bury Collection. (Tring Museum). (31 skins examined and compared.)

This form differs from *A. s. hararensis* in being much larger and more heavily spotted on the chest, while *A. s. longirostris* has the edges to the feathers of the upperside and the rump more cinnamon-brownish.

Hab.: Yemen (Menakha, Wasil, Hajeilah, Souk-al-Khamis) and Amiri district, South Arabia. No doubt breeding in these countries.

While describing this new form my attention has been called to the bird from Sokotra, which is another distinct subspecies. It has very little to do with *A. sordidus sordidus* from Abyssinia, which is very dark brown on the upperside, with rusty brown edges to the wing-coverts, and a much more rusty cinnamon undersurface. In coloration of the upperside the Sokotra form is intermediate between *arabicus* and *captus*, being dark brown with pale edges to the feathers, but underneath it is even lighter than *captus*. Unfortunately, the specimens collected by the Grant-Forbes expedition are all in very worn plumage. Wing shorter than in *arabicus*, i.e. ♂ ad. 89-90, ♀ 84-85 mm.

I call this form, which breeds in Sokotra:

***Anthus sordidus sokotrae* subsp. nov.**

Type: ♀ Alilo Pass, 3,500 ft., Sokotra 2. ii. 1899, Ogilvie-Grant and H. O. Forbes coll. (Tring Museum).

Neumann (*l.c.* p. 234) has already called attention to these new forms.

In 1905, when describing the large pale Pipit, which inhabits Persia, Bahu-

chistan, and Afghanistan, I called it *Anthus leucophrys captus*. The Pipits of Africa and India were then very little understood, and their study is very difficult indeed. I was under the impression that the name *leucophrys* was referable to the forms with a more spotted upperside; *i.e.* having pale edges and dark centres to the feathers, and that the name *sordidus* Rüppell, given to specimens in very worn plumage, and with a poor figure and not too exact description, belonged to the other group with uniform back. Since then Neumann's very useful notes appeared in *Journ. f. Orn.* 1906, pp. 231-237. I am now convinced that there are—besides *A. rufulus* in its various subspecies—two quite distinct species in Africa, and that one of them must be called *leucophrys*. The other, which Neumann called *nicholsoni*, must be called *sordidus*! The specimens Nos. 252, 263, 329, and 330 (see Neumann, *l.c.* p. 234) must be Rüppell's *sordidus* (cf. Neumann's valuable note and measurements of the types), but Neumann was misled by the bad condition of the specimens into the belief that they were a form of *leucophrys*. Though forms of *sordidus* and *leucophrys* occur together in South, East, and North-East Africa, they are by no means always easy to distinguish, if in abraded plumage, when those of the former species are almost uniform on the back; in fact the only certain character, besides the more spotted upperside, is the longer, straighter, and slenderer bill. These Pipits must therefore be grouped as follows:

*Anthus sordidus sordidus, nicholsoni, nyassae, longirostris, hararensis, arabicus, sokotrae, captus, jerdoni, similis.* On the other hand *A. leucophrys leucophrys, omoensis, saphiroi, zenkeri, vaalensis, angolensis, bohndorffi, gouldi.*

(A series from the Wagar Mountains in North Somaliland agrees with *A. sordidus hararensis*, but has, on the whole, the upperside slightly lighter, while one from Harar is equally pale. To be quite sure about the birds from North Somaliland, it will be necessary to compare a series of freshly moulted specimens with similar ones from Harar.)

#### *Lanius minor* Gm.

There is no doubt that the specimens collected by Bury, which Mr. Ogilvie-Grant described as "*L. yemenensis*," are young *L. minor*.

Mr. Selater, while in other cases quite judiciously using trinomials, among the Shrikes and in other cases, where trinomials were equally opportune, used binomials, as for example in the instance of the red-headed Shrike, *Lanius senator niloticus*. He also went in for much genus-splitting, but not quite judiciously; if he separated *L. nubicus* as "*Fiscus*," *L. senator* as "*Phoneus*," *L. collurio* as "*Euneoctonus*," and *L. phoenicuroides* as "*Otomela*," he should also have placed in a special genus *Lanius minor* with its widely different wing-formula, *i.e.* very short first and long second primary.

#### *Acrocephalus streperus streperus* (Vicill.).

Hajeilah, 2,080 ft., ♀ 12. iv. 1913.

Selater only mentions a specimen of *A. palustris* from the same locality.

#### *Cisticola cisticola arabica* subsp. nov.

*Cisticola cisticola aridula* (non Witherby), Selater, *Ibis*, 1917, p. 156 (Yemen).

Comparing our three specimens from Hajeilah, shot in March and April at an altitude of 2,080 ft., and others collected at Lahcj. I find that they are

indeed closely allied to *C. c. aridula*, but that the rump is distinctly darker rufous brown; it becomes therefore necessary to separate this form under the above name.

Type in the Tring Museum, No. 583 Bury Collection, Hajeilah 1. iv. 1913.

***Parisoma blanfordi distincta* subsp. nov.**

"*Sylvia blanfordi*," Selater, *Ibis*, 1917. p. 158.

The South Arabian form of *Parisoma blanfordi* differs at a glance from a series from Somaliland by being considerably larger, and by the different extent of the white on the outer tail-feathers. As a rule the white line on the outer web of the ultimate rectrix is wider in the African, narrower in the Arabian form, while in the former the white on the inner web is as a rule wider in extent, ranging up to about one-third of the length of the feather, while in the Arabian subspecies it is restricted to a spot not more than 5 to 8 mm. long. There is, however, some variation in this in Africa, the white on the inner web being not more than in *P. b. distincta* in a male from Dubar, North Somaliland. The type of *P. blanfordi* (*Sylvia blanfordi* Seeböhm, *Proc. Zool. Soc.*, London, 1878, p. 979) is from Rairo in Abyssinia, and in it the white has been restricted to a spot as in *P. b. distincta*, but is entirely worn off, as is often the case, the dark-coloured portions of the feathers being stronger, thus resisting the wearing off much longer. The other specimens I have seen from Africa are all from Somaliland, except one from the Erba Mountains, not far from Port Soudan, in which the outer rectrices are wanting. More Abyssinian specimens should be compared with those from Somaliland, but they are probably one and the same race. The wings are 63 to 66 mm. long, against 67 to 72 in *P. b. distincta*. The bill is much larger in the latter. Compared: 14 *P. b. blanfordi* and 15 *P. b. distincta*.

Type of *P. b. distincta*: ♂ ad. Gerba, South Arabia, 15. xi. No. 511 G. W. Bury Collection.

***Monticola rufocinerea sclateri* subsp. nov.**

[*Saxicola rufocinerea* Rüppell, *Neue Wirb. Abyss.*, Vög. p. 76. Taf. 27 (1835—Simen in Abyssinia).]

Arabian specimens differ from typical *rufocinerea* by the greater amount of brown on the outer tail-feathers. While in *M. r. rufocinerea*, of which I have compared over 30 specimens from Abyssinia and North Somaliland in the Tring, and a series in the British Museum, the brown on the inner web of the outer tail-feather varies from 1 or 2 to 7 mm. (the latter rarely), it is 10 to 14 mm. wide in *M. r. sclateri*. There is no constant difference in size, though I have not measured an Arabian male with a wing over 86, and some with wings of only 84 mm., while in males from Eritrea, Abyssinia, and North Somaliland the wings range from 85 to 89 mm. Nor is there any constant difference in the shade of the colours in the males, though some African males have paler throats, and the Arabian female is distinctly more greyish on the throat; more specimens, however, must be seen to confirm these differences. I have named this new form in honour of Mr. W. L. Selater, who has written a very creditable article on Bury's collection from Arabia, the ornithology of which was quite a new field for him.

Type of *M. rufocinerea sclateri*: ♂ ad. Wasil, 4,000 ft., 4. iii. 1913. No. 475 Bury Coll. (Tring Museum).

We have 5 ♂ and one ♀ from Menakha and Wasil and one ♂ from Sok-al-Khamis, 7,000 ft., 18. vii. 1913.

There is probably a third race in East Africa. A male collected by William Doherty on the Escarpment, Kikuyu Mountains, has the brown on the inner web of the outer rectrices nearly 15 mm. wide, and a wing of about 90 mm. A female from the same place has also rather much brown on the lateral rectrices, while two young females are rather brown on the upperside. More material will very likely show the Kikuyu bird to belong to a third subspecies, for it can hardly be the Arabian form, and its habitat is also far away from Abyssinia and North Somaliland.

***Prunella fagani* (O.-Grant).**

*Accentor fagani* Ogilvie-Grant, *Bull. B. A. Club*, xxxi, p. 88 (1913—Yemen); Selater, *Ibis*, 1917, p. 162.

The Tring Museum has received 2 ♂ and 2 ♀ of this very interesting bird. It appears to be nearest to *P. ocularis*, which has been very wrongly united with *fulvescens*; in *Vög. d. pal. Fauna* I, p. 770, I treated it as a subspecies of *fulvescens*, and if that view is correct, I suppose *P. fagani* must also be called *Prunella fulvescens fagani*.

***Phoenicurus ochruros phoenicuroïdes* (Moore).**

*Ruticilla phoenicuroïdes* Moore, *Proc. Zool. Soc.* London, xxii, p. 25, pl. *Aras* lvii. (1855—Northern India).

3 ♂ ad. Menakha, 20, 23, xii. 1912, 1, ii. 1913.

In two of these specimens the black on the mantle (always hidden by grey edges to the feathers in autumn and winter) is not present: it always varies in extent, and I have before me specimens from southern Transcaaspiia in which it is absent, while in others it is well developed.

Mr. Selater only mentioned *Phoenicurus phoenicurus phoenicurus* and *mesoleucus* from Menakha, Wasil, Hajeilah, and Hodeida. On examining these specimens I find that the *mesoleucus* were correctly named, but that only those from Wasil and Hodeida, apparently also the female from Hajeilah, were *phoenicurus*, while those from Menakha, like the specimens in the Tring Museum, belong to *phoenicuroïdes*, which I have treated as a subspecies of *ochruros* (*Vög. pal. Fauna*, p. 723).

***Saxicola torquata rubicola* (L.).**

*Motacilla Rubicola* Linnaeus, *Syst. Nat.* ed. xii. I. 1. p. 332 (1766—Ex Aldrovandus, Albin, Brisson, Willughby. Terra typica: France, ex Brisson).

We have received 6 ♂ and 3 ♀ from Menakha, shot in December and January, which belong to the European form, *rubicola*, having spotted upper tail-coverts and no white at the base of the tail.

***Saxicola torquata maura* (Pall.).**

*Motacilla maura* Pallas, *Reise d. versch. Prov. Russ. Reichs*, ii, p. 708 (1773—S. Ural and between rivers Tobol and Irtish).

1 ♀ Hajeilah, 2,080 ft., 7. iv. 1913, has whitish, unspotted upper tail-coverts, and white bases to the tail-feathers. It belongs therefore to *S. t. maura*. Selater

quotes only this form as occurring at Menakha, Hajeilah, and Sanaa, but when doing so he did not, apparently, consult my book, but judged from the boxes in the British Museum, where four subspecies appear to be mixed up, though there are perhaps no true *maura* at all. As I have explained in my book, *maura* is the bird of the Caucasus and southern Ural. The British Museum specimens collected by Bury from Menakha are all *rubicola*, those from Sanaa and Hajeilah are :

***Saxicola torquata indica* (Blyth).**

We have not received this form, nor is there a true *maura* from Arabia in the British Museum. *S. t. rubicola*, besides its upper tail-coverts being spotted with black, has the bill stronger than *indica*, and both differ from *maura* in having no white, or only traces of it, at the base of the tail. The upper tail-coverts have never any black spots in *indica* or *maura*.

***Cercomela melanura erlangeri* Neum. and Zedl.**

*Cercomela melanura erlangeri* Zedlitz. *Journ. f. Orn.* 1912. pp. 497, 556 (South Arabia).

♂ ♀ in terribly worn plumage, Wasil, 4,000 ft., 22, 24. ii. 1913.

Mr. Selater, calling this form *C. melanura*, has obviously overlooked Zedlitz' lucid explanation of the Arabian forms of *Cercomela melanura*. Temminck figured and named *Cercomela melanura* (sub. nomine *Saxicola melanura*) from a specimen collected by Rüppell in "Arabia," but Rüppell had collected it in "Arabia petraea," i.e. the Sinai Peninsula, and not in southern Arabia! Now the Sinai Peninsula and Palestine are inhabited by a very pale grey form, i.e. *C. melanura melanura*—synonyms *asthenia* Bp. and *yerburyi* Sharpe,—while the form inhabiting southern Arabia must be called *C. melanura erlangeri* Neum. and Zedl.

***Oenanthe yemenensis* Grant.**

*Oenanthe yemenensis* Ogilvie-Grant, *Bull. B. O. Club.* xxxi. p. 166 (Menakha, Yemen).

Of this interesting species we have received a young male, still showing the buff spots of the juvenile plumage on the nape and back, shot at Sanaa 11. ix. 1913, and an adult female, Menakha, 25. i. 1913.

To me this species does not look much like *O. bottae*, being so very much paler on the upperside and underside, and having the ear-coverts pale buff, with only a black streak along their upper edge, while they are mostly black in *O. bottae*. It resembles *O. isabellina*, but the forehead and greater part of the crown are deep brown, the breast a little darker and more vinous, but from both *isabellina* and *bottae* it is distinguished by the middle pair of pectrices being black to or almost to the base, while the base of those two feathers is white for about 1.5 to 2 cm. The wing of our adult female measures 101 mm.

***Pycnonotus xanthopygos reichenowi* Lorenz and Hellm.**

*Pycnonotus reichenowi* Lorenz and Hellmayr. *Orn. Monatsber.* 1901. p. 30 (S. Arabia).

Selater (p. 169) says that he cannot confirm the supposed differences between Palestine (typical *xanthopygos*) and South Arabian specimens. While I quite agree that the difference in size which Lorenz and Hellmayr mentioned is not

borne out by series, and that there is not the slightest difference whatever in the coloration of the throat, etc., it cannot be denied that the upper surface of South Arabian examples is generally slightly browner, darker. I think it therefore advisable for the present to admit *reichenowi* as a subspecies rather than to rule it out altogether.

It would be interesting to compare a good series from Muscat. The few specimens in the British Museum seem hardly distinguishable from *P. x. xanthopygos*.

The wings of Palestine males measure 98–100, females 91–95.5, those of South Arabian males 95–98, once 100, females 88–95 mm.

***Tchitrea viridis ferreti* an subsp. nov.**

Typical *T. viridis* from West Africa have the back much paler rufous. Arabian specimens agree in colour with the form *ferreti* from north-eastern Africa, but nearly all have the bill larger. I would, however, like to see a bigger series before giving a name to this apparently new subspecies. Bury sent us three specimens from Wasil.

***Aerops albicollis major* Parrot.**

*Aerops albicollis major* Parrot, *Orn. Monatsber.* 1910. p. 12 (South Arabia, North-East Africa, south to Zambesi, east to Uganda).

♂ ♀ ad. Hajeilah, 7, 17. iv. 1913.

There are two very distinct forms of *Aerops albicollis*, a western, *A. albicollis albicollis*, and an eastern, *A. a. major*. The latter is distinguished from the former by larger dimensions, chiefly larger bill and longer wing, and also more bluish tail, generally without any greenish tinge. All Arabian skins are very typical *major*, but the few Uganda specimens which I have seen belong to *A. a. albicollis*.

***Columba livia palaestinae* Zedl.**

*Columba livia palaestinae* Zedlitz, *Journ. f. Orn.* 1912. p. 339 (Palestine).

We have a ♂ and ♀ from Menakha, 7 and 27. i. 1913, and the British Museum has also a pair from Menakha, as well as a ♂ from Hajeilah, 2,080 ft. Selater called these birds *C. l. intermedia*, but this is a mistake, for *C. l. intermedia* is the form from tropical India and a much darker bird. The Arabian birds are indistinguishable from *C. l. palaestinae*, and this form is nearest to *C. l. schimperi* from Nubia and Egypt, and of similar dimensions, but it is slightly darker, especially on the under tail-coverts.

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ON THE GENERA *MELANOTHRIX*, *DREPANOJANA*, *MELANERGON*, *PARACYDAS*, *COTANA*, *HYPERCYDAS*, *EPICYDAS*, AND *NERVICOMPRESSA* OF THE FAMILY *EUPTEROTIDAE* WITH DESCRIPTIONS OF NEW FORMS.

BY LORD ROTHSCHILD, F.R.S., PH.D.

(Plates XI, XII)

THESE genera have been founded on a number of Indo-Malayan and Papuan insects which form a very homogeneous group together with *Lasiomorpha* Joicey and Noakes, and are placed by modern workers at the head of the *Eupterotidae*. But in spite of numerous indices all pointing to the fact, it has not hitherto been realised that all the species contained in these genera are dimorphic in a most extreme manner, with the exception of the single species of *Melanergon*. Of *Lasiomorpha* we only know 3 specimens of 2 species, all 3 ♂♂.

*Melanothrix* was erected by Felder (in the *Erklärung der Tafeln*, LXXV-CVII, page 6, *Reise der Novara Zoologischer Theil*, Band II, Abtheilung 2), for the species he called *pulchricolor* from Java, but no diagnosis was given (for the latter refer to Hampson, *Fauna of British India, Moths*, vol. i. p. 44).

