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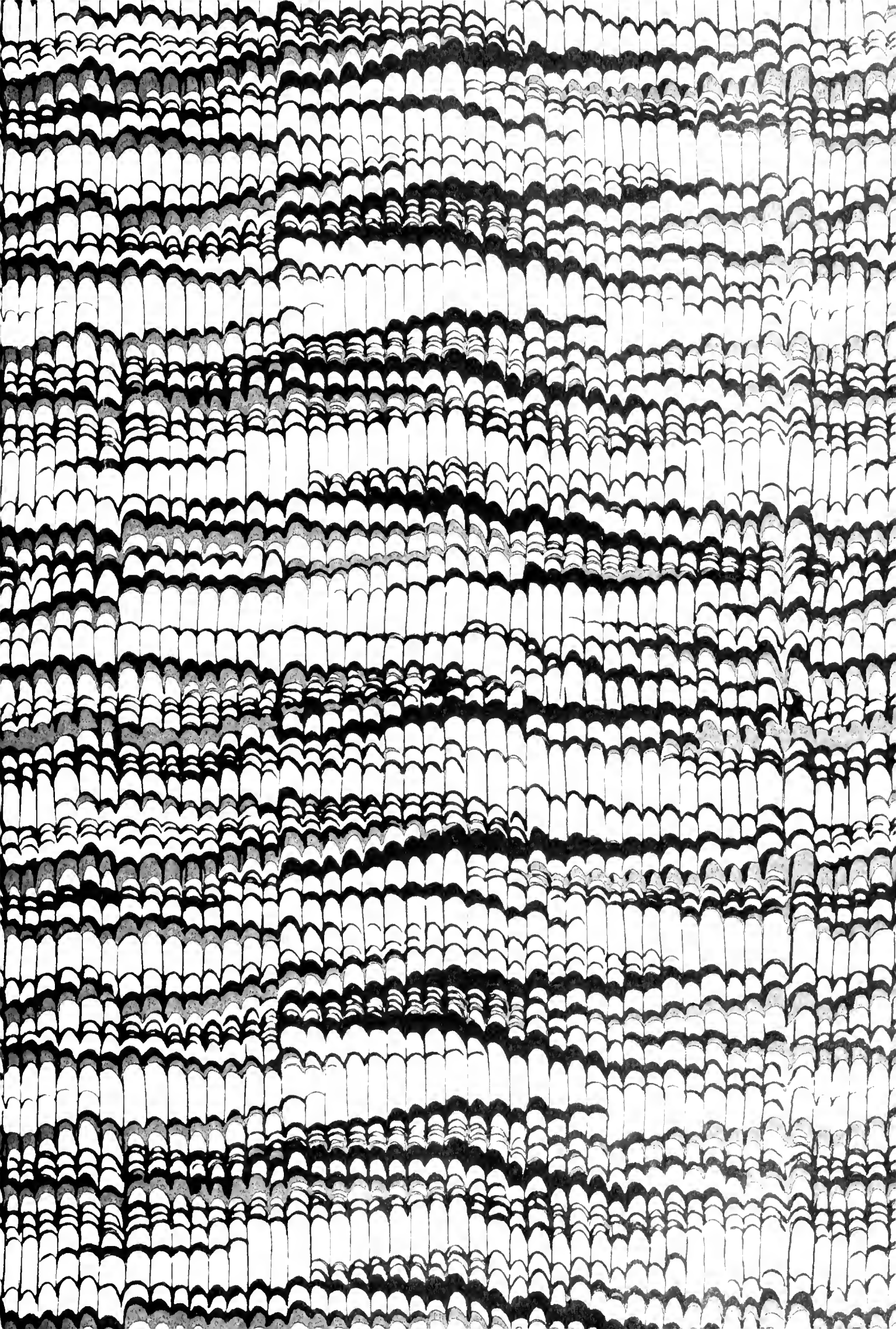

HESPERIDAE

BY

M. C. PIEPERS AND P. C. T. SNELLEN

WITH THE COLLABORATION OF H. FRUHSTORFER

WITH 6 COLOURED PLATES

THE HAGUE
MARTINUS NIJHOFF
1910
WILLIAM WESLEY AND SON
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THE

RHOPALOCERA OF JAVA

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INTRODUCTION.

In the preliminary observations prefixed to my study on the Java Pieridae, I expressed my intention to enter into a more particular discussion of various biological facts or phenomena—though, in a general way, these also concern the Rhopalocera or even the Lepidoptera—when treating of the families in which these facts or phenomena stand out more clearly, either on account of their frequent occurrence, or because they are very obvious or particularly suitable for observations in them. Indeed, by thus uniting such discussions with the treatment of certain families, I can at the same time indicate more easily the examples with which my considerations in this respect are concerned and mostly illustrate them with figures, without which such considerations always remain obscure for many a one. Thus, in connection with the treatment of the Pieridae I discussed especially the subject of colour-evolution and the pretended tropical seasonal influences.

Also with regard to the Hesperidae, some observations may now be made about the phenomena of colour-evolution. These butterflies are of course subjected to the same evolutionary changes, but only in a few species is this distinctly visible. The KORUTHAIOLOS XANITES Butl. e.g. have preserved on a part of the fore-wings the original red colour, while for the rest the upper-side of the fore-wings has been entirely darkened by the increase of black pigment. Hence this red colour forms there a band the extent of which, however, differs very much in different individuals and the colour also fades from dark orange into lighter shades, whilst in other species the same evidently happens in the more advanced stadia of orange, yellow and white. Thus among the species living in Java such a yellow band is found on CELAENORHINUS DHANADA Hb. which has faded into white in other CELAENORHINUS species and also in NOTOCRYPTA

RESTRICTA Moore. [1]) All this perfectly agrees with the phenomena of the process of colour-evolution as is seen in the case of the Pieridae. The Javanese imagines of the said family, however, for the rest present no other examples that are so clear of this evolutionary process, although for one who is aquainted with this phenomenon, it will never be difficult to explain their colour. Indeed a survey of the Javanese imagines of this family, in connexion with those to be found in other regions, distinctly shows how the process of the said evolution moves along fixed lines, whose direction, it is true, in consequence, we suppose, of an inborn, probably correlative tendency, is not always the same, but along which the evolutional change for the rest continues independently. Viz., in this sense that usually the surroundings evidently have no influence thereon, and that this change entirely independent of other similar changes, to which the same animals may be subject, goes its own way. Thus, confining ourselves to those that are the most distinct, we can clearly distinguish among the Javanese Hesperidae three directions of colour-evolution which undeniably give to the pattern of colours of many species, belonging to different genera, the same character, and which, for the sake of convenience, I shall indicate by some well-known species in which they are found, as the THRAX-, the FEISTHAMELII and the COMMA-type.

The first named after ERIONOTA THRAX Clerck, L., is, besides in this species, also to be found in GANGARA THYRSIS F., in UNKARA ATTINA Hew., in HIDARA IRAVA Moore, and also, though somewhat reduced, in PARNARA BRUNNEA Snell, and many others.

The second, characterised by the above mentioned transversal band on the fore-wings in NOTOCRYPTA FEISTHAMELII Bsd. and RESTRICTA Moore, and,

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[1]) The same transversal band on the upper-side of the fore-wings also appears among many Rhopalocera of other families and evidently has its origin in some cause, thus far unexplained, which, between the more inward lying part of the fore-wings and the rest, not unfrequently gives rise to a difference of condition, the nature of which is consequently not yet known, but distinctly manifested in the fact that owing to it, the process of colour-evolution does not continue there likewise. On the upper-side of many species this is more or less distinctly visible; clearly e.g. in the IPHIAS (HEBOMOIA) species, in the family of the Pieridae and further very generally on the under-side, through which in very many species arises, mimetically looked upon as protecting coloration, the well-known equality in colour between the hind-wings and that part of the fore-wings, which, when at rest, is not covered by the hind-wings, in both which places the said process has reached the same development. Frequently the line of demarcation between these two parts consists in the aforesaid, mostly more or less paled, band, and when this is the case, there is usually also a similar band on the upper-side; this would, however, be very difficult to explain if it were true, according to the mimicry theory, that the said coloration of the under-side had developed as a protecting one.

moreover, in many CELAENORHINUS species and also with a difference in colour in COLADENIA DAN F. and the two KORUTHAIOLOS species.

The third, that of the European HESPERIA COMMA L. in AMPITTIA MARO F., TELICOTA AUGIAS L. and AUGIADES Felder, in many PADRAONA species and also, though in a somewhat modified form, in PLASTINGIA CALLINEURA Felder.

Besides these there are also many Hesperidae which have taken another trend of colour-evolution, sometimes one that is only to be found in a very few species. In accordance with what seemed to follow from my former study of the evolutionary process of the annihilation of the so-called caudal horn of the caterpillars of the Sphingidae, I suppose that the reason of this is to be found in the special correlative wants peculiar to each species, which as such may differ from those of other species, but may also resemble them, at least so far, that they admit the same arrangement of pigment. For the moment, however, the other directions may be left out of consideration. From what has been said above, it is evident that all the three types spoken of appear in different genera; moreover, a comparison with the Hesperidae occurring in other regions, shows that the same types are likewise represented among the species of the Palaearctic, the Neoarctic and the Neotropical fauna. Hence whilst their appearance in different genera, whose characteristics, through different evolutional changes, have sprung from a primitive type, distinctly shows that their process of colour-evolution has continued quite independently of the other change-processes, to which the same animals were at the same time subject, it is also clear from the appearance of the same types in such different zones, that climatical or other external influences cannot have played any part in the evolutional process of which they are the expression. Conversely, species of the same genus, living in the same region, have sometimes developed in another way. As e. g. in Java PLASTINGIA CALLINEURA Felder and P. TESSELLATA Hew.

What are we to say, in the face of such facts, of the usual assertion that the colours of Lepidoptera and their arrangement are dominated by climatic and other external influences, nay, that the former are even caused by them? What of those pretended results derived in such a superficial way from the well-known heat and cold experiments on the first states of Rhopalocera?

If the phenomenon of colour-evolution in the case of the Pieridae, however obvious in the imagines, is mostly but slightly noticeable with regard to the caterpillars, in the case of the larvae of the Hesperidae, on the contrary, this is all the more noticeable, especially as regards the head, which organ is of a peculiar form and of a striking colour. About this I shall speak afterwards. But first I wish to add to my considerations concerning the phenomenon of

colour-evolution the following general remarks. I then repeatedly expressed my opinion that nowadays no actual scientific significance should be attributed to any views on animal coloration, in which the phenomenon of colour-evolution is not taken into account. I now wish to reiterate this most emphatically with regard to Mendelism, nowadays so very fashionable in the domain of biology. If it is an ascertained fact that the pigmental colours of insects, and very probably of other animals also, as they exist in some species or even certain individuals, only show stages in a continnous series of evolutionary colour-changes, then this ought to be taken into account in any truly scientific study of the colour-changes appearing in the offspring, through cross-breeding or otherwise, of individuals having such a colour. I do not refer to the colours of plants, because I do not know whether they also show the phenomenon of colour-evolution, and if so, whether in the same manner as animals; the conclusions of Mendelism, however, are of a general biological nature, and therefore, if these conclusions are to be valid, the facts on which they are based, ought to hold good both for animals and for plants. With regard to various cross-breeding processes, however, as between mice and between canary-birds, to which so much value is attached nowadays, this is not the case. Where the appearance of a certain coloration among animals has to be explained in the above manner, such a coloration can never be regarded as a well-defined character as the Mendelian theory supposes,—a supposition which is indeed absolutely necessary for the soundness of the theory. To regard an evolutional modification of colour, such as normally occurs among animals, for an acquired character, and thence draw conclusions, as often happens nowadays, must then, where the said knowledge exists, be regarded as absolutely erroneous. Is it not remarkable that, in a well-known experiment which is said to serve as a confirmation of Mendelism, a cross-breeding of a black hen with a white cock at first results for some generations in white and black cocks and hens, but that at last the black ones entirely disappear, while wholly white hens are produced exclusively amongst whose offspring only white ones ever appear? No Mendelism explanation can annul the fact that the process in question is entirely the same as that which, according to the theory of colour-evolution, always occurs and that consequently the white cocks and hens are such as in this evolutional process have already reached a more advanced stage than those among which black has held its own to a great extent. The latter, however, will sooner or later lose this black colour evolutionally, to be substituted bij white, so that finally only white ones come to exist. Of the same nature are the investigations of Prof. LANG at Zurich concerning the crossing of the plain yellow and the yellow wit black striped individuals of HELIX HORTENSIS, which are also said

to confirm the Mendelian theory. If the experiment of DARWIN is cited, who, by the crossing of a white with a black pigeon, is said to have obtained a blue pigeon in the second generation, the nature of this blue ought to be inquired into. As to Lepidoptera, colour-evolution seems only to occur as far as the pigmental colours are concerned? but then blue is never a pigmental but always a structural colour and is specially frequently met with on scales, containing a black pigment. But as to what is the nature of the colours in question, why the ancestors of the said hens were white or black, or from what that colouring has arisen, about all that the Mendelian theory does not trouble itself. Words such as dominant or recessive element, and the like, have, of course, to take the place of an explanation. The usual method nowadays. To what an absurd, quasi learning a blind persistence in the said theory can lead, was lately evident on the occasion of researches concerning the polymorphism of PAP. MEMNON L. in two papers, typical of the same nature as the absurdities, that have excreted on the mimicry theory. When treating on this species, I shall fully recur to this.

In the first place I must speak here about a subject which in the treatment of this family may not be passed over in silence, viz. the question whether the Hesperidae may really be reckoned among the Rhopalocera group. Formerly this was generally accepted, afterwards, however, systematists have arisen who maintain that this must be erroneous, and owing to the fact that I had followed the old custom in my study concerning the appendages of the wings of the Lepidoptera I was, some years ago now, severely criticised by a certain German systematist, who reproached me with not keeping pace with modern entomology. Such an attack I regarded as rather childish in itself and the more so because it was made by a mere systematist; for how insignificant after all, from a systematic point of view, is this division into the two groups of Rhopalocera and Heterocera? But, moreover, I venture to question the soundness of this point of view. Originally the difference assumed between these two groups was not founded on systematic, but on biological grounds, and, indeed, the main difference between the two still lies therein, though in later years it has all been wrapped in a systematic dress by determining structural characteristics, especially as regards the absence of a fully-developed bristle and loop, fastening the fore-and hind-wings near the base, and in regard to the antennae, from which, indeed their name has since been derived. From a biological point of view the family of the Hesperidae undoubtedly stands nearest to the Rhopalocera, notwithstanding the fact that, first, the shape of its antennae differs somewhat from that of the Rhopalocera proper—but still much less than from that of the Heterocera—and secondly, that the Hesperidae, a family undoubtedly

separately differentiated from the Heterocera, show some more relics of them still, so much so that the frenulum of the Heterocera, though very rarely, is still found among them. It is true that systematism has, of late, dissociated from the Hesperidae such species as those in which this organ is still present, and classified them with the Heterocera (CASTNIIDAE); but this is only forcing on one the rules of the system in contradiction with all natural affinity: for these species also, according to their whole habitus, are real Hesperidae. And as for the others, as Mr. SNELLEN assured me, we do not, indeed, find there a fully developed bristle and loop, but still in the same place there are some stiff hairs performing the same function, whose presence, as far as they are concerned, seems to point to a very close affinity with the Heterocera.

No doubt from the earliest times that people began to take some interest in the once so much despised insects, they must have noticed that some Lepidoptera fly chiefly by day, others in the dark, and that there is a structural difference between the two classes. Indeed, in the vulgar tongue the two have always borne different names, so that it is even very probable the conception that they belong to the same group, is of a much later date, a conception which forsooth even at the present day is almost absent among illiterate people. Hence when science began to take notice of the Lepidoptera the above named distinction —a biological one, since chiefly based on the animal's way of life—found its expression in LATREILLE's division into *Diurna*, *Crepuscularia*, and *Noctua*. Soon however, it became evident that the middle category was entirely factitious and that the two others also were not quite correct, because many so-called *Noctua* fly chiefly by day and even in a blazing sun; afterwards it became known also that many so-called *Diurna* do not chiefly fly by day, but in the twilight. Then people tried to found a sytematic distinction on somatic characteristics and so the two above named groups were accepted. But though we may agree with this for the sake of an orderly arrangement in entomology, we should not forget—however much systematism, especially in Germany, has aimed at absolutism in this, and though its biological treatment has even been regarded as not scientific—, that also the old division into *Diurna* and *Noctua*, at least from a biological point of view contains much truth and that an impartial naturalist ought to take this into account in his systematic arrangement as much as possible. Looked at from this, in my opinion the correct, point of view, the Hesperidae will continue to be classed among the Rhopalocera, I think.

It is true that some Rhopalocera, in Java also, do not fly by day except when roused, but only fly in the evening-twilight and probably also at dawn. The twilight in the tropics does indeed not last very long, but still it is not so short as astronomy teaches. For as soon as the sun in the evening has so

far gone down that its rays only touch the visible part of the earth more or less horizontally and are consequently still more tempered by trees and unevenesses of the ground, something sets in which compared with the blazing day-light we may call a kind of twilight lasting from a quarter of an hour to as much as half an hour. Something similar happens in the morning. The Rhopalocera, however, that fly then belong only to a few species, as is also the case with those that live continually in the twilight of the dense forests or in the heavy clouded mountains; their number is insignificant compared with the others which are real *Diurna* and even, for a great part, true children of the sun.

Conversely the same thing happens in the Heterocera. Comparatively many species of this group fly by day and even in full sunshine, but still their number is insignificant, compared with the multitude of real *Nocturna*.

After thus choosing a somewhat broader biological point of view, more in keeping with nature than systematism pure and simple, one has still a right to make a general distinction between the aforesaid two large groups: the *Diurna* and the *Nocturna*.

The more so as all Lepidoptera belonging to each of these groups are evidently adapted to that difference in mode of life, so much so that some of the organs connected with this have either assumed a special form, or on becoming useless have been atrophied. The latter happened, as far as the Rhopalocera are concerned with regard to the frenulum already spoken of, the former especially with regard to the form of the antennae. For why this form differs so much in the two groups is, indeed, not known to us, but that such a difference exists and is even rather considerable, cannot be denied; that the cause of this lies in the difference of the mode of life is, it is true, a supposition, but one to which we may surely attach some importance for this further reason also that the antennae are undoubtedly organs adapted to sense perception.

The thread-like, yet stiff club-shaped antennae, which characterize the Rhopalocera, are found in them just as normally as the frenulum in the Heterocera. And this is the case with all Lepidoptera, belonging to each of these groups; such Rhopalocera as perform their functions of life in the twilight, have the same antennae as the others, just as well as those Heterocera which fly in the sunshine agree with the other moths, both as regards the form of the antennae and the presence of the frenulum. Hence there cannot be much doubt that such species as have become somewhat differentiated in their mode of life from the great body of their group, though now in that respect approaching the other group, yet originally followed the habits of the group with which they still agree in structure of body, and only became differentiated from them at a later date. If we ask ourselves then to which of the two groups

the Hesperidae are nearest allied, the answer cannot be doubtful, the above named frenulum, as has been said, does indeed occur in this family, but only very rarely, and evidently as a mere relic; and their antennae are of the same stiff thread-like nature as those of the Rhopalocera, though the club-form is somewhat modified; with those of the Heterocera they agree in no wise. All this is still further corroborated when with regard to affinity, we do not, as is usual in systematism, merely pay attention to the characteristics of the imago, but also biologically take into account the early stages. The Rhopalocera have undoubtedly become differentiated from the Heterocera and specially from those of whose caterpillars the spinning-power was strongly developed. This we infer from the circumstance that this power is not merely present in the first named group as a mere relic, but can as such be clearly seen in different degrees of gradual decrease by any one who is convinced that for the right understanding of structural changes it is necessary, as I have already pointed out so emphatically in my considerations on the phenomenon of colour-evolution, always to bear in mind their evolutional character. It is not accidental that in some families of the Rhopalocera, the spinning power of the larvae when pupating is still manifest only in the attaching of the anal extremity of the pupa by a button of silk, while in a great number of families the pupae are attached, besides at the anal extremity, also by a so-called silken girdle-thread, which is evidently purposely spun for this. Undeniably the reason of this is an evolutional decay in the use of the spinning power, as I have already pointed out on page 72 of my monography on the Javanese Pieridae [1]) which may be ascribed to the circumstance that where the animal had slowly, as if through involuntary practice, acquired the power to pass the pupal state with the head extremity turned downwards, it was no longer necessary for the pupa to be kept in an upright posture by means of the girdle-thread, so that consequently the girdle-thread had become superfluous. This simplification, however, has only been accomplished in a small number of families, although in the others also there is often a manifest tendency in the same diretion. In the latter group, the succincti of BOISDUVAL, the spinning power results therefore in so much more as is required for the application of a girdle-thread, which is no longer necessary in the suspensi. Herewith also agrees the fact that in those cases where in the old forms of Rhopalocera the evolutionary change is as yet much less advanced, and the spinning-power is consequently much more active and agrees more in this respect with those Heterocera from which the Rhopalocera have differentiated,

[1]) Through a mistake in the translation which was overlooked in the correction of the proofs, the words *suspensae* and *succinctae* in lines 21 and 22 were unfortunately transposed.

these old forms (Parnassius, Doritis, Zegris) belong tho the Papilionidae, and further as regards the chrysalides, to the succincti; for they are also fastened by a girdle-thread, which is not the case with the Heterocera, to which, for the rest, they are allied in this respect.

At least this is not the case with those more highly developed Heterocera from which the Rhopalocera must have been differentiated; among their lower forms however, in particular among some Geometrae, we also find such a girdle-thread; but here the question turns only on a phenomenon of convergence.

Accordingly it follows from this that succincti, as the Rhopalocera of the genus Papilio—in the still unknown metamorphosis of a species of which, P. Coon F., I have been able to observe a still more developed spinning-power—as regards the development of the said power stand midway between the more powerful, occurring among the old forms of Papilionidae and the more reduced in the families which are therefore counted by Boisduval among the *suspensi*; in this we clearly see three degrees of development and hence the gradual, evolutional decay of the power in question. And what do we see in the chrysalides of the Hesperidae? They have in this respect reached the very same stage of evolution as the above-mentioned old forms of the Papilionidae. In them also the spinning-power is rather strongly developed, in one species more than in another and in many the pupae are still surrounded by a good deal of loose cocoon. Besides this they are always fastened both at the anal extremity and by a girdle-thread; they are indeed real succincti. If Boisduval had been better acquainted with this, he would only have been able to maintain his class of involuti as a subdivision of the succincti. It appears, therefore, that the Hesperidae, in this respect also, are much more to be considered as belonging to the Rhopalocera than to the Heterocera. Finally this is also borne out by the form of the pupae. Some of the chrysalides of the Hesperidae, their colour cooperating in this, as those of Odontoptilum Angulatum Feld., strongly remind us of those of pupae of the genus Pieris, but in all of them the form is generally much more allied to those of the Rhopalocera than to those of the other group. The angular sharp-edged thorax often provided with a pointed head-process, is in a somewhat modified form also found in other Rhopalocera, but is quite different from what in this respect is found in the Heterocera. On these grounds I believe I am fully justified in continuing to reckon the Hesperidae among the Rhopalocera and also to devote a monograph to this genus. To avoid the less exact name of Rhopalocera for the Hesperidae a main division has of late, again been adopted viz. Diurna, which has again been subdivided into two sections, the Rhopalocera and the Grypocera, then denoting the Hesperidae by this

latter name. I am however, of opinion, that there are quite enough names and divisions already.