The following names and descriptions have been published: *nymphaliaria* Walk., *pulchricolor* Feld., *coryna* Swinh., *atropurpurea* Auriv., *leucotrigona* Hmps., *nicevillei* Hmps., *homochroa* Grünb., *radiata* Grünb., *lativittata* Grünb., *fumosa* Swinh., *alternans* Pagenst., and *xanthomelas* Grünb. Of these *coryna* Swinh. (= *atropurpurea* Auriv.) is the ♂ of *nymphaliaria* Walk. (= *pulchricolor* Feld.) and this species must stand thus:

*Melanothrix nymphaliaria nymphaliaria* (Walk.)

*Gnophos?* *nymphaliaria* Walker, *Cat. Lepid. Ins. Brit. Mus.* vol. xxx. 5. p. 1598 (1866) (Java).

*Melanothrix pulchricolor* Felder, *Reise d. Novara Lepid.* IV. t. 94. f. 2. Erkl. Taf. p. 6 (Java).

*Melanothrix atropurpurea* Aurivillius, *Entom. Tidskr.* 1894. p. 175. No. 15 (Java).

*Melanothrix coryna* Swinhoe?

There are two other subspecies of this species which I describe as new, as follows:

*Melanothrix nymphaliaria albidior* subsp. nov.

♀ differs from *n. nymphaliaria* in the much greater extent of white on the wings and the greater extent of yellow on the sides of the abdomen.

On the forewings black of the outer one-third of the wing does not extend inwards nearly so far along, and between veins 2, 1, and inner margin, also in the basal two-thirds of wing, the black colour between veins 4 and the inner margin towards basal one-third is much reduced. On the hindwing the outer black area is only two-thirds as wide as in *n. nymphaliaria*.

*Habitat.* Fort de Kock, West Sumatra. 1 ♀.

**Melanothrix nymphaliaria philippina**, subsp. nov.

*Melanothrix pulchricolor* var. Semper, *Schmett. Philip.* vol. ii. (Nachtfalter), p. 387. No. 11. pl. li. f. 2 (1896-1902) (Polillo).

♀ differs from *n. nymphaliaria* in the almost entirely black forewings, a crenulate patch beyond cell and the basal half of wing below vein 1 alone being white. The black of the hindwing is also wider, occupying the outer half of wing.

*Habitat.* Polillo, Philippine Islands.

I have also a new species to describe, which appears to stand intermediate between the *nymphaliaria* section with almost black abdomen and the *nicevillei-leucotrigona* section with entirely yellow abdomen, having the wings of the former and abdomen of the latter.

**Melanothrix intermedia** sp. nov.

Head, antennae, and thorax black, abdomen golden yellow.

Forewings differ from those of *n. nymphaliaria* in the greater extent of the black of the inner two-thirds of the wing and in the teeth on the inner side of the black outer one-third being longer, so that between veins 5 and 7 they interlock with those of the black portion of the inner two-thirds.

Hindwing differs in the teeth on inner side of black outer one-third being smaller than in *n. nymphaliaria*.

Length of forewing: 38 mm. Expanse: 81 mm.

*Habitat.* Mergui Archipelago, 1 ♀.

The next species is *leucotrigona* Hampsn., of which the female has been wrongly identified.

**Melanothrix leucotrigona** Hampsn.

*Melanothrix leucotrigona* Hampson, *Faun. Brit. Ind. Moths*, vol. i, p. 44, fig. 27. No. 50 (1892) (Malwoon).

Dr. Grünberg has confused *leucotrigona* and *nicevillei* Hampsn. when describing the ♀ of the latter, for Dr. Grünberg's ♀ of *nicevillei* is really the ♀ of *leucotrigona*, while he figures in Seitz a ♀ of a Bornean species not identical with either.

The ♀ of *leucotrigona* is in wing pattern nearest to *nymphaliaria philippina*, but the white is less pure, the white marginal spots are larger, and the dentations on the inner side of the black outer portion of both wings are much larger and longer. Abdomen yellow.

*Habitat.* Burma and Tenasserim.

We next come to *nicevillei* Hampsn.

**Melanothrix nicevillei** Hampsn.

*Melanothrix nicevillei* Hampson, *Faun. Brit. Ind. Moths*, vol. iv. App. p. 450. No. 50a (1896) (Toungoo, Burma).

The ♀ of this species is undescribed. It differs from all the other species of the *nymphaliaria* section in the white areas of both wings being much more extended, its nearest ally is *radiata* Grünb.

On the forewing the black in the inner three-fourths of wing strongly reduced; in the outer area the four white marginal spots below vein 5 run in and join

the white of the inner area, reducing the black of outer area to four wedge-shaped black patches; the three white marginal spots above vein 5 run in only half across the black area, forming three white streaks.

On the hindwing all the seven white marginal spots run into and join the white discal area, reducing the black outer area to seven black wedge-shaped patches. Abdomen yellow.

*Habitat.* Tenasserim to Perak.

Our next species is *homochroa* Grünb.

#### **Melanothrix homochroa** Grünb.

*Melanothrix homochroa* Grünberg, *Entom. Rdsch.* 31 p. 21 (1914) (Kina Balu).

Dr. Grünberg in *Seitz* figures the ♀ of this insect as the ♀ of *nicevillei*, while he refers to it under his original description of his *Melanothrix nicevillei* ab. *radiata*, as being intermediate between typical ♀ *nicevillei* and his ab. *radiata* (his typical *nicevillei* being the ♀ of *leucotrigona*).

♀ differs from the ♀♀ of *nicevillei* and *leucotrigona* in being as a rule larger, in the black outer area being wider, and in the black on the inner area of the forewings being much extended. It differs also from both in the white on both wings being much purer, and is intermediate between these two species in that the white marginal spots do not join the inner white areas of both wings, but are not nearly so widely separated from them as in *leucotrigona*.

*Habitat.* Kina Balu, Borneo, 1 ♂, 5 ♀♀.

We now come to *radiata* Grünb.

#### **Melanothrix radiata** Grünb.

*Melanothrix nicevillei* var. *radiata* Grünberg, *Entom. Rdsch.* 31. p. 21 (1914) (Kina Balu).

This insect differs at a glance from ♀ of *nicevillei* in having the white replaced by buffish cream-colour, and in the black of the outer area being much wider, on the forewing at least one-third wider, and on the hindwing it takes up fully the outer half of the wing. The black is also more brownish. All the marginal spots join the inner cream area of both wings so that the black of the outer areas is in the form of seven large wedge-shaped patches on each wing.

*Habitat.* Kina Balu, Borneo, 3 ♀♀.

The ♂ of this and the following are unknown.

#### **Melanothrix lativitta** Grünb.

*Melanothrix lativittata* Grünberg, *Entom. Rdsch.* 31. p. 21 (1914) (Kina Balu).

This species calls for no special remark.

*Habitat.* Kina Balu, 1 ♀.

We now come to Semper's *Melanothrix pulchricolor* from Mindanao. This is evidently a quite distinct species and I describe it below.

#### **Melanothrix semperi** sp. nov.

♀. Wings similar to *nymphaliaria*, but less black. Abdomen yellow with black transverse bands.

*Habitat.* East Mindanao, Philippine Islands.

Our next species is *alternans* Pagenst.

**Melanothrix alternans** Pagenst.

*Melanothrix alternans* Pagenstecher ♀, *Iris*, vol. iii. p. 13 (1890) (Palawan).

*Melanothrix fumosa* Swinhoe ♂ (♀ errore), *Ann. Mag. Nat. Hist.* 7 (XVI). p. 142. No. 1 (1905) (Brunei. Borneo).

Here *fumosa* Swinhoe is evidently the ♂ of what we have in collections as *alternans* Pagenst. from Kina Balu. I have never seen Palawan specimens, and if they should be slightly different the Bornean form will have to stand as *Melanothrix alternans fumosa* Swinh.; but until this has been proved the name must remain for those from both islands *M. alternans* Pagenst.

*Habitat.* Palawan; Brunei; Kina Balu.

The last species is *xanthomelas* Grünb.

**Melanothrix xanthomelas** Grünb.

*Melanothrix xanthomelas* Grünb., *Seitz, Grossschmett. d. Erde.*

We only know the ♀ of this quite aberrant species.

*Habitat.* Kina Balu, Borneo.

The genus *Drepanojana* follows now.

**Drepanojana fasciata** Auriv.

*Drepanojana fasciata* Aurivillius, *Entom. Tidskr.* 1893. p. 212. No. 25 (Sierra Leone).

*Drepanojana apicalis* Aurivillius, *Ann. Mag. Nat. Hist.* 18 (vi) p. 353 (1896) (W. Africa).

*Melanothris maconia* Druce, *Ann. Mag. Nat. Hist.* 18 (vi) p. 353 (1896) (W. Africa).

The only remark to be made here is that *maconia* Druce and *fasciata* Aur. are the ♀♀ of *apicalis* Auriv.

*Habitat.* Sierra Leone.

*Lasiomorpha* comes here; it contains two species, one of which I describe below as new.

**Lasiomorpha meeki** sp. nov.

♂. Differs from *L. noakesi* by its chocolate-maroon, not purplish-black colour. Forewings differ in the costa being brilliant orange not black in the whitish semihyaline patch being regular not strongly diminished towards tornus, in the band crossing the hyaline patch not being an ill-defined sinuate band of scattered black scales, but consisting of a strong curved double band reaching from costa to inner margin, distad deep maroon-chocolate. basad orange, and in a broad streak of rufous between veins 1 and 2 from base of wing almost to transverse band.

Hindwing bright chocolate-maroon, **not** purplish chocolate-black.

Length of forewing: 38 mm. Expanse: 86 mm.

*Habitat.* Ougarra, Aroa River, British New Guinea, May 1908 (A. S. Meek), 2 ♂♂.

The next genus is *Melanergon* with a single species, the typical subspecies of which was included in his *Cotana* by Walker. *Melanergon* differs from *Cotana* by vein 5 of the forewing being absent, by vein 3 of that wing arising much farther from angle of cell, in the hindwing by vein 3 arising farther from angle of cell, and by the sexes being non-dimorphic. The single species *vidua* Walk. falls into 4 subspecies as follows:

**Melanergon vidua vidua** Walk.

*Cotana vidua* Walker, *List. Lepid. Ins. Brit. Mus.* Part xxxii. p. 549 (1865) (New Guinea).

Walker's type was a ♀ and the only other recorded specimen is the ♂ described below.

♂. Differs from the ♀ only in being paler, in the postmedian transverse band being more distinct, through being more densely scaled, and confined to forewing, in the frons being buff not black, and in the anal tuft being yellow not white or cream.

*Habitat.* New Guinea ! (♀ type) ; ♂ Nr. Oetakwa River, Snow Mountains, Dutch New Guinea, November and December 1910 (A. S. Meek).

**Melanergon vidua proserpina** B. Baker.

*Melanergon proserpinus* Bethune Baker, *Nov. Zool.* vol. xi. p. 372. No. 7 (1904) (Aroa River).

Differs from *v. vidua* by the more intense black colouring and by the postmedian semihyaline transverse band being broader and more strongly marked.

*Habitat.* South-East New Guinea.

**Melanergon vidua fergussonis** subsp. nov.

♂. Differs from the ♂ of *v. vidua* by the whole head, tegulae, and patagia being orange, and in having an antemedian as well as a postmedian transverse band on forewing ; end of abdomen orange.

*Habitat.* Fergusson Island, December 1896 (A. S. Meek).

**Melanergon vidua louisiadensis** subsp. nov.

♀. Differs from *v. vidua* and *v. proserpina* in having hardly any trace at all of a transverse band, and in the anal tuft being dark buff.

*Habitat.* Sud-Est Island, Louisiade Islands, January to February 1916 (Eichhorn Bros.).

The next genus is *Paracydas* with 2 species. It differs from *Cotana* and *Melanergon* in the forewing, in having vein 4 from lower angle of cell and 5 from upper angle, and 10 not being stalked.

**Paracydas biagi** B. Baker.

*Paracydas biagi* Bethune Baker, *Novit. Zool.* vol. xv. p. 176. No. 5 (1908) (Biagi, Mambaré River).

The ♀ of this is undescribed.

♀. Antennae black ; head, thorax, and abdomen intense rufous, anal segment ringed with black, anal tuft pale grey.

Forewing deep chocolate-brown ; basal three-fourths of costa, base of wing, and subcostal area bright rufous ; nervures rufous ; a large antemedian primrose-yellow patch of raised scales on and between veins 2-5 ; a large postmedian curved patch white running out distad between the nervures into wedge-shaped projections ; margin rufous yellow, fringe deep brown ; three white spots above veins 1, 2, and 3. Hindwing deep chocolate ; base of wing and abdominal area rufous clothed with long hair ; nervures rufous ; a row of six

postmedian intranervular white patches, those above veins 4 and 5 being the smallest; margin rufous yellow, fringe deep brown.

Length of forewing: 41 mm. Expanse: 91 mm.

*Habitat.* Biagi, Mambaré River, 10 ♂♂, 1 ♀.

***Paracydas postipallida* sp. nov.**

♂. Antennae deep brown; head rusty orange-brown; thorax chocolate liver-brown; abdomen rufous red.

Forewing deep liver-brown; a large antemedian grey and black stigma, a median transverse black band, outer one-third with a somewhat ill-defined postdiscal grey band and grey cloudings beyond; fringe brown.—Hindwing basal half orange suffused with brown and crossed by a dark band; outer half dull brown slightly suffused with orange and crossed by a greyish-olive band edged with serrated brownish cloud-lines.

Length of forewing: 23 mm. Expanse: 53 mm.

*Habitat.* Lower Aroa River, British New Guinea, November 1904 to March 1905 (A. S. Meek.)

The next genus is *Cotana*, with which I unite *Epicydas* B. Baker. Mr. Bethune Baker differentiates this from *Cotana* because vein 10 of forewing is not stalked, but I consider this character **alone** not of sufficient importance to separate the two genera. It must have struck everyone as strange that of *Cotana* there were only ♀♀ while of the genus *Nervicompressa* only ♂♂ existed; the truth is that they are sexes having exactly the same neuration. Here we have many species and subspecies.

***Cotana castaneorufa* Rothsch.**

*Cotana castaneorufa* Rothschild, *Lepid. Brit. Orn. Exp. Snow Mts.*, p. 79, No. 419 (1915) (Base Camp).

I described the ♀ from Dr. Wollaston's collection, but the ♂ is undescribed. ♂ antennae blackish brown; head and thorax deep chocolate liver-brown; abdomen deep orange.

Forewing chocolate liver-brown, a tiny white dot at base, an antemedian buff stigma followed by a buff transverse band distinct and broad at costal half, growing narrower and indistinct on inner half; a more or less indistinct postdiscal transverse greyish-olive outwardly curved chain of half moons; fringe irregularly chequered with orange-brown.—Hindwing orange; outer two-thirds almost completely suffused with liver-brown; a brown transverse line in basal one-third and an orange one somewhat sinuate in outer one-third.

Length of forewing: 21 mm. Expanse: 49 mm.

*Habitat.* Snow Mountains, Dutch New Guinea; ♂ Upper Setekwa River, 200–300 ft., April 1911 (A. S. Meek).

***Cotana bisecta* sp. nov.**

♂. Antennae shaft white, pectinations dark brown; head and thorax dark brown; abdomen orange.

Forewing dark brown somewhat suffused with chestnut-rufous, a median black band, a postmedian indistinct blackish band beyond which is a lunate buffish band on the outside of which is a line of black dots joined by a chain

of indistinct blackish lunules; fringe dark brown.—Hindwing orange-yellow; an antemedian transverse line sooty black, a median indistinct blackish cloud band beyond which are two lunulate bands; fringe and margin cinnamon rufous-brown.

Length of forewing: 23 mm. Expanse: 52 mm.

*Habitat.* Angabunga River, British New Guinea, 6,000 ft., November 1904 to February 1905 (A. S. Meek).

**Cotana brunnescens** sp. nov.

♂. Frons orange-rufous, vertex rufous-brown; antennae shaft orange-buff, pectinations dark brown; thorax rufescent chocolate-brown; abdomen rufous-brown.

Forewing deep chocolate liver-brown; two indistinct darker postmedian bands beyond which is a row of black dots.—Hindwing similar.

Some ♂♂ have the ground-colour of the wings much paler more greyish liver-brown, and then beyond the two transverse postmedian bands there is a distinct paler greyish-yellow or yellowish-grey lunulate band and the band of black spots has the spots connected by lunules.

♀. Head and tegulae orange-rufous, antennae black; rest of thorax and first abdominal segment greyish liver-brown; rest of abdomen rufous.

Forewing pale chocolate liver-brown; basal two-thirds of costo-subcostal area suffused with cinnamon-rufous, nervures yellowish brown, a large cream-white patch below middle of cell; a postdiscal transverse band of eight intranervular cream-white patches, the upper five being wedge-shaped, the lower three lunate, terminal ends of nervures marked with orange.—Hindwing similar, but only six cream-white patches in band all lunate.

Length of forewing: ♂ 21 mm., ♀ 34 mm. Expanse: ♂ 49 mm., ♀ 77 mm.

*Habitat.* Biagi, Mambaré River, N.E. New Guinea, 5,000 ft., February 1906 (A. S. Meek). 12 ♂♂, 2 ♀♀.

**Cotana pallidipascia** sp. nov.

♂. Antennae shaft black, pectinations dark brown; head and thorax chocolate-brown; abdomen orange-brown.

Forewing pale chocolate-brown; a whitish dot in basal one-fourth below cell, an indistinct shadowy black median line, a postmedian double line inside greyish white, outside dark brown, fringe white.—Hindwing paler chocolate-brown, postmedian line very indistinct.

Length of forewing: 19 mm. Expanse: 43 mm.

*Habitat.* Biagi, Mambaré River, N.E. New Guinea, 5,000 ft., February 1906 (A. S. Meek). 4 ♂♂.

**Cotana aroa** B. Baker.

*Nervicompressa aroa* Bethune Baker, *Novit. Zool.* vol. xi. p. 392. No. 57. pl. iv. f. 6 (1904) (Aroa River).

The ♂ only of this is described.

♀. Antennae black; head and tegulae orange; rest of thorax olivaceous brown somewhat tinged with orange; abdomen orange-rufous. Forewing chocolate-brown, nervures yellow; a large yellow patch in basal one-third of

wing below cell; a postmedian band of intranervular coalescent golden-yellow patches, the upper four wedge-shaped, the lower four arrowhead-shaped, the points of all truncated.—Hindwing same ground-colour but only six patches in postmedian band, all of which are arrowhead-shaped, the lower three only having their points truncated.

Length of forewing: 32 mm. Expanse: 71 mm.

*Habitat.* Aroa River, British New Guinea.

*Cotana variegata* sp. nov.

♂. Antennae brown; head cinnamon-rufous; thorax chestnut; abdomen orange.

Forewing basal one-fourth cream-white; in this is an oblique chocolate streak, below which is a looped zigzag line which just below streak forms a white stigma; an antemedian dark-chocolate transverse band, central one-third of wing pale chocolate becoming paler distad; outer one-third creamy grey, a crenulate postdiscal brown line, a dark-chocolate spot before tornus, and a quadrate dark-chocolate patch between vein 7 and half-way between veins 6 and 5.—Hindwing orange; a postmedian transverse crenulate dark band beyond which is a similar lunate one.

♀. Antennae black; head and tegulae orange; thorax and last two abdominal segments grey-brown; rest of abdomen deep orange. Forewing chocolate rufous-brown, nervures yellow; a round white spot below cell in basal one-third of wing, a slightly curved median darker chocolate band, a postdiscal row of eight intranervular wedge-shaped white patches, the one below costa very small.—Hindwing ground-colour and median band similar; postdiscal row of wedge-shaped patches golden yellow.

Length of forewing: ♂ 21 mm., ♀ 33 mm. Expanse: ♂ 47 mm., ♀ 74 mm.

*Habitat.* Upper Setekwa River and near Oetakwa River, Snow Mountains, Dutch New Guinea, 3,000–3,500 ft., August to December 1910 (A. S. Meek), 4 ♂♂, 2 ♀♀.

*Cotana meeki* sp. nov.

♂. Antennae shaft black, pectinations basal two-fifths orange, outer three-fifths sooty black; head, tegulae, and patagia brilliant orange; rest of thorax chocolate-rufous tinged with grey; abdomen fiery orange.

Forewing basal one-third cream-white, with an irregular somewhat hourglass-shaped rufous-chocolate patch running into middle from costa with white dot in centre, from this patch a somewhat indistinct irregular dark line runs to inner margin; median one-third chocolate bordered exteriorly by a lunulate whitish band and with the nervures white; a postmedian broad crenulate lavender-grey band edged narrowly outwardly with chocolate; outer one-fourth below vein 5 creamy white, above vein 5 chocolate with a large greyish-white apical patch.—Hindwing basal two-thirds orange, outer one-third chocolate; some indistinct darker shadow lines in basal portion and a lunulate cream band in outer one-third; marginal line cream, fringe chocolate.

♀. Antennae black; head, thorax, and abdomen fiery reddish orange, anal tuft lavender-blue. Forewing base reddish orange, costo-subcostal area for basal two-thirds orange chestnut-brown, rest of wing rufous maroon-chocolate

very thinly scaled. A large white patch in basal one-third of wing below median, a broad white postdiscal transverse band running out into long intranervular projections distad, the upper four of these being more pointed.—Hindwing ground-colour similar, the postdiscal band more distinctly lunulate.

Length of forewing : ♂ 22 mm., ♀ 31 mm. Expanse : ♂ 48 mm., ♀ 69 mm.

*Habitat.* Biagi, Mambaré River, N.E. New Guinea, 5,000 ft., March 1906 (A. S. Meek), 9 ♂♂, 8 ♀♀.

**Cotana lunulata** (B. Baker).

*Nervicompressa lunulata* Bethune Baker, *Novit. Zool.* vol. xi, p. 390, No. 53. pl. iv. f. 4 (1904) (Dinawa) ♂.

The ♀ of *lunulata* is very similar to that of *meeki*, but is paler all over, and more rufescent on the wings, while the postdiscal white bands are much narrower.

I have no specimens from so low an elevation as Dinawa.

Angabunga River, British New Guinea, 6,000 ft., November 1904 to February 1905 (A. S. Meek), 8 ♂♂, 3 ♀♀; Aroa River, British New Guinea, 4,000 to 5,000 ft., May 1905 (A. S. Meek), 1 ♀.

**Cotana lunulata albaserrati** (B. Baker).

*Hypercydas albaserrati* Bethune Baker, *Ann. Mag. Nat. Hist.* 8 (vi.), p. 451 (1910) (Biagi).

The ♂ resembles *l. lunulata*, but is larger; it differs at first sight in the outer one-third of forewing being much paler more yellow, and the hindwing is much brighter yellow. All transverse lines are also more distinct.

The ♀ differs from ♀ *l. lunulata* in being much darker, the white patch in basal one-third of forewing is reduced to a small dot, and the postdiscal bands are much narrower and more cream-coloured.

*Habitat.* Biagi, Mambaré River, N.E. New Guinea, 5,000 ft., March 1906 (A. S. Meek), 10 ♂♂, 3 ♀♀.

**Cotana lunulata occidentalis** subsp. nov.

♂. Differs from *l. albaserrati* by the transverse line of forewing being ante-median **not** median, and the postdiscal band being much greyer. On the hindwing it differs in having the postdiscal line almost straight, being much less crenulate.

*Habitat.* Upper Setekwa River, Snow Mountains, Dutch New Guinea, 3,500 ft., August 1910 (A. S. Meek), 2 ♂♂.

**Cotana lunulata satisbona** subsp. nov.

♂. Differs from *l. lunulata* in being much larger and all the transverse bands and lines much sharper and more distinct. ♀. Differs from *l. albaserrati* in being much paler yellowish rufous all over, and the anal tuft is ash-grey.

Length of forewing : ♂ *l. lunulata*, 19 mm., *l. satisbona*, 23 mm. Expanse : ♂ *l. lunulata*, 45 mm., *l. satisbona*, 54 mm.

*Habitat.* Goodenough Island, D'Entrecasteaux Islands, 2,500–4,000 ft., April 1913 (A. S. Meek), 8 ♂♂, 1 ♀.

**Cotana rosseliana** sp. nov.

♂. Antennae black; head and thorax chocolate-brown; abdomen deep orange. Forewing basal three-fifths orange-brown, outer two-fifths paler

more suffused with yellow; a broad irregular subbasal dark-brown band followed by a dull yellow stigma ringed with dark brown; a curved median black-brown band; three crenulate black lines of varying sharpness in outer two-fifths; a dark-brown patch below apex.

♀. Antennae black; head, thorax, and abdomen saffron-yellow, anal tuft sulphur-grey. Forewing saffron-yellow; a round white spot below median in basal one-third; a crenulate lunate transverse postdiscal white band.—Hindwing saffron-yellow with lunate postdiscal white line less distinct.

Length of forewing: ♂ 23 mm., ♀ 29 mm., Expanse: ♂ 54 mm., ♀ 65 mm.

*Habitat.* Mount Rossel, Rossel Island, Louisiade Islands, 2,100 ft., December 1915 (W. F. Eichhorn), 9 ♂♂, 2 ♀♀; Sud-Est Island, April 1898 (A. S. Meek), 1 ♀.

*Cotana rosseliana diluta* subsp. nov.

♀. Differs from *r. rosseliana* in the postdiscal bands being almost obliterated.

*Habitat.* St. Aignan, Louisiade Islands, October 1897 (A. S. Meek), 2 ♀♀.

*Cotana affinis* sp. nov.

♂. This species is allied to *erectilinea* B. Baker.

Antennae shafts black, pectinations brown; head brownish orange; thorax creamy cinnamon; abdomen deep orange.

Forewing basal one-third cream-white, an oblique subbasal chocolate band, and a broad dark-chocolate antemedian band, in between these two bands is a chocolate stigma with white centre; outer two-thirds of wing creamy grey washed with brown; a postmedian cream-grey band edged outwardly by a crenulated chocolate hair line; a large chocolate patch above vein 6.—Hindwing orange-yellow, bright orange at base and on inner area; two faint transverse shadow lines, fringe brown.

Length of forewing: 22 mm. Expanse: 50 mm.

*Habitat.* Ninay Valley, Central Arfak Mountains, Dutch New Guinea, November 1908 to January 1909 (A. E. Pratt).

*Cotana erectilinea* (B. Baker).

*Nervicompressa erectilinea* Bethune Baker, *Ann. Mag. Nat. Hist.* 6 (viii), p. 449. (1910) (Ninay Valley).

Of this species only ♂♂ are known.

*Cotana erectilinea setakwensis* subsp. nov.

♂. Differs from *e. erectilinea* in the forewings much yellower and the hindwings paler.

*Habitat.* Upper Setakwa River, Snow Mountains, Dutch New Guinea, 3,000 ft., September 1910 (A. S. Meek), 6 ♂♂.

*Cotana joiceyi* subsp. nov.

♂. Differs from *unistrigata* in the forewing, having the basal half buffish cream-colour, and the outer half buffish grey, **not** the whole wing pale liver-brown; the median band is more oblique and brown **not** black, and there is no stigma.

♀. Differs from the ♀ of *unistrigata* in being smaller, the white patch and postdiscal bands much larger and pure white, and the nervures and margins deep bright yellow; thorax and costal area rufous orange.

Length of forewing : ♂ 21 mm., ♀ 27 mm. Expanse : ♂ 48 mm., ♀ 60 mm.

*Habitat.* Angi Lakes, Arfak Mountains, 8,000 ft., Dutch New Guinea (A. C. and F. Pratt), Mus. Joicey, 6 ♂♂, 4 ♀♀.

***Cotana bakeri* (Joicey and Talbot).**

*Nervicompressa bakeri* Joicey and Talbot, *Ann. Mag. Nat. Hist.* 20 (viii), p. 65, pl. 111, f. 15 (1917) (Wandammen Mts.).

Only the ♂ type known.

***Cotana albomaculata* (B. Baker).**

*Nervicompressa albomaculata* Bethune Baker ♂, *Novit. Zool.* vol. xi, p. 391, No. 54, pl. iv, f. 3. (1904) (Dinawa).

*Epicydias ovata* Bethune Baker ♀, *Novit. Zool.* vol. xv, p. 175, No. 3. (1908) (Ekeikei).

Only the ♂ type of *albomaculata* and the ♀ type of *ovata* are known.

***Cotana kebeae* (B. Baker).**

*Nervicompressa kebeae* Bethune Baker, *Novit. Zool.* vol. xi, p. 391, No. 56, pl. iv, f. 10. (1904) (Mt. Kebeae).

Only ♂♂ of this species are known. In the Tring Museum from Biagi, Mambaré River, N.E. New Guinea, 5,000 ft.; March 1906. 2 ♂♂, Angabunga River, British New Guinea, 6,000 ft., November 1904 to February 1905 (A. S. Meek), 2 ♂♂.

***Cotana kebeae grandis* subsp. nov.**

♂. Much larger than *k. kebeae*; the thorax dark brown **not** pale cinnamon; the abdomen deeper and fierier orange; the forewing much darker brown with much heavier, more distinct, and broader transverse bands; the hindwing deeper orange with more distinct bands.

Length of forewing : *k. kebeae*, 21 mm. Expanse : 48 mm. Length of forewing : *k. grandis*, 24 mm. Expanse : 56 mm.

*Habitat.* Upper Setekwa River, Snow Mountains, Dutch New Guinea, 3,000 ft., August 1910 (A. S. Meek), 2 ♂♂.

***Cotana rubescens* Walk.**

*Cotana rubescens* Walker ♀, *List Lepid. Ins. Brit. Mus.* Part 32 (Suppl. II), p. 549. (1865) (New Guinea).

*Nervicompressa unistriata* Bethune Baker, *Novit. Zool.* vol. xi, p. 390, No. 52, pl. iv, f. 5. (1904) (Dinawa) ♂.

*Hypercydas turneri* Bethune Baker, *Novit. Zool.* vol. xv, p. 175, No. 1. (1908) (Kebea and Mafulu) ♀.

This species is the type of the genus *Cotana*. It is in the Tring Museum from Biagi, Mambaré River, N.E. New Guinea, 5,000 ft., March 1906 (A. S. Meek), 1 ♂; Milne Bay, S.E. British New Guinea, January 1899 (A. S. Meek), 1 ♂; Aroa River, British New Guinea, March 1905 (A. S. Meek), 1 ♂; Port Moresby, British New Guinea (Mr. Rattle) 1 ♀; Welsh River, British New Guinea (Weiske), 1 ♀; Mount Alexander to Mount Nisbet, Owen Stanley Range, British New Guinea, January 1896 (A. S. Anthony), 1 ♀; Aru Islands (H. Kühn), 1 ♀.

***Cotana rubescens kapaura* subsp. nov.**

♂. Differs from ♂ *r. rubescens* in the very blunt rounded apex to the forewings, in the uniform bright cinnamon **not** umber-brown colour of the

forewings, in the broader and blacker transverse bands, and in the larger and more distinct stigma.

♀. Differs from the ♀ of *r. rubescens* in its paler ground-colour, in the saffron-yellow costal area and more yellow basal two-fifths of forewings, and in the less distinct and partly obsolete postdiscal bands of yellow wedge-shaped and lunate spots.

*Habitat.* Kapaur, Dutch New Guinea, December 1896 (W. Doherty), 1 ♂, 1 ♀.

***Cotana rubescens oetakwensis* subsp. nov.**

♂. Differs from ♂ of *r. rubescens* in the bright cinnamon-orange colour of the forewings, in the very strongly marked and large stigma, and in the very broad heavy transverse median bands, both stigma and bands being of intense velvety black.

*Habitat.* Nr. Oetakwa River, Snow Mountains, Dutch New Guinea, 2,500 ft., October to December 1910 (A. S. Meek), 2 ♂♂.

***Cotana germana* sp. nov.**

♂. This species is very closely allied to *rubescens* in the ♂ and to *joiceyi* in the ♀.

Differs from *rubescens* ♂ in the paler less chestnut-brown of the forewings and in the much thinner and less strongly marked transverse bands; in the much paler and almost patternless hindwings. The transverse band of the forewing is also more concavely curved.

♀. Antennae black; head orange; thorax chestnut-brown; abdomen rufous orange, anal tuft whitish grey.

Forewing liver-chestnut; a white spot below median in basal one-third of wing, a median slightly sinuate darker band, nervures and marginal line yellow, a postdiscal coalescent band of intranervular white wedge-shaped patches truncated distad. Hindwing similar in ground-colour, but band of white patches lunate.

*Habitat.* Aroa River, British New Guinea, March 1905 (A. S. Meek), 3 ♂♂, 1 ♀.

***Cotana calliloma* (Turner).**

*Hypercydas calliloma* Turner, *Trans. Roy. Soc. S. Austr.* vol. xxvii. p. 23. (1902-3) (Queensland).

Of this species the only specimen hitherto recorded in Europe is the ♀ in the Tring Museum from the Barnard collection from Barnard Islands bred December 29th, 1891; as all those attributed to this species from New Guinea are not the same.

***Cotana dubia* (B. Baker).**

*Nervicompressa dubia* Bethune Baker ♂, *Novit. Zool.* vol. xi. p. 391. No. 55. pl. iv. f. 19. (1904) (Dinawa).