The Hesperidae however, belong unquestionably to a form not so far differentiated from the Heterocera as the other Rhopalocera and therefore in some respects they still stand between these two groups. This is very marked as regards their manner of flying and the time at which they usually fly. For while the great body of the Rhopalocera, as I observed above, are real diurnals, the reverse is probably true of the Hesperidae. Some species of this family fly by day, a few even in the blazing sun. Among these diurnals there are some that have a peculiar custom in their flight, a custom which is especially found in another family likewise of the Rhopalocera, viz. in that of the Erycinidae, and which, if I be not mistaken, also occurs in some Geometrae. We refer to their custom to disappear suddenly from sight, after they have flown up, by placing themselves with outspread wings against the under-side of a leaf. This is probably a means of defence, for he who is not acquainted with this custom, has absolutely no idea what has become of such a butterfly and will not easily find it again. Others, on the contrary, fly most certainly in the evening. Thus for instance the large and very common ERIONOTA THRAX Clerck; it is often roused in the day time by people approaching banana-trees (MUSA) on which its larva feeds, but when so roused it immediately settles down again on some other object; in the evening, however, one may see it flying about of its own accord in banana-gardens. This is also the case with some species, such as HASORA MYRA Hew. and MATAPA DRUNA Moore, which in the evening-twilight may often be seen flying on flowers exactly in the same manner as the Sphingidae are accustomed to do, suddenly darting from one flower to another or flying away, or sometimes also coming back and whilst continually fluttering about sucking honey from the flowers with their long trunk. But the time and the opportunity to observe this is very limited, and so I have been unable to ascertain about most species of Hesperidae in Java whether they usually fly in the evening or at night; but if we take into consideration that I have never seen them fly by day either, though I have had every opportunity to observe them, and that when roused by day they immediately settle down again in the same manner as we have just stated of the ERIONOTA THRAX Clercq, which manner is also characteristic of evening-fliers in other families, for instance of the well-known CYLLO LEDA L., then it becomes very probable that these Hesperidae-species also do not belong to such as normally fly by day.

Hence in this respect the Hesperidae are again more nearly allied to the group of Heterocera than to that of Rhopalocera. In fact those Hesperidae that visit

flowers in the evening in exactly the same manner as the Sphingidae, are, like these, strong, swift fliers and their structure answers to this.

The manner in which Hesperidae hold their wings differs considerably in different species, sometimes agreeing with that of the Heterocera, sometimes more with that of the Rhopalocera. As to the first class there are some species which, also when at rest, keep their wings spread out without folding them together. This is the case with the South-American ANTIGONUS species; as SEITZ observes, and also e.g. with the Javanese ODONTOPTILUM ANGULATUM Feld. Most species, however, clap the wings together when at rest; but very many of them do not spread them out quite flat when flying, but keep them half raised, which is doubtless connected with, let us say, their springy way of flying that as such resembles most the flight of the Sphingidae.

That in which the Hesperidae show the greatest peculiarity may be observed in these Lepidoptera in their larval state. The body of many larvae of the Hesperidae is more or less transparent, a phenomenon which I do not remember having met with to the same degree in other larvae. I should not be surprised if this transparency caused a certain sensibility to light, which is the reason why Hesperidae-caterpillars, mostly live in rolled up or bent down leaves so as not to be exposed to the full daylight; for I also found that such larvae of the Lycaenidae as are considerably transparent, though less than many Hesperidae, lived inside leguminous plants and hence were not exposed to full daylight. It is, therefore, quite common that the vas dorsalis of such larvae is distinctly visible, sometimes so much so that the time of its lateral contraction can exactly be observed. Very often, too, the testes of ♂ larvae lying on both sides of the vas dorsalis stand out very clearly as great, yellow, crescent-like bodies; through the transparent sides of some larvae numerous, thin, yellow canals may also be seen.

The heads of these larvae are peculiar, both in respect to their form and especially in their colour, these heads, namely, are particularly large and disk-like, the fore-side, however, somewhat convex and sometimes slightly bifurcated at the upper-side. In many species they are very striking, so that by this alone we can usually tell the larvae of this family at once, and besides their size and peculiar shape this is especially to be ascribed to their striking coloration, which is so characteristic in the different species, that they can often be very well distinguished from each other by that alone, though, as we shall see, mistakes are very easily made here. Now in this coloration the process of colour-evolution is quite evident as we have already indicated above, and leads to very peculiar phenomena. Sometimes the general colour of these heads is red, orange, yellow in different tints, and sometimes also white, showing in

this manner the different degrees of paling which characterize the said process, often, however, they are either dark or light brown, sometimes even paling into a slightly brownish white, sometimes also entirely a deep black. Finally there are also caterpillars of this family whose heads are concolorous with the rest of the light green body. Besides the entirely black heads, black appears more or less on all the others in the form of spots, streaks or lines, in whose number, size and placing is a very great difference, yet in the same species mostly so constant, that it gives rise to a marked characteristic of the species. Not always, however; and in such cases a mistake between the species is easily made. The black spots on the large heads give to many of these larvae a peculiar appearance.

The cause of this difference in the marking of the heads, and of the circumstance that this arises principally from the black that appears on them, cannot be very doubtful to one, who regards this in the light of the said evolutional phenomenon. Besides the paling of the original red colour into white, the black colour has evidently followed the usual process of colour-evolution as far as the black pigment is concerned, by extending itself in different ways until the head had become entirely black, in which stadium, in fact, some species are still, and then again by decreasing; this decreasing process, however, progresses very unequally in the several species, so that there remain various streaks and spots as relics of it. While in such species in which meanwhile also the paling had already grown from red to white, the decrease of the black pigment sometimes weakened the colour of the whole head regularly into brown of various shades, until at last there only remained a very little dark pigment mixed with white. In every one of these stages some species are to be found. The question then arises with each species whether the black colour on the head is still in a state of increase or already in a state of decrase. To a certain degree this question can be answered from the study of the first larval stadia, which show the earliest phylogenetic state. If in them, black is more extended than is the case with the larva in its present grown up form, the evolutional change has evidently caused a decrease of it, in the other case, it has brought an increase. The phenomenon of colour-evolution, however, was not yet known to me when I made my observations concerning the larvae in question; I did not understand the phenomenon until later days, hence I have made no purposed researches in this respect; entomologists coming after me, may devote their attention to this. Nevertheless I have here and here, because the phenomenon, though as yet not understood by me, drew my attention, noted down some observations connected with it, and I can make some use of them here.

In the young larva of TAGIADES JAPETUS Cram. I found the head red,

afterwards it became dark, brown or black. Hence an increase of black.

In the case of the young larva of HASORA BADRA Moore, the head of the young larva is black; afterwards it becomes blood-red with five black points. Hence decrease of black; five relic spots have been left and this even before the red colour had paled.

In the case of the larva of HASORA MYRA Hew. the head is orange; when it is grown up, on each side a little black spot is to be seen; but in the young larva two more somewhat larger black spots. Therefore decrease of the black.

The head of the young larva of PARNARA CONJUNCTA Herr-Sch. seems to be black with a little white, and, in its adult condition, white with not always the same black relic-spots or streaks. Decrease of black.

In the case of PADRAONA DARA Koll. the head of the young larva is black; afterwards it becomes gray, or clay-coloured with some dark marbling. Decrease of the black pigment.

The head of the young larva of TELICOTA AUGIAS L. is black or dark brown, afterwards it becomes lighter with a dark marbling of a greater or smaller extent or intensity, sometimes also the head of the adult larva remains dark brown. Decrease of black more or less developed in the different individuals.

Thus, except in the first named case, where black seems to be on the increase, we notice in all these cases a decrease of black; and probably this is the general rule; all those spots and streakes, which give rise to such peculiar head-markings, make on the connoisseur quite the impression of being relics. The increase of a colour in the process of colour-evolution is as a rule more equal; in the above named case of increase, it advances too, uniformly over the entire surface. That in some larva-species the colour is sometimes greatly different in different individuals, dit not escape VAN DEVENTER'S notice either (*Archief Java Suiker Ind. 1902*) and hence, although not understanding the cause of it, he represented many of those forms of coloration. Exactly the same thing, indeed, we observe in the larvae of this family living in other regions. Subsequent researches may still clear up much in this respect, but the fact that the process of colour-evolution here stands out very clearly, is indisputable, I think. The colour of the body of the larvae, indeed, has in some species undergone an evolutional change, but not in such a striking manner as is the case with the heads. Also as regards the nature of the green colour of the head of some larvae, I wish to wait for further researches. Evidently this green colour of the head is concolorous with the general colour of the body, and although the green colour of larvae is sometimes formed from yellow with the addition of some black pigment, it also very often arises from other causes; in such cases then this ought first to be inquired into,

before we can also sufficiently judge about the appearance on those green heads of dark spots or lines or sometimes even of white and red streaks-doubtless also relics—as in the larva of PARNARA MATTHIAS F.

Undeniably, and hence very characteristically, connected with the fact of colour-evolution of larvae, are the curious cases of convergence respecting their colour, which occur in some species and one of which I also observed amongst those of the Javanese Hesperidae. My observations, it is true, have not been quite sufficient, because in order to study such cases well, one ought to breed, side by side, from their earliest days, many specimens of the two resembling species, but I have never had an opportunity for this. Much more completely have I been able to do this with the larvae and pupae of butterflies belonging to other families, especially with those of ATELLA EGISTA Cram. and MESSARAS ERYMANTHIS Dbd. and with the larvae of the Heterocera HYPAETRA RENOSA Hb. and ATHYRMA SAALMULLERI Mab. of whose mervellous mutual likeness I hope to treat in its proper place, illustrating it also with some figures; instances of equality in development which surely have nothing to do with mimicry, yet surpass many of those mimicry cases, about which so much fuss is made. With respect to the Java Hesperidae I have been able to notice the same in the larvae of BIBASIS SENA Moore and ISMENE OEDIPODEA Swains., which I have always confounded owing to their striking resemblance. Although my observations concerning these larvae are, as I said above, still incomplete, and although my figures not being quite exact and, moreover, representing larvae of unequal development, do not show the likeness well enough, yet I can, in view of the above-named cases which are better known to me, find occasion in them to discuss here the nature and also the cause of this phenomenon. Advocates of the mimicry theory must look upon this as an incomprehensible case. For there is nothing to show that this equality brings with it any protection or some other advantage for either of the species; it is true, that true fanatics in this domain are accustomed to make shift with the hypothesis that there is doubtless such a protection or advantage, though unknown to us; but such-like assertions pure science cannot entertain.

It would be much better to try and derive the nature of these facts from the circumstances under which they appear, and then we should recognize here certain phenomena of convergency, such as, in my opinion, have certainly not yet been pointed out elsewhere. It is a fact that many larvae, though systematically not closely allied, yet bear a general resemblance to each other, which is especially the case with the naked, green larvae of many Heterocera; the cause of this undoubtedly is, that with such species the form of the body,

on which not even hair or other appendages have yet developed, has remained in a very primitive state, so that in all of them the body deviates but little from the original primitive form, thus constituting a considerable resemblance between them, while the green colour is doubtless chiefly caused by the same factor in them all, for instance the green of the leaves on which they feed. Among leaves also, to however many species of plants they may belong, green is an extremely common colour and the cause of this is well known. This is also the case with those Rhopalocera whose larvae have still such a primitive form, and the larvae of closely allied species it is wholly impossible or very difficult to distinguish. Thus in the discussion of the Javanese Pieridae I pointed out already that I could not find any difference between the larvae of CALLIDRYAS SCYLLA L. and the earliest form (See PIERIDAE pl. III fig. 6*a*) of CALLIDRYAS POMONA F., and that this is also the case with that of TERIAS SARI Horsf. and the not yet quite grown up larva of TERIAS HECABE L., from which I was warranted, I thought, in drawing the conclusion that POMONA F. with the first mentioned CALLIDRYAS species and HECABE L. with the other TERIAS species, must have developed from the same primitive species; the larvae of C SCYLLA L. and T. SARI Horsf. have preserved the original form, but those of the two other species have differentiated from it, so that, for the greater part at least, they differ from it now. At the same time I hazarded the supposition that the fact, that both these changed species seem to be much more polyphagous that the unchanged ones, would have something to do with it, and that consequently the change of food would have worked as a factor to change these larvae.

Now there are also other facts of larva biology, which may not pass unnoticed here. Rather common at Batavia is the larva of a Heterocera species, determined by SNELLEN in litt. as LEOCYMA BATEOIDES; I have given a picture of it in volume XL of the *Tijdschrift* voor *Entomologie* on pl. 4 fig. 11, which larva is dark red and lives in the kernel of the fruit of DURIO ZIBETHINUS L. Once it happened to me, when eating a fruit of the NEPHELIUM LAPPACEUM L., that I found in the kernel this dark red larva. I preserved it to get the imago; but how great was my surprise, when after some time I noticed that the larva had left the kernel and had turned into the chrysalis of a butterfly, out of which there afterwards appeared the beautiful Lycaenide, DEUDORYX EPIJARBAS Moore. It is true, at that time I did not exactly examine this larva, because I felt sure that I saw the common above-named species, which it greatly resembled on account of its, for the rest not at all common, colour, and its uncommon way of living. Is it not reasonable then to ascribe this likeness in colour between two, systematically so little allied, larvae, to the same manner

of living, though this manner of life differs greatly again from that of the species nearly allied to them? Whether the nature of the food has played a part here, it is impossible to say; a chemical research of the interior of the kernels of both the above named fruits would be necessary for this; but also the manner of living in the dark may have been the cause, which has led to an equality in colour and form. Also among other caterpillars living in the dark, for instance the well-known European Cossus Cossus L. this red colour is found. However this may be, it can hardly be doubted, that equality in the circumstances of life here has caused convergency, a change of form in the same direction. Moreover, it is a fact that when once an evolutional process has taken a certain direction, it will usually move along the same lines in the different individuals, in as far as no disturbing influences are brought to bear on it. In the Introduction of my study on the Pieridae of Java I have, especially in connection with the phenomenon of colour-evolution, given many examples of it. Consequently the process of colour-evolution in butterflies living in different regions, can cause a strong resemblance in form. Because such a circumstance in the case of animals living in different regions, can, of course, never be regarded as Mimicry, I have pointed out this fact in my fight against the Mimicrytheory. For if it is impossible that such a conformity then have arisen in accordance with the Mimicrytheory, then there is no reason either to assume that this is the case between animals living in the same country, unless this should appear from other facts, which, however, is not the case. In my above mentioned work *Mimicry, Selektion, Darwinismus* especially when treating of the XXIIIth thesis, I have pointed out many instances of this convergency; as regards Lepidoptera more in particular those of the Javanese Ornithoptera Pompejus L. and the South-American Papilio Quadratus Stdgr.; in the same way I have pointed out instances of the identity of the colour-evolution in Limenitis Albomaculata Ch. Oberth. and L. Punctata Leich., both living in Thibet or South-China, and in the Indo-Australian Hypolimnas Bolina L. ♂ and H. Misippus L. ♂. Very remarkable, too, is the fact that I have discussed there, and to which I already drew attention on the occasion of the 3^{d} International Zoological Congress held at Leyden in 1895, that two allied European Satyridae Pararga Egeria L. and P. Megaera L. and two Javanese Nymphalidae Junonia Erigone Cram. and J. Asterie L. have developed side by side in exactly the same manner, so that now the Javanese couple, though butterflies belonging to another family and different indeed, in some respects, for instance in size, from the European couple, may undoubtedly be said to represent the latter in Java. The colour and the arrangement of the colour-pattern of P. Egeria L. and J. Erigone Cram. are very much alike, which is also the

case with those of P. MEGAERA L. and J. ASTERIE L. This might be expressed thus: P. EGERIA L.: J. ERIGONE Cram. = P. MEGAERA L.: J. ASTERIE L. The Javanese butterflies like the European ones live also in the same regions, only J. ERIGONE Cram. does not seek the shade so much as P. EGERIA L., but on the other hand it is a curious fact, that while P. MEGAERA L. in Germany bears the popular denomination of *Mauerfuchs*, in England it is called *Wall-butterfly* on account of its preference to fly upon walls that are brightly illuminated and scorched by the sun, on Java I have repeatedly seen J. ASTERIE L. flying upon white-washed walls on which the sun was shining brilliantly. Surely a proof that similarity in development is not confined to colour alone. From the above we may doubtless infer that where once the same process of evolutional change has set in, this process when no disturbing influences modify its course, can bring about in different animals a striking similitude of form and hence also of colour. However the study of the nature of biological evolution also teaches, that the course of such a process may be modified through the operation of disturbing influences, and consequently it may be regarded as not improbable that such influences can also cause evolutional changes and give a certain direction to them. Now, if such an influence begins to operate in that manner on different species, it is not unlikely that the said conformity in form or colour will result from it. Now it is also known that prolonged periods of *epistasy* may temporarily impede the course of an evolutionary process, but that this condition may also sometimes suddenly come to an end, in which case the interrupted process again goes on. This may also warrant the supposition that by the rise of new influences forcibly operating on an organism in a state of *epistasy*, this may also be modified to such an extent that the cause of the *epistasy* is removed, and consequently the said state ceases and the development again proceeds, but, into a new direction by the aforesaid new influence. The cause, forsooth, of the action of *epistasy* must probably be of a correlative nature and lie in the incompatibility of other requirements of such an organism with a determinate direction of development. If, now, this occurs in more than one species, i.e. if the same influence begins to act upon several species being in such a state, then surely,—and all the more, if those species already have in general a very close affinity to each other—the further development will doubtless be the same, and so cause a striking likeness in form and as the pigmental colour is nothing else but a kind of form, thus in so far also in colour.

The influences in question may, no doubt, be of various kinds. In the above named example of two species of larvae both living in the kernels of fruits, but in no wise closely allied, the very peculiar life in the dark, which for some reason or other they have adopted, and which is very different from the life

of species living on leaves, may in itself have acted as such an influence, without it being necessary that the change of food should have coöperated with it; however, this last mentioned change may also be regarded as eventually acting upon larvae so strongly, that through it such an influence can arise. The nature of the food, indeed, plays an important part among the requisites of larval life; a great many larvae stick exclusively to one kind of food, others, when once accustomed to such a food, though properly speaking strange to them, will rather starve than eat even the normal food of their species. The larvae of many families are in fact limited to definite families of plants, and for the peculiarities of these plants they possess a faculty of discernment that is, indeed, wonderful to us. The larvae of PAPILIO SARPEDON L. very common on Java, feed there, as far as is known to me, exclusively on the leaves of the cinnamon-species. Now there stands at Batavia in an inner-court a Japanese camphor-tree, doubtless the only one in Java, once cultivated there from seed brought from Japan, and on the leaves of this quite isolated tree I found, to my surprise, a larva of the said species. To my surprise, I say, because to man the smell of camphor has surely nothing in common with that of cinnamon. How was it then, I thought, that the ♀ butterfly which laid eggs upon it, could be so mistaken? Afterwards, however, I found out that PAP. SARPEDON also occurs in Japan and that the larva there feeds on the leaves of the same camphor-tree, and further that the camphor occurring in the leaves of the camphor-tree, has, indeed, not yet been ascertained as an element of the volatile oil of cinnamon-leaves, but that it has been ascertained in that obtained from the root of the cinnamon-tree. This circumstance makes me strongly inclined to believe that camphor is also very likely, though in a very small quantity, present in the cinnamon-leaves, and that the Batavian butterfly was probably not mistaken, but, being a finer chemist than our scientists, was acquainted with the presence of this very small quantity in the cinnamon-leaves, on which it had fed when a larva; and therefore, finding the same smell in the leaves of the camphor-tree, it also considered these leaves a fit food for its offspring, and laid its eggs upon them. Besides, the cinnamon-tree and the camphor-tree are both *Lauroideae* and hence botanically closely allied plants. But how did this butterfly know this fragance so well, unless as a remembrance from its own larval state? Many similar examples concerning the larvae of other species and other plants afterwards became known to me. For this reason then I thought it not too venturous to suppose that, as has been said above, the differentiating of the larvae of CALLIDRYAS POMONA F. and TERIAS HECABE L. may have arisen from a change in their food. And as each of the above mentioned three pair of larvae in which I observed the said strong convergency,

the two species of Heterocera, the two Nymphalidae and the two Hesperidae, feed on the leaves of the same plant, I think I am justified in looking upon this as the cause of the great similarity of these larvae. I do not mean to say that the food itself could directly have changed colour or form, but that the ancestors of these larvae originally probably left another food for that on which they feed now, and that this change has given a particular direction to their further development, which has consequently moved along the same line in both species, especially if they were already closely allied, and has thus given them such a striking resemblance. Whether this explanation of those remarkable convergency-phenomena is correct can only be decided at some future time. As for me, I do not know a better one; for to the explanation of the Mimicry theory I attach no importance. But to be able to judge mine, it is of course necessary that one has first learned to understand the nature of the phenomenon of evolution in general.

There are among the European fauna two Heterocera in which something similar occurs, the two moths ACRONYCTA PSI L. and A. TRIDENS W. V., belonging to the same genus and hence closely connected. Though entomologists have tried to take for granted a constant difference between these two species, the attempt seems to have failed, for only individual differences seem to have been looked upon as such. So able a connoisseur of those fauna as my collaborator, Mr. SNELLEN, has declared to me that he is not able to distinguish the imagines of the two species with any certainty. But on the other hand, in the case of their larvae the difference is very clear and they do not live on the same feeding-plants. In accordance with the above theory the explanation might be, that the two species have sprung from one and the same primitive species, whose larvae fed on the same, or closely allied, species of plants, but that then, in consequence of certain circumstances unknown to us, a part of those larvae began to feed on other plants, so that two species have developed, whose difference, however, only appears as yet in the form and the colour of the larvae. For it is well known that the evolutional change of larva, pupa and imago continues independently, so that in different species the old form of the larva has remained, though the imago has already assumed a new form. Thus the larvae of PAPILIO ARISTOLOCHIAE F. and P. COON F. still show the same form that is peculiar to the larvae of ORNITHOPTERA from which they have descended, through the imagines are no longer ORNITHOPTERA but must be classed under the genus PAPILIO. And so as been mentioned in the treatise on the Pieridae, part of the larvae of CALLIDRYAS POMONA F. still have the old colour, similar to that of the larvae of C. SCYLLA L. though from them, too, the imagines of the first mentioned species always originate. Between the larvae of CUPHA ERYMANTHIS Dld. and ATELLA SINHA Kollar, both living

on the same plant there is, on the contrary, some slight difference, but, on the other hand, both pupae, though in colour and shape very peculiar, are not distinguishable from each other. Though no special examples of this case have come under my notice, I have therefore no difficulty in accepting that where the larvae are alread changed, the imagines may nevertheless have remained unaltered, and so much the less as we also know, forsooth, that the colour-dimorphism that appears in many larvae, leaves the imagines unaltered. Hence me might assume that through the change of food a differentiation had been caused, which from one primitive species,—either that of ACRONYCTA Psi, L. or A. TRIDENS W. V.—has made two, but which has as yet only modified the larval form of the differentiated species, though it has also undoubtedly occurred in the imago, although not yet in an externally visible way, so that the imago of each species now only produces its own larval form. I do not know whether a sufficient study has been made of the ontogeny of the two European species, from which I might learn in what way the first stages of the said larvae differ from each other, and if I might draw some illustrations for this point from it. Such a study, therefore, may well be recommended to the European larvae-breeders.

Some larvae of Hesperidae, that live in a case-like leaf, have the peculiar custom to shoot their dry excrementa through that case far away as if they were bullets coming from the mouth of a fire-arm. Evidently a phenomenon of cleanliness; there are more larvae that have the same peculiarity, those for instance, that when pupating evidently intentionally remove their stripped off skins. Others on the contrary, apparently have no objection to live continually surrounded by their excrementa; some even spin it into the cocoon in which they wrap themselves as pupae.

Some give a remarkable proof of intellectual faculties. Instinct, the admirers of the hollow phrase will say. The real biologist, however, as I have amply explained in my latest work on Mimicry, must know that the psychical nature of living beings is as much in a state of evolution as the physical, and can be observed as such in different stages of development. What people call instinct, without being able to give a further definition of it, is nothing else than such a stage itself, occurring again in many degrees of development; reflex action is a manifestation of a still lower stage and hence the explanation, though not entirely understood yet, given by ROMANES of instinct as reflex action into which is imported the element of consciousness. With tropism, by means of which some biologists try to explain it, neither instinct nor reflex action has anything to do. A remarkable instance of such an intellectual faculty of larvae

occurs for instance in Java in those of ADOLIAS ADONIA Cram.; besides, the same fact has already been observed elsewhere respecting other butterfly-species. The said larva feeds on the leaf of a LORANTHUS species growing parasitically on trees; the thick, pulpous stem of that leaf very easily breaks off from the branch on which it grows, in which case, of course, the leaf falls on the ground. Against such a leaf the larva attaches itself, so that, during the chrysalis state, it is much exposed to the danger of the leaf being accidentally torn from the branch and falling to the ground, which in most cases will cause the death of the pupa. But it knows how to avert this danger; as soon as the leaf has been chosen to which it is going to fasten itself with a button of silk in order to pupate there afterward, it first of all fastens the stem of the leaf by means of some threads of silk strongly to the branch, so that if, during its pupal stage, the leaf should by any unexpected accident break of from the branch, it must yet remain fastened by the threads of silk, whence the fall of the leaf will cause no danger to the pupa. The larva, then, knows how to take well planned measures against a future danger which may, but need not necessarily, come to pass. Once I saw such a larva fasten to its own leaf, with a few threads of silk, on two sides, another leaf that had accidentally grown before the leaf it had selected for itself, so that fastened in such a manner it must always remain before it, so that the pupa, when it afterwards became attached to the leaf, would be hidden from sight, from approaching birds, squirrels and other animals that prey upon pupae.

Measures against future danger of which the larva must know the nature as well as the possibility. The existence of the here mentioned pupae-enemies, the peculiar fragility of the stem of the LORANTHUS-leaf, the coming of its own helpless pupal stage when attached to the leaf, must therefore be known to it. It is, in fact, nothing wonderful that larvae possess the intellectual power to take such measures. That many insects have a strong intellectual development is well known. With the ants this is the case in a very high degree, but also in other classes of animals we find remarkable instances of it. As for the Lepidoptera, many manifestations of the psychical nature have been made known of these insects too. Such facts as the love of cleanliness spoken of above; sometimes, as for instance the removing of the cast larva-skin from the cocoon by the larvae of CHIONAEMA JAVANICA Butl. and C. BIANCA Hamps.—described by me in the XLVIIth volume of the Tydschrift voor Entomologie—performed with evident reflexion, are undeniable manifestations of such a psychical nature. These manifestations appear more particularly in the larvae when they are in those critical periods of their life that are connected with the process of pupating. Here belongs the case which gave rise to this discussion; even the

practice of attaching the pupa to its button of silk after the skin is cast, as already described by DE RÉAUMUR, manifests a remarkable reflection, and the circumstance occurring in all these actions, that they do not always succeed, but are sometimes accompanied by failures and real mistakes and, moreover, the manner of execution, which is often modified according to circumstances, distinctly show the psychical nature of it all; for in an automatic process this would hardly occur. Indeed, the point of view from which a mere automatical physico-chemical explanation of vital activities was regarded as adequate, is obsolete. The more advanced among modern biologists reject it and hold that the cooperation of a psychical element, however materialistically this may be conceived, must be acknowledged here. According to them the highly intellectual and appropriate origin of various organs and vital activities cannot have taken place but under such a psychical, i.e. intellectual, guidance, which, however, does not in the least involve the assumption of any metaphysical action. Is it, then, not obvious that we should assume the same with regard to the above-mentioned, evidently intellectual, actions? In this sense, however, that, while with the rise of the said vital activities,—although they are therefore in no wise the consequence of tropism, but undoubtedly of psychical action—the intellectual guidance remained unconscious, with those actions a state of consciousness was developed still of a primitive nature, it is true, and confined to only a few actions of the being in which this took place, but which in so far caused a very great difference from those of numerous other activities of the same being, which were still unconscious. A superficial observer, may not think this very probable, but we find the same in man; in him, too, many unconscious actions occur by the side of the conscious ones, but the latter are very numerous and the nature of consciousness has also become much stronger, but then this difference, however great, is merely quantitative, only showing a difference in the degree of development. Hence I think that the intellectual capacity which is manifest in the said case, is not wholly inexplicable, though not completely cleared up yet. Much more difficult it seems to me to find a reasonable answer to the question, whence the larva has got the positive knowledge which must be the foundation of its intellectual actions. How does it know its future state, and how does it become acquainted with the dangers that threaten it in its pupal state, how does it know the special danger arising from the fragility of the stem of the LORANTHUS leaf? Experience it cannot have, at least not of the pupal state and its dangers. I suppose that only a comparison with that which we observe in other animals can lead to a reasonable conjecture. It is known that many animals gather winter provisions, and thus seem to be acquainted with the future fact of the coming winter

and the want of provisions which it brings with it. As a matter of fact, this is a case of gradual adaptation to climatical conditions, acquired in course of time by means of the intellectual faculty, which adaptation has for its basis a certain knowledge, originally acquired by experience, but which by a continually growing and developing adaptation has become a custom and passed into an hereditary instinct. Something similar is very likely the cause of the strong impulse in many birds of the colder regions to migrate to warmer countries at the approach of te cold season. The impulse of the birds to build nests is very likely of the same nature; it has for its basis a knowledge acquired by intellectual activity and according to the development of this knowledge, it has passed into an hereditary inclination, which occurs in the different species in various degrees of development. In many species this knowledge seems to be wholly undeveloped as yet. The intellectual activity in the meantime continues to increase that knowledge more and more; the young birds have still much to learn from experience, and what they thus learn is also gradually transferred in an hereditary way. That fully developed psychical inclinations and impulses can also become hereditary in man, is not to be doubted; thus psychiatry knows very well as a morbid phenomenon the heredity in the impulse towards suicide and even towards the special manner in which it is performed. An evidently hereditary inclination exists also in many persons for certain religious or even political views, though with historical certainty it can be proved that before a certain date such an inclination cannot have existed in the ancestors of these persons. Now where such facts can be demonstrated in higher animals, analogously with our own intellectual operations, and which, as in the nest-building of birds we also see manifested in connection with care for the offspring, there is no reason why we should not accept the same with regard to a similar strong impulse in many insects, both as regards the gathering of its own winter-provisions and the care for the future of its offspring. This, for instance, is very strongly manifested in many Hymenoptera, in which the care for its offspring presents itself in all its operations, as founded upon the knowledge of the wants of its progeny, though those insects themselves will never see their progeny. When we have thus become convinced that knowledge, acquired in that way by experience, can become hereditary and, moreover, in consequence of the knowledge in question, can create an impulse to take intellectual measures in its own behalf, then the said knowledge of the larva of ADOLIAS ADONIA Cram. of its future pupal state and the measures that it takes for it, become more conceivable. How different the imago, the chrysalis and the larva of a butterfly may seem to us, they are in reality nothing else than three successive forms of the same living being and when we take it for

granted that a butterfly is psychically able to make observations, to remember them and to act accordingly, then there is indeed no reason why the recollections of an imago should not extend to the earlier stages of existence. Now the existence of the faculty of recollection has often been observed in butterflies; I myself published more than 30 years ago my observation, how for four evenings, I saw resting in the same place against the ceiling of the outer-gallery of the club at Macassar, evidently the same PRECIS INTERMEDIA Felder. By day it was not there; a real diurnal, it was evidently out on business then; each evening, however, it remembered very well, and could find back its sleeping-place of the previous night; i. e. it could act according to that remembrance. And the fact that butterflies always lay their eggs on a plant of the same species as that on which they themselves fed as larvae, probably happens through the smell, though this faculty is indeed not to be regarded as entirely equal to that of man, as appears from the above mentioned case of the Batavian PAPILIO SARPEDON L., yet, perhaps, some recollection of its larval stage may also play a part in it. The above mentioned actions of the larva of ADOLIAS ADONIA Cram. might therefore be explained as founded on the knowledge obtained by this species of butterflies during its life in the pupal state—perhaps already at the time that the ancestors of the Lepidoptera were not yet subject to such a complete metamorphosis as the present one—and which knowledge has afterwards been passed on as hereditary knowledge to the offspring still in its larval state, at the same time an impulse being developed, to provide herein, which is always carried out then with an intellectual faculty, limited, indeed, but comparatively well developed. This explanation seems to me at least not impossible; for till now I have never heard of a better one, though I readily consent that the one given can perhaps be substituted by a better one. But not by hollow words as "Instinct" and such like, which in reality do not mean anything more than the juggler's "*Passe*".

An instance of intellectual reflection similar to the one just spoken of, is also to be found in the larva of a species of Hesperidae, viz. with that of PARNARA CONJUNCTA Herr-Sch. The pupa of this species has a very oblong form, agreeing in this respect with that of UDASPES FOLUS Cram. (Pl. X fig. 79*b*). It is attached at the anal extremity and besides by a girdle-thread to a leaf, perhaps also by another thread stretched over the abdomen. Thus I found it on a bamboo-leaf, one of the plants on which it lives, but I found, moreover, that two strong, longer threads were stretched right across the pupa, which threads were evidently intended to prevent the leaf from bending backwards, if it should shrink, to which the leaf, naturally extremely dry, is very liable. If it

bent backwards all the same, the girdle-thread would necessarily be stretched so tightly, that the pupa must be crushed to death. Hence a very ingenious precautionary measure, very much analogous to the one spoken of above.

According to the observations of Mr. VAN DEVENTER it seems that this species always attaches its pupa to the under-side of leaves, a circumstance which would render the measure in question still more necessary, because a bamboo-leaf, when drying up curls inwards and would thus stretch the girdle-thread in the above mentioned disastrous manner. Later observations must settle the question whether this larva always takes this measure of precaution, also when it is going to pupate on a leaf of one of its other feeding-plants, which is not so inclined to bend inwards as that of the bamboo.

Of this monograph, soo, the systematism is from the hand of Mr. P. C. T. SNELLEN; especially with respect to this difficult family this required much labour. The latest system, that of P. MABILLE, published in 1903 by P. WYTSMAN in his monograph on this family in *Genera Insectorum*, has been followed here, though in connection with the identification of some species SNELLEN does not always agree with the opinion of MABILLE.

Besides the papers quoted, use has also been made of the paper of C. SWINHOE published in the *Trans. of the Ent. Soc. of London 1908.* "*On the species of Hesperidae from the Indo-Malayan and African Regions described by Herr* PLÖTZ, *with description of some new species.*" Then almost all the numerous figures of imagines have again been made under his direction and at his own expense. Mr. FRUHSTORFER has been so kind to have seven species, wanting in our collection, designed for me by Mr. J. CULD at Geneva, after specimens from his own collection. This Lepidopterologist has also in general kindly assisted me in this labour; an assistance so very valuable also for this reason, that of those specimens which Mr. FRUHSTORFER says that originate from Java, I consider this habitat as certain; a confidence that I dare to place only in very few such statements. For not a few butterflies in European collections are said to originate from Java, though in reality they are not from that island, but have been gathered on other islands of the Indian Archipelago and only transported via Java to Europe. All figures of the earliest stages were made in Java during my stay there, as was the case with the Pieridae.

With regard to the scientific names of plants, the same plan has been followed as that explained in the Introduction of the study of the Pieridae. It only remains to refer to a new work published in 1909, viz. *Nieuw Plantkundig Woordenboek voor Nederlandsch Indie*, the production of a scientific collaboration of a very competent botanist with a no less competent connoisseur of native

languages and in which the scientific name of a great number of plants is given. I have often made use of this excellent work.

Finally I have to correct here some mistakes that have crept into my monograph of the Pieridae. Passing over such insignificant errors as will be evident to the expert reader, I only call attention to the more serious ones.

On page 2 line 21 instead of: *suspensae* read *succinctae*.
„ „ 2 „ 22 „ „ *succinctae* „ *suspensae*.
„ „ 23 „ 26 „ „ *Belsiama* „ *Belisama*.
„ „ 31 „ 15 „ „ *Tachiinae* „ *Tachininae*.
„ „ 33 „ 12 „ „ *Pl. II* „ *Pl. III*.
„ „ 34 „ 1 *strike out:* *(Pl. III f. 2, a, b, c, d, e, f)*.
„ „ 34 „ 7 *read after 1 Glaucippe* L.: *(Pl. III fig. 2, a, b, c, d, e, f)*.
„ „ 48 „ 18 *strike out:* ALCMEONE Cram.
„ „ 53 „ 16 *strike out: and* ALCMEONE.

EXPLANATION OF PLATE III ad. fig. 6. 1 *strike out* ALCMEONE Cram.

Ibid. last line, instead of *i* read *l*.

HESPERIDAE. [1])

Genus SATARUPA Moore.

1. DIRAE de Nic. (Pl. V, fig. 1 *a*, *b*).

DE NICÉVILLE, *Journ. Bombay Soc. of N. H. IX, p.* 369, *pl. Q., fig.* 49 ♂ (1895) . . . . . Daimio Dirae.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 131, 133 . . . . . Satarupa „
„ „ „ *Ibid. pl.* 18, *fig.* 13 ♂ (1897) . . . „ Fumosa.

S. FUMOSA ELWES, is a form from Sumatra in which the white band on the hind-wings is wanting. Specimens from Borneo are transitional forms

[1]) With regard to the systematic arrangement of this family SNELLEN has followed P. MABILLE's latest monography, *Lepidoptera Rhopalocera, Fam. Hesperidae* 1903, belonging to the *Genera Insectorum*, published by P. WYTSMAN. Concerning however, the scientific names of some species, he cannot entirely agree with the opinion of MABILLE.

Besides the species treated by me the following are mentioned by different writers as occurring in Java, the exactness, however, of the localities assigned is not sufficiently certain for me as yet to regard these species as Javanese.

By MABILLE.

p. 51 no. 18 CELAENORHINUS SPILOTHYRUS Felder. *Verh. Zoöl. Bot. Gesellsch.* 1868 *s.* 283 MOORE, *Lep. of Ceylon II p.* 179, *pl.* 67, *fig.* 4, 4*a*.

p. 51 no. 27 CELAENORHINUS INAEQUALIS Elwes, *Trans. Zool. Soc. of London* 14, 4, *p.* 112, 116, *pl.* 18, *fig.* 3 ♂.

p. 90 no. 17 ISMENE ATRINCTA Mab., *Compt. Rend. Soc. Ent. Belge* 1891, *p.* 78.

MABILLE mentions as synonymous the JONIS de Nic. which SNELLEN regards as the same species as HASORA NESTOR Mischler.

p. 103 no. 5 MATAPA SHALGRAMA de Nic., *Journ. Asiat. Soc. of Bengal* 52 *p.* 85; ARIA Hew., *Exot. Butt. Hesp. pl.* 3, *fig.* 24, 25 (not ARIA Moore).

p. 104 no. 7 SEPA NOCTIS Stdgr., *Iris* 1889 *s.* 143; PERFUSCA Mab., *Ann. Soc. Ent. Belge* 1893 p. 53.

between the Sumatra and Java form. Perhaps TAGIADES LIMAN Plötz, *Jahrb. des Nass. Vereins für Naturkunde* 37, *s.* 54 (1884) is the same species. This then should be the oldest name. Neither MABILLE nor SWINHOE (*Trans. Ent. Soc. of London* 1908, *p.* 1 *etc.*) make any mention of LIMAN.

W. J. Buitenzorg (265), and the neighbourhood of Pelabouan Ratoe (Wynkoopsbay) in the province of Prajangan.

C. J.?

E. J.?

p. 136 no. 33 PARNARA SCORTEA Mab., *Ann. Soc. Ent. Belge* 1893, *p.* 53.

p. 137 no. 49 PARNARA NIRWANA Plötz, *Stett. Ent. Zeit.* 1882, *s.* 436 *no.* 142.

p. 137 no. 53 PARNARA PAGANA de Nic., *Proc. Zool. Soc. of London* 1897, *p.* 405, *pl.* 40 *fig.* 7.

p. 137 no. 57 PARNARA MORMO Mab., *Ann. Soc. Ent. Belge* 1893, *p.* 53.

p. 141 no. 10 PADRAONA TROCHALA Mab., *Pet. Nouv. Ent.* 1878, *p.* 237.

p. 170 no. 57 PLASTINGIA LIBURNIA Hew., *Descr. Hesp. p.* 33, *no.* 26 (1868). Perhaps the same species as P. CALLINEURA Felder.

By SWINHOE.

(*Trans. Ent. Soc. of London* 1908). It is impossible to cite the figures belonging to this sketch, because they do not agree either with the text or with the explanation of the plates.

p. 10 TARATROCERA ALIENA Plötz, *Stett. Ent. Zeit.* 1883, *s.* 228. The description of PLÖTZ is not cited by MABILLE. Perhaps the same species as PADRAONA DARA Koll.

p. 18 PADRAONA TROPICA Plötz, *Stett. Ent. Zeit.* 1883, *s.* 230. PLÖTZ thinks that this species is Mexican. SWINHOE, however, that it lives in Java. MABILLE makes no mention of it.

p. 23 CALTORIS COLACO Moore, *Proc. Zool. Soc. of London* 1877 *p.* 504, *pl.* 58, *fig.* 7. MABILLE places this species in his genus PARNARA.

p. 23 CHAPRA AGNA Moore, *Proc. Zool. Soc. of London* 1865, *p.* 701. This species also is placed by MABILLE in the genus PARNARA. ELLA Plötz, *Stett. Ent. Zeit.* 1883, *s.* 46 is a synonym.

p. 24 PARNARA GUTTATUS. BREMER and GREY, *Schmett. des nordl. China's, s.* 10, *pl.* 3, *fig.* 2.

p. 25 PARNARA DAENDELI Plötz, *Berl. Ent. Zeitschr.* 1885, *s.* 226. The species was not known to SWINHOE. MABILLE makes no mention of it.

p. 34 HASORA SIMPLICISSIMA Mab., *Bull. Soc. Ent. de France, Ser.* 5, *VI p.* 25. MABILLE mentions this species as only from India.

p. 35 HASORA WORTHA Swinhoe, *Ann. and Mag. of Nat. Hist. Ser.* 7, *XX p.* 435. A description of this species was not written before the publication of MABILLE's monography.

By HEWITSON.

EUDAMUS DECORATUS Hew., *Descr. Hesp. p.* 17, *no.* 30 (1867). MABILLE places this species in his genus ODINA, but knows it only from India and Tonkin. SWINHOE makes no mention of it.

EUDAMUS EUTELLUS Hew., *Descr. Hesp. p.* 14 *no.* 26 (1867). Neither MABILLE nor SWINHOE makes mention of this species.

By PLÖTZ.

PROLEIDES AESOPUS Plötz, *Berl. Ent. Zeitschr.* 1882, *s.* 72. This species is mentioned neither by MABILLE nor by SWINHOE.

2. Affinis Druce. (Pl. V, fig. 2).

Druce, *Proc. Zool. Soc. of London* 1873, *p.* 360, *pl.* 33, *fig.* 9.	Satarupa affinis.
Distant, *Rhop. Mal. p.* 385, *pl.* 35, *fig.* 17 (1886) (*var. Cognata*)	„ „
Weymer, *Stett. Ent. Zeit.* 1887, *s.* 15, *Taf.* 1, *fig.* 5 .	Tagiades Niphates.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 131, 134 (1897).	Satarupa affinis.

The specimens from Java are transitional forms between that from Borneo and the form Cognata, from Distant. The latter which is but of little consequence, is not mentioned by Mabille.

W. J. Prajangan (1300).
C. J.?
E. J. Province of Pasourouan (± 500) (Fruhst.).

Genus COLADENIA Moore.

1. Dan F. (Pl. V, fig. 3 *a*, *b*, *c*).

Fabricius, *Mant. Ins. II, p.* 88, *No.* 798 (1787) . . .	Papilio Dan.
„ *Ent. Syst. III* 1, *p.* 341, *No.* 297 (1793) . .	Hesperia „
Latreille, *Enc. Meth. IX, p.* 738, *No.* 25 (1823) . . .	„ Eacus.
Kollar in *Von Hügel's Kaschmir IV*, 2 *s.* 454, *Taf.* 18, *fig.* 5 *b.* (1848).	„ Fatih.
Plötz, *Jahrb. d. Nass. V* 37, 5	Ephyriades Dan.
Distant, *Rhop. Mal. p.* 398 *pl.* 35 *fig.* 27 (1886) . . .	Coladenia „
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4 *p.* 124, 127 (1897)	„ „

The figures of Kollar and of Distant are but mediocre.