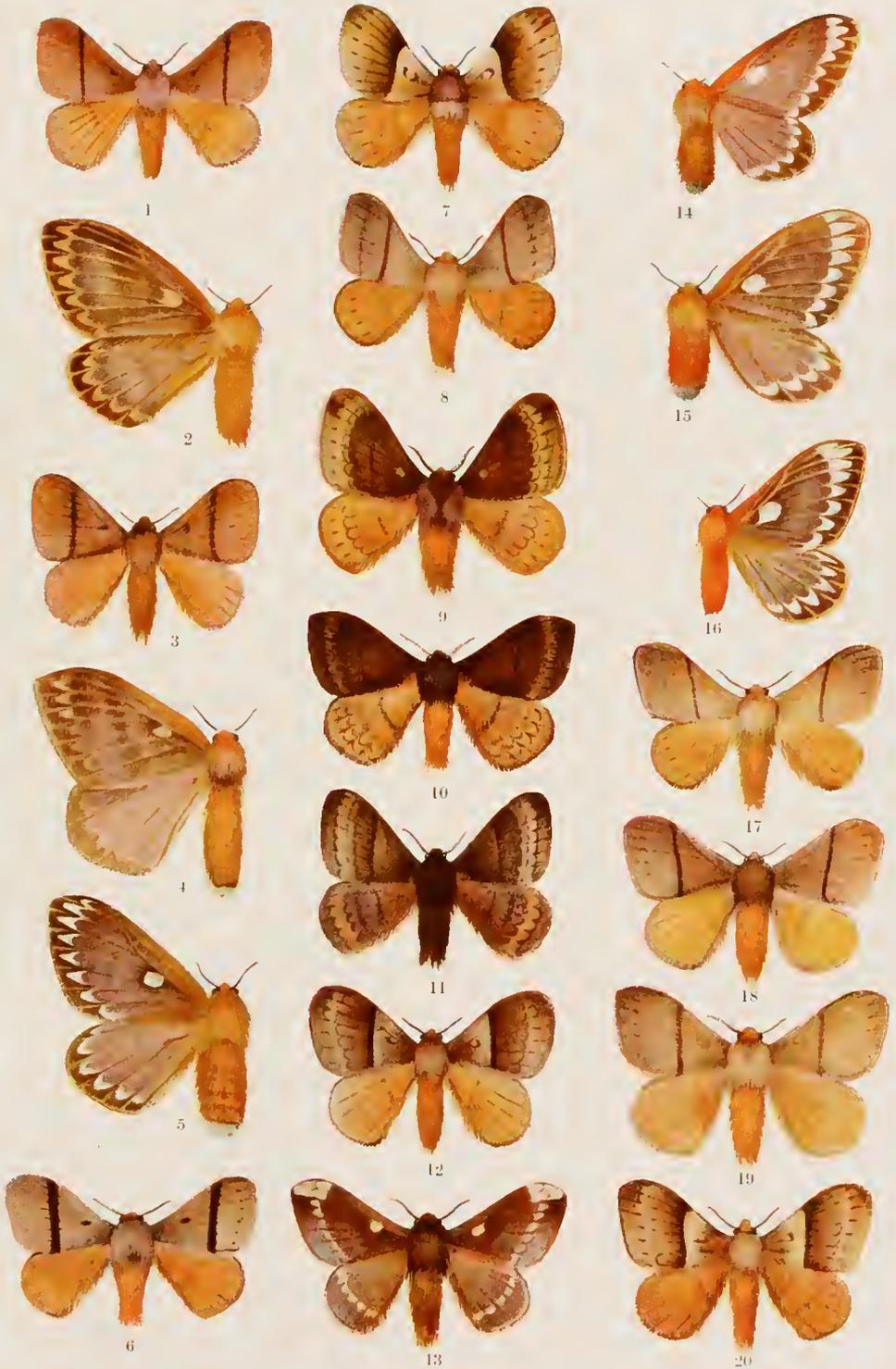
*Hypercydas doricrana* Bethune Baker ♀, *Novit. Zool.* vol. xv. p. 175. No. 2. (1908) (Aroa River).

*Habitat.* Aroa River, British New Guinea, November 1904 to February 1905 (A. S. Meek), 7 ♂♂, 9 ♀♀; Upper Setekwa River, Snow Mountains, Dutch New Guinea, 3,000 ft., September 1910 (A. S. Meek), 11 ♂♂, 3 ♀♀; Base Camp, Utakwa River, Dutch New Guinea, November 1912 (A. F. R. Wollaston), 2 ♂♂; Milne Bay, S.E. British New Guinea, November 1898 (A. S. Meek), 3 ♀♀.



EXPLANATION OF PLATE XI.

No.	1.	<i>Colana germana</i>	Rothsch.	♂	.	.	.	.	.	.	p. 474
"	2.	"	<i>rubescens</i>	Walk.	♀	-	-	-	-	-	p. 474
"	3.	"	"	"	♂	.	.	.	.	.	p. 474
"	4.	"	"	<i>kapaura</i>	Rothsch.	♀	-	-	-	-	p. 473
"	5.	"	<i>calliloma</i>	Rothsch.	♀	.	.	.	.	.	p. 474
"	6.	"	<i>rubescens oetakwensis</i>	Rothsch.	♂	-	-	-	-	-	p. 474
"	7.	"	<i>erectilinea setakwensis</i>	Rothsch.	♂	.	.	.	.	.	p. 472
"	8.	"	<i>kebeae</i>	(B. Baker)	♂	-	-	-	-	-	p. 473
"	9.	"	<i>lunulata albaserrati</i>	(B. Baker)	♂	.	.	.	.	.	p. 471
"	10.	"	<i>lunulata</i>	(B. Baker)	♂	-	-	-	-	-	p. 471
"	11.	"	<i>brunnescens</i>	Rothsch.	♂	.	.	.	.	.	p. 469
"	12.	"	<i>erectilinea</i>	(B. Baker)	♂	-	-	-	-	-	p. 472
"	13.	"	<i>albomaculata</i>	(B. Baker)	♂	.	.	.	.	.	p. 473
"	14.	"	"	"	♀	-	-	-	-	-	p. 473
"	15-16.	"	<i>joiceyi</i>	Rothsch.	♀	.	.	.	.	.	p. 472
"	17.	"	"	"	♂	-	-	-	-	-	p. 472
"	18.	"	<i>germana</i>	Rothsch.	♂ (ab ?)	.	.	.	.	.	p. 474
"	19.	"	<i>bakeri</i>	(Joicey & Talbot)	♂	-	-	-	-	-	p. 473
"	20.	"	<i>erectilinea</i>	(B. Baker)	♂ (ab)	.	.	.	.	.	p. 472



*H. Gronvold, det.*









H. Grönwald, del



SOME NEW MOTHS OF THE FAMILIES *ARCTIIDAE* AND  
*EUPTEROTIDAE*.

BY LORD ROTHSCHILD, F.R.S., PH.D.

**ARCTIIDAE.**

1. *Robinsonia irregularis*, sp. nov.

♂. Pectus dirty yellow; antennae shafts black, serrations grey; head olive-grey-brown, five white dots on frons, one white spot on vertex; tegulae olive-grey-brown with two white patches, patagia white edged with olive-grey-brown, rest of thorax olive-grey-brown with a median orange line and two lateral white tufts; abdomen orange, subdorsal bands reaching to penultimate segment sooty grey.

Forewings olive-brown-grey, a white dot in cell, a large irregular white patch below median, an elongate streak-like white patch below vein 1, six irregular intranervular elongate white patches beyond middle of wing, an indistinct white submarginal spot between veins 1 and 2.

Hindwings semivitreous white, a pale-grey patch on and around tornus. Length of forewing: 19 mm. Expanse: 42 mm.

*Habitat.* Cuyaba, Matto Grosso (Paul Zobrys), 1 ♂.

2. *Neidalia irrorata*, sp. nov.

♂. Antennae, head, and thorax tawny orange tinged and somewhat suffused with scarlet; abdomen orange clothed with long hair mixed orange and crimson.

Forewing golden yellow densely freckled and irrorated with scarlet, an ante- and a postmedian line and fringe brown-grey; a scarlet stigma with a grey point.—Hindwing orange-scarlet tinged with pale crimson. ♀ larger, antennae buffish brown; head and thorax golden orange suffused with red; abdomen rosy salmon colour, anal segment and tuft golden buff. Forewing golden yellow much less freckled and irrorated with scarlet than in the ♂, nervures scarlet, ante- and postmedian bands scarlet with a few grey marks, fringe and distal half of inner margin brown-grey.—Hindwing salmon colour.

Length of forewing: ♂ 15 mm., ♀ 22 mm. Expanse: ♂ 34 mm., ♀ 50 mm.

*Habitat.* Yahuarmajo, South-East Peru, 1,200 ft., February—March 1912 (H. and C. Watkins), 1 ♂, 1 ♀.

3. *Idalus albidior*, sp. nov.

♀. Pectus white suffused and freckled with crimson; antennae grey-brown, outer one-third white; head white; tegulae white edged with pale crimson, patagia white with a golden and two pale-crimson patches; rest of thorax white with two pale-crimson lines and two grey dots posteriorly; abdomen first three segments rose-crimson with two dorsal white dots, rest of segments creamy white slightly tinged with rose at the edges.

Forewing white, base with two slate-grey dots, four subbasal elongate slate-grey spots of various lengths, basal half of cell slate-grey, distal half yellow;

below median is a yellow patch, an oblique slate-grey median band narrowing from costa and reaching origin of vein 3, below vein 3 to inner margin somewhat more distad runs a grey-brown band, a yellow tinge on cloud just beyond band between veins 3 and 6, a dark-grey dot above vein 5.—Hindwing white.

Length of forewing: 18 mm. Expanse: 41 mm.

*Habitat.* Las Quignas, Venezuela (S. M. Klages).

#### 4. *Idalus affinis*, sp. nov.

♂. Allied to *admirabilis* Cram.; differs from that species in the patagia and thorax being mixed with grey, in the slate-grey median band of forewing being much expanded below vein 3, and entirely coalescing with the baso-subbasal slate patch below vein 1, and in having a pink spot at tornus.

Length of forewing: 16 mm. Expanse: 37 mm.

*Habitat.* Sta. Catharina, 1 ♂.

#### 5. *Zatrephes lentiginosus*, sp. nov.

♂. Pectus white; palpi cream colour with a few scattered scarlet freckles; antennae amber-brown, basal joint scarlet; head scarlet freckled with buff; thorax buff freckled with scarlet; abdomen buff freckled with scarlet and clothed with long buffish cream hairs.

Forewing brownish buff freckled all over with scarlet, a cream spot ringed with scarlet above vein 4.—Hindwing golden buff, costal area white, fringe and margin scarlet mixed with buff, outer half of wing between veins 2 and 4 freckled with scarlet.

Length of forewing: 15 mm. Expanse: 34 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 3 ♂♂.

#### 6. *Zatrephes albotestacea*, sp. nov.

♂. Pectus white; antennae pale brown; head greyish cream colour freckled with scarlet; thorax greyish cream colour; abdomen slightly darker.

Forewing greyish cream colour with a few scattered scarlet scales; ante- and a postmedian pale greenish-grey shadow lines an irregular reniform hyaline patch edged with dark crimson between veins 3 and 5; fringe irrorated with crimson, white between veins 2 and 4.—Hindwing greyish golden buff, costal area cream; fringe greyish brown ♀ much larger, a dead greyish cream colour, hindwings bright cream-buff.

Length of forewing: ♂ 15 mm., ♀ 20 mm. Expanse: ♂ 34 mm, ♀ 46 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 3 ♂♂, 2 ♀♀.

#### 7. *Zatrephes rosella*, sp. nov.

♂. Pectus white; antennae grey-brown, basal one-fourth of shaft freckled with crimson; head and thorax cream-white freckled with crimson; abdomen pale crimson, anal tuft cream freckled with crimson.

Forewing cream-buff freckled with crimson; an antemedian indistinct line, a similar postmedian line below vein 3 and various cloudings beyond middle of wing olive-grey; a large irregular vitreous patch edged with olive-grey between veins 3 and 7.—Hindwing pale crimson. ♀ with less olive-grey

clouding on forewing, with ante- and postmedian lines more distinct and hindwings paler more rose-pink.

Length of forewing: ♂♀ 15 mm. Expanse: 34 mm.

*Habitat.* La Union Rio Huacamayo Carabaya, South-East Peru, 2,000 ft., November 1904 (G. Oekenden), 1 ♀; French Guiana, Nouveau Chantier, May, 1 ♂ Type; St. Jean de Maroni, French Guiana, 5 ♂♂.

#### 8. *Amaxia maroniensis*, sp. nov.

♂. Pectus white; antennae black, basal one-fifth amber-yellow, apical one-fifth white; head golden yellow; tegulae golden yellow, patagia sooty purplish grey with shoulder patch golden yellow edged with erimson and some pink hair on edge, rest of thorax sooty purplish grey; abdomen sooty purplish grey, two last segments golden yellow, lateral scarlet stripes which join on dorsal line on penultimate segment.

Forewing costal area from base and outer three-fifths of wing golden yellow, basal two-fifths of wing except costal area sooty purplish grey with scarlet edging and nervures, basal one-third of vein 1 broadly a mixture of scarlet and yellow, a yellow median spot with scarlet ring below vein 1; a subterminal row of seven grey dots, disc of wing with a number of grey spots, four of which towards apex are larger, contiguous, and more or less edged with scarlet.—Hindwing yellowish salmon-rose; costal area whitish, a large subterminal sooty-grey elongate patch.

Length of forewing: 16 mm. Expanse: 37 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

#### 9. *Eriostepta pseudamaxia*, sp. nov.

♂. Pectus white, forecoxae pink, foretibiae erimson; antennae brown, tip white, basal segment erimson; frons dark grey with white spot, vertex golden yellow with some crimson dots; tegulae dark grey with a golden scarlet-edged spot, patagia dark grey with outer half white and a basal yellow scarlet-edged spot, rest of thorax dark grey with scarlet dots; abdomen pale scarlet-erimson, anal tuft dirty yellow.

Forewing basal half obliquely dark grey very irregular and jagged on distal edge and with several yellow scarlet-edged spots the veins being mostly scarlet; outer half yellow, six marginal fuscous dots; at apex of cell and between veins 5 and 8 four quadrate erimson-edged dark-grey patches irregularly placed.—Hindwing creamy white washed with yellow, a dark-grey terminal patch below apex.

Length of forewing: 15 mm. Expanse: 33 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

#### 10. *Paranerita postrosea*, sp. nov.

♂. Antennae dark brown, outer one-fourth white; head golden yellow with red line behind vertex; thorax dark mauve-grey; abdomen erimson, anal tuft yellow.

Forewing basal half obliquely dark mauve-grey, the distal side somewhat irregular with a tooth under cell; outer half lemon-yellow with large ovoid subapical mauve-grey patch.—Hindwings rose-pink. ♀ differs in the mauve-

grey areas of forewing being much darker and strongly suffused with crimson, in the hindwings being suffused with yellow, and in the abdomen being darker more crimson-scarlet.

Length of forewing: ♂ 13 mm, ♀ 11 mm. Expanse: ♂ 29 mm., ♀ 25 mm.

*Habitat.* Caracas, Venezuela, 3 ♂♂, 7 ♀♀; San Esteban, Venezuela, July 1909 (S. M. Klages), 5 ♂♂; Las Quignas, Venezuela (S. M. Klages), 2 ♂♂; St. Jean de Maroni, French Guiana, 1 ♀.

#### 11. *Paranerita diversa*, sp. nov.

♂. Antennae dark brown, outer one-third white; head golden yellow; thorax cinnamon-mauve-purple; abdomen scarlet, anal tuft yellow.

Forewing basal half very obliquely cinnamon-mauve-purple edged with scarlet; outer half golden yellow, a large subapical ovoid patch mauve-purple. —Hindwing cream-white irregularly suffused with yellow. ♀ larger, differs in having the subapical patch joined to basal half of wing by a broad band of same colour and ringed with scarlet, and in the hindwing being semivitreous and suffused with pale pink.

Length of forewing: ♂, 14 mm, ♀ 17 mm. Expanse: ♂ 31 mm., ♀ 38 mm.

*Habitat.* San Esteban, Venezuela, June 1909 (S. M. Klages), 6 ♂♂, 2 ♀♀; Las Quignas, Venezuela (S. M. Klages), 1 ♀; Merida, Venezuela, November 1898 (Brieeño), 1 ♂.

#### 12. *Paranerita plagosa*, sp. nov.

♀. Antennae dark brown, outer two-fifths white; head yellow broadly edged with scarlet; tegulae scarlet with golden-yellow central spot, patagia basal half scarlet with dull yellow marks, outer half mauve-brown, rest of thorax mauve-brown; abdomen dark brick-red.

Forewing dark purplish brown-grey; a trilobed subbasal golden-yellow patch edged with scarlet, a wedge-shaped golden patch edged with scarlet from middle of costa to median nervure, two irregular golden terminal patches edged with scarlet, three dull-scarlet marks round about vein 1. —Hindwings dark salmon with broad sooty marginal band.

Length of forewing: 14 mm. Expanse: 31 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♀.

#### 13. *Paranerita translucida*, sp. nov.

♂. Antennae amber-brown; head dull lemon-yellow; thorax mouse-grey; abdomen dull brick-red, anal tuft buff.

Forewing vitreous; basal two-fifths and large ovoid apical patch mouse-grey, median three-fifths of costa dirty buff. —Hindwing buff suffused irregularly with mouse-grey.

Length of forewing: 12 mm. Expanse: 26 mm.

*Habitat.* La Union, Rio Huacamayo, Carabaya, 2,000 ft., December 1904 (G. Oekenden), 1 ♂.

#### 14. *Paranerita kennedyi*, sp. nov.

♂. Antennae black-brown, tip paler; head golden yellow; thorax mauve-grey; abdomen scarlet-erimson, anal tuft buff.

Forewing outer half obliquely golden yellow; basal half and large very

irregular subapical patch mauve-grey with here and there on the edges scarlet streaks, the subapical patch joined to the basal part of wing by an irregular bar of same colour as themselves.—Hindwing pale pink.

Length of forewing : 14 mm. Expanse : 31 mm.

*Habitat.* Minas Geraës (Kennedy), 1 ♂.

15. *Paranerita rubrosignata*, sp. nov.

♂. Antennae brown ; head mixed golden yellow and scarlet ; thorax dark grey ; abdomen dark brick-crimson.

Forewing basal three-fifths except costa obliquely sooty grey, outer two-fifths yellow with various scarlet spots and rings.—Hindwings yellowish pink.

Length of forewing : 11 mm. Expanse : 24 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

16. *Hyponerita curta*, sp. nov.

♂. Nearest to *ockendeni* Rothsch., but at once distinguished by its stumpy truncated shape as if trimmed with a pair of scissors.

Antennae basal one-third scarlet, outer one-third white, centre one-third dark brown ; head golden yellow edged behind with scarlet ; thorax cinnamon-purple ; abdomen brick-red, a snow-white patch on basal segment.

Forewing cinnamon-purple ; a large wedge-shaped blunted yellow patch edged with scarlet runs in from costa beyond cell, and a smaller similar but more pointed patch runs in from centre of termen, a small apical similar spot, and two similar dots between this and terminal wedge.—Hindwings orange-buff tinged with red.

Length of forewing : 12 mm. Expanse : 27 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 2 ♂♂.

17. *Neritos subgaudialis*, sp. nov.

♂. Nearest to *gaudialis* Schaus, but much duller and without the subbasal yellow band.

Antennae brown ; head and throx dirty grey-brown suffused with scarlet ; abdomen scarlet with dot on basal segment and anal tuft dull yellow.

Forewing salmon-pink irrorated and clouded with sooty grey-brown, some indistinct subbasal scarlet markings with a minute yellow dot, a yellow scarlet-lined wedge runs in from costa, an irregular yellow patch with some dark dots in it on termen, and a small yellow apical spot.—Hindwings salmon colour.

Length of forewing : 17 mm. Expanse : 37 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 4 ♂♂.

18. *Antaxia similis*, sp. nov.

♂. Similar to *meridionalis* Schaus, but duller and more apple-green, not sulphur-yellow.

Antennae with longer pectinations and black **not** brown with pale tips ; head and thorax distinctly apple-green, borders of patagia only somewhat intermixed with maroon and crimson hairs **not** entirely maroon and crimson ; abdomen duller brick-red intermixed with yellowish green.

Forewing with the dark markings mauve-purple not brown-purple, and the subapical patch is joined to the discal patch above vein 2 by a broad oblique

band; the scarlet markings and nervures are replaced by dull pink.—Hindwings much paler pink.

*Habitat.* Oconeque, Carabaya, 7,000 ft., July 1904 (G. Ockenden), 1 ♂.

18A. *Automolis reducta sordida*, subsp. nov.

♂♀. Differ from *r. reducta* in the dark bands of the forewings being dull smoky brown *not* metallic lavender colour.

*Habitat.* Rio Janeiro, 2 ♂♂, 1 ♀ (♀ Type).

19. *Automolis decisa*, sp. nov.

♀. Near *coacta* Dogn.

Differs in having shorter, narrower, and more pointed forewings and hindwings.

Thorax pure white with pale rose and ochre spots; abdomen not so deep crimson.

Forewing pure white; median band wider, less constricted and slightly angled at vein 6, nervures in band yellowish grey *not* white as in *coacta*, basal black marks shorter, an ochre mark between the band and basal streaks.—Hindwing white tinged with pink.

Length of forewing: *coacta* ♀ 24 mm., *decisa* 19 mm.

Breadth „ „ „ ♀ 12 mm., „ 9 mm.

Expanse „ „ „ ♀ 54 mm., „ 43 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 1 ♂.

20. *Automolis sublineata*, sp. nov.

♂. Closely allied to *lineosa* Walk., but much less vitreous.

Differs on patagia by want of the small black spot.

Forewing pale cadmium yellow **not** semivitreous, white in apical two-fifths, mouse-grey in basal three-fifths; costa and intranervular streaks broadly or narrowly lavender grey, nervures and inner marginal streak black; yellow in basal part of wing darker cadmium.—Hindwing less semivitreous, pale cream-yellow tinged with pale salmon. The most striking difference apart from colour is the entire absence of the marginal black wedge spots at the end of the nervures, which are very conspicuous in *lineosa*.

Length of forewing, *lineosa* 18 mm., *sublineosa*, 20 mm.

Expanse „ „ „ 40 mm. „ 45 mm.

*Habitat.* Jinguri, Carabaya, 3,100 ft., August 1904, 1 ♂ (Type); Santo Domingo, Carabaya, 6,500 ft., December 1902, 3 ♂♂; La Oroya, Rio Inambari, Peru, 3,100 ft., September 1904 (G. Ockenden), 1 ♂.

21. *Automolis perlineosa*, sp. nov.

♀. This has been identified as *lineosa* by Mr. Schaus.

Differs from *sublineosa* in having the basal three-fifths of forewing mouse-grey as in *lineosa*, but the distal two-fifths are yellow *not* white, and there are **no** terminal wedge spots; the area each side of vein 1 deep cadmium yellow.—Hindwings salmon-pink.

Length of forewing: 21 mm. Expanse: 47 mm.

*Habitat.* Juan Vinas, Costa Rica (W. Schaus), 1 ♀; Costa Rica (Underwood), 1 ♀.

22. *Automolis garleppi maronensis*, subsp. nov.

♂. Differs from *g. garleppi* in its smaller size, and the much-reduced size of the leaden patches of the forewing.

Length of forewing: *A. g. garleppi*, 24 mm., *A. g. maronensis*, 21 mm.

Expanse of forewing: *A. g. garleppi*, 56 mm., *A. g. maronensis*, 48 mm.

*Habitat.* St. Jean de Maroni, French Guiana, 2 ♂♂.

23. *Automolis soror*, sp. nov.

♀. Allied to *inexpectata* Rothsch.

Differs in the abdomen being entirely orange-yellow and the fore- and hindwings entirely mouse-grey, with in the forewings a median whitish band narrowing to inner margin and in the hindwings to patches of similar colour.

*Habitat.* Amazonas (Meyer coll.), 1 ♀.

24. *Automolis moma tenuifascia*, subsp. nov.

♀. Differs from *m. moma* in the yellow bands of the forewings being much narrower and paler and in the light basal area of hindwing being smaller.

*Habitat.* Sta. Catharina, Brazil, 1 ♀.

25. *Elysium subterra*, sp. nov.

♂. Intermediate between *terra* Druce, and *felderi* Rothsch., having the first abdominal segment orange as in *felderi*, but the orange rings and lateral patches on the last four segments are absent as in *terra*.

*Habitat.* Huancabamba, Cerro de Pasco, Peru (E. Boettger), 1 ♂.

26. *Elysium meridionalis*, sp. nov.

♀. Resembles ♀ *superba*, Druce but much paler; the black bands on abdomen are narrower and more broken into spots and the pale bars on forewing are much narrower, and the first one after the base is only present from inner margin to above fold between vein 1 and median; the black patch at base of forewing is replaced by three minute black dots as is the case in the majority of specimens of *E. hamptoni* Dogn.

*Habitat.* Bahuru, São Paulo, September 14th, 1886, 1 ♀.

27. *Elysium underwoodi*, sp. nov.

♀. Allied to *francki* Schaus.

Antennae brown; head and thorax brownish brick-red; abdomen brick-red with large central black patch.

Forewing dull brick-red irrorated closely with dull grey-brown.—Hindwing dull pale pink, darkest distad.

Length of forewing: 24 mm. Expanse: 55 mm.

*Habitat.* Carri Blanco, Costa Rica (Underwood), 1 ♀.

28. *Elysium francki castrensis*, subsp. nov.

♂♀. Differ at a glance from *f. francki* in the entire absence of the pale strigilation on the forewing. The ♀ has much brighter more rose-carmine hindwings.

*Habitat.* Castro Parana, February 1898 (D. Jones), 1 ♂, 2 ♀♀.

29. *Opharus catharinae*, sp. nov.

♀. Allied to *flavipunctata* Herr.-Sch., but much darker. The black-brown markings of thorax are replaced by deep black; the pale orange of thorax and abdomen are replaced by deep reddish orange. On the forewing the dark marks are deep black **not** sooty brown, and on the disc beyond postmedian band are two large black cloud patches, and the postdiscal dark marks all have orange centres; the lemon-yellow spots of *flavipunctata* are all replaced by dark greenish-orange spots, while the ground-colour of the forewings is rich cinnamon-brown **not** cinnamon-grey and the hindwing is cinnamon-brown strongly clouded with black **not** greyish white.

Length of forewing: ♀ *catharinae* 34 mm. Expanse 77 mm.

„ „ ♀ *flavipunctata* 31 mm. „ 71 mm.

*Habitat.* Sta. Catharina, 2 ♀♀.

30. *Halisidota luridioides*, sp. nov.

♂♀. Nearest to *lurida* H. Edw., but much shorter and blunter in both wings and much broader.

Differs by the apex of both wings being less produced and in the wings being much wider; the abdomen is blacker; the brownish streaks and strigilations are more distinct and longer so that the general colour appears much darker.

Length of forewing: *lurida* ♂ 25-30 mm., ♀ 29-33 mm.

„ „ „ *luridioides* ♂ 25-29 mm., ♀ 25-27 mm.

Breadth of forewing: *lurida* ♂ 8-12 mm., ♀ 10-12 mm.

„ „ „ *luridioides* ♂ 12-15 mm., ♀ 11-12 mm.

Expanse of forewing: *lurida* ♂ 56-66 mm., ♀ 65-73 mm.

„ „ „ *luridioides* ♂ 56-64 mm., ♀ 56-60 mm.

*Habitat.* Monte Tolima, Columbia, 3,200 metres = 10,400 ft., January 1910 (A. H. Fassl.), 1 ♂♂; St. Javier, Rio Cachabi (Flemming and Miquetta), 1 ♀; Sto. Domingo, Carabaya, 6,000 ft., November 1902 (G. Oekenden), 1 ♀.

31. *Halisidota pseudofalacra*, sp. nov.

♂. Similar to *falacra* Dogn., but smaller and with much narrower wings.

♀. Antennae, head, and thorax dirty cream colour; abdomen similar, but greyer.

Forewings cream colour freckled irregularly with pale brown; a black stigma at lower angle of cell.—Hindwings cream colour.

Length of forewing: ♀ 20 mm. Expanse: 44 mm.

*Habitat.* San Ramon, Nicaragua, 375 ft., June 1905 (Palmer), 1 ♂.

32. *Diacrisea oriens*, sp. nov.

♂. Antennae black; head lemon-yellow, back of vertex orange; thorax lemon-yellow, hind edge of tegulae orange; abdomen deep orange with black bands except on last and first segments.

Forewing lemon-yellow.—Hindwing paler lemon. ♀ similar, but larger.

Length of forewing: ♂ 22 mm., ♀ 28 mm. Expanse: ♂ 50 mm., ♀ 64 mm.

*Habitat.* Tsūmel, South-West African Protectorate, 1 ♂, 1 ♀.

33. *Diacrisia nigrocastanea*, sp. nov.

♀. Pectus and whole undersurface of body black; antennae black; head and thorax olivaceous rufous; abdomen olivaceous orange, five black spots on median segments, a large black patch on last two segments.

Forewings olivaceous rufous-brown.—Hindwings basal three-fifths olivaceous cinnamon-orange, outer two-fifths black.

Length of forewing: 18 mm., Expanse: 41 mm.

*Habitat.* Lilongwe, Angoniland, February 2, 1910 (Andrews), 1 ♀.

34. *Diacrisea eichhorni*, sp. nov.

♂. Pectus and legs black, base of fore-coxae reddish; antennae black, head yellowish isabelline buff; tegulae and patagiae cinnamon-buff, the former with a scarlet dot near head the latter with a black patch at base, central mass of thorax black; abdomen bright crimson, a line of central black dots on all but last two segments, anal tuft brownish yellow.

Forewing greyish cinnamon-buff; three small black dots at base, an ante-median band of four large black spots, a broken broad median black band and two postmedian bands of black spots, the inner largest, from vein 8 to vein 4, a black dot at tornus.—Hindwing basal seven-ninths crimson, outer two-ninths tawny yellow; a black patch at end of cell, and an interrupted black band beyond the middle. One of the three has the black bands on forewing more extended.

Length of forewing: 26 mm. Expanse: 59 mm.

*Habitat.* Goodenough Island, May 1913 (A. S. Meek), 3 ♂♂.

35. *Seirarctia approximans*, sp. nov.

♂. Allied *clara* Holl., but larger and paler.

Antennae black; pectus pale crimson; head and thorax olive-cinnamon; a black spot on the patagia; abdomen yellow ringed with orange, basal segment pale crimson.

Forewing salmon-cinnamon **not** red-brown; strigilated with black but less densely than in *clara*, the strigilations longer and on parts of disc crowded together so as to form an ante- and a postmedian band, basal one-third almost without striae.—Hindwing white suffused with pink; abdominal area, margin, and fringe salmon colour; a discocellular black stigma. ♀ larger, differs from ♂ in having a sooty discocellular stigma on forewing, which is only occasionally present in the ♂, and in the whole hindwing being yellowish salmon colour.

Length of forewing: *clara* ♂ 20 mm., ♀ 23 mm.; *approximans* ♂ 23 mm., ♀ 28 mm. Expanse of forewing: *clara* ♂ 44 mm., ♀ 52 mm.; *approximans* ♂ 52 mm., ♀ 64 mm.

*Habitat.* Manow Mpuapua, German East Africa, 9 ♂♂, 2 ♀♀.

(Sir George Hampson considers this an aberration of *clara*, but I think it is a distinct species.)

36. *Seirarctia sordida* sp. nov.

♂. Antennae black; pectus sooty grey; head and thorax sooty brown mixed slightly with yellowish-grey hairs; abdomen greyish yellow with lateral transverse black bands.

Forewing yellowish grey irrorated with black strigilae which in the disc also form a median and postmedian band, and a postdiscal round patch above vein 5; a discocellular black stigma.—Hindwing semivitreous white, veins and costa yellowish, a black discocellular stigma. ♀ Head and thorax brownish cinnamon; abdomen banded yellow and black with pink basal segment.

Forewing brownish cinnamon marked as in ♂.—Hindwing rosy salmon colour with one larger and three small black submarginal spots as well as the stigma.

Length of forewing: ♂ 20 mm., ♀ 27 mm. Expanse: ♂ 46 mm., ♀ 60 mm.

*Habitat.* Harrar, Abyssinia (G. Kristensen), 3 ♂♂, 1 ♀.

### 37. *Turuptiana pellucida*, sp. nov.

♂. Antennae black; head and thorax brownish cinnamon-buff, frons black; abdomen deep orange, four middle segments above black.

Forewing vitreous; base, costal area, inner margin, and above vein 1 brownish cinnamon; three black spots in costal region, and two vertical black lines in the inner area.—Hindwing vitreous, abdominal and costal area brownish cinnamon.

Length of forewing: 24 mm. Expanse: 54 mm.

*Habitat.* Monte Tolima, Columbia, 3,200 m. = 10,400 ft., January 1910 (A. H. Fassl), 2 ♂♂.

### 38. *Turuptiana steinbachi*, sp. nov.

♂♀. Antennae black; head olivaceous brown-grey; tegulae olivaceous brown-grey, rest of thorax black; abdomen black, basal and anal segments dark buff.

Forewing differs from *obscura* Schaus in the postmedian black bands being much more sharply curved and angled, in the ground-colour being much darker, and in the antemedian black band being more oblique.—Hindwing in ♂ clear buff with a sooty spot above tornus and two or three minute dark dots here and there, in the ♀ it is olive-cinnamon with double median sooty band and a postdiscal row of irregular spots.

Length of forewing: ♂ 19 mm., ♀ 21 mm. Expanse: ♂ 44 mm., ♀ 48 mm.

*Habitat.* Tucuman, 1,100 m. = 3,575 ft., January—February 1905 (J. Steinbach), 1 ♂, 1 ♀.

### 39. *Turuptiana fuscescens*, sp. nov.

♂. Similar to *testacea* Rothsch., but larger and darker.

Antennae black; head buff suffused with fuscous grey-brown; tegulae basal half buff, outer half fuscous grey-brown, rest of thorax sooty brown-grey; abdomen testaceous yellow, heavily clothed with dirty fuscous hairs.

Forewing fuscous brown-grey with postmedian darker shadow band, nervure darker.—Hindwing similar with abdominal one-third clothed with long darker hair.

Length of forewing: 21 mm. Expanse: 48 mm.

*Habitat.* Rio Huacamayo, Carabaya, 3,100 ft., June 1904 (G. Oeckenden), 4 ♂♂.

40. *Rhodogastria rufitarsus*, sp. nov.

♂. Similar to *caudipennis* Walk., but distinguished by the different shape of hindwing and the broader forewing.

Antennae black, basal one-fifth crimson, **not** merely the basal joint; foretarsi entirely crimson, **not** merely the last joint; head greyish white, **not** pale mouse-grey; black spot on vertex much larger than one on frons, **not** equal size; thorax as in *caudipennis* but paler; abdomen brownish velvety putty colour, **not** cream yellow; whole of two last segments bright rosy carmine.