W. J. Batavia (3—14); Buitenzorg (265); Gedeh mountains (1500); province of Prajangan (1545).
C. J.?
E. J. Province of Pasourouan (± 500) (Fruhst.).

At Batavia the butterfly is very common. It hides itself with outspread wings against the under side of leaves.

The larva lives between leaves, spun together, of a plant which at Batavia

is called *djaroung* (ACHYRANTES ASPARA Lam. *var.* CRISPA). When young it is of a greenish white, but grown up, dark green sometimes with a yellow or white supra-spiracular line. The vas dorsalis just as in the ♂ two large crescent-like testes, which constantly move towards each other, are distinctly to be seen in the body which in proportion to its length, is rather thick. The great, broad, black head is fluted and two-forked. The pupa is also attached between leaves. In form it approaches that of some chrysalides of Heterocera, its general colour is a very soft green with some brown marbling, the wing-cases are of a faint white. Of two caterpillars that pupated on the 19th of March, one gave the imago on the 26th, the other on the 27th of March. Out of another that pupated on the 20th of April the imago appeared on the 28th of the same month.

Genus CELAENORHINUS, Hb.

1. SUMITRA Moore. (Pl. V, fig. 4).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 787 . . Plesioneura Sumitra.
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 51, *No.* 51 (1884) . „ „

It may be doubted whether the other names mentioned by MABILLE concerning this species are really synonyms; therefore it seems preferable not to cite them.

W. J. In the province of Prajangan (1500—1800).
C. J.?
E. J.?

2. LEUCOCERA Kollar. (Pl. V, fig. 5).

KOLLAR, in *Von Hügel's Kaschmir.*, *s.* 554, *Taf.* 18, *fig.* 3, 4. (1848). . . . . Hesperia Sumitra.
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 51 (1884) . . Plesioneura Leucocera.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 112, 116 (*pars*) (1897) . . . . . Celaenorhinus Leucocera.

The antennae of this species have during life a silvery glance.

W. J. Tjampea (160); the vicinity of Pelabouan Ratou (Wynkoopsbay) (± 150).
C. J.?
E. J. Province of Pasourouan (± 500) (FRUHST).

3. Putra Moore.

Moore, *Proc. Zool. of London* 1865, *p.* 788. . .	Plesioneura	Putra.
Swinhoe, *Trans. Ent. Soc. of London* 1893, *p.* 317.	Celaenorhinus	„
Elwes and Edwards, *Trans. Zool. Soc. of London*, 14, 4, *p.* 112, 116 (*pars*) (1897)	„	Leucocera.

Only one specimen, not fresh enough to make a figure of, but sufficiently so for the identification of its scientific name and quite agreeing with the description of Moore. According to the opinion of Snellen Putra is not a synonym of Leucocera.

W. J. Buitenzorg (265).
C. J.?
E. J.?

4. Chamunda Moore. (Pl. V, fig. 6).

Moore, *Proc. Zool. Soc. of London* 1865, *p.* 788.	Plesioneura	Chamunda.
Plötz, *Jahrb. d. Nass. V.* 37, *s.* 5 (1884) . . .	Ephyriades	Dichroa.
Elwes and Edwards, *Proc. Zool. Soc. of London* 1892 *p.* 661	Plesioneura	Chamunda.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4 *p.* 112, 117 (1897)	Celaenorhinus	„

W. J. Salak mountains, province of Prajangan (1500—1800).
C. J.?
E. J.?

5. Asmara Butl. (Pl. V, fig. 7).

Butler, *Trans. Linn. Soc. of London 2e Serie II, I*, *p.* 556 (1877).	Plesioneura	Asmara
Distant, *Rhop. Mal. p.* 400 *pl.* 35 *fig.* 28 (1882—1886)	„	„
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4 *p.* 112, 118 (1897)	Celaenorhinus	„
Mabille, *Ann. Soc. Ent. Belge* 17 *p.* 56 (1883) . .	Plesioneura	Goto.
De Nicéville, *Journ. Bombay Soc. of N. H. IV* *p.* 222, *pl. E., fig.* 12 (1890)	Celaenorhinus	Consertus.
De Nicéville, *Journ. Bombay Soc. of N. H. IV* *p.* 223, *pl. F., fig.* 11 (1890)	„	Cacus.

W. J. Buitenzorg (265); Tjampea (160).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

The larva lives between leaves of *melati outan* (CLERODENDRUM FRAGRANS Vent). It is dark green, sometimes of a murky green, occasionally with a white supra-spiracular line, the hind part of a somewhat lighter shade. The dark vas dorsalis is distinctly visible through the body, sometimes at the sides also many thin-branched vessels are to be seen shining through. The head is large, heart-shaped, dark red, reddish brown or dark brown. The form of the pupa resembles that of UDASPES FOLUS Cram. figured on plate X *b*, though is not quite the same. The pupa is of a greasy streeny, dark green at the upper end, brown on the wing-cases and on the knobs which indicate the eyes. The head terminates in an obtuse brown projection and out of each of the above-named knobs also a shorter brown excrescence protudes.

6. DHANADA Moore (Pl. V, fig. 8 *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 789 . Plesioneura Dhanada.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 112, 120, *pl.* 18, *fig.* 6 ♂, *pl.* 22, *fig.* 5, 5*a* (1807) . . . . . Celaenorhinus Saturatus.

Our Javanese specimens of DHANADA are by SNELLEN compared with those of MOORE and found identical.

W. J. Batavia (3—14); Buitenzorg (265); Tjampea (160); (Tjibodas (1410); Megamendoung, Salak, Gedeh and Wayang mountains (1480—1550).

C. J.?

E. J.?

The larva is of a grayish green colour and has the form of the following species but clearly to be distinguished from it by the possession of a milk-white subdorsal line. The yellow testes are perfectly visible in the body. The dark brown head is broad and bifurcate, but is not heart-shaped. Food unknown. About the pupa I have no notes.

Genus TAGIADES Hb.

1. JAPETUS Cram. (Pl. V, fig. 9 *a*, *b*, *c*).

CRAMER, *IV p.* 145, *pl.* 365 *E. F.* (1782) . . . . . Papilio Japetus.
MABILLE, *Ann. Soc. Ent. de France* 1877, *p.* 274 . . Tagiades Obscurus.
MOORE, *Lep. of Ceylon I p.* 175, *pl.* 68, *fig.* 1 (1881) . Plesioneura Distans.
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 47, *No.* 29 . . . „ Japetus.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4. *p.* 137, 141 (1897) . . . . . Tagiades Japetus.

SNELLEN supposes that T. OBSCURUS of MABILLE and P. DISTANS of MOORE are the same species as T. JAPETUS Cram.

W. J. Batavia (3—14); Dèpok (95); Buitenzorg (265); Sindanglaya (1074); the neighbourhood of Pelabouan Ratou (Wynkoopsbay) (+ 200); Soukaboumi (602) (FRUHST.).

C. J. Touban on the north coast (2); province of Semarang (200) (JACOBSON).

E. J. Province of Pasourouan (+ 500) (FRUHST.).

This butterfly is one of the most common Hesperidae on Java; it is in the habit when roused, after a moment's flight to place itself with outspread wings against the under-side of a leaf.

The larva is wont when touched, to open the mandibles wide for biting. It lives in a folded leaf or between two leaves sewn together of the plants, which at Batavia are called, *oubi djawa* (IPOMEA BATATAS Poir.), *oubi kalappa* (DIOSCOREA ALATA L.), *djagoung* (ZEA MAYS L.), and according to HORSFIELD also on DIOSCOREA OPPOSITIFOLIA L. Once also I found one in a folded leaf of ROXBURGHIACEA spec.

The colour of the young caterpillar is whitish green or blue, of the grown up ones a dark green, the foremost segments somewhat yellowish, sometimes also light green studded with yellowish dots, and with a dark dorsal line, which indicates the vas dorsalis. Through the body the great, yellow testes are distinctly visible. The head of the young larva is red but afterwards becomes dark brown or black. It is heart-shaped, bifurcated on the apex, in the one individual deeper than in the other and the two points formed thereby are sometimes more or less rounded.

The pupa also lies in a folded leaf and is attached at the anal extremity and by a girdle-thread. Its shape resembles the pupa's of PIERIS, but it has no projections. Its colour is a yellowish white with some brown marbling and some milk-white spots, of which the greatest on the wing-cases and one that is somewhat smaller on the foremost part of the thorax.

One pupa of the 4th of February gave the imago on the 13th of the same month.

One of the 25th of January on the 4th of February. One of the 7th of March on the 16th of that month.

The figure of this caterpillar given by HORSFIELD is badly coloured, that of the chrysalis very inaccurate.

2. MENANTO Plötz. (Pl. V, fig. 10 *a*, *b*, *c*).

PLÖTZ, *Berlin. Ent. Zeitung* 1885, *s.* 231	Plesioneura	Menanto.
„ *Stett. Ent. Zeitung* 1886, *s.* 113.	„	„

W. J. Bidara tjina (28); Buitenzorg (265); Tjampea (160); Soukaboumi (602), (FRUHST.).

C. J.?

E. J.?

The caterpillar in folded leaves of plants, which I was told were named *oubi-oubian* and *tjamar* (SMILAX LEUCOPHYLLA Bl.). The general colour is dirty green or dark yellow ochre studded with many white dots; on the fore and hind parts the colour is somewhat red or orange, and in the folds between the, segments not a clear orange. The vas dorsalis shines through as a dark dorsal line and the big yellow testes are also distinctly visible. The head is reddish brown; it is heart-shaped and bifurcate. The pupa in the folded leaf, fastened at the extremity of the abdomen and with a girdle-thread, is light gray, on the thorax somewhat reddish, but on the abdomen for the great part pale brick-coloured. The fore part is obtuse with a thick protrusion; the eyes are indicated by feeble orange coloured knobs.

3. GANA Moore (Pl. V, fig. 11).

MOORE, *Proc. Zool. Soc. of London* 1865 *p.* 780. . .	Pterygospidea	Gana.
PLÖTZ, *Jahrb. d. Nass. V*, 37, *s.* 48 (1884)	Tagiades	„
DISTANT, *Rhop. Mal. p.* 388, *pl.* 34, *fig.* 2 (1884—1886)	„	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 137, 141 (1897)	„	„

W. J. Dèpok (95); Soukaboumi (620) (FRUHST.); mount Salak (780).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

4. Menaka Moore (Pl. V, fig. 12).

Moore, *Proc. Zool. Soc. of London* 1865, *p.* 778 . .	Pterygospidea	Menaka.
Plötz, *Jahrb. d. Nass. V.* 37, *s.* 48 (1884) . . .	Tagiades	„
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 137, 142 (1897)	„	„

The Javanese specimens appeared to Snellen to be identical with those received from Moore.

W. J. Buitenzorg (265); Province of Prajangan (1500—1800).

C. J. Province of Madioun.

E. J. Tengger mountains (700); province of Pasourouan (500).

The larva on *tjanar* (Smilax Leucophylla Bl.), grayish green, back and sides studded with many dark dots. The vas dorsalis and the yellow testes are distinctly visible. The yellowish or reddish brown or sometimes also reddish marbled head is broad, heart-shaped and furcated. On the pupa triangular milk-white spots are to be seen, just as with those of T. Japetus Cram.

5. Trichoneura Feld.

Felder, *Wien. Ent. Monatschr. IV*, *s.* 402 (1860)	Pterygospidea	Trichoneura.
Moore, *Proc. Zool. Soc. of London* 1865, *p.* 779.	„	Pralaya.
Felder, *Novara, Lep.*, *s.* 528, *Taf.* 73, *fig.* 14, 15 (1867)	„	Trichoneura.
Plötz, *Stett. Ent. Zeit.* 1886, *s.* 113	Tagiades	„
Distant, *Rhop. Mal.*, *p.* 389, *pl.* 34, *fig.* 20 (1882—1886)	„	„
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 137, 145 (1897)	„	„

According to Mabille F. Pralaya Moore must be a separate species. Snellen can see nothing therein but a sligthly varying form of Trichoneura. The Javanese specimens agree with Felder's figure of Trichoneura.

W. J. Tjampea (160); Gedeh mountains (1400); the neighbourhood of the Tjiletou or Sandbay on the south coast (± 200).

C. J.?

E. J. Province of Pasourouan (± 500) (Fruhst.).

The larva resembling in shape that of the following species, feeds on the

leaves of a tall tree, which at Buitenzorg they told me was called *kaliwara* (CRATOXYLON CELEBICUM Bl.). It was yellowish with a black head. The short chrysalis resembled also that of the following species.

Genus ODONTOPTILUM de Nic.

1. ANGULATUM Feld. (Pl. V, fig. 13 *a*, *b*, *c*).

FELDER, *Verh. Zoöl. Bot. Ges. VII, s.* 488 (1862).	Pterygospidea Angulata.
„ *Novara, Lep., s.* 529, *Taf.* 78, *fig.* 10, 11 (1862)	„ „
MOORE, *Proc. Zool. Soc. of London, p.* 786 . . .	Achlyodes Sura.
DISTANT, *Rhop. Mal., p.* 390, *pl.* 34, *fig.* 16 (1882—1886)	Abazatha „
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 41 (1884). . .	Tagiades Angulata.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 148, 149 (1897)	Odontoptilum „

SNELLEN found the specimens of ACHLYODES SURA sent him by MOORE were identical with P. ANGULATA from Felder. The figures given by FELDER and DISTANT are but slightly accurate.

W. J. Batavia (3—14); Bidara Tjina (28); Dèpok (95); Buitenzorg (265).
C. J.?
E. J.?

This butterfly is common at Batavia, in the wet as well as in the middle (August, September) of the dry season. It is fond of basking in the full sunshine. The larva feeds on the leaves of *warou* (HIBISCUS TILIACEUS Sw.), *pouloutan* (URENA LAPPAGO Sm.), *randou* (ERIODENDRUM ANFRACTUOSUM D. C.) and *drowak* (GREWIA BLUMEI Hassk. var. β OBVERSA). It does not live in rolled up leaves, but in those which are only drawn together with some threads; for some time, however, it abandons that home to go and feed on other leaves. To perform the process of moulting, it seclúdes itself for some time in a part of a leaf, spun together with a few threads. The general colour of the young larva is a dull yellow, sometimes a little greenish, of the grown up larva ochreous. On magnifying it, one sees on the body many cross decussated wrinkles, it proves to be covered with prominences which are overgrown with short white hairs. The anal extremity is round shaped. A large brown scale is seen on the back of the first thoracic segment. The head is large, at the apex deeply bifurcated, brown and thickly overgrown with short, gray, brown and yellow hairs.

The form of the chrysalis resembles those of the PIERIS' pupae, it has, however, no pointed projections. At the entremity of the abdomen and also with a girdle-thread, it is fastened in a leaf bent together. Its colour is milkwhite with black dots, which shoot out from the extremity of the abdomen in four longitudinal, parallel rows, and of which the outermost row runs up to the wing-cases and the innermost one to the thorax. On the wing-cases some black lines, which seem to answer to the veins in the wings, and on the foremost part of the thorax black dots. A little white knob stretches out of the head part and a similar knob only orange coloured or black with reddish brown extremity is seen on each side of the back of the foremost part of the thorax. The haustellum is short but separated from the body. A pupa of January 24th gave the imago on the 8th of February. One of the 1st of February on the 13th of that month.

2. PYGELA Hew. (Pl. V, fig. 14).

HEWITSON, *Descr. of new Hesp.*, *p.* 53 *No.* 6 (1868).	Pterygospidea Pygela.
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 42 (1884) . . .	Tagiades „
DISTANT, *Rhop. Mal.*, *p.* 390, *pl.* 34, *fig.* 18 (1882—1886)	Abaratha „
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 148, 149 (1897)	Odontoptilum „

W. J. In the mountains of the province of Prajangan.

C. J.?

E. J. Loumajang (54); province of Pasourouan (± 500) (FRUHST).

Genus ABARATHA Moore.

1. SYRICHTHUS Felder.

MOORE, *Cat. Lep. E. I. C.*, *I*, *p.* 249, *pl.* 7, *fig.* 1, 1*a*.	Pyrgus Agama.
FELDER, *Novara*, *Lep.*, *s.* 530, *pl.* 72, *fig.* 22, 23 (1867).	Pterygospidea Syrichtus.
PLÖTZ, *Jahrb. d. Nass. V.* 37, *s.* 43 (1884) . . .	Tagiades Danae.
ELWES, *Proc. Zool. Soc. of London* 1892, *p.* 656, *pl.* 43, *fig.* 2	Abaratha Syrichthus.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 150, 151 (1897).	„ „

Whereas MOORE only figures the early stages, SNELLEN cannot accept the name AGAMA.

W. J. Mountains in the province of Prajangan; the neighbourhood of Pelabouan Ratou or Wynkoopsbay, on the Southcoast (+ 200).

C. J. Dander (± 30) in the province of Rembang.

E. J. Province of Pasourouan; province of Kediri.

Genus HASORA Moore.

1. BADRA Moore. (Pl. VI, fig. 15 *a*, *b*, *c*).

MOORE, *Cat. Lep. E. I. C.*, *I*, *p.* 245, *pl.* 7, *fig.* 3, 3*a* (1857)	Goniloba Badra.
MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 778 .	„ „
MABILLE, *Ann. Soc. Ent. de France* 1876, *p.* 265 .	„ Quadripunctata.
MOORE, *Lep. of Ceylon I*, *p.* 159, *pl.* 65, *fig.* 4, 4*a*, 4*b* (1881)	Ismene Badra.
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 59, *No.* 25. . .	„ „
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 296, 298 (1897)	Hasora „

In the Catalogue of 1857 MOORE figures only the caterpillar and the chrysalis, but in 1865 he gives a description of the imago. BADRA Distant is not BADRA Moore but LIZETTA Plötz.

W. J. Batavia (3—14); Buitenzorg (265); Tjibodas (1410); Tjipannas (± 1080); Sindanglaya (1074); the neighbourhood of the Tjiletou or Sandbay on the southcoast (± 200).

C. J.?

E. J. A specimen without any indication of the locality where it was caught.

The eyes of this butterfly during life are of a very deep brown. The four white dots on the under-side in some specimens are considerably more pronounced than is shown on the figure. The larva feeds on the plant, which at Buitenzorg I was told was *touba lalar* (PONGAMIA VOLUBILIS Z. & M.). The ground-colour is yellow, with a dark dorsal line, on each side of which another thinner line. From these lines others again run off crosswise, and between them at the back, alternately round the other articular ring, a black spot, not perfectly square, is to be seen. The under-side is rather white. The head of the young larva is black, afterwards it becomes dark blood-red with 5 black dots. It lives between two leaves spun together and there also is the pupa which is yellowish, though covered with a thick white dust. The spiracles are black and in

front the head a long obtuse snout projects. A pupa of December 22nd—23rd gave its imago on the 23rd—24th of January. The caterpillar is infected with little ichneumonidae.

2. Lizetta Plötz. (Pl. VI, fig. 16).

Plötz, *Stett. Ent. Zeit.* 1884, *s.* 59. . . . . Ismene Lizetta.
Distant, *Rhop. Mal. p.* 374, *pl.* 35, *fig.* 3 (1882—1886) . Hasora Badra.
De Nicéville, *Journ. Bombay Nat. Hist. Soc.*, 1889 *p.* 172. „ Hadria.

W. J. Buitenzorg (265); mount Salak (± 780).
C. J.?
E. J.?

The larva feeds on the same plant as the preceding one and has a striking likeness with that of Hasora Myra Hew., which is also to be found on the same plant; its ground colour is grayish with two white dorsal lines between which the vas dorsalis is visible as a dark streak. On the 2d thoracic segment a bright black, square spot. Alternatively on each segment is seen a large, square, subdorsal spot; the foremost of these spots are black, the others red. On the confines of the underside a milkwhite streak, on the foremost segments also some white dots. The head is orange, on the foreside for the greater part covered by a black spot. The young larvae are bright and not yet, as is the case with the grown up ones, covered with hairs; its ground colour is darker with many white transversal lines.

3. Mixta Mab. (Pl. VI, fig. 16 *a*, *b*).

Mabille, *Bull. Soc. Ent. de France, Ser.* 5, *VI p.* 9, *No.* 7.
Annales Id. p. 267 *No.* 13 (1876). . . . . Ismene Mixta.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 56, *No.* 14 . . . . „ Philetas.
Staudinger, *Iris II, s.* 139 (1889). . . . . „ Simplicissima.
De Nicéville, *Journ. Bombay Soc. of Nat. Hist. IX*,
p. 405, *pl. Q, fig.* 62, 63 ♂♀ (1895). . . . . Hasora „
Nec Simplicissima Mab. Bull. Soc. Ent. de France 1876, p. 25.

By De Nicéville this species is given as Javanese and by Fruhstorfer found on West-Java also, through whose care also the two figures were made which are added here. But as they show only the under-side the streak of dark scales, the feature of the species, is not visible, which just as with Hasora Chromus Cram. is found on the upper-side of the fore-wings of the ♂.

4. Nestor Möschl. (Pl. VI, fig. 17 *a*, *b*).

Möschler, *Verhandl. d. Zool. Bot. Ges.* 1878, *s.* 208, *No.* 10	Ismene Nestor.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 55.	„ „
De Nicéville, *Journ. Bombay Soc. of N.H.* IX, *p.* 403, *pl.* Q, *fig.* 61 (1895).	„ Jonis.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 291, 295 (1897).	„ „

This species is allied to Iluska Hew. of Celebes. Möschler did not know the ♂.

W. J. Gedeh mountains (1400—2700).

C. J.?

E. J. Banyouwangy; province of Pasourouan (± 500) (Fruhst.).

5. Chromus Cram. (Pl. IV, fig. 18 *a*, *b*, *c*).

Cramer, *III p.* 163 *pl.* 204, *E* (1782)	Papilio Chromus.
Hübner, *Zutrage fig.* 193, 194 (1818).	Coeliades Taminatus.
Felder, *Wien. Ent. Monats. II*, *s.* 401, *No.* 28 (1860)	Ismene Malayana.
„ *Novara III Lep. s.* 527, *pl.* 72, *fig.* 15 (1867)	„ „
Moore, *Lep. of Ceylon*, *p.* 161, *pl.* 65, *fig.* 1 *a*, *b* (1881)	„ Chromus.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 57, *No.* 19	„ „
„ „ „ „ 1884, „ 57, „ 20	„ Malayana.
Distant, *Rhop. Mal. p.* 373, *pl.* 35, *fig.* 2 (1882—1886)	Choaspes Malayana.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 296, 301, *pl.* 27, *fig.* 93, 93 *a* (1897) . .	Hasora Chromus.