Forewing much whiter, light patch beyond discocellulars hardly different from basal three-quarters of wing.—Hindwing much larger than in *caudipennis*, the tornus hardly produced at all, and the termen barely excised; the apex pointed, **not** rounded, tufts in anal fold less voluminous; whole wing cream. less white. ♀ darker grey than *caudipennis* and hindwing presents some differences in shape.

Length of forewing: *rufitarsus*: ♂ 25 mm. Breadth of forewing, ♂ 15 mm.

“ “ “ *caudipennis* 23 mm. “ “ “ ♂ 11 mm.

“ “ “ *rufitarsus* ♀ 29 mm. Expanse: ♂ 58 mm., ♀ 66 mm.

*Habitat.* Rook Island, August 1913 (A. S. Meek), 1 ♂, 3 ♀♀; New Britain (C. Wahnes), 1 ♀.

41. *Rhodogastria curta*, sp. nov.

♂. Differs from *arthus-bertrand* Guen. by the almost complete absence of black spots on the thorax, by the more grey less brown colour of the forewings, and by the extremely short rounded apex and termen of the forewings.

Length of forewing: *curtus* 30 mm.

“ “ “ ♂ *arthus-bertrand* 35 mm.

Expanse: *curtus* 70 mm., *arthus-bertrand* 80 mm.

*Habitat.* Rook Island, July 1913 (A. S. Meek), 1 ♂.

42. *Rhodogastria simillima*, sp. nov.

♂♀. Very closely allied to *crokeri papuana* Rothseh., but distinguished by the front of the whole fore-tarsus and the distal half of the fore-tibia being crimson, **not** merely the first tibial joint; in the hindwing being almost entirely cream-white, **not** smoky grey; and in the antennae being crimson for three millimetres beyond basal joint. It is also smaller.

Length of forewing: ♂ *simillima* 27 mm., ♀ 31 mm.

“ “ “ ♂ *c. papuana* 33 mm., ♀ 35 mm.

Expanse: ♂ *simillima* 62 mm., ♀ 70 mm.

“ “ “ ♂ *c. papuana* 76 mm., ♀ 80 mm.

*Habitat.* Rook Island, July 1913 (A. S. Meek), 1 ♂, 5 ♀♀.

43. *Rhodogastria erythropus*, sp. nov.

♂. Differs from *astreas* Drury in the entirely crimson forelegs faintly tinged with brown on basal one-third of tibia; in the crimson base and tip of the antennae, in the dark-grey head, thorax, and forewings, **not** brownish mouse-grey as in *astreas*; in the brilliant carmine-scarlet abdomen, **not** orange-salmon; and in the salmon-coloured suffusion of the abdominal one-third of hindwing. ♀. Similar but less suffused with salmon colour on hindwing.

Length of forewing: ♂ 33 mm., ♀ 34 mm. Expanse: ♂ 75 mm., ♀ 77 mm.

*Habitat.* Rook Island, July 1913 (A. S. Meek), 5 ♂♂, 3 ♀♀.

## EUPTEROTIDAE

44. *Pandala pandaya niassana*, subsp. nov.

♀. Differs from *p. pandaya* in the ground-colour being more cinnamon-grey **not** pale mouse-grey, and in the transverse markings being much less sharply defined and much more rufous.

*Habitat.* Pula Nias, 3 ♀♀ (Type Kalim Bungo, January 1896 [T. Z. Kannegieter]); 1 ♀. Gunong Sitoli.

45. *Tagora pallida* sp. nov.

♀. Nearest to *hasiana* Moore, but larger.

Antennae black-brown; frons greyish cream-colour, vertex and collar smoky black; thorax and abdomen yellowish-grey cream colour.

Forewing greyish cream-white suffused and freckled with cinnamon-grey; a darker outwardly curved subbasal band and a sharply angled antemedian band just touching vitreous patch, beyond vitreous patch are three rather indistinct bands of darker coalescent lunate marks; the transverse band from apex to inner margin is much more basad and much more defined, also straighter and the submarginal cloud band much fainter.—Hindwings similar, but only with one antemedian band and a brown, **not** sooty; and straight, **not** crenulate postmedian band.

Length of forewing: *pallida*, 61 mm. Expanse: 134 mm.

    "    "    "    ♀ *hasiana*, 54 mm. Expanse: 117 mm.

*Habitat.* Khasia Hills, Assam (Native coll.), 1 ♀.

46. *Palerisa sinensis*, sp. nov.

♂. Allied to *cervina* but smaller. Differs from *cervina* in being much paler, more silver-grey, and in the transverse bands of the forewing being closer together and much fainter. ♀. Much less rufous than *cervina*, and has the transverse bands also much closer together.

Length of forewing: *sinensis*, ♂ 40 mm., ♀ 59 mm. Expanse: ♂ 88 mm., ♀ 131 mm.

Length of forewing: *cervina*, ♂ 49 mm., ♀ 67 mm. Expanse: ♂ 110 mm., ♀ 147 mm.

*Habitat.* Kwan Sien, China, 1 ♂, 2 ♀♀.

46. *Apona cashmeriensis major*, subsp. nov.

♂♀. Differs from *c. cashmeriensis* in the much less rufous-cinnamon ground-colour, in the markings being much more distinct, and in the larger size.

Length of forewing: *c. major* ♂ 50 mm., ♀ 53 mm. Expanse: ♂ 109 mm., ♀ 117 mm.

Length of forewing: *c. cashmeriensis*, ♂ 40 mm., ♀ 42 mm. Expanse: ♂ 88 mm., ♀ 92 mm.

*Habitat.* Sikkim (Otto Möller), 1 ♂ Type; ditto (J. G. Pilcher), 14. viii. and 20. xi. 1889, 2 ♀♀.

47. *Apona frater*, sp. nov.

♂♀. Allied to *A. shevaroyensis* Moore, but smaller and greyer.

Distinguished from *shevaroyensis* at first sight by the produced apical lappet of forewing and in the very much stronger and heavier markings.

Length of forewing: ♂ *frater*, 56 mm., *shevaroyensis*, 76 mm. Expanse: ♂ *frater* 123 mm., *shevaroyensis* 158 mm.

Length of forewing: ♀ *frater* 62 mm. Expanse: 138 mm.

*Habitat.* Khasia Hills, Assam (Native coll.), 2♂♂, 3♀♀.

48. *Pseudojana pallidipennis grandis*, subsp. nov.

♂. Much larger than *p. pallidipennis*, and the transverse lines between the oblique median band and the row of submarginal spots of forewing more numerous and more pronounced.

Length of forewing: ♂ *p. pallidipennis* 50 mm. Expanse: 112 mm.

" " " ♂ *p. grandis* 58 mm. Expanse: 128 mm.

*Habitat.* Shan States, 1 ♂.

49. *Pseudojana perspicuifascia*, sp. nov.

♂. Differs from *incandescens* above in the less olive tint of the wings, in having the subbasal antemedian and median bands of the forewings as distinctly defined as bands as the postmedian band **not** as in *incandescens* merely shadow bands, and in having three distinct shadow bands on the hindwings. Below the forewings are much more grey less olive-brown and the hindwings much deeper crimson; on both wings the postmedian is deeply concave, **not** straight as in *incandescens*. It is also smaller.

Length of forewing: ♂ *perspicuifascia* 58 mm. Expanse: 129 mm.

" " " ♂ *incandescens* 65 mm. Expanse: 143 mm.

*Habitat.* Mt. Gede, W. Java, 4,000 metres = 13,000 ft., 1896 (H. Fruhstorfer), 1 ♂.

49a. *Pseudojana perspicuifascia niassana*, subsp. nov.

♂. Differs from *p. perspicuifascia* in the olive wood-brown colour of the postdisical area of both wings above and in the orange-rufous colour below of the whole surface.

*Habitat.* Kalim Bungo, Central Nias, January 1896 (T. Z. Kannegieter), 3 ♂♂.

50. *Jana pseudostrigina*, sp. nov.

♂♀. Differs from *strigina* Westw. in its paler coloration, in having in the light area on inner side of postmedian band a row of arrow-head marks on the nervures joined into a band by intranervular lunules, **instead of** a double row of dots on the nervures **unconnected** intranervurally by any marks; and in the black antemedian band of hindwing being narrower.

*Habitat.* Lueho, Kassai River (P. Landbeck), 2♂♂, 2♀♀.

51. *Jana roseata*, sp. nov.

♂. Antennae brownish salmon colour; head buffish pink; tegulae basal half black, outer half salmon-pink suffused with sooty brown, rest of thorax salmon-pink suffused with sooty brown; abdomen dirty salmon-pink.

Forewing salmon-pink strongly suffused with sooty brown; a tripartite black stigma, an indistinct oblique subbasal and a more distinct oblique antemedian black band; a curved black median and a straight postmedian black band.—Hindwing similar, but with a somewhat indistinct antemedian black band and a very broad postmedian band excised irregularly on distal side.

♀. Much redder and bands on forewing less distinct.

Length of forewing: ♂ 60 mm., ♀ 55 mm. Expanse: ♂ 130 mm., ♀ 120 mm.

*Habitat.* Marienheim, Urundi, East Africa, 2 ♂♂; Portuguese East Africa, 1 ♀.

#### 52. *Jana aurivilliusi*, sp. nov.

♀ Antennae black; head and thorax buffish wood-brown strongly intermixed with black; abdomen less mixed with black.

Forewing buffish wood-brown much powdered with black; a pale buff stigma between which and base are two irregular incomplete black bands, median, postmedian, and subterminal zigzag double black bands.—Hindwing less powdered with black than forewing; a large intensely black subbasal patch, antemedian, two postmedian, and subterminal crenulate broad black bands.

Length of forewing: 81 mm. Expanse: 182 mm.

*Habitat.* Ogrugu, Niger, 1 ♀.

#### 53. *Jana variegata*, sp. nov.

♂♀. Antennae amber-brown, in ♂ with pale-yellow shafts; head shaggy brown much mixed with grey; thorax shaggy velvety black variegated sparsely with a few white hairs; abdomen brownish cinnamon-buff.

Forewing olivaceous cinnamon-brown; on basal five-sixths nervures broadly black, as are numerous irregular crossbars, variegated with white edged by a convex post-discal double band outwardly black, inwardly white; outer one-sixth with nervures much less broadly white and two subterminal black bands, the inner wider and more intense black.—Hindwing brownish cinnamon-buff; an intense velvety black large subbasal ovoid patch, two broad discal black bands with interspace much clouded with black, two postdiscal subterminal black bands of varying width and intensity.

Length of forewing: ♂ 45 mm., ♀ 56 mm. Expanse: ♂ 103 mm., ♀ 125 mm.

*Habitat.* Ocilonda, Bibé, Angola, October–November 1907 (E. Sanders), 2 ♀♀, Type, 1 ♂. Bibé, Angola, 2 ♂♂, 1 ♀; Bibé, Angola (Pemberton), 1 ♂; Bula-Bulu and Caijala, Angola, October 1904 (Dr. Ansonge), 2 ♂♂; "Africa," 1 ♂.

#### 54. *Jana germana*, sp. nov.

♂. Similar to *variegata* but thorax sooty grey mixed with yellow hairs.

Forewings dark grey copiously speckled with pale-yellow scales and crossed by five more or less double zigzag blackish maroon bands.—Hindwing buff, somewhat speckled with black scales mostly on outer half, and with three complete and one broken blackish maroon bands. Fringe of both wings buff.

Length of forewing: 45 mm. Expanse: 102 mm.

*Habitat.* Nandi, 6,000 ft., April 1898 (F. J. Jackson), 1 ♂.

55. *Haplojana insignifica*, sp. nov.

♀. Antennae shaft white, pectinations brown-grey; head sooty brown-grey; thorax and abdomen yellowish olive-grey.

Forewing yellowish olive-grey; a dark-grey stigma, a dark-grey somewhat oblique postmedian band, followed by an area containing irregular though indistinct dark-grey lines and patches and buffish spots; a termino-subterminal blotch-like band between apex and vein 2, very narrow at apex, widening rapidly to veins 6 and 5, and then gradually becoming fainter and narrower down to vein 2.—Hindwing yellowish olive-grey, a median dark-grey band.

Length of forewing: 48 mm. Expanse: 105 mm.

*Habitat.* Yakusu, Upper Congo, April 1901 (Kenred Smith), 1 ♀.

56. *Haplojana roseobrunnea*, sp. nov.

♂. Antennae shaft buff, pectinations amber-brown; head and thorax velvety blackish chocolate; abdomen pinkish brown.

Forewing costal area and basal one-fifth sooty brown with two convexly curved black transverse lines, next one-fifth of wing pink washed with sooty brown and with black stigma; outer three-fifths sooty brown tinged with pink, two postmedian dark-brown bands, the second double, the inward portion being pink; nervures in outer one-third black.—Hindwing basal four-fifths sooty grey tinged with pink, two transverse somewhat faint bands; outer one-fifth pink washed somewhat with sooty grey. ♀ similar, but ground-colour entirely sooty grey, no pink whatever, abdomen and fringes yellowish.

Length of forewing: ♂ 45 mm., ♀ 50 mm. Expanse: ♂ 100 mm., ♀ 110 mm.

*Habitat.* Uganda (Jackson), 1 ♂, 1 ♀.

57. *Haplojana soricis*, sp. nov.

♂♀. Antennae shaft straw-yellow, pectinations amber-yellow; head frons velvety brown-grey, vertex golden buff; thorax velvety seal-grey; abdomen yellowish brown-grey.

Forewing very thickly scaled velvety seal-grey more or less tinged with pure grey, outer one-third suffused with dark brown-grey; two oppositely oblique antemedian dark bands, a median and a postmedian dark band with a lighter one more or less coalescent.—Hindwing basal three-fifths clear grey, outer two-fifths seal-grey, an antemedian darker shadow line; termen of both wings dull yellow.

Length of forewing: ♂ 49 mm., ♀ 56 mm. Expanse: ♂ 107 mm., ♀ 123 mm.

*Habitat.* Moyamba, Sierra Leone (D. Cator), 1 ♀ Type; Cape Coast Castle, 1 ♂.

58. *Haplojana abyssinica*, sp. nov.

♂. Similar to *rhodoptera* Gerst. but much smaller; thorax and forewing uniform mouse-grey, median band replaced by faint shadow line, hindwing yellowish grey with shaggy buffish hair at base and on abdominal area. ♀ ground-colour entirely mouse-grey.

Length of forewing: *rhodoptera* ♂ 50 mm., ♀ 53 mm.

.....*abyssinica* ♂ 39 mm., ♀ 48 mm.

Expanse: *rhodoptera*, ♂ 110 mm., ♀ 116 mm., *abyssinica*, ♂ 87 mm., ♀ 106 mm.

*Habitat.* Harrar, Abyssinia (G. Kristensen), 1 ♂, 3 ♀♀.

59. *Haplojana distincta*, sp. nov.

♂ Antennae amber-brown; head golden buff; thorax sooty grey-brown, slightly marked with buffish; abdomen pinkish buff.

Forewing basal two-thirds sooty grey-brown washed with cinnamon, a tripartite black stigma, a median darker shadow line, a double slightly erenulate postmedian band the inner part of which is buff and joined to which are a number of nervular arrow-heads; the outer one-third is divided in half by a erenulate shadow band, the inner half being yellowish grey, the outer cinnamon rosy grey.—Hindwing basal three-fifths cinnamon-pink, outer two-fifths cinnamon-pink washed with grey and separated by a crenulate shadow line. ♀ similar but larger, with abdomen cinnamon-pink.

Length of forewing: ♂ 40 mm., ♀ 46 mm. Expanse: ♂ 89 mm., ♀ 103 mm.

*Habitat.* Ukarewe, Victoria Nyanza, June 1907, 1 ♂, 1 ♀.

60. *Hemijana ruberrima*, sp. nov.

♂. Palpi salmon-red; antennae sooty black; head sooty brown suffused with pink; thorax yellowish grey tinged with salmon; abdomen salmon-yellow.

Forewing cinnamon-grey tinged with salmon; three minute stigmatic dots; three postmedian crenulate dark-grey lines; fringe and subterminal area stained with salmon-red.—Hindwing salmon-scarlet. A second ♂ has the stigmatic points and postmedian bands much more heavily marked.

Length of forewing: 27 mm. Expanse: 60 mm.

*Habitat.* Bibé, Angola (Pemberton), 2 ♂♂.

61. *Hemijana griseola*, sp. nov.

♂. Antennae dark brown; head and thorax cinnamon silver-grey; abdomen cinnamon grey-brown.

Forewing yellowish brown-grey, a subbasal chocolate patch on inner margin, an antemedial transverse line to base of vein 2; a strongly angled and sinuate postmedian brown line beyond which is a less strongly marked and less sinuate line on the outer edge of which between vein 6 and costa are three dark-brown dots.—Hindwing yellowish cinnamon, a lot of darker hair on abdominal area; a median shadow line and a dark-cinnamon postmedian line.

Length of forewing: 24 mm. Expanse: 54 mm.

*Habitat.* Mooi River, Natal, 1 ♂.

62. *Hemijana variegata*, sp. nov.

♂. Antennae black; head and thorax pale chocolate-brown; abdomen orange-brown.