The figure by Cramer is mediocre.

W. J. Buitenzorg (265); province of Prajangan (1500—1800).

C. J.?

E. J. In the provinces of Besouki and Pasourouan.

The larva is a dull green with yellowish green lines of which 4 are dorsal and some vertical, each on the side of a segment. The cross-folds between the segments are also yellowish green. A subdorsal, almost square black spot on each of the thoracic segments and a greater one on the 2d, 4th and 6th abdominal segment. These marks are largest on the midst segments, but seem to differ somewhat in the different individuals.

The head is red with black spots. Food unknown. About the pupa I possess no information.

6. Alexis F. (Pl. VI, fig. 10).

Fabricius, *Syst. Ent. p.* 533, *No.* 387 (1775). . . . . Papilio Alexis.
Butler, *Cat. Fabr., pl.* 3, *fig.* 1 (1878). . . . . Hesperia „
Moore, *Lep. of Ceylon, p.* 161, *pl.* 65, *fig.* 2 *a, b* (1881). Ismene „
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 57, *No.* 21 . . . . . „ „
De Nicéville, *Journ. As. Soc. of Bengal*, 55, 2, *p.* 378,
pl. 18, *fig.* 8 ♂, *fig.* 8 *a, b* ; (1886) . . . . . Hasora Coulteri.

W. J. Depok (95); Tjampea (160); mount Salak (780).

C. J.?

E. J. province of Pasourouan (± 500) (Fruhst.).

The food of the larva is not known to me. It is light-green and would much resemble the preceding species, but the head will perhaps be orange coloured overgrown with short, white hairs and showing 4 small black spots; the abdominal spots being round. Evidently some confusion crept into my notes about this larva and the preceding one, so that both descriptions are perhaps not very accurate.

7. Myra Hew. (Pl. VI, fig. 20 *a, b, c*).

Hewitson, *Exot. Butt. IV, Ismene, pl.* 1, *fig.* 3 ♂ (1867). . Ismene Myra.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 59, *No.* 29 . . . . . „ „
Elwes and Edwards, *Trans. Zool. Soc. of London* 4, 4*p*, *p.* 296,
303 (1897) . . . . . „ „

The figure given by Hewitson is anything but accurate.

W. J. Batavia (3—14); Buitenzorg (265); Sindanglaya (1074); Patjet (1114); Megamendoung (1450); province of Prajangan (1200—1500); mount Karang in the province of Bantam.

C. J.?

E. J. province of Pasourouan (± 500) (Fruhst).

The butterfly flies in the evening on flowers. The larva feeds on the plants, which I was told at Buitenzorg were named *kawòroh* (Milletia Sericea W. & A.) and *touba lalar* (pongamia volubilis Z. & M.). It is light green, and reddish with four white dorsal lines, and some white vertical lines on the sides; a subdorsal row rather large marks round every second ring. The foremost of these patterns are black, the others a deep red; sometimes all the spots are red. The grown up larva also is overgrown with fine silky white hairs. All the marks of the young larva are black; nor is it reddish.

The head is orange, on each side a black dot, above that in the young larva still two somewhat bigger spots. Sometimes also the first thoracic ring is orange, but for the greater part covered by a black mark on each side. Out of a pupa that pupated on the 7th of April came the imago on the 20th of that month.

8. SCHOENHERRI Latr.

LATREILLE, *Encycl. Meth. IX, p.* 742, *No.* 36 (1823).	Hesperia	Schoenherr(i).
HEWITSON, *Ex. Butt. IV, Ismene, pl.* 1, *fig.* 4 ♂ (1867).	Ismene	Chuza.
„ „ „ „ „ „ 1 „ 5 ♀ (1867).	„	Saida.
FELDER, *Novara Lep.* 527, *Tal.* 72, *fig.* 18, 19 (1867).	„	Gentiana.
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 61, *No.* 36 ♂ . .	„	Chuza.
„ „ „ „ 1884, *p.* 62, *No.* 37 ♀ . .	„	Saida.
DISTANT, *Rhop. Mal. p.* 373, *pl.* 34, *fig.* 27 (1882—1888).	Choaspes	Chuza.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 296, 304 (1897)	Hasora	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 296, 304 (1897)	„	Saida.

SNELLEN thinks CHUZA and SAIDA Hew. etc. to be both the sexes of the same species and synonyms of SCHOENHERRI Latreille; a species which description is very clear.

W. J. Buitenzorg (265); Mega Mendoung-mountains (1450).
C. J. Province of Madioun.
E. J.?

Genus BIBASIS Watson.

1. SENA Moore. (Pl. VI, fig. 21 *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 778.	Goniloba	Sena.
„ *Lep. of Ceylon, p.* 160, 533, *pl.* 65, *fig.* 3, 3*a* (1881)	Ismene	„
STAUDINGER, *Iris II, s.* 139 (1889)	„	„ var. Palawana.
SEMPER, *Schmett. d. Phil. I, s.* 292 (1892) .	Bibasis	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 305 (1897)	„	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 305 *pl.* 27 *fig.* 95 (1897) .	„	Uniformis.

The form PALAWANA, Stdgr. is the same as B. UNIFORMIS, Elwes and Edwards, and according to their description undoubtedly nothing else but a local form of SENA Moore.

W. J. Batavia (3—14), also in the very low lying forest of Pademangan; Buitenzorg (265).

C. J. Dander (± 30), in the south of the province of Rembang.

E. J. Province of Pasourouan (± 500) (FRUHST.).

The larva at Buitenzorg on *dawon laban* (COMBRETUM LATIFOLIUM Bl.). It is bluish-black with 2 white dorsal lines and alternately yellow and bluish-black sub-dorsal lines. The foreside of the head is black with a peculiar yellow marking along the border. The back side is red or orange. It lives in a leaf folded by two threads. The pupa also is in a rolled up leaf, it is faintly yellowish, powdered with white, with a subdorsal row of black dots visible through the powdering. Two similar dots are seen also quite under the girdle-thread. I must notice here that the larva very much resembles that of ISMENE OEDIPODEA Swains, even more than this is to be seen on the not quite accurate figures, by which, the more so as both live on the same plant, it often happened to me that confusion arose between them, which may also have had some influence on the description.

Genus BADAMIA Moore.

1. EXCLAMATIONIS F. (Pl. VI, fig. 22).

FABRICIUS, *Syst. Ent. p.* 530, *No.* 373 (1775) . . .	Papilio	Exclamationis.
CRAMER, *III, p.* 164, *pl.* 284 *C* (1783)	„	Ladon.
FELDER, *Sitz. Ber. d. Wiener Akad.* 40, *s.* 461 (1860).	Hesperia	Thymbron.
BUTLER, *Cat. Lep. Fabr., pl.* 3, *fig.* 2 (1870) . . .	„	Exclamationis.
MOORE, *Lep. of Ceylon I, p.* 157, *pl.* 66, *fig.* 2, 2*a*, *b* (1881).	Ismene	„
PLÖTZ, *Stett. Ent. Zeit.* 1884 *s.* 60	„	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 306.	Badamia	„

W. J. Dèpok (95); Buitenzorg (265).

C. J. Dander (+ 30), in the south of the province of Rembang.

E. J. Province of Besouki; province of Pasourouan (± 500) (FRUHST.).

The back of the larva is greenish yellow, the fore-side of each segment

shows on the back a broad black cross stroke, and 4 gray cross lines. White spiracles. On the confines of the under-side a white elevated streak. The head is light orange or yellow with a peculiar black marking, consisting for the greater part in a horizontal row of three lines under which still another of 5 dots.

Genus RHOPALOCAMPTA Watson.

1. SUBCAUDATA Feld. (Pl. VI, fig. 23 *a*, *b*, *c*, *d*).

FELDER, *Novara Lep. s.* 526, *pl.* 72, *fig.* 20, 21 (1867)	Ismene Subcaudata.
SNELLEN, *Tijdschr. v. Ent.* 21 *bl.* 40 (1877) . .	„ „
DISTANT, *Rhop. Mal., p.* 372, *pl.* 34, *fig.* 26 (1882—1886)	„ Crawfurdi.
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 59	„ Subcaudata.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 307 (1897)	Rhopalocampta Crawfurdi.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 307 (1897).	„ Subcaudata.

The Javanese specimens agree with the figure of FELDER, which for the rest is not very accurate. CRAWFURDI Distant is surely not a separate species.

W. J. Buitenzorg (265); Tjampea (160); mount Salak (780); Province of Prajangan (+ 1500).

C. J.?

E. J.?

The beautiful larva seems to be dimorphous, as occurs with more caterpillars, f. i. with those of CALLIDRYAS POMONA F. One that fed on *daivon laban* (COMBRETUM LATIFOLIUM Bl.) had a velvet-black colour, with a dorsal row irregular, deep yellow spots and on the sides still another row of such spots, which were, however, larger and somewhat oblong square. On the 1st and 2nd thoracie segments the yellow of all these spots become white. Between the two rows an azure coloured dot is seen on the foremost part of each segment and in each of the yellow spots on the sides also a little black mark in which the spiracles are to be found. The head is a faint orange with a peculiar marking of black spots. (See fig. *b*, *c*).

Another larva feeding on MELIOSMA LANCEOLATA Bl. and M. FERRUGINEA Bl., was also velvet-black with a grayish green longitudinal and between each

segment; in which bands are seen two olive-green lines. Along the confines of the belly these bands united into a grayish green streak. On each segment the same subdorsal azure dots are seen as in the above-mentioned larva. The dark orange head shows also the same drawing of black spots (see fig. *d*). The difference between the two larva-forms is, indeed, not so great as it appears to be at first sight, and consists for the greater part herein, that the irregular yellow spots of fig. *b* are more regularly united into crossbands in fig. *d* and that the colour of the head of the latter is more clear.

The pupa in found between two leaves, spun together with some threads, and is of a wax-like white, under which, however, the deep black ground colour is distinctly visible. There is a subdorsal row of black spots: on the wings are black streaks; on the thorax many projecting knobs and two oblong projections on which also are little black streaks. On the tenth day, the 9th of February, the imago appeared.

Genus ISMENE Swains.

1. Oedipodea Swains (Pl. VI, fig. 24 *a*, *b*, *c*, *d*).

Swainson, *Zool. Illustr.*, *pl.* 16 (1820). . . . . Ismene Oedipodea.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 54, *No.* 9 . . . . . „ „
Elwes and Edwards, *Trans. Zool Soc. of London* 14, 4, *p.* 290, 291 (1897). . . . . „ „

W. J. Batavia (3—14); Buitenzorg (265).
C. J.?
E. J. Province of Pasourouan (± 500) (Fruhst.).

See what is mentioned above for the larva of Bibasis Sena Moore. The larva of this species feeds on the same plant and on a climber which at Buitenzorg was said to be called, *oyot pengarapat* (?). It is bluish-black with two white dorsal lines and on each segment a subdorsal oblong, dark yellow or orange coloured spot, which however, on the first thoracic segment is not very distinct. The under-side is light green, on its confines appears a light green line. The fore-side of the head is black with a peculiar yellow drawing along the edge. The pupa is rose-coloured or reddish-brown with a subdorsal row of round yellow spots and still another row of round black ones; also many black spots on the thorax. The head shows a pointed projection.

2. Harisa Moore (Pl. VII, fig. 25 *a*, *b*, *c*).

Swainson, *Zool. III*, *pl.* 16 (1820) . . . . . Ismene Oedipodea.
Moore, *Proc. Zool. Soc. of London*, 1865 *p.* 782 . . . „ Harisa.
Plötz, *Stett. Ent. Zeit.* 1884 *s.* 55 . . . . . „ Consobrina.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4,
p. 290, 293 (1897) . . . . . „ Harisa.

Snellen thinks that I. Harisa Plötz, (*Stett. Ent. Zeit.* 1884 *p.* 53) is the Jaina Moore which is not yet found on Java.

W. J. Buitenzorg (265); province of Prajangan (± 1500).
C. J.?
E. J.?

Of this larva I have no description, only a figure, tolerably accurate. The larva, however, becomes larger, just as big as that of the following species. It feeds on *dawon bongh* (Zingiber Zerumbet Rose). Out of pupas of the 2nd or 3rd of January the imagos came on the 16th, 17th or 18th of the same month.

3. Gomata Moore. (Pl. VII, fig. 26 *a*, *b*, *c*, *d*).

Moore, *Proc. Zool. Soc. of London* 1865, *p.* 783 (♂) . . Ismene Gomata.
Mabille, *Ann. Soc. Ent. de France* 1876, *Bull. p.* 10 . . „ Lorquini.
Snellen, *Midd. Sumatra Lep. bl.* 26 (1880) . . . . . „ Striata.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4,
p. 291, 295 (1897) . . . . . „ Gomata.

W. J. Buitenzorg (265); Megamendoung and Gedeh mountains (1300—1800).
C. J.?
E. J.?

The larva on Heptapleurum Lucidum, *gambangan* or *panggang* (Trevesia sundaica Miq.) and further on the plants, which at Buitenzorg I was told were named *ki terang?*, *kidjang kourang*, (Horsfieldia Aculeata Bl.), *katjimbang* (Embelia Garciniafolia Miq.). Its ground-colour is a pearl-colour, the back of the abdomen yellow with 4 white dorsal lines. Further on the back and sides many larger and smaller spots. The head orange-coloured with many black dots. The larva folds a leaf together and fastens it with some threads, in which it takes up its abode, and in it one finds also the pupa fastened at the hindpart and with a girdle thread. The chrysalis is first of a gold-yellow, but afterwards becomes milk-white with little black streaks and dots.

Genus SUASTUS Moore.

1. Gremius F.

Fabricius, *Ent. Syst. Suppl.*, *p.* 433 (1798)	Hesperia Gremius.
Moore, *Proc. Zool. Soc. of London* 1865, *p.* 701. . .	„ Divodasa.
Butler, *Cat. Lep. Fabr.*, *pl.* 3, *fig.* 7 (1870)	Hesperilla Gremius.
Moore, *Proc. Zool. Soc. of London* 1878, *p.* 689, *pl.* 45 *fig.* 5	Hesperia Subgrisea.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 381, 1886, *s.* 109 . .	Telesto Gremius.
Staudinger, *Exot. Schm.*, *s.* 301, *Taf.* 100 (1888) . .	Hesperilla „
De Nicéville, *Indian Mus. Notes*, *I p.* 9, *pl.* 1, *fig. a—c* (1889)	Suastus „
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 179 (1897)	„ „

W. J.?
C. J.?
E. J. A ♂ without any further notice of the place where it was caught.

2. Sala Hew. (Pl. VII, fig. 27).

Hewitson, *Trans. Ent. Soc. of London* 1865, *p.* 500 .	Hesperia Sala.
De Nicéville, *Journ. As. Soc. of Bengal* 53, *p.* 49 (1884)	Suastus Adites.
Swinhoe, *Ann. and Mag. of Nat. Hist. Ser.* 6, *V*, *p.* 364 (1890)	„ Bipunctatus.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 178, 179, *pl.* 18, *fig.* 15 ♂ (1897)	„ Sala.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 178, 180, *pl.* 18, *fig.* 14 ♂ (1897)	„ Bipunctus.

W. J. Batavia (3—14), in the low-lying wood Pademangan.
C. J.?
E. J.?

3. Tripura de Nic. (Pl. VII, fig. 28).

De Nicéville, *Bombay Journ. of Nat. Hist. VI*, *p.* 392 *pl. G fig.* 39 ♀ (1891)	Tagiades Tripura.
Mabille, *Ann. Soc. Ent. Belge*, 37, *p.* 91 (1893). . .	Carystus Albescens.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 179, 180 (1897)	Suastus Tripura.

W. J.?

C. J.?

E. J. A specimen from the province of Pasourouan.

Genus SUADA.

1. SWERGA de Nic. (Pl. VII, fig. 29 *a*, *b*).

DE NICÉVILLE, *Journ. As. Soc. of Bengal*, 52, *p.* 89, *pl.* 10, *fig.* 12 (1883)	Hesperia Swerga.
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 152	Apaustus Triplex.
MOORE, *Journ. As. Soc. of Bengal* 53, *p.* 34 (1884)	Suastus Moelleri.
STAUDINGER, *Iris II*, *s.* 162, *Taf.* 2, *fig.* 13 (1889).	Heteropterus Cataleucos.
SEMPER, *Schmett. d. Philipp. I s.* 229, *pl.* 42, *fig.* 8 ♂ (1892)	Suastus Albinus.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 177, 178 (1897)	Suada Swerga.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 177, 178 (1897)	„ Cataleucos.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 177, 178 (1897)	, Albinus.

SNELLEN does not regard ALBINUS Semper, as a separate species.

W. J. Buitenzorg (265); Tjampea (160); the neighbourhood of the Tjiletou or Sandbay (± 200) on the south coast.

C. J.?

E. J. Banyouwangy.

The larva feeds on *bamboo* (BAMBUSA); it is grayish green, on which the vas dorsalis shines through as a dark line. The frontside of the head is encircled with a small black line, inside of which it is light brown with a peculiar marking consisting of two curved stripes of which the uppermost is black and the undermost a clear white. The head is slightly bifurcated.

The pupa firmly spun between bamboo leaves is quite oblong; the thoracic segment somewhat thickened is a bright-yellow and overgrown with dense colourless hairs; on each side of the head a small brown dot is to be seen. The abdomen is a yellowish white.

Genus JAMBRIX Watson.

1. Stellifer Butl. (Pl. VII, fig. *a*, *b*).

Butler, *Trans. Linn. Soc. of London*, 2e *Series*, *I*, *p.* 555 (1877) . . . . . Astictopterus Stellifer.
Moore, *Lep. of Ceylon*, *I*, *p.* 163 (1881). . . . . „ „
Elwes and Edwards, *Trans. Zool. Soc. of London*, 14, 4, *p.* 181 (1897) . . . . . Jambrix „

W. J. Tjampea (160); environs of Pelabouan Ratou or Wynkoopsbay (+ 2001.
C. J.?
E. J. Loumajang (54); province of Pasourouan (1500) (Fruhst.); the mountains along the south coast.

Genus AEROMACHUS de Nic.

1. Discreta Plötz. (Pl. VII, fig. 31).

Plötz, *Berl. Ent. Zeit.* 1885, *s.* 232 . . . . . Apaustus Discreta.
„ *Stett. Ent. Zeit.* 1886, *s.* 105 . . . . . „ „
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 187, 190, *pl.* 19, *fig.* 6 (1897). . . . . Aeromachus Discreta.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 187, 191, *pl.* 19, *fig.* 24 (1897) . . . . . „ Javanicus.

W. J. Sindanglaya (1074); Patjet (114); Gedeh mountains (1400); Pengalengan (+ 1500).
C. J.?
E. J.?

Genus ITYS de Nic.

1. Jadera de Nic. (Pl. VII, fig. 32).

De Nicéville, *Journ. Bombay Soc. of Nat. Hist. IX*, *p.* 377, *pl. Q fig.* 52 (1895). . . . . Itys Jadera.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 200 (1897) „ „

W. J.?
C. J.?
E. J. A specimen from Banyouwangy.

Genus HYAROTIS Moore.

1. ADRASTUS Cram.

CRAMER, *IV*, *p.* 62, *pl.* 319 F. G. (1782)	Papilio	Adrastus.
MOORE, *Lep. of Ceylon IV*, *p.* 174, *pl.* 67, *fig.* 5, 5*a* (1881	Hyarotis	„
PLÖTZ, *Stett. Ent. Zeit.* 1883 *s.* 30	Hesperia	„
DISTANT, *Rhop. Mal. p.* 397 *pl.* 34 *fig.* 4 (1882—1886)	Hyarotis	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 197 (1897)	„	„

CRAMER wrongly mentions Suriname as the habitat of this species.

W. J. Batavia (3—14).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

I found the larva wound up in a rattan leaf spun together in the forest of Pademangan, in the lowest part of Batavia, but also in the higher districts of Batavia on rattan plants cultivated there in pots. Its colour is whitish-green, especially on the round hind part of the body; with a few longitudinal dark streaks, in which wise the vas dorsalis also shines through. The head is yellow on which thin black lines form a ⅄, on the sides of which some more dark marbling is visible. The chrysalis resembles in form that of UDASPES FOLUS Cram. (see pl. X fig. 79*b*), it is slightly coloured somewhat agreeing with a withered rattan leaf. The vas dorsalis is visible; on each side of which some feeble black marbling is to be seen; in the middle of each segment appears a dark spot. A pupa of the 29th of May gave the imago on the 7th of June.

Genus LOPHOIDES Watson.

1. JAPIS de Nic. (Pl. VII, fig. *a*, *b*).

DE NICÉVILLE, *Journ. Bombay Soc. of Nat. Hist. V*, *p.* 213, *pl. E*, *fig.* 9 ♂ (1890)	Isoteinon	Japis.
DE NICÉVILLE, *Journ. Bombay Soc. of Nat. Hist. VI*, *p.* 384 (1891).	„	„
MABILLE, *Ann. Soc. Ent. Belge* 37, *p.* 35	Pamphila	Vulso.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 195, 196, *pl.* 54 *fig.* 24, 44*a* (1897).	Lophoides	Japis.

According SNELLEN VUILSO Mab. is the same species as JAPIS de Nic. (SAPIS Mab.).

W. J. Buitenzorg (265).
C. J.?
E. J. Banyouwangy.

Genus ZOGRAPHETUS Watson.

1. SATWA de Nic. (Pl. VII, fig. 34).

DE NICÉVILLE, *Journ. As. Soc. of Bengal* 52, *p.* 86, *pl.* 10, *fig.* 15 (1883) . . . . . Isoteinon Satwa.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 201 (1897) . . . . . Zographetus „

W. J. A specimen from the neighbourhood of the Tjiletou or Sandbay (+ 200) on the south coast.
C. J.?
E. J.?

2. OGYGIA Hew. (Pl. VII, fig. 35).

HEWITSON, *Trans. Ent. Soc. of London, Ser.* 3, *III p.* 500 (1866) . . . . . Hesperia Ogygia.
HEWITSON, *Exot. Butt. V, Hesp., pl.* 7, *fig.* 73, 74 (1896) „ „
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 381 . . . . . Telesto „
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 200, 203 (1897) . . . . . Zographetus Ogygia.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14. 4, *pl.* 19, *fig.* 9 . . . . . „ Ogygioides.

Among the Javanese specimens the form OGYGIOIDES passes gradually into the form OGYGIA so that both are undoubtedly the same species.

W. J. Patjet (1114); in the neighbourhood of the Tjiletou or Sandbay (+ 200) on the south coast.
C. J.?
E. J.?

In April I once found the larva on a bamboo leaf (BAMBUSA spec.). It was light-green, the head light gray with a black edge.

Genus MATAPA Moore.

1. ARIA Moore (Pl. VII, fig. 36 *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 784	Ismene	Aria.
„ *Lep. of Ceylon I*, *p.* 164, *pl.* 66, *fig.* 1, 1*a* (1881) .	Matapa	„
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 315	Hesperia	„
DISTANT, *Rhop. Mal.*, *p.* 378, *pl.* 35, *fig.* 8 (1882—1886) .	Matapa	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 201, 209 (1897)	„	„

The figure of DISTANT is far from accurate.

W. J. Batavia (3—14); Buitenzorg (265).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

During life the butterfly has blood-red eyes. The larva feeds on a rolled up leaf of a BAMBUSA species.

The body is whitish green, but grows gradually into a lime-white; the fore legs are black, the spiracles black with a black cross-line on the first thoracic segment. The large head is yellow or orange coloured with a little black close to the mouth parts. The yellow pupa with a somewhat thickened head end is concealed in a bambooleaf, which is, however, so closely spun together, that I could not exactly fix the day on which the larva pupated. A larva that had shut itself up in this manner concealed on the 17th of March gave the imago on the 25th of the same month.

2. DRUNA Moore. (Pl. VII, fig. 37 *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 784	Ismene	Druna.
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 315	Hesperia	Pulla.
„ „ „ „ 1882 *p.* 322	„	Druna.

PULLA Plötz is according to SNELLEN the ♀ of DRUNA.

W. J. Buitenzorg (265); Sindanglaya (1074); mount Salak (780).

C. J.?

E. J. Without any further indication of the locality where it was caught.

This butterfly has also blood-red eyes during life. The larva lives also in a rolled up and fastened leaf of a BAMBUSA species; its colour is red or brown, covered, however, with much white, the rounded anal-extremity is blackish and overgrown with white little hairs; on the back of the last segments some black dots are seen; the spiracles are black also. On the ♂ specimens the yellow testes shine distinctly through. The flat part of the big head is a

light-or dirty-orange or yellowish brown, marked with two parallel black streaks. In a leaf, tightly spun together, the pupa is fastened both at the anal extremity and by a girdle thread; as soon as the leaf is touched the pupa moves strongly which makes pretty much noise in the dry leaf. It is yellowish and oblong round. A larva that pupated probably on the 22th of April gave the imago on the 30th of that month.

Genus GE de Nic.

1. Geta de Nic. (Pl. VII, fig. 38).

De Nicéville, *Journ. Bombay Soc. of Nat. Hist. IX, p.* 373, 374, *pl. Q, fig.* 51 ♂ (1895) . . . . . Ge Geta.
Elwes and Edwards, *Trans. Zool. Soc. of London*, 14, 4, *p.* 182 (1897) „ „

The ♀ of this species seems not yet to be known.

W. J. Buitenzorg (265); province of Prajangan.
C. J.?
E. J. Banyouwangy; province of Pasourouan (± 500) (Fruhst.).

Genus SCOBURA Elwes.

1. Bononia Hew. (Pl. VII, fig. 39).

Hewitson, *Descr. of new. Hesp., p.* 29, *No.* 16 (1868) . Hesperia Bononia.
Plötz, *Stett. Ent. Zeit.*, 1883, *s.* 40 . . . . . „ „
Distant, *Rhop. Mal., p.* 386, *pl.* 35, *fig.* 20 (1882—1886) Isona „
De Nicéville, *Journ. Bombay Soc. of Nat. Hist. VI, p.* 391, *pl. G., fig.* 38 (1891) . . . . . „ Inarime.
Mabille, *Ann. Soc. Ent. Belge*, 1893, *p.* 55 . . . . . Pamphila Zetus.
Elwes and Edwards, *Trans. Zool. Soc. of London*, 14, 4, *p.* 204, 206 (1897) . . . . . Scobura Bononia.

W. J. In the neighbourhood of the Tjiletou or Sandbay (± 200) on the south coast.
C. J.?
E. J. Banyouwangy; province of Pasourouan (± 500) (Fruhst.).

2. Feralia Hew. (Pl. VII, fig. 40 *a, b, c*).

Hewitson, *Descr. of new. Hesp., p.* 31, *No.* 20 (1868). . Hesperia Feralia.
„ *Ex. butt. H., Hesp., pl.* 4, *fig.* 32 (1869) . . „ „

ELWES and EDWARDS, *Trans. Linn. Soc. of London* 14, 4,
p. 206 (1897) . . . . . Scobura Feralia.
ELWES and EDWARDS, *Trans. Linn. Soc. of London* 14, 4,
p. 204, 207, *pl.* 19, *fig.* 2 ♀ (1897). . . . . „ Bipunctata.

SNELLEN regards BIPUNCTATA as not a separate species. The number of white points on the hind-wings is not always the same.

W. J. Buitenzorg (265); Tjampea (160).
C. J.?
E. J. Banyouwangy.

The larva on *pinang rondeh* (PINANGA KUHLEI Bl.) and *pandan outan* (PANDANUS spec.). It is light green with feeble bright crossfolds, along the sides sometimes a more or less bright streak. The anal entremity terminates in a point sometimes slightly bent upwards, on the back of which is a black streak. The head is heart-shaped, at the upper-side somewhat bifurcated, light brown or green mixed with brown; at the upper-end beneath the bifurcation it is bruised in a peculiar manner. The green pupa is somewhat thickened at the head-end; the cremaster is hollowed out.

Genus ACERBAS de Nic.

1. ANTHEA HEW. (Pl. VIII, fig. 41 *a*, *b* (forma Javanica).

HEWITSON, *Descr. of new Hesp.*, *p.* 29, *No.* 17 (1868) . Hesperia Anthea.
BUTLER, *Trans. Linn. Soc. of London, Ser.* 2, *Zool., Vol. I,*
p. 554 (1877) . . . . . Cobalus Ciliatus.
DISTANT, *Rhop. Mal.*, *p.* 404, *pl.* 35, *fig.* 32 (1882—1886) Plesioneura Anthea.
ELWES and EDWARDS, *Trans. Linn. Soc. of London*, 14, 4,
p. 214, 215 (1897) . . . . . Acerbas „

Among the specimens of the type described by HEWITSON and figured by DISTANT according to a ♂ from Malacca, the white band does not continue up to the external margin as it does with the Javanese specimens, for which reason the latter can be distinguished as *forma Javanica*.

W. J. Neighbourhood of the Tjiletou or Sandbay (± 204) on the south coast.
C. J.?
E. J. Semarou mountains; province of Pasourouan (± 500) (FRUHST.).

Genus ERIONOTA Mab.

1. THRAX Clerck L. (Pl. VIII, fig. *a*. *b*).

CLERCK, *Icones*, *pl.* 42, *fig.* 2 (1759).	Papilio	Thrax.
LINNAEUS, *Syst. Nat.*, *Ed. XII*, *I*, 2, *p.* 794, *No.* 260 (1767)	„	„
HORSFIELD and MOORE, *Cat. Lep. E. I. C.*, *I*, *p.* 254, *pl.* 7, *fig.* 5 *larva*, 5*a pupa* (1857)	Hesperia	„
PIEPERS, *Tijdschr. v. Ent.*, 19, *p.* 158 (1875—1876) .	„	„
DE NICÉVILLE, *Journ. As. Soc. of Bengal* 50, 2, *p.* 260 (1881)	Ereonota	Acroleuca.
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 327, 1886, *s.* 91 . .	Hesperia	Thrax.
DISTANT, *Rhop. Mal.*, *p.* 393 *pl.* 34, *fig.* 17 (1882—1886)	Erionota	„
ELWES, and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 217 (1897)	„	„

The form ACROLEUCA de Nic. that has white scales near the apex of the fore-wings occurs on Java with the type.

W. J. Batavia (3—14); Buitenzorg (265); Tjampea (160); Sindanglaya (1074); mount Salak (780); mount Tjerimay in the province of Tjeribon (2003); Megamendoung mountains (1500). The neighbourhood of the Tjiletou or Sandbay (200).

C. J. Magelang in the province of Kadou.

E. J. Semarou mountains (2200); Sourabaya on the east coast; province of Pasourouan (± 500) (FRUHST).

The above-mentioned variety ACROLEUCA represents only the individuals, that are in a more advanced stadium of colour-evolution and in which therefore a part of the yellow already faded into white. By daylight the butterfly flies only when it is roused, else only in the twilight; when flying it makes a soft gnashing sound; when at rest and touched with the hand on the antennae it seems not to take any notice thereof, but then the same is done on one of its legs it flies away immediately. Sometimes it makes vibratory movements with the wings just as the Sphingidae before flying, but as with these moths this is evidently a preparation to enable themselves to fly such is surely not the case with THRAX, because this species is also perfectly able to fly up without doing so. One evening during a heavy shower of rain such a butterfly flew into a room where a lamp was burning, and directly it went to the light just as many Heterocera do. The caterpillar is to be found wherever its principal food but exists, viz., the leaf of the *pisang* (MUSA spec), that is to say, wherever on Java human dwellings are found. I found them also on the leaves of *kelappa* (COCOS NUCIFERA L.), of RHAPIS FLABELLIFORMIS, of *kiray* (METROXYLON

SAGUS Rottb.) of *aren* (ARENGA SACHARIFERA Lab.), and as I was told they are said also to have been found on the leaves of the African ELAEIS GUINEENSIS L. It lives in a part of a leaf that is rolled up into a case and fastened with threads, it is chalk-white with a black head overgrown with very short hairs and wholly covered with a white waxy powder, that also entirely fills its abode. That this wax-like exudation as de NICÉVILLE according to TUTH means, should serve the caterpillar and the pupa as a sheltering against the heavy rains, may be doubled; because many other larvae of Hesperidae live also in rolled up or folded leaves without exuding such a powder. It is very much plagued by small Braconidae. The yellow brown chrysalis, that is also in that abode, is very oblong and has a very long and mostly curved haustellum which is even longer than its abdomen. When the leaf is touched it moves strongly so that it makes some noise. After 7 or 8 days the imago appears. The figures of this larva and pupa given by HORSFIELD are but little accurate.

2. LEBADEA Hew. (Pl. VIII, fig. 43 *a*, *b*, *c*).

HEWITSON, *Exot. Butt. IV, Hesp., pl.* 3, *fig.* 22, 23 (1868)	Hesperia Lebadea.
MOORE, *Proc. Zool. Soc. of London*, 1878, *p.* 686 . .	Ismene Subfasciata.
„ *Lep. of Ceylon, I, p.* 164, *pl.* 64, *fig.* 3, 3*a b* (1881)	Mataspes „
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 333, *No.* 156 . . .	Hesperia Lebadea.
DISTANT, *Rhop. Mal., p.* 375, *pl.* 35, *fig.* 5 (1882—1886)	Paduka Glandulosa.
ELWES and EDWARS, *Trans. Zool. Soc. of London* 14, 4, *p.* 218, 219 (1897)	„ Lebadea.

SNELLEN regards the figures by HEWITSON and DISTANT as not very accurate.

W. J. Buitenzorg (265); Tjampea (160).

C. J.?

E. J. Province of Pasourouan; Ibid (± 500) (FRUHST). The larva on *ratan* (CALAMUS spec.). It is chalk-white with a dorsal row of black points. The black head is almost entirely covered with white, so that the black is only visible along its edge as a peculiar row of dots. When the rolled up leaf, where in the pupa is, is touched, the pupa makes a rattling sound by moving itself forcibly.

Genus GANGARA Moore.

1. THYRSIS F. (Pl. VIII, fig. 44 *a*, *b*).

FABRICIUS, *Syst. Ent., p.* 582 (1775)	Papilio Thyrsis.
MOORE, *Cat. Lep. E. I. C., I., p.* 254, *pl.* 7, *fig.* 10, *larva* 10*a pupa* (1857)	Hesperia Pandia.

MOORE, *Proc. Zool. Soc. of London*, 1865, *p.* 790 . . .	Hesperia Pandia.
„ *Lep. of Ceylon*, *I*, *p.* 165, *pl.* 66, *fig.* 3, 3*a* (1881)	Gangara Thyrsis.
PLÖTZ, *Stett. Ent. Zeit.* 1882, *p.* 331	Hesperia Clothilda.
DISTANT, *Rhop. Mal. p.* 394, *pl.* 34, *fig.* 13 (1882—1886)	Gangara Thyrsis.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 218 (1897)	„ „

W. J. Batavia (3—14); Buitenzorg (265); Tjampea (160).

C. J.?

E. J.?

The eyes of this butterfly are blood-red during life. The larva lives in the same manner as that of ERIONOTA THRAX Clerck L. in a rolled up and fastened leaf of different Palmaceae, as: *kelappa* (COCOS NUCIFERA L.), *aren* (ARENGA SACHARIFERA Lab.), *kiray* (METROXYLON SAGUS Rottb.) etc.) and also of *ratan* (CALAMUS spec.). It is entirely covered with a white waxy substance, that hangs also in long threads down from its body, but easily lets loose. Under this substance the real colour of the body is here and there to be seen as blood-red spots, just as such is the case on the young larva of CRICULA CRAMERI Feld. Sometimes the head also is red, but generally it is entirely white.

The pupa is oblong, the upper end dark, the thoracic part, as for the rest, light green, the abdomen light yellow-brown. The cremaster is bifurcated, the haustellum as long as the abdomen and mostly hollowed out. This pupa makes also a rattling noise when the leaf wherein it dwells is touched, by moving itself vigorously in the very dry palm leaves. The figure of the larva given by MOORE, is bad, that of the pupa somewhat better, but yet not accurate either.

Genus KORUTHAIOLOS Watson.

1. XANITES Butl. (Pl. VIII, fig. 45 *a*, *b*, *c*, *d*).

BUTLER, *Trans. Ent. Soc. of London* 1870 *p.* 510 . .	Astictopterus Xanites.
„ *Trans. Linn. Soc. of London*, 2*e* *Ser.*, *Zool. I*, *p.* 555, *pl.* 69, *fig.* 7 (1877).	„ „
PLÖTZ, *Berl. Ent. Zeitschr.* 1882, *s.* 263	Lychnuchus Focula.
DISTANT, *Rhop. Mal.*, *p.* 402, *pl.* 34, *fig.* 28 (1882—1886)	Astictopterus Xanites.
WATSON, *Proc. Zool. Soc. of London* 1893 *p.* 77 . .	Koruthaiolos Hector.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 175 (1897)	„ „

SNELLEN remarks that the extent of the orange coloured band on the fore-wings differs much, as is to be seen in the figures. The figure given by DISTANT is not very accurate. This band referred to by SNELLEN that occurs also by many other Rhopalocera from other families, is evidently one of those obstinate spots of which I have spoken when treating the Pieridae, where the original colour long maintains itself against the increase of the black; this process, however, is already much advanced in this species and so that band is with the one individual so much more extensive than with the other. In some other species the process of colour-evolution has already changed the red into yellow and especially into white; but with regard to XANITES the red is not yet much faded. In my collection there are many specimens that partly show the transition from the type (pl. VIII fig. *a*, *b*) to the form VERONES Hew., (Ann. and Mag. of Nat. Hist., 5th Serie, 1, p. 341 1878) in which latter the red of the upper-side of the fore-wings has quite disappeared and now only appears at the under-side as a small spot. Of such a specimen from the collection of Mr. FRUHSTORFER the under-side is imaged here, (fig. *d*).

W. J. Buitenzorg (265); mount Salak (780); Gedeh mountains (1400); the neighbourhood of the Tjiletou or Sandbay on the south coast; mount Karang in the province of Bantam.

C. J.?

E. J. Semarou mountains (700); province of Pasourouan (± 500) (FRUHST.).

2. KOPHENE de Nic. (Pl. VIII, fig. 46 *a*, *b*).

DE NICÉVILLE, *Journ. Bombay. Soc. Nat. Hist.*, X, *p.* 2,
pl. T, fig. 50 ♀ (1896) . . . . . Koruthaiolos Kophene.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4,
p. 176 (1897) . . . . . „ „

W. J. Gedeh mountains and other mountains in the province of Prajangan (1500).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

Genus SANCUS de Nic.

1. PULLIGO Mab. (Pl. VIII, fig. 47 *a*, *b*).

MABILLE, *Ann. Soc. Ent. de France* 1876, *p.* 272,
Bull. p. 26 . . . . . Tagiades Pulligo.

Moore, *Proc. Zool. Soc. of London*, 1878, *p.* 842	Astictopterus	Subfasciatus.
Plötz, *Stett. Ent. Zeit.* 1886, *s.* 109.	„	Kethra.
Wood Mason and De Nicéville, *Journ. As. Soc. of Bengal*, 55, *p.* 380, *pl.* 18, *fig.* 1*a* (1887)	„	Subfasciatus.
Staudinger, *Iris II, s.* 147 (1889) Plötz *in litt.*	„	Ulunda.
Semper, *Schmett. d. Phil. I, s.* 319, *pl.* 49, *fig.* 1 (1892)	Sancus	Pulligo.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 174 (1897)	„	„

W. J. Batavia (3—14); Dèpok (95); neighbourhood of Pelabouan Ratou or Wynkoopsbay (± 200), on the south coast; in the mountains of the province of Prajangan (1500).

C. J.?

E. J. Province of Pasourouan (± 500) (Fruhst.).

The larva in a folded leaf of *obi rarout* = *arrowroot* (?). Green, on the thoracic segments passing over into a dark yellow with many cross folds. The head is heart-shaped and bifurcated, the flat fore-side is light brown with dark brown spots and margin.

Genus AMPITTIA Moore.

1. Maro F.

Fabricius, *Ent. Syst. Suppl.*, *p.* 432 (1798) . . .	Hesperia	Maro.
Hewitson, *Descr. of Hesp.*, *p.* 43, *No.* 8 (1868) .	Cyclopides	Camertes.
Butler, *Cat. Lep. Fabr. p.* 2, *fig.* 12 (1870) . .	„	Maro.
Snellen, *Central Sumatra Lep. bl.* 28 (1880) . .	Thymelicus	Palemonides.
Moore, *Lep. of Ceylon I, p.* 172, *pl.* 71, *fig.* 1, 1*a* (1881)	Ampittia	Maro.
Plötz, *Stett. Ent. Zeitung* 1884, *s.* 164	Apaustus	„
Distant, *Rhop. Mal.*, *p.* 383, *pl.* 35, *fig.* 14, 15 (1882—1886).	Telicota	„
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 185, 186 (1897)	Ampittia	„

W. J. Batavia (3—14); Soukapoura in the province of Prajangan; the neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (+ 200).

C. J. In the province of Rembang.

E. J.?

The little larva on the leaf of the *padi* (ORYZA SATIVA L). It is a dull green, the head is black, mixed with some light brown. The oblong pupa is grass-green and attached to a leaf of the *padi*. From a pupa of the 28th of February the imago emerged on the 6th of March.

Genus PARNARA Moore.

1. PHILINO Möschl. (Pl. VIII, fig. 48 *a*, *b*).

MÖSCHLER, *Verh. Zool. Bot. Ges.* 1878, *s.* 220 . . .	Hesperia Philino.
MOORE, *Proc. Zool. Soc. of London* 1878, *p.* 220. . .	Parnara Bada.
„ *Lep. of Ceylon I, p.* 167, *pl.* 70, *fig.* 2, 2*a* (1881)	„ „
PLÖTZ, *Stett. Ent. Zeitung* 1883, *s.* 44	Hesperia Intermedia.
VAN DEVENTER, *Archief Suiker Ind.* 1902, *bl.* 5, *fig.* 9—13 ♂	„ Philino.

The Javanese specimens have been identified by MÖSCHLER himself as PHILINO, and SNELLEN found, after a personal research, that BADA Moore agrees with it.

W. J. Batavia (3—14).

C. J. Pekalongan (VAN DEVENTER).

E. J.?

According to VAN DEVENTER the larva is from 30 to 35 millimetres long and lives between the lengthwise stitched leaves of the *padi* (ORYZA SATIVA L.), of the *tebou* (SACCHARUM OFFICINARUM L.) and of the *djagoung* (ZEA MAYS L.); once also I found one between bamboo leaves (BAMBUSA) and once a pupa in a sewed up piece of a leaf of the *kladi* (COLOCASIA ANTIQUORUM Schott.). It is green or greenish white, on which the vas dorsalis shines through as a dark streak; on the anal extremity, that runs out in a rounded off form, is mostly, but not always on that streak a dark brown or black line running lengthwise, which sometimes at the upper-end is nail-shaped, thickened or formed into a cross by a little cross-line. According to VAN DEVENTER this black is only sometimes wanting in the young larva; I think, however, that I may doubt this. The yellow testes also shine through. On the first thoracic segment there is sometimes also, according to VAN DEVENTER in the young larva always, a dark brown little cross line. The head is bifurcated at the upper-side, red brown here and there, and especially along the margins a dark brown with two vertical black streaks; the head of the young larva, however, is entirely black. The pupa is mostly in a thick white cocoon between leaves, it is oblong, the thoracic part somewhat gibbous light violet coloured or yellowish white.

The haustellum shows itself as a body projection, which is longer than the wing-cases. From a larva pupated on the 1st of March the imago emerged on the 10th of that month, and from one of 30th May, on the 8th of June. I think my figure of the caterpillar has succeeded better than that of VAN DEVENTER; the one, however, which he gives of the pupa is correct.

2. TOONA Moore (Pl. VIII, fig. 49).

MOORE, *Proc. Zool. Soc. of London*, 1878, *p.* 689. . . . Hesperia Toona.
WOOD-MASON and DE NICÉVILLE, *Journ. Asiat. Soc. of Bengal*, 55, *II*, *p.* 383 ♀ (1891). . . . . Parnara „

SNELLEN doubts whether CONTIGUA Mab., *Bull. Soc. Zool. de France*, 1877, *p.* 232, is the same species.

W. J. Batavia (3—14); Buitenzorg (265); Patjet (1114).

C. J. Bojonegoro (258).

E. J. Tengger mountains (700); mountains along the south coast (600); province of Pasourouan (± 500) (FRUHST.).

The larva on *allang-allang* (IMPERATA ARUNDINACEA Cyrill.). It is light or dirty green with many dark dots and yellow cross-folds. The head is yellow brown, surrounded by a brown streak, which is somewhat broader at the sides and somewhat brown under the mouth-parts. In the middle a faint figure of two standing lines converging at the top and above that a slightly vertical notch.