Forewing cinnamon pinkish white, outer one-third umber-brown washed and clouded with pinkish cinnamon and cinnamon-white; on basal one-fourth are three large irregular umber-brown patches and several lines, a black stigmatic dot beyond which is a brown patch; the outer one-third of wing is sharply cut off from basal paler two-thirds.—Hindwing salmon-pink, outer one-third with ill-defined broad sooty grey-black band and suffusion.

Length of forewing: 24 mm. Expanse: 55 mm.

*Habitat.* Delagoa Bay (Mrs. Monteiro), 1 ♂.

63. *Camarunia bipartita*, sp. nov.

♂. Antennae dark brown ; head and thorax olive-chocolate ; abdomen olive wood-grey.

Forewing divided obliquely from apex to inner margin into two portions ; costal portion olive-chocolate, a shadowy darker stigmatic patch, dividing line dirty pink ; tornal portion yellowish grey washed with olive-brown and with four transverse lines of varying length, the two middle ones crenulate.—Hindwing yellow-grey with two dark-grey transverse bands ; a wedge-shaped area running almost to base between abdominal area and costal three-fifths of wing dirty orange.

Length of forewing : 25 mm. Expanse : 55 mm.

*Habitat.* Ogrugu, Niger, 1 ♂.

64. *Phasicnecus monteironis*, sp. nov.

♀. Antennae black ; head golden yellow ; thorax orange-cinnamon ; abdomen yellowish cinnamon.

Forewing rosy cinnamon-chestnut ; fringe, apex, and costa cinnamon-orange ; an oblique somewhat sinuate band from below apex on vein 7 to inner margin olive-brown suffused with silver-grey.—Hindwings pinky yellowish cinnamon, fringe orange.

Length of forewing : 21 mm. Expanse : 48 mm.

*Habitat.* Delagoa Bay (Mrs. Monteiro), 1 ♀.

65. *Phasicnecus similis similis*, sp. nov.

♂. Near *rosea* Druce.

Antennae black ; head and thorax golden yellow ; abdomen greyish yellow.

Fore- and hindwing pale yellow ; on forewing in outer two-fifths a large purplish cinnamon band occupying most of the two-fifths of wing from inner margin to vein 7 ; on hindwing in same portion of wing a less distinct cinnamon patch above veins 1 to 3. ♀ Much larger. Head and tegulae golden yellow ; thorax pinkish cinnamon ; abdomen dirty orange-yellow. Forewing purplish chestnut-cinnamon ; two darker transverse bands, beyond the outer of which is a large areal patch of purplish maroon-chestnut sprinkled with silver-grey scales.—Hindwing slightly paler.

Length of forewing : ♂ 22 mm., ♀ 27 mm. Expanse : ♂ 50 mm., ♀ 61 mm.

*Habitat.* Lilongwi, Angoniland, January 1910 (Andrews), 1 ♂, 2 ♀♀.

66. *Phasicnecus similis flavidior*, supsb. nov.

♂. Entirely cinnamon-yellow.

♀. Ground-colour golden yellow **not** purplish chestnut-cinnamon as in *s. similis* ; disc of forewing somewhat washed with purplish cinnamon, markings as in *s. similis*.

*Habitat.* Kasangazi, nr. Bandawe, Lake Nyassa, 3,000 ft. (Dr. Penrice). 1 ♂, 1 ♀.

67. *Phasicnecus giganteus*, sp. nov.

♀. Antennae brown ; head brownish orange ; thorax purplish cinnamon-choeolate ; abdomen paler.

Forewing thinly sealed but very hairy, purplish cinnamon-chocolate; a postmedian whitish-pink transverse band.—Hindwing paler.

Length of forewing: 38 mm. Expanse: 85 mm.

*Habitat.* Moyamba, Sierra Leone (D. Caton), 1 ♀. A second ♀ is in the British Museum.

68. *Phasicnecus peropalinnus*, sp. nov.

♀. Antennae brown; head, thorax, and abdomen pale buff-grey. Wings yellowish vitreous strongly opalescent with numerous indistinct crenulate and sinuate transverse darker markings, these latter being almost absent in basal three-fifths of wings.

Length of forewing: 25 mm. Expanse: 54 mm.

*Habitat.* Bitje, Ja River, Camaroons, 2,000 ft., January—February 1907 (G. L. Bates), 1 ♀.

69. *Phasicnecus nivalis*, sp. nov.

♂. Antennae grey-brown; frons sooty black, rest of head, thorax, and abdomen snow-white. Wings snow-white, very hairy; an antemedian band, a basal band, a postmedian band, and a band of coalescent rings greenish grey.

Length of forewing: 27 mm. Expanse: 61 mm.

*Habitat.* Bingerville, Ivory Coast, June 1915 (G. Melou), 1 ♂ Type; Moyamba, Sierra Leone (D. Cator), 2 ♂♂.

70. *Viana magnifica*, sp. nov.

♀. Antennae black; head and thorax purplish brown.

Forewing thinly sealed purplish chocolate; a whitish streak on discocellulars, a darker postmedian line inside of which are varying clouded areas of whitish scales.—Hindwing orange-rufous, outer one-third purplish chocolate.

Length of forewing: 30 mm. Expanse: 67 mm.

*Habitat.* Lagos, West Africa.

71. *Acrojana splendida*, sp. nov.

♀. Antennae brown, shaft mauve-grey; head and thorax purplish mauve-grey; abdomen paler.

Forewing apple-green; an oblique postmedian band, costal region, a large quadrate patch in and beyond cell, a series of markings in basal one-fifth of wing, and patches and cloudings in apical and outer one-third of wing purplish mauve-grey; a round chocolate subbasal patch on costa.—Hindwing costal one-third bright carmine-rose, rest of wing apple-green with lines and cloud patches of purplish maroon-grey.

Length of forewing: 61 mm. Expanse: 133 mm.

*Habitat.* Wassaw district, 45 miles inland from Sekondi, Gold Coast, 1 ♀.

THE SUBSPECIES OF *CYANOPICA CYANUS*.

BY DR. ERNST HARTERT.

UP to 1903 all the blue-tailed Magpies of eastern Asia were supposed to be one and the same race; in *Vög. pal. Fauna*, i. p. 24, I separated the form from southern and middle China as *Cyanopica cyanus swinhoei*, which is indeed readily distinguishable by the darker, more rufous grey-brown upperside. The exact distribution of *swinhoei* is not yet quite certain; I have examined skins from Kiukiang, Hupeh, Woochang, Shanghai, Chinkiang, Zemingdah in China. We have also a ♂ collected at "Gumansi" in Amdo, and there are three specimens in the British Museum, from Przewalski, which are labelled "Kansu." Unfortunately Kansu is a rather vague locality, but the one from Amdo and the three Kansu skins agree quite with my *swinhoei*, and not with my *interposita*, which we should have expected there.

In 1903 I queried the Japanese form (p. 23), and it has been named *C. cyanus japonica* by Parrot (*Orn. Monatsber.* 1905, p. 26, and *Zool. Jahrb.* xxv. p. 22, 1907). This Japanese form is smaller than *C. c. cyanus* and *swinhoei*, and the back is darker and more greyish. Parrot laid stress on the white tips to the lateral rectrices, but their presence or absence is an individual character; it is true that all young birds have them, but also many perfectly adult ones exhibit them, while they are entirely absent or only narrow or indicated in others. It was an accident that the majority of the Japanese skins examined by Parrot had white tips, for only one of those in the British Museum has them.

Since then we have received, from the late Alan Owston in Yokohama, a large series (45 specimens) from Tai-pai-shan, Tsin-ling Mts. These birds are easily distinguished from *C. c. cyanus* and *swinhoei*, but very closely allied to *japonica*! In fact the only difference from the latter is the darker grey back! With these Tsin-ling birds agree those from Corea in the British Museum (5 ♂♂, 2 ♀♀), collected by Anderson), and I must identify with this form also a female from Sungpan in north-western Setchuan and one from Peking. The Tsin-ling, Corea, and Peking race is also frequently larger; while the wings of Japanese skins measure 132-139, once only 142 (my own measurements only), those from Tsinling and Corea have wings of 132-148 mm., but this difference in size may not hold good, as so many more Tsin-ling and Corea birds were measured, and were compared with only 14 Japanese ones.

I name the birds from Corea and Tsin-ling, to which would also belong those from Peking, though I have only seen one,

*Cyanopica cyanus interposita*, subsp. nov.

Type: ♂ ad., Tai-pai-shan, Tsin-ling Mts., 20. xi. 1905, collected by Owston's Japanese collectors.

*C. cyanus cyanus* differs almost invariably from all the other forms by having the blue-black cap more purplish.

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## FURTHER NOTES ON SOUTH AMERICAN BIRDS.

BY DR. ERNST HARTERT AND ARTHUR GOODSON.

(See *antea*, pp. 410-419.)*Note on Diglossopsis caerulescens.*

THIS species was first described in 1856, from Caracas, Venezuela, but in the *Cat. B. Brit. Mus.* xi. p. 12 the habitat is given as "Andes of Venezuela, Colombia, Ecuador, and Peru." This requires some alteration. First of all the mountains near Caracas should not be called the "Andes," being—especially faunistically—rather separated, as has been shown by Professor Sievers and recent ornithological explorations. Then the forms from various parts of this wide range are not all alike.

The Peruvian bird is *D. caerulescens pallida* Berl. and Stolzm. 1896.

The specimens from Colombia and the real Andes of Venezuela (Merida) are darker and somewhat more purplish, and the bill is slightly smaller. They are evidently *D. caerulescens saturata* Todd. It is, however, not very enlightening to find this form described from one spot, La Palmita, Santander, Colombia, one male only being mentioned, and it being left to the imagination of the reader whether only that single bird or a series had been examined. (Cf. *Proc. Biol. Soc. Washington*, xxx. p. 128, 1917.) It would have been desirable to make this clear, and to say whether birds from Merida and Bogotá, which are represented in most large bird-collections, are the same or not. According to Hellmayr specimens from Merida are again "darker and more uniform bluish" than Bogotá ones; our material is not sufficient to be certain about this, as we have only four Bogotá skins to compare with ten from Merida. However this may be, it is quite certain that the topo-typical birds from Caracas are quite distinct, being paler and less purplish on the upperside, paler underneath, chin less blackish, and the bill longer. We have received fine skins from near Caracas from Mr. S. M. Klages.

*Mecocerculus leucophrys nigriceps* Chapm.

*Mecocerculus nigriceps* Chapman, *Bull. Amer. Mus. Nat. Hist.* xii. p. 154 (1899—Described from a single specimen, not sexed, from Los Palmares, State of Cumana, Venezuela).

*Elainea gularis* Madarász, *Ann. Mus. Nat. Hungar.* i. p. 462 (1903—Andes of Merida, Escorial).

Messrs. Hellmayr and Seilern (*Arch. f. Naturg.* lxxviii. p. 72, 1912) say that they cannot separate Venezuelan specimens from *M. leucophrys setophagoïdes* from Bogotá, but we cannot agree with them. Not only is the upper surface of Bogotá specimens darker and browner, in Venezuelan ones paler and more olivaceous, with but a slight greenish tinge, especially on the lower back and rump, but the wings in the latter are also shorter. The wings of the Venezuelan birds range from 60 mm. (Hellmayr's measurement of 58 is probably incorrect, as he has not stretched the wing) to 65 and even 66, while in Bogotá birds they vary from 66 to 72 and even 73—doubtless the smaller specimens being females, the larger males, though the sexing on some of our skins does not agree, but must be incorrect.

The Venezuelan birds being different from *setophagoides*, they must be called *M. leucophrys nigriceps*, though we should not have attempted to name such a closely allied form from a single unsexed specimen, as such work can only be suggestive and not definite. Nor is the name *nigriceps* a suitable one, as the crown is by no means actually black, though a shade darker than the back.

Two specimens from Mt. Roraima, British Guiana, collected by Whitely, agree in their small size with *M. l. nigriceps*, but are as dark on the upperside as *M. l. setophagoides*. The Guiana specimens in the British Museum agree with those in Tring and it will probably become necessary to separate them.

The material in the Tring Museum is as follows :

*M. l. leucophrys* : Tucuman and S. Peru, 8 ♂♀.

*M. l. nigriceps* : Merida, Caracas, Cumana, 12 ♂♀.

*M. l.* subsp. nov. ? : Guiana, 2 ♂♀.

*M. l. setophagoides* : Bogotá, 9

We have no specimen of the typical *leucophrys* from Bolivia.

#### *On the subspecies of Cymbilanius lineatus.*

There are at least four forms of this species, as follows :

##### 1. *Cymbilanius lineatus lineatus* (Leach).

*Lanius lineatus* Leach, *Zool. Misc.* i. p. 20. pl. 6 (1814—Berbice, Guiana).

The males are darker than those of all the other races, the white cross-bars narrower, those on the underside less wide than the black bars. The females have the tail black-brown, almost black, with rather narrow pale rust-brown bars; ♂ wing 76–80, ♀ 76–79 mm.

4 ♂♂, 4 ♀♀ British Guiana, Surinam and Cayenne.

##### 2. *Cymbilanius lineatus intermedius*, subsp. nov.

♂. The white cross-bars on the upperside are slightly, those on the underside much wider, being as broad as or broader than the black ones. In the ♀ the rusty cross-bars are slightly wider on the upperside, the bars on the outer webs of the quills and wing-coverts are wider and more rufescent, the tail has wider and more rufescent cross-bars, and the ground-colour is more brownish, not so blackish. Underside lighter, the barring more or less incomplete in the middle. Wing ♂ 75–78, ♀ 75–77 mm.

Rio Madeira, Brazil (terra typica), Santarem, Tefé on the Rio Solimoes, Yquitos in Peru, Chucurras in the province of Huánuco, Perú.

Type: ♀ Humaytha, Rio Madeira, 31. vii. 1906. W. Hoffmanns coll.

We have before us 8 males and 7 females from Humaytha, Calama, Borba, Allianca, Uricurutaba near Santarem (Lower Amazons), Tefé, all collected by the late W. Hoffmanns, 1 ♂ from Chucurras, and 1 ♀ from Yquitos in Peru, collected by H. Whitely. We have also 5 ♂♂ and 4 ♀♀ from the Caura River, collected by André and Klages, which we cannot separate from these birds.

##### 3. *Cymbilanius lineatus*, subsp. nov. ?

Males from North-west Ecuador have the white bars on the underside even wider than in *C. l. intermedius*, and in *C. l. fasciatus* from Central America, but are certainly nearer to the former than to the latter. *C. l. fasciatus* is in both

sexes darker on the underside than *C. l. intermedius*. Unfortunately we have only one female from North Ecuador of which we could not say for certain that it differs from those of *intermedius*, though the barring on the abdomen appears to be more sharply defined. We prefer to await more material before deciding about this form.

Specimens from West Colombia, judging from Hellmayr's note, *Proc. Zool. Soc. London*, 1911, p. 1157, must be the same as our West Ecuadorian ones.

#### 4. *Cymbilanius lineatus fasciatus* Ridgw.

This form, the male of which is very little, the female, however, much darker than that of *C. l. intermedius* and more resembling that of *C. l. lineatus*, is restricted to Central America from Nicaragua to Panama. Ridgway (*B. N. and Middle Am.* v. p. 20) is wrong in extending its range to Peru, and Hellmayr (*Proc. Zool. Soc.* 1911, p. 1157) is mistaken in stating that birds from West Ecuador are true *fasciatus*.

We have of this form 3 ♂♂, 2 ♀♀ from Costa Rica and Panama.

#### Note on *Thamnophilus naevius* auct.

We learn from Ridgway (*B. N. and Middle Amer.* v. p. 49) that the correct name of this species is *Thamnophilus (Erionotus) punctatus*. Gmelin's *Lanius naevius* of p. 308 cannot be used, because he had already a *Lanius naevius* on p. 304, which is evidently a *Tityra*. *Lanius punctatus* Shaw, *Gen. Zool.* vii. pt. 2, p. 327 (1809) is based on Levaillant's "Le Tachet" from Cayenne (*Lev. Ois. d'Afrique*, ii. pl. 77, fig. 1). Therefore the Cayenne form is

#### *Thamnophilus punctatus punctatus* (Shaw).

Hellmayr (*Abh. Bayer. Akad.* 2 Kl. xxii. Bd. iii. Abt. pp. 658-660, 1906) states that *Th. punct. atrinucha* is found in Bogotá collections. Our Bogotá females, however, have the crown of the head chestnut, if anything a little darker than in ♀ *Th. p. punctatus*, and not rusty brown or "russet or mars brown" as Ridgway calls it, like the females of *Th. p. atrinucha*. The underside is slightly more brownish. On the other hand the males seem generally to agree better with those of *atrinucha*, except that the entire crown is of a uniform black, almost to the bill, the sides of the head are uniform grey as in *Th. p. punctatus*, without or with very fine white hair-like lines on the ear-coverts, and the superciliary region is uniform, not mottled as in *atrinucha*. The back of the Bogotá form is much like that of *atrinucha*, i.e. darker, with more black. The bills agree with those of *punctatus*, while those of *atrinucha* are larger. We propose to name this intermediate race

#### *Thamnophilus punctatus interpositus*, subsp. nov.

Type: ♂ ad., Native Bogotá collections, in the Tring Museum. (Ex. Coll. Nehr Korn, typical Bogotá preparation).