3. MATTHIAS F. (Pl. VIII, fig. 50).

FABRICIUS, *Ent. Syst. Suppl.*, *p.* 433 (1798) . . . . Hesperia Matthias.
HÜBNER, *Samml. Exot Schmett*, (1806—1827). . . . Gegenes Thrax.
LEDERER, *Verhand. Zool. Bot, Ges.*, *V*, *p.* 194, *pl.* 1, *fig.* 9, 10, (1855). . . . . Hesperia Thrax.
BUTLER, *Cat. Lep. Fabr.*, *pl.* 3, *fig.* 6 (1870). . . . Epargyrus Matthias.
PLÖTZ, *Stett. Ent. Zeit.*, 1883, *s.* 46 . . . . . Hesperia „
DISTANT, *Rhop. Mal.*, *p.* 380, *pl.* 35, *fig.* 10 (1882—1886). Baoris „
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 275, *pl.* 26, *fig.* 86 (1897) . . . . . Parnara „
VAN DEVENTER, *Archief, Java Suik. Ind.*, 1902, *bl.* 7, *fig.* 14—19 (*larva*, *pupa* ♂ ♀) . . . . . Hesperia „

W. J. Batavia (3—14); Buitenzorg (265).

C. J. Pekalongan (VAN DEVENTER).

E. J.?

The larva according to VAN DEVENTER 40 millimeters long feeds on *padi* (ORYZA SATIVA L.); *alang-alang* (IMPERATA ARUNDINACEA Cyrill.); *tebou* (SACCHARUM OFFICINARUM L.), and other species of grasses; once I found it also on *serch wangi* (ANDROPOGON SCHOENANTHUS L.). While most Hesperidae feed on folded or rolled up leaves, VAN DEVENTER remarks that this species in its last stadium lives free, mostly upon the leaves. It is light, yellowish, green with many white dots and clear yellow subdorsal lines, which sometimes do not run on to the last segment, while the vas dorsalis shines darkly through. The anal extremity is rounded off.

The head of the grown up larva is light-green, on each side is a vertical red streak between two white lines, which red, however, is not always of the same tint and just as the white strokes is sometimes more or less visible and sometimes even entirely wanting. According to VAN DEVENTER, however, this red in the last stage but one of the larva is considerably more extended and the head of the young larva is uniformly black; one of my notes seems to agree with this last; from another it would appear that afterwards that black considerably lessens. One then would be inclined to accept that in this manner the black lessening gradually during the ontogenetic evolution, does reappear a part of the original red colour yet unchanged, while another part thereof has already faded into white, but that such is not the case with all individuals. In this respect, however, much further inquiry is necessary before the facts, which are of consequence here, can be settled.

The pupa is light green with lengthwise running dim white lines. It is fastened against a half folded leaf at the hind end and by a girdle thread that goes over the upper part of the thorax. It is oblong and the head ends in a snout. A pupa of the 8th of January gave the imago on the 26th of that month, one of the 5th of March on the 14th of March. VAN DEVENTER gives a very good figure of the pupa; what concerns the larva, however, I think my figure has succeeded better.

4. BRUNNEA Snell. (Pl. VIII, fig. 51 *a*, *b*, *c*, *d*, *e*).

SNELLEN, *Tijdschr. v. Ent. XIX, bl.* 164, *pl.* 7, *fig.* 4 (1876)	Pamphila Brunnea.
PLÖTZ, *Stett. Ent. Zeit.* 44, *s.* 46 (1883)	Hesperia „
DE NICÉVILLE, *Bombay Journ. of Nat. Hist. VI*, 3, *p.* 388, *pl. G, fig.* 33 ♂ (1891)	Chapra Caere.
MABILLE, *Ann. Soc. Ent. Belge*, 37, *p.* 53 (1893) . . .	Pamphila Sodalis.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 276 (1897)	Parnara Brunnea.

The figure in the *Tijdschrift voor Entomologie* is not very accurate.

W. J. Batavia (3—14); Buitenzorg (265); Sindanglaya (1074); Megamendoung mountains (1482); Gedeh mountains (1400); neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (+ 200).

C. J. in the province of Semarang (JACOBSEN).

E. J. province of Pasourouan (+ 500) (FRUHST.).

The larva on the leaves of *Bamboo* (BAMBUSA spec.) and on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.). It is a grayish yellow green, but yellow on the cross folds. The anal extremity is rounded off. The head of the young larva is black or dark brown; afterwards it becomes pearl-gray with, along the margin, a brown streak that thickens downwards, but does not entirely run on to the underside. From the centra of the fore-side of the head descends a small streak that lower on divides into many little thin lines. Near the mouth-parts small brown dots. The pupa is light-green, oblong, the head ending in a snout and the cremaster hollowed. A pupa of the 30th of January gave the imago on the 9th of February, one of the 10th May on the 19th of that month.

5. MOOLATA Moore (Pl. IX, fig. 52 *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1878, *p.* 843. . .	Hesperia Moolata.
MABILLE, *Petit Nouv. Ent.* 1878, *p.* 242	Pamphila Dravida.
DISTANT, *Rhop. Mal.*, *p.* 379, *pl.* 34, *fig.* 10 ♂ (1882—1886)	Baoris Moolata.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 378, *pl.* 26, *fig.* 86 *a—c* (1897)	Parnara „
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, *pl.* 21, *fig.* 23 ♂, *pl.* 26, *fig.* 87 *a—c*.	„ Aurociliata.

AUROCILIATA is nothing else than a form of MOOLATA from which it differs only because the yellow of the fringe has a somewhat deeper colour; both forms occur on Java. The figure by DISTANT it not very accurate.

W. J. Tjampea (160); Mount Salak (780); Gounoung Pantjar, in the neighbourhood of Buitenzorg.

C. J.?

E. J. Banyouwangy.

6. CONJUNCTA Herr.-Sch. (Pl. IX, fig. 53 *a*, *b*, *c*).

HERRICH-SCHÄFFER, *Corr. Bl. d. Zool. Min. V*, 23, *s.* 195 (1869)	Goniloba Conjuncta.
MABILLE, *Bull. Soc. Zool. de France*, 1877, *p.* 232 . .	Parnara Javana.
MOORE, *Proc. Zool. Soc. of London*, 1878, *p.* 687, *pl.* 45, *fig.* 4	Hesperia Narova.

MOORE, *Lep. of Ceylon I, p.* 167, *pl.* 39, *fig.* 3, 3*a* (1881)	Hesperia Narova.
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 344, *No.* 141 . . .	„ Conjuncta.
„ „ „ „ 1883, *p.* 45, *No.* 321	„ Alice.
DISTANT, *Rhop. Mal., p.* 380, *pl.* 34, *fig.* 12 (1882—1886)	Baoris Narova.
SEMPER, *Schmett. d. Phil. I, s.* 297 (1892)	Parnara Javana.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 280, *pl.* 27, *fig.* 92*a—c* (1897).	Parnara Conjuncta.
VAN DEVENTER, *Archief Java Suiker Ind.*, 1902, *Afl.* 15, *p.* 7, *fig.* 20—26	Hesperia „

W. J. Batavia (3—14); Dèpok (95); Buitenzorg (265); Gedeh mountains (FRUHST.).

C. J. Tegal (LUCASSEN); Pekalongan (VAN DEVENTER).

E. J.?

The eyes of this very common butterfly are dark reddish brown during its life. According to VAN DEVENTER the larva reaches a length of 50 to 55 millimeters; it feeds on *djagoung* (ZEA MAYS L.), *padi* (ORYZA SATIVA L.), *tebou* (SACHARUM OFFICINARUM L.), *bamboo* (BAMBUSA spec.) and *serch wangi* (ANDROPOGON SCHOENANTHUS L.). It is dim, greenish yellow, on the foremost segments somewhat brighter with two dull yellow lengthwise streaks, and fine transverse folds. By magnifying, many black dots on back and sides become visible. The hindpart of the body ends rounded off and is near the anal extremity overgrown with short white hairs. The head has a peculiar appearance; on the very young larva it is black, dotted with some white, afterwards, however, it becomes gray, divided into two parts by a thin vertical black line, which sometimes thickens at the upper and lower end, in each of the two divisions are—mostly two—round black spots. With the grown up larva the head is white and 4 of such spots are usually to be seen, and above these sometimes also black streaks; this black head-marking is not in all individuals entirely the same; there is evidently some times more or less black than otherwise. From my numerous, but often hastily made, notes concerning these larvae it appears to me, that these black spots are sometimes substituted by more or less bent black vertical streaks, one at each side of the head, and that the heads of some larvae, saving a dark margin, should be entirely white. This, however, must still be settled by a special inquiry in this direction. The pupa is light green with two parallel white streaks at the back, its form is that of UDASPES FOLUS Cram. (See pl. X, fig. 79 *b*). The right haustellum is separated from the body and reaches to the anal extremity. I found it fastened on that extremity and the normal girdle thread to a bamboo-leaf; once I think observed

also a little thread spun over the abdomen. Above that, however, three longer and stronger threads were stretched across the not rolled up, but a little bent leaf, which prevented the leaf from curling to the other side through which the thin threads, that hold fast the pupa, would break or become so stretched that it would have been the pupo's death. According to VAN DEVENTER the larva always pupates in this manner at the underside of a leaf; if this is true, then the danger of curling upwards of the leaf would lie in the fact itself. A very ingenious arrangement of which I have spoken in the *Introduction* and that I think has not been observed in all pupae of this species, therefore it may be, that such is only the case when they are attached to very dry leaves as those of the Bambusa, which are particularly inclined to curl. This, however, also requires a further inquiry. A pupa of the 29th—30th March gave the imago on the 9th of April. The pupae often contain many Braconidae. I give here figures of the early stages, which I regard as more accurate than those of VAN DEVENTER, particularly in respect to the larva.

7. TULSI de Nic. (Pl. IX, fig 54).

DE NICÉVILLE, *Journal Asiat. Soc. of Bengal*, 52, *p.* 86 (1883) Parnara Tulsi.
PLÖTZ, *Stett. Ent. Zeit.* 1886, *s.* 95, *No.* 290 *b* . . . . Hesperia Jolanda.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4,
p. 371, 284 (1897) . . . . . Parnara Tulsi.

The description of JOLANDA given by PLÖTZ without doubt concerns TULSI de Nic., which is then the oldest name.

W. J. Buitenzorg (265); Soukaboumi (602); Tjibodas (1410); province of Prajangan (1500—1800).

C. J. A specimen without further indication of the place where it was caught.

E. J.?

8. PLEBEJA de Nic. (Pl. IX, fig. 55).

DE NICÉVILLE, *Proc. Zool. Soc. of London*, 1887, *p.* 466,
pl. 40, *fig.* 2 . . . . . Parnara Plebeja.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4,
p. 271, 275 (1897) . . . . . „ „

Identified from a specimen sent to SNELLEN by de NICÉVILLE. The ♀ seems yet to be unknown.

W. J.?

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

9. KUMARA Moore (Pl. IX, fig. 56, *a*, *b*).

MOORE, *Proc. Zool. Soc. of London*, 1878, *p.* 687 . . .	Hesperia	Kumara.
„ *Lep. of Ceylon I*, *p.* 166, *pl.* 69, *fig.* 2, 2*a* (1881)	„	„
SWINHOE, *Trans. Ent. Soc. of London*, 1893, *p.* 323 . .	Caltoris	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 275, *pl.* 27, *fig.* 90*a*, *b* (1897)	Parnara	„

W. J. Patjet (1114); Gedeh and Wayang mountains (1500—1800).

C. J.?

E. J. A specimen without further indication of the place where it was caught.

The larva on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.). It is a very whitish green, at the anal extremity entirely white; it shows cross folds which at the thoracic segments are yellowish with very many numerous black dots. Head almost white as ground-glass. Above the mouth-parts and at the side ivory-yellow. On the side also still some black marking. Concerning the pupa I am without annotations of my own.

10. OCEIA Hew. (Pl. IX, fig. 57 *a*, *b*).

HEWITSON, *Descr. of new Hesp.*, *p.* 31, *No.* 22 (1868) . .	Hesperia	Oceia.
PLÖTZ, *Stett. Ent. Zeit.* 1883, *s.* 44	„	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 274, *pl.* 25, *fig.* 74 *a*—*c* (1897)	Parnara	„

W. J.?

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

11. BEVANI Moore. (Pl. IX fig. 58, *a*, *b*, *c*, *d*).

MOORE, *Proc. Zool. Soc. of London*, 1878, p. 688 . . .	Hesperia	Bevani.
ELWES, *Trans. Ent. Soc. of London*, 1888, *p.* 446, *fig.* 2 .	Parnara	Bevani.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 271, 283, *pl.* 26, *fig.* 82 (1897)	„	Bevani.

This species is not mentioned by MABILLE. By SNELLEN it is doubted also whether it belongs to the genus PARNARA. By comparing the Javanese specimens with the MOORE collection it appeared besides evident to him, that it does agree with BEVANI Moore.

W. J. Batavia (3—14); Buitenzorg (265); mount Salak (780).

C. J.?

E. J.?

The larva feeding on *tebou* (SACCHARUM OFFICINARUM L.), on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.) and on *roumpout pahit* (PASPALUM CONJUGATUM Berg.), is very light whitish-green on which the vas dorsalis darkly shines through, on each side, besides, a white line is seen. On each side of the body also such a white line. The thickness and brightness of all these lines are in the specimens very different. The anal extremity is rounded off. The head is light green with two white vertical streaks, which are sometimes on the outside bounded by a black streak, while sometimes still other little black lines occur; all these black lines, however, are occasionally wanting; the white streaks are more constant. Sometimes, yet another head-marking, without white streaks seems to occur, and from my notes it seems probable to me, that this is an older marking, which is mostly substituted by the afore-mentioned, but sometimes, however, also remains in existence until the pupating. The pupa that is attached to a leaf has the form of that of UDASPES FOLUS Cram. (See pl. X fig. 19*b*) and is light-green with four lengthwise white lines. A pupa of 13 March gave the imago on the 23^{d} of that month.

12. APOSTATA Snell. (Pl. IX fig. 59).

SNELLEN, *Central Sumatra, Lep. bld.* 27 (1880) . . . Pamphila Apostata.
PLÖTZ, *Stett. Ent. Zeit.*, 1886, *s.* 96, *No.* 315 *b* . . . Hesperia Haga.

This species is not mentioned by MABILLE; SNELLEN regards its placing in the genus PARNARA as also still doubtful. According to him, however, it is undoubtedly the HAGA Plötz.

W. J. Batavia (3—14); Buitenzorg (265); Sindanglaya (1074); Gedeh mountains (1500).

C. J.?

E. J.?

The larva feeds on *padi* (ORYZA SATIVA L.); it is light-green; the head black mixed with light-brown.

Genus HALPE Moore.

1. ZEMA Hew. (Pl. IX, fig. 60).

HEWITSON, *Ann. and Mag. of Nat. Hist., Ser.* 4, *XIX*, *p.* 77 (1877). . . . . Hesperia Zema.
PLÖTZ, *Stett. Ent. Zeit.*, 1886, *s.* 92 . . . . . „ Ormenes.

WEYMER, *Stett. Ent. Zeit.*, 1887, *pl. II, fig.* 16 . . .	Hesperia	Ormenes.
ELWES, *Trans. Ent. Soc. of London*, 1888, *p.* 455, *pl. XI, fig.* 7 ♂	„	Zema.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 257, 260 (1897)	Halpe	„

W. J. mount Salak (780).

C. J.?

E. J.?

2. HOMOLEA Hew. (Pl. IX, fig. 61, *a*, *b*, *c*).

HEWITSON, *Descr. of new Hesp.*, *p.* 29, *No.* 15 (1868) .	Hesperia	Homolea.
„ *Exot. Butt. V, Hesp., Pl.* 7, *fig.* 77, 78 (1876).	„	„
PLÖTZ, *Stett. Ent. Zeit.*, 1883, *s.* 43	„	„
DISTANT, *Rhop. Mal.*, *p.* 391, *pl.* 35, *fig.* 23 (1882—1886).	Isma	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 257, 265, *pl.* 25, *fig.* 71 (1897)	Halpe	„

Many other species enumerated by SWINHOE are still mentioned by MABILLE, but their identity with HOMOLEA, however, is not sufficiently sure to SNELLEN.

W. J. Batavia (3—14); Buitenzorg (265).

C. J.?

E. J. Banyouwangy (?) and also another specimen without further indication of the place where it was caught.

The larva feeds on the leaves of the *bamboo* (BAMBUSA spec.). It is light-green, at the joints between the segments more yellow. The head is light-gray with dark brown margin and a peculiar marking consisting in a thin vertical line in the middle, which at the lower end divides into two, and more or less joins a somewhat thicker horizontal streak at the lowest part of the head. In each of the two divisions into which the head is divided by the vertical line, is a vertical brown streak; which streak is sometimes also united with the lowest part of the above-mentioned vertical line, where it parts into two. The pupa is brown and is surrounded by a loose cocoon concealed in a rolled up bamboo-leaf. A pupa of the 1st of February gave the imago on the 13th of that same month.

3. MARSENA Hew. (Pl. IX, fig. 62, *a*, *b*).

HEWITSON, *Trans. Ent. Soc. of London*, 1886, *p.* 498, *No.* 33	Hesperia	Marsena.
FELDER, *Novara, Lep. s.* 515, *Tal.* 72, *fig.* 6 (1867)	„	Ornata.

HEWITSON, *Exot. Butt. V, Hesp., p.* 4, *fig.* 51, 52 (1873). Hesperia Marsena.
PLÖTZ, *Stett. Ent. Zeit.*, 1883, *s.* 32, *No.* 249 . . „ Subornata.
„ „ „ „ „ „ „ „ 250 . . „ Ornata.
DE NICÉVILLE, *Journ. As. Soc. of Beng., p.* 382, *pl.* 18, *fig.* 7, 7*a* (1887) . . . . . Parnara „
„ „ *Journ. As. Soc. of Beng*, 55, *p.* 387, *pl.* 15, *fig.* 4 (1887) . . . . . Pithauriopsis Aitchisonii.
„ „ *Butterfl. of Sumatra, p.* 548 . . . Parnara Marsena.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 257, 268 (1897) . . . . . Halpe Ornata.

According to DE NICÉVILLE (*Butt. of Sum.*) ORNATA Felder is the same species as MARSENA Hew.

W. J. mount Salak (780); both sexes were caught in coitu.
C. J.?
E. J. Banyouwangy.

4. PELETHRONIX Fruhst. (Pl. IX, fig. 63).

FRUHSTORFER, *Societas Entomologica*. XXIV, *No.* 20, *p.* 155. Halpe Pelethronix.

This species was found by FRUHSTORFER in West-Java near Soukaboumi and is here figured according to a specimen from his collection.

Genus PADRAONA Moore.

1. GOLA Moore (Pl. IX, fig. 64 *a*, *b*, *c*, *d*).

MOORE, *Proc. Zool. Soc. of London*, 1877 *p.* 594, *pl.* 58, *fig.* 9 Pamphila Gola.
„ *Lep. of Ceylon, I, p.* 171, *pl.* 71, *fig.* 3, 3*a* (1881) Padraona Goloides.
MABILLE, *Compte Rend. Soc. Ent. Belge*, 1883, *p.* 1 . . Pamphila Akar.
DISTANT, *Rhop. Mal. p.* 382, *pl.* 35, *fig.* 13 (1882—1886) Telicota Goloides.
STAUDINGER, *Iris II, s.* 146 (1889) . . . . . Pamphila „
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 249, 252, *pl.* 25, *fig.* 66*a*, *b* (1897) . . . . . Telicota Gola.

W. J. Batavia (3—14); Dèpok (95); Buitenzorg (265); Tjampea (160); neighbourhood of Pelabouan Ratou or Wynkoopsbay (± 200) on the south coast.
C. J.?
E. J. Jember (98); province of Pasourouan (± 500) (FRUHST.).

The larva feeds on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.) and on *roumpout pahit* (PASPALUM CONJUGATUM Berg.); it is whitish-green, the head a white, with a not always constant marking of black vertical lines and black dots. The pupa is green with 4 lengthwise white lines, and a snout projecting at the head-end.

2. DARA Koll. (Pl. IX. fig. 65 *a*, *b*).

KOLLAR, in *von Hügel, Kaschmir IV*, 2, *s.* 455 (1844).	Hesperia Dara.
FELDER, *Sitz. Ber. d. Akad. d. Wiss. in Wien*, 1860, *s.* 462, *No.* 54	Pamphila Sunias.
MOORE, *Proc. Zool. Soc. of London*, 1865, *p.* 509, *pl.* 25, *fig.* 9	„ Maesa.
DISTANT, *Rhop. Mal.*, *p.* 383, *pl.* 34, *fig.* 24 (1882—1886)	Telicota Maesoides.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 249, 254, *pl.* 25, *fig.* 68, 69 (1897).	„ Dara.
VAN DEVENTER, *Archief Java Suiker Ind.* 1902, *bl.* 11.	Pamphila „

W. J. Batavia (3—14); Dèpok (95); Buitenzorg (265); Gedeh mountains (1500); neighbourhood of Pelabouan Ratou (Wynkoopsbay) and of the Tjiletou or Sandbay (± 200) on the south coast.

C. J. Pekalongan (VAN DEVENTER).

E. J. Province of Pasourouan (± 500) (FRUHST.).

The larva in a rolled up leaf feeds on *tebou* (SACCHARUM OFFICINARUM L.), on *bamboo* (BAMBUSA spec.), on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.) and on *roumpout pahit* (PASPALUM CONJUGATUM Berg.). It is light green, the vas dorsalis mostly shining through as a dark line, just as the yellow testes; sometimes a little black cross-streak on the first thoracic segment. The head of the young larva is black, there afterwards appear thereon two white or gray supra-spiracular streaks; mostly, however, the head becomes gray or clay-coloured with a dark margin and on the middle a vertical nail-like stroke which mostly is deep brown, but sometimes also red-brown or dark-orange. Sometimes the drawing also is very indistinct and sometimes also the head somewhat clay-coloured. The light-yellow, oblong little pupa has a haustellum that does not reach farther than half-way to the abdomen. A pupa of the 18/19 of January gave the imago on the 30th of that month, one of the 8th of May on the 19th of the same month, one of 14 May on May 25 and one of 13/14 July on the 26th of that month.

3. Orphitus Mab. (Pl. IX, fig. 66).

Mabille, *Compte Rendu Soc. Ent. Belge*, 1883, *p.* 74 .	Pamphila Orphitus.
De Nicéville, *Journ. As. Soc. of Bengal*, 63, *p.* 53, *pl. IV, fig.* 8 ♂ (1894)	Padraona Pavor.
Elwes and Edwards, *Trans. Zool. Soc. of London*, 14, 4, *p.* 249, 259 (1897)	Telicota Orphitus.