Several females from Jimenez, W. Colombia, Palmer coll., in the British Museum are typical *atrinucha*. Hellmayr, *Proc. Zool. Soc.* 1911, p. 1158, also affirms this. Two Bogotá specimens in the British Museum fully agree with ours.

*Th. albiventris*, at least what we call *albiventris* from West Colombia and

Bogotá collections, differs in both sexes by the much paler underside and middle of abdomen more or less white.

We have examined the following material in the Tring Museum besides that of the British Museum:

*T. p. punctatus* : 24 ♂♂, 19 ♀♀.

*T. p. interpositus* : 4 ♂♂, 5 ♀♀.

*T. p. atrinucha* : 16 ♂♂, 9 ♀♀.

*T. albiventris* : 8 ♂♂, 11 ♀♀.

*On the subspecies of **Thamnophilus doliatus**.*

*Th. doliatus doliatus* (L.) (terra typica substit. Surinam!) is the darkest of all the South American forms of this species.

Distribution : Surinam, Cayenne, and parts of British Guiana.

*Th. doliatus fraterculus* Berlp. and Hart. (terra typica Altagracia on the Orinoco!). Cf. Nov. Zool. 1902, p. 70.

Distribution : Orinoco region, Trinidad. Specimens from Merida and the Tachira district seem to us to be absolutely indistinguishable from *fraterculus*. Todd (*Proc. Biol. Soc. Washington* xxvi. 1913, p. 172) described a male from Tocuyo, collected by Carriker, as *Th. dol. heteroleucus*; he says that it is whiter than *fraterculus*. No mention is made of the size of wing or bill, nor is the female described! Two males from San Esteban near Puerto Cabello are indistinguishable from *fraterculus*. We are, therefore, afraid that *heteroleucus* will be a synonym of the latter.

**Th. doliatus tobagensis** subsp. nov., Tobago Island.

Very near to *fraterculus*. In the male the whole underside is generally a little more whitish, the throat distinctly more white, the black spots mostly smaller and broken up, not in lines as in *fraterculus*. Sides of head distinctly more white. ♀ paler underneath, especially on the throat, which is quite unspotted. ♂ wing 73-82, ♀ 73-78 mm.

Type : ♂ ad., Plymouth, Tobago Island, 23. iv. 1903. Collected by Pasca, one of André's collectors.

*Th. doliatus catus* Bangs (terra typica Margherita Island).

We have only one ♂ from Margherita Island, collected by Lt. W. Robinson, and 9 males and 14 females from Cumana, which agree perfectly with the Margherita form. The bills of these birds are distinctly smaller than those of *fraterculus* and *tobagensis*. The underside of the males is like that of *tobagensis*, but the throat marked as in *fraterculus*. The females are very similar to those of *tobagensis*, but the throat is more or less spotted as in a Margherita female in the British Museum. Wings ♂ 70-75, ♀ 70-72 mm. The measurements given by Bangs for *catus* must be too small, for even if the wing is not stretched on the ruler, our Margherita male has a wing of fully 70 mm., and in no form of *doliatus* is the female larger than the male. The one Margherita female we have seen has a wing of 70 mm.

*Th. doliatus subradiatus* Berlp. (terra typica Yquitos, Upper Amazonia). The males differ from the former subspecies by having the crown mixed with less white, and sometimes without any white, and the females are deeper rufous. (*Th. variegaticeps* Berl. and Stolzm., *Proc. Zool. Soc. London* 1896, p. 379, from Central Peru, La Merced, is evidently indistinguishable from *subradiatus*.)

The following material is in the Tring Museum, in addition to which, that of the British Museum has been examined :

*T. d. doliatus* : 11 ♂♂, 9 ♀♀ ad.

*T. d. fraterculus* : 35 ♂♂, 26 ♀♀ ad.

*T. d. tobagensis* : 8 ♂♂, 7 ♀♀ ad.

*T. d. catus* : 12 ♂♂, 14 ♀♀ ad.

*T. d. subradiatus* : 7 ♂♂, 6 ♀♀ ad.

*T. d. difficilis* : 8 ♂♂, 6 ♀♀ ad.

*T. nigrescens* occurs together with *T. d. doliatus*, and judging from the description (*Field Mus. of Nat. Hist.* vol. i. No. 7, p. 290, and No. 10, p. 337) a race of it has been described from Zulia, Venezuela.

***Thamnophilus bernardi baroni*, subsp. nov.**

A series of seven skins in the Tring and British Museums collected by O. T. Baron in North-west Peru (Trujillo and Yonan River) differ from typical *T. b. bernardi* from Guayaquil, Puna I., and Tumbes (Brit. Mus.) in both sexes being much darker above, especially the females, which are rich dark chestnut instead of brown or brownish chestnut ; ear-coverts and sides of the head in the female more blackish ; bill generally longer. Wings also longer. Wings in the males 86-88, in the females 80 mm., as against typical males with wings measuring Guayaquil 80, Puna I. 81, females Guayaquil 75, Puna I. 76. Birds from Puna Island are slightly more greyish above and therefore slightly paler than birds from Guayaquil.

Type : ♂ ad., Yonan River, 3,000 ft., north-east of Trujillo, 15. vi. 1894. O. T. Baron coll.

*Note on Myrmeciza longipes griseipectus.*

There is a curious variation in the males of this subspecies, and there are probably several forms of it. It was described, under the name of *Myrmeciza swainsoni griseipectus* from the Orinoco, the type being from Caicara. The four Caicara specimens have all a very light rufous upperside and small black spots on the wings. Seven Guiana specimens have the same light rufous colour of the upperside and no black spots on the wings or only indications of the latter. The specimen from Munduapo (one) and four from the Caura River are darker chestnut and have all large, strongly marked black spots on the wings. The two ♂ birds from Obidos, on the Amazonas River, are quite as dark as those from the Caura and Munduapo, and equally heavily spotted. The **females** of all the subspecies of *longipes* have spotted wings.

Therefore there seem to be three different subspecies instead of one, because in *M. longipes longipes* (8) and *panamensis* the males (6) have always unspotted wings and the variation in the shade of rufous on the upperside is small.

Further material should be examined, to clear these questions.

***Synallaxis unirufa meridana*, subsp. nov.**

Differs from *S. unirufa unirufa* by its darker, more rufous colour throughout, and especially the dark-chestnut tail, which is much darker than the rest of the upperside, while in *S. unirufa unirufa* the tail is almost uniform with the head and back. Wings 59-62, tail 90 mm.

Habitat : Andes of Merida (Escorial, 3,000 m. ; Walle, 2,165 m.).

Type : ♂ ad. Escorial, 15. v. 1903, Salomon Briceño Gabaldon & Sons coll.

We have a male, apparently not quite adult, collected by O. T. Baron at Guayabamba, 5,500 ft., on September 23, 1894. This bird closely resembles topo-typical Bogotá birds, but is still a little lighter on the upperside, and the bill is shorter than in Colombian and Merida specimens.

*Sclateria naevia trinitatis*, subsp. nov.

♂ ad. Upper- and underside much paler than in *S. n. naevia*, more slaty grey than dark slate-colour ; there is generally more white on the underside, especially on the throat. ♀ ad. Also much paler on the upper- and underside, the white centres to the feathers of the breast and abdomen mostly larger. Size the same as that of *S. n. naevia*.

Hab. : Trinidad.

Type : ♂ Caparo, Trinidad, 10. iv. 1902. E. André coll.

We have received 4 ♂♂ and 2 ♀♀ from Caparo, André coll., and a ♂ and a ♀ from Savana Grande, Trinidad, 18. ii. 1897, Dr. Percy Rendall coll.

Of *S. naevia naevia* we have before us three males and two females from Cayenne, three males and one female from Surinam, and a female, collected by F. Schwanda at Miritiba, State of Maranhao, Brazil, 18. ii. 1908. This seems to be quite a new locality for this species, though Dr. Sneath records it from Pará, Ilha das Onças, St. Antonio do Prata, and Rio Acará.

*The subspecies of Pseudocolaptes boissonneautii.*

Hellmayr and Seilern, *Archiv f. Naturg.* lxxviii. p. 99 (1912) gave a short review of the subspecies of *P. boissonneautii*, but the case is not so simple, and much more complicated, than they thought.

We have nothing to say about *P. boissonneautii striaticeps* from the coast-mountains in Northern Venezuela, which is quite distinguishable, but we cannot unite the birds from Merida, of which we have 12 adult and 2 juvenile specimens, with the typical *boissonneautii* from Colombia. They differ from the latter not only in the throat being distinctly yellowish as in *striaticeps*, but there are also other differences. The chest has a less scaly appearance, as the feathers have no blackish edges and are more yellowish ; the abdomen is generally, but not always distinctly lighter, but the tail is always lighter from above and below. In our opinion the Merida form is therefore undoubtedly nearer related to *striaticeps* than to *P. b. boissonneautii*. In fact it differs from *striaticeps* only in the more blackish crown of the head, the less scaly chest, and the lighter rump and tail, and under wing-coverts and lining of the wing. The length of the bill is variable, differing according to sex and age, and also individually. We call this form

*Pseudocolaptes boissonneautii meridae*, subsp. nov.

Type : " ♂ " (but evidently ♀, having the bill very long), Vale of Merida, 16. ii. 1888, Salomon Briceño Gabaldon coll. (Tring Museum).

Only one form has been recognised in Peru, but this cannot be quite correct. *P. boissonneautii flavescens* was described from Maraynioc (cotype in Tring) in Central Peru, which is the terra typica, though a skin from Cutervo in Northern

Peru was united with it, while it is specially said that the Bolivian bird differed in having yellowish ear-tufts, those from Peru having white ones. The bill was specially described as short, compared with the typical Bogotá form. Now O. T. Baron collected a series of eight specimens at an elevation of 10,000 ft. near Leimabamba, and these differ strikingly from *flavescens* (which is supposed to be a synonym of *auritus* Tsch.) in having a very long and straight bill, and a lighter rump and tail, while the ear-tufts are really pure white, which cannot be said, in our opinion, of the type of *flavescens* from Maraynioc. The description of *auritus* by Tschudi seems to us to agree better with the birds from Leimabamba, especially the length of the bill.

All our Ecuadorian skins, collected by Goodfellow and Hamilton, differ from the Peruvian ones in having pure white throats, and not the light tail of the birds from Leimabamba, while they differ from the Bogota ones in their much darker chestnut tails.

To decide about these forms it will be necessary to examine Tschudi's type and more material from Central Peru and Bolivia. Two specimens from Bolivia in the British Museum agree with our eotype of *flavescens*.

#### Note on *Philydor erythrocerus*.

Arranging our specimens of *Philydor erythrocerus* we find that there are three distinct groups, evidently representing three different subspecies.

The skins from Cayenne (Cherrie coll.) are slightly more olivaceous on the upperside, the rufous patch on the lesser upper wing-coverts hardly traceable, the outer edges of the outer webs of the primaries olive without any rufous tinge whatever. Bill slender, length from nostril to tip in males 12.5-13, females 12 mm. These birds agree perfectly with one of Pelzeln's original specimens collected by Natterer on the upper Rio Negro. Therefore these birds must be called

#### *Philydor erythrocerus erythrocerus*.

Specimens from Pará, collected by Wallace, Steere, Robert, and Hoffmanns, differ at a glance by having the outer webs to the primaries lighter and with a conspicuous rufous tinge, the whole upperside less olivaceous, the rufous patch on the lesser upper wing-coverts more conspicuous, except in juvenile birds. The bill is of the same shape as in the Cayenne birds.

One male and four females from Calama on the Rio Madeira, collected by W. Hoffmanns in 1907 agree in coloration with the Pará birds, but the bills are thicker and less elongated, not so slender, measuring from the nostril 10 to 11.6 mm.

George K. Cherrie, *Bull. Am. Mus. Nat. Hist.* xxxv. p. 186, 1916, described a new subspecies which he called

#### *Philydor erythrocerus lyra*

from the "Rio Roosevelt," Matto Grosso, from a single female. Measurement of bill not given. This new form seems to agree with our birds from Pará and Rio Madeira in coloration, and must be either of them, if they are different subspecies, which seems to us evident, but should be confirmed by bigger series.

It may be added that in this species the males are larger than the females, the wing of the latter being about half a centimetre shorter.

**Coryphistera alaudina campicola** Todd.

In *Proc. Biol. Soc. Washington* xxviii. p. 170 (1915) W. E. Clyde Todd described a specimen collected by Steinbach at Guanacos, Bolivia, under the above name. We have a skin collected by the same field-collector at Yuay, provincia Cordillera, South Bolivia, at an altitude of 450 m., which would seem to belong to this new form; the description of the upperside agrees, but we should rather say that the underside was brighter and more boldly striped; moreover, there is a striking difference in the coloration of the tail, the outer four pairs of rectrices having much more black than our five specimens from Tucuman, Argentina.

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# NOVITATES ZOOLOGICAE.

19 MAY 1918

A Journal of Zoology.

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.

VOL. XXIV.



No. 4.

PAGES 503—528.

PLATES XI. AND XII.

ISSUED MARCH 1918, AT THE ZOOLOGICAL MUSEUM. TRING.

PRINTED BY HAZELL, WATSON & VINEY, LD., LONDON AND AYLESBURY  
1918.

VOL. XXIV.  
NOVITATES ZOOLOGICAE.

EDITED BY  
LORD ROTHSCHILD, ERNST HARTERT, and KARL JORDAN.

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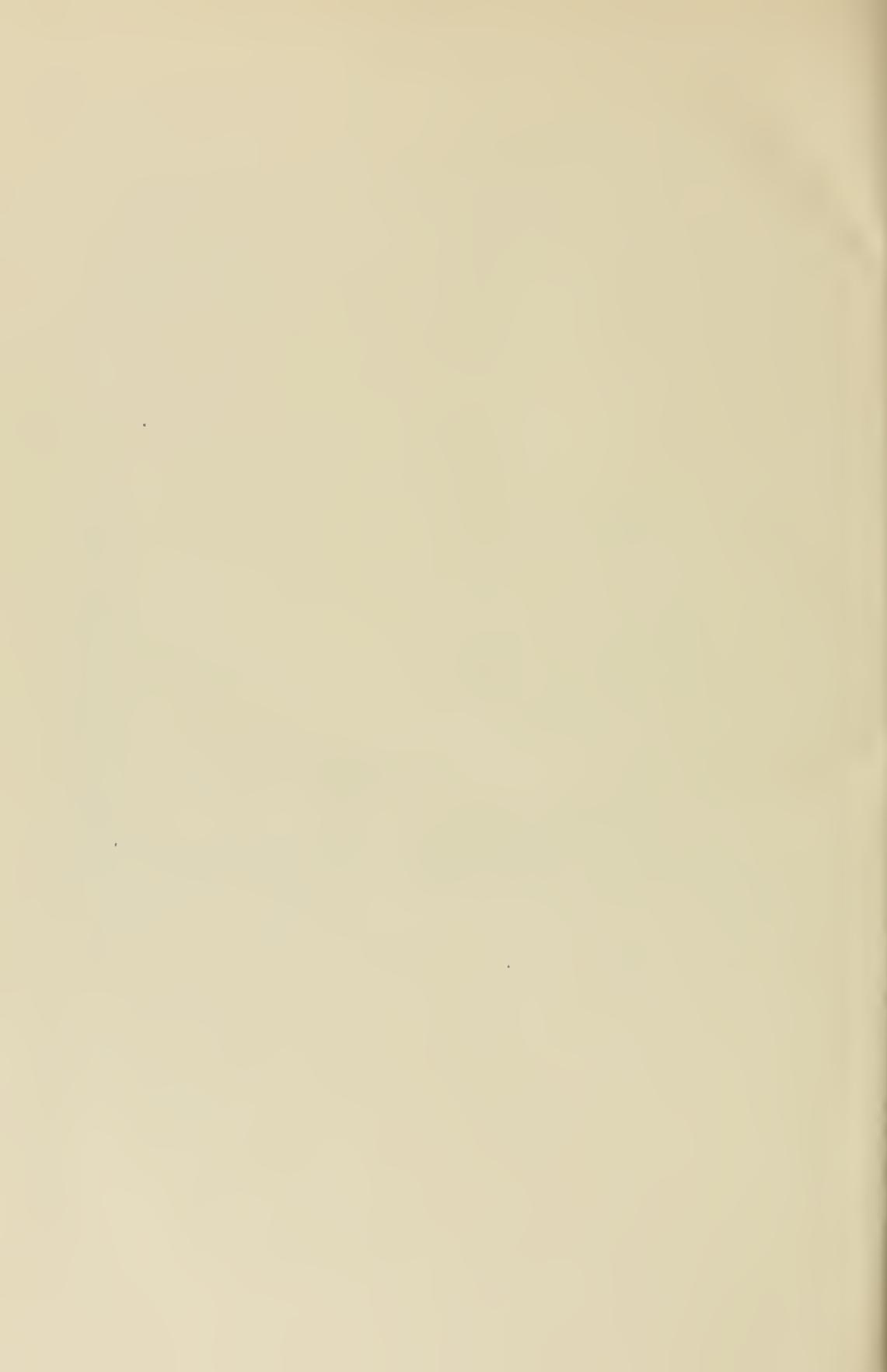
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