W. J. Batavia (3—14); Megamendoung, Gedeh, and Wayang mountains (1500—1800).

C. J.?

E. J. Province of Pasourouan (± 500) Fruhst.).

4. Archias Feld. (Pl. IX, fig. 67 *a, b, c, d*).

Felder, *Sits. Ber. Wien. Akad.*, XL, *p.* 462, *No.* 15 (1860).	Pamphila Archias.
Snellen, *Tijdschr. v. Ent.*, 19 *bl.* 165, *pl.* 7, *fig.* 5 (1874—1876)	Thymelicus Nigrolimbatus.
Plötz, *Stett. Ent. Zeit.*, 1884, *s.* 289	„ „
Distant, *Rhop. Mal.*, *p.* 384, *pl.* 35, *fig.* 16 (1882—1886)	Telicota „

Following the classification of Mabille, Snellen places this species in the genus Padraona; with the remarks, however, that the pointed extremity of the antennae comes out but very little, that the description of Felder is in the main too vague, and that this lepidopterologist does not make any mention of the antennae.

Besides this, the Hesperia Dscholia Plötz cited by Mabille is unknown to Snellen.

W. J. Batavia (3—14); Buitenzorg (265); Soukapoura (70); Sindanglaya (1074); Megamendoung and Gedeh mountains (1500); the neighbourhood of Pelabouan Ratou or Wynkoopsbay (± 200).

C. J. Bojonegoro (258).

E. J. Jember (98) in the province of Besouki; Kediri (64); province of Pasourouan (± 500) (Fruhst.).

A little butterfly very common everywhere, that flies in the sunshine over grass and low-growing flowers. In the ♂ the colour on the upper-side is sometimes more, sometimes less shaded and the extent of the black not quite of the same size. The larva dwelling between halms of the *roumpout pahit*

(PASPALUM CONJUGATUM Berg.) combined together, is of a light-green, afterwards yellow, where the vas dorsalis shines through as a dark streak, just as also do the yellow testes. At the back of the first thoracic segment a little black cross-streak. The anal extremity rounded off. The head yellowish brown with a black margin and almost entirely covered by a black spot, which at the upper-side is united with the margin by a small vertical line. The pupa is light yellowish brown, oblong, with a straight haustellum, separated from the body, which is somewhat longer than the wing-cases. A pupa of the 23d of April gave the imago on 2d of May.

Genus TELICOTA Moore.

1. AUGIAS L. (Pl. IX, fig. 68 *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*).

LINNAEUS, *Amoen. Acad. IV*, *p.* 410, *No.* 80 (1760) . .	Papilio	Augias.
DONOVAN, *Ins. of India*, *pl.* 48, *fig.* 1 (1800).	„	„
PLÖTZ, *Stett. Ent. Zeit.*, 1883, *s.* 226	Hesperia	„
DISTANT, *Rhop. Mal.*, *p.* 382, *pl.* 34, *fig.* 23 (1882—1886).	Telicota	„
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 250, 251, *pl.* 25, *fig.* 63 (1897).	„	„
VAN DEVENTER, *Archief Java Suiker Ind.* 1902, *afl.* 15, *bl.* 3, *fig.* 1—8	Pamphila	„

W. J. Batavia (3—14); Dèpok (95); Buitenzorg (265); Tjampea (160); Patjet (1114); mount Salak (780); Gedeh mountains (1500—1600).

C. J. Bojonegoro (258); Pekalongan (VAN DEVENTER).

E. J. Province of Pasourouan (± 500) (FRUHST.).

A butterfly very common on West-Java. The larva feeds on *padi* (ORYZA SATIVA L), on *bamboo* (BAMBUSA spec.), on *tebou* (SACCHARUM OFFICINARUM L.), and on *alang-alang* (IMPERATA ARUNDINACEA Cyrill.). It is a dim or yellowish green. The joints between the segments are sometimes visible as yellow cross-folds. At the first thoracic segment mostly a little black cross-line and at the last segment a more or less extended or sometimes even wanting, black spot. The anal extremity is rounded off. The head of the young larva is mostly black or dark brown, but afterwards becomes lighter in different shades, and then mostly with a marking that consists in a dark brown line that lower on divides itself into two lines under which, above the light brown mouth-parts, is a dark brown horizontal streak. The thickness of the lines of this marking and the width of the legs of the dividing line differ very much, sometimes

there is no marking at all and sometimes the head also is almost entirely dark brown. Evidently the black of the body as well as that of the head-marking are in an evolutionary state of lessening, which with the one individual is more advanced than in the other, and therefore shows so many differences of all kinds. The pupa is found among some grass-blades spun together. It is small, oblong yellowish, sometimes greenish here and there, with a straight haustellum separated from the body, that does not reach farther than half-way the first abdominal segment. A pupa of the 9|10 of February gave the imago on the 25th and one of the 29th of February on the 12th of March. My figure of the larva is more accurate than that of VAN DEVENTER; his figure of the pupa has totally failed. I give here—as also VAN DEVENTER does—also different figures of the difference in colour of the head.

2. AUGIADES Feld. (Pl. X, fig. 69 *a*, *b*, *c*, *d*).

FELDER, *Sitz. Ber. d. Wien. Akad. XI, p.* 461, *No.* 51 (1860). Pamphila Augiades.
„ *Novara Lep., s.* 515, *Taf.* 72, *fig.* 5 (1867). . Hesperia „
PLÖTZ, *Stett. Ent. Zeit.*, 1883, *s.* 228. . . . . „ „
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4,
p. 249, 253, *pl.* 25, *fig.* 65, 65*a* (1897) . . . . Telicota „

The Javanese specimens are, as on the figures is to be seen, somewhat smaller than the type from the Moluccas.

W. J. Batavia (3—14); Buitenzorg (265); Gedeh mountains (1500).
C. J.?
E. J. Province of Pasourouan (+ 500) FRUHST.).

The larva feeds on the leaf of the *kelappa* (COCOS NUCIFERA L.) and on *rotan* (CALAMUS spec.). It is green, here and there with some yellow marbling, the vas dorsalis shining through as a dark dorsal line, so that its contraction, can distinctly be seen. The light orange testes shine through also. The anal extremity of the body is rounded off and has some stiff white hairs. The head is light brown or clay-coloured, with a black margin and mostly with a marking consisting in a little vertical brown line in the middle, that is divided lower down into two small branches; between its legs there is still another little vertical line; which marking, however, varies in from and thickness of lines. The larva spins a very tight white cocoon between some parts of a leaf strongly sewed together, wherein it pupates. This pupa surrounded with a white powder, is of a dim yellow; at the place of each eye it has a brown dot. Its haustellum is straight but not long.

Genus PIRDANA Dist.

1. HYELA Hew. (Pl. X, fig. 70).

HEWITSON, *Descr. of New Hesp*, *p.* 23 (1868)	Hesperia	Hyela.
PLÖTZ, *Stett. Ent. Zeit.*, 1882, *s.* 322	„	„
DISIANT, *Rhop. Mal.*, *p.* 376, *pl.* 25, *fig.* 6 (1882—1886)	Pirdana	„
DE NICÉVILLE, *Journ. of Soc. of Bengal*, 55, 2, *p.* 438, *pl.* 20, *fig.* 6 (1887)	Pirdana	Rudolphii.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 223 (1897)	„	Hyela.

W. J. Dèpok (95); Tjampea (160); Buitenzorg (265); mount Karang in the province of Bantam.

C. J.?

E. J. Province of Pasourouan (+ 500) (FRUHST.).

The larva feeds on *dawon sougi* (CORDYLINE RUMPHII Hsk.), on DRACAENA spec.; once I found also a pupa on the leaf of the *arèn* (ARENGA SACCHARIFERA Lab.). The caterpillar is greenish gray with two lengthwise black lines, at each side under those lines a row of square black spots. At the hindmost segments the black forms a special drawing. The head is orange with a drawing of little black lines and spots, which is not the same in the case of all caterpillars.

2. DISTANTI Staud. (Pl. X, 71, *a*, *b*, *c*, *d*).

STAUDINGER, *Iris II*, *s.* 140 (*sub.* HYELA) (1889)	Pirdana	Distanti.
DE NICÉVILLE, *Butterfl. of Sumatra*, *p.* 540 (1895) . . .	„	Paerna.
„ „ *Journ. As. Soc. of Bengal*, 66, 2, *p.* 514, *pl.* 11, *fig.* 16 ♂, *fig.* 13 ♀ (1897)	„	Distanti.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 223, 224 (1897)	„	„

W. J. Buitenzorg (265); neighbourhood of Pelabouan Ratou or Wynkoops-bay on the south coast (± 200).

C. J.?

E. J. Province of Pasourouan (± 500) (FRUHST.).

The grown up larvae, which I found on the same *dawon sougi* as the preceeding species agreed so much with each other that I could state no difference. They were, especially along the sides, covered with a waxy powder. In a not yet grown up larva the black drawing at the back and sides, which

in the full grown larva is to be seen, was wanting. It had, however, already the same marking on the head. The pupa is yellow, with a straight haustellum that reaches half way to the abdomen and two great blood-red knobs at the place of the eyes.

Genus PLASTINGIA Butl.

1. CALLINEURA Feld. (Pl. X, fig. 72).

FELDER, *Novara Lep.*, *p.* 513, *pl.* 71, *fig.* 9, 10 (1867). Hesperia Callineura.
HEWITSON, *Descr. of new Hesp.*, *p.* 34, *No.* 27 (1863). „ Latoia.
„ *Exot. Butt., Hesp.*, *fig.* 62, 63 (1873) . „ „
PLÖTZ, *Stett. Ent. Zeit.* 1884, *s.* 148 . . . . . Plastingia Callineura.
STAUDINGER, *Iris II*, *s.* 150 (1889) . . . . . „ Callineura var. Flava.
DISTANT, *Rhop. Mal.*, *p.* 396, *pl.* 35, *fig.* 26 (1882—1886) . . . . . „ Callineura.
MABILLE, *Ann. Soc. Ent. Belge*, 37, *p.* 52 (1893) . „ Fruhstorferi.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 226, *pl.* 24, *fig.* 52 (1897) . . . „ Callineura.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 227, *pl.* 24, *fig.* 53 (1897) . . . „ Latoia.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 227, *pl.* 19, *fig.* 19, *pl.* 24, *fig.* 55, 5*a* (1897). . . . . „ Fruhstorferi.

W. J. Buitenzorg (265); Tjampea (160); Soukaboumi (620) (FRUHST.).

C. J.?

E. J. Province of Pasourouan; Ibid. (+ 500) (FRUHST.); Semarou mountains (800); Banyouwangy.

The larva feeds on *pinang rendeh* (PINANGA KUHLII Bl.) and on *dawon tjongkok* (CURCALIGO RECURVATA Dryand.). It lives in a piece of a leaf sewn together. Its colour is a dirty, bluish-gray, with a reddish shade. The vas dorsalis shines through as a dark dorsal line. The head is light brown, the mouth parts, however, are dark reddish-brown, at the side of which a short but rather broad obligue white streak and further on still some little black dots placed closely together. In the centre on the uppermost part of the fore-side of the head a small vertical line. A pupa of the 15th of December gave the imago on the 1st of January.

2. Tessellata Hew. (Pl. X, fig. 73 *a*, *b*, *c*).

Hewitson, *Trans. Ent. Soc. of London* 1866, *p.* 494	Hesperia Tessellata.
Felder, *Novara Lep.*, *s.* 517, *pl.* 72, *fig.* 12 (1868)	„ Eulepis.
Staudinger, *Iris II*, *s.* 149 (1889). . . .	„ Tessellata, var. Palawata.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 229 (1897). . .	„ „

In the type the colour of the marking on the under-side is yellow, in the form Palawata Staud., white. Both stadia of colour-evolution occur in Java.

W. J. Buitenzorg (265); neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (± 200).

C. J.?

E. J. Province of Pasourouan (± 500) (Fruhst.).

The larva feeds on *arèn outan* (Arenga Obtusifolia Mart.), it is bluish grey with cross-folds, the anal extremity is rounded off and not hairy. Head part gray surrounded by a black line, which downwards strongly broadens and is divided into two parts by a thin vertical line; the mouth-parts are light brown.

3. Naga de Nic. (Pl. X, fig. 73*bis*).

De Nicéville, *Journ. As. Soc. of Bengal* 52, *p.* 89, *pl.* 10, *fig.* 2 (1883).	Hesperia Naga.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 229 (1897)	Plastingia „

E. J. Malang (Fruhst.) Mr. Fruhstorfer calls the Javanese form Valenia.

4. Corissa Hew. (Pl. X, fig. 74).

Hewitson, *Ann. and Mag. of Nat. Hist.*, 4, *Ser.* 18, *p.* 455 (1876)	Hesperia Corissa.
Plötz, *Stett. Ent. Zeit.* 1884, *s.* 149.	Plastingia Drancus.
Elwes and De Nicéville, *Trans. Zool. Soc. of Bengal*, 55, *p.* 441, *pl.* 20, *fig.* 5 (1886).	Isoteinon Indrasana.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 224, 229 (1897)	Plastingia Corissa.

Mabille identifies this species with the name of Viburnia Semp., but Snellen is not quite sure that this species is identical with Corissa Hew., which is in every case the oldest name dating from 1876, not from 1892.

W. J. A single specimen from the neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (± 200).

C. J.?

E. J.?

5. Pugnans de Nic. (Pl. X, fig. 75).

De Nicéville, *Journ. Bombay Nat. Hist. Soc., VI, p.* 384, *pl. G, fig.* 30 ♀ (1891) . . . . . Parnara Pugnans.
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 271, 284 (1897) . . . . . „ „

This species is not mentioned by Mabille; Snellen, however, thinks that it ought to be inserted in his genus Plastingia.

W. J. In the neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (+ 200).

C. J.?

E. J. Semarou mountains (800).

Genus NOTOCRYPTA de Nic.

1. Feisthamelii Bsd.

Boisduval, *Voyage de l'Astrolabe, p.* 159, *pl.* 2, *fig.* 7 (1832) . . . . . Thymele Feisthamelii.
Blanchard, *Voyage de Dumont d'Urville, p.* 403, *pl.* 3, *fig.* 19, 20 (1853) . . . . . Hesperia „
Plötz, *Berl. Ent. Zeit.* 1882, *s.* 262 . . . . . Plesioneura „
Elwes and Edwards, *Trans. Zool. Soc. of London* 14, 4, *p.* 238, 239 . . . . . Notocrypta „
De Nicéville, *Journ. Bombay Nat. Hist. Soc., XI, p.* 599, *pl. IV, fig.* 28 (1898) . . . . . „ „

W. J. Batavia (3—14); Dèpok (95); Tjampea (160); Buitenzorg (265); Patjet (1114); Soukaboumi (620); (Fruhst.); neighbourhood of Pelabouan Ratou or Wynkoopsbay (± 200) (Fruhst.).

C. J.?

E. J.?

The butterfly is very common on West-Java, in the sunshine flying on flowers. The larva feeds on *kounjit* (CURCUMA LONGA L.), on *pisang* (MUSA PARADISIACA L.), on *patjing* (COSTUS SPECIOSUS L.), on *temou* (CURCUMA spec.) and on *dawon ondjeh* (AMOMUM spec.); according to DE NICÉVILLE also on HEDYCHIUM SPICATUM Ham.

The larva as well as the pupa has a striking likeness with those of UDASPES FOLUS Cram. The first is very transparent so that some of the inward organs are distinctly visible. The head is strongly bifurcated, sometimes red or dark-brown with a vertical line, that downwards divides into two, sometimes black, sometimes also grayish yellow with a broad margin and 4 bright yellow patterns. The larva shoots its hard excrements vigorously out of the leaf-case wherein it lives. A pupa of the 14th of May gave the imago on the 22d of that same month.

2. RESTRICTA Moore (Pl. X, fig. 76 *a*, *b*).

MOORE, *Lep. of Ceylon I*, *p.* 178 (1881)	Plesioneura	Restricta.
PLÖTZ, *Berl. Ent. Zeit.* 1882, *s.* 262, *No.* 4	„	Chimaera.
PAGENSTECHER, *Jahrb. d. Nass. Vereins*, 37, *p.* 61, *pl.* VI, *fig.* 1 (1884)	„	„
KÜHN, *Iris I*, 4, *s.* 118 (1887)	„	„
STAUDINGER, *Iris II*, *s.* 153 (sub Ples. Mysos) (1887).	„	Restricta.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 238, 239 (1897)	Notocrypta	Feisthamelii, var Restricta.

W. J. Megamendoung—Salak—Gedeh—and Wayang mountains (1545).

C. J.?

E. J. Province of Pasourouan (+ 500) FRUHST.).

The larva feeds on *patjing* (COSTUS SPECIOSUS L.) and on *kounjit* (CURCUMA LONGA L.). The young larva is very transparent, so that many inward organs are distinctly visible.

Genus CUPITHA Moore.

1. PURREEA Moore. (Pl. X, fig. 77).

MOORE, *Proc. Zool. Soc. of London*, 1877, *p.* 594, *pl.* 58, *fig.* 10 ♀	Pamphila	Purreea.
MOORE, *Journ. As. Soc. of Bengal* 1884, *p.* 33 ♂ . .	Cupitha	Tympanifera.

SEMPER, *Schmett. d. Philipp. I, s.* 304 (1892). . . . Cupitha Purreea.
MABILLE, *Ann. Soc. Ent. Belge*, 1893, *p.* 54 . . . . Pamphila Lycorias.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4,
p. 245 (1897). . . . . Cupitha Purreea.

W. J. Tjampea (160); neighbourhood of Pelabouan Ratou or Wynkoopsbay on the south coast (+ 200).

C. J.?

E. J. Province of Pasourouan (+ 500) (FRUHST.).

Genus OERANE Elwes.

1. NEAERA de Nic. (Pl. X, fig. 78 *a*, *b*).

DE NICÉVILLE, *Journ. Bombay Soc. of Nat. Hist., VI*, 3,
p. 379, *pl. G, fig.* 27 (1891) . . . . . Notocrypta Neaera.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4,
p. 242 (1897) . . . . . Oerana „

W. J. Tjampea (160); Buitenzorg (265); mount Salak (780).

C. J.?

E. J. Province of Pasourouan; Banyouwangy.

The larva feeds on the leaves of a *ratan species* (DAEMONOROPS OBLONGUS Mart.). It is bluish gray, with cross-folds; the vas dorsalis feebly shining through. A short time before pupating the colour becomes more greenish and two lengthwise white streaks distinctly make their appearance. The head pearl-gray, mostly with a broad black margin that continues until close to the mouth parts, and a broad vertical middle-line downwards extending to both sides. The pupa has the form of that of UDASPES FOLUS Cram., is light green with longitudinal white lines.

Genus UDASPES Moore.

1. FOLUS Cram. (Pl. X, fig. 79 *a*, *b*, *c*).

CRAMER, *I, p.* 118, *pl.* 74, *F* (1779) . . . . . Papilio Folus.
FABRICIUS, *Ent. Syst. III, p.* 338, *No.* 287 (1793). . . Hesperia Cicero.
MOORE, *Lep. of Ceylon, I, p.* 177, *pl.* 68, *fig.* 3 (1881) . Udaspes Folus.
PLÖTZ, *Jahrb. d. Nas. Ver.* 37, *s.* 55, *No.* 63 (1884) . Plesioneura Folus.
DISTANT, *Rhop. Mal., p.* 398, *pl.* 34, *fig.* 3 (1882—1886) Udaspes Folus.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4,
p. 243 (1897). . . . . „ „

CRAMER is mistaken in giving Surinam as the *habitat* of this caterpillar; his figure is bad, those by MOORE and DISTANT are sufficiently accurate.

W. J. Batavia (3—14); Buitenzorg (265); Megamendoung mountains (1450); Soukaboumi (620) (FRUHST.); Gedeh mountains (1300) (FRUHST.).

C. J. Touban (2) on the north coast; Tegal (LUCASSEN).

E. J. A specimen without any indication of the place where it was caught.

The butterfly is very common. With outspread wings it attaches itself to the underside of leaves.

The larva feeds on *kounjit* (CURCUMA LONGA L.) on *temou* or *temou lawa* (CURCUMA spec.) and on *kouping badak* (FAGRASA RACENOSA Jacq.) Just like the larva of NOTOCRYPTA FEISTHAMELII Bsd. it ejects vigorously its excrements; often, however, it spins some parts of a leaf together but does not roll it up. Its colour is green, strongly mixed with white, and it is very transparent so that different inward organs, such as the yellow testes and the vas dorsalis, are distictly visible, and the contraction of the last is clearly to be seen. On the body are cross-folds; the foremost and hindmost segments are sometimes yellowish; sometimes also more or less black dots are visible on the body. The head is black and its apex bifurcated. The pupa is fastened to a leaf by a girdle thread and by some threads of silk at the anal extremity that at two different places are attached to the leaf. It is a light yellowish green, with a rather long projecting snout at the head-end and a membranous excavated cremaster, that reminds one some of the pupae of the Sphingîdae. The straight haustellum, separated from the body, is very long and reaches to the end of the abdomen, Sometimes along the abdomen a white line is to be seen. A pupa of the 15th of February gave the imago on the 24th of that month, one of the 22d of April on the 3d of May.

The figures of the earliest states given by HORSFIELD are but middingly accurate; those given by myself have succeeded better.

Genus ASTICTOPTERUS Felder.

1. OLIVASCENS Moore. (Pl. X, fig. 80, *a*, *b*).

MOORE, *Proc. Zool. Soc. of London* 1878, *p.* 692 .	Astictopterus	Olivascens.
PLÖTZ, *Stett. Ent. Zeit.* 1886, *s.* 109	„	Melania.
DE NICÉVILLE, *Journ. As. Soc. of Bengal*, 55, *p.* 380, *pl.* 18, *fig.* 2, 2*a* (1887)	„	Olivascens.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 172, *pl.* 18, *fig.* 16 (1897)	„	„

W. J. Tjampea (160); Buitenzorg (265); mount Salak (780); the neighbourhood of the Tjiletou or Sandbay (+ 200) on the south coast.

C. J. Bojonegoro (258); Touban (2) on the north coast.

E. J. Pouspa (630); Kediri (64); province of Pasourouan (+ 500) (FRUHST.).

The butterfly places itself with out-spread wings against the under-side of the leaves. The larva feeds on the leafs of the *bamboo* (BAMBUSA spec.) is grayish-green, and has on the first thoracic segment a little black cross-line that continues to the sides. The head is black, however, with two oblique light brown streaks, or only with some little brown near the apex; sometimes at the back of the last segments also a little black spot.

Genus KERANA Moore.

1. DIOCLES Moore (Pl. X, fig. 81).

MOORE, *Proc. Zool. Soc. of London* 1865, *p.* 787 . .	Nision Diocles.
SNELLEN, *Central Sumatra Lep., bl.* 28 (1880) . . .	Tagiades Maura.
PLÖTZ, *Stett. Ent. Zeit.*, 1886, *s.* 109	Astictopterus Diocles.
DISTANT, *Rhop. Mal., p.* 403, *pl.* 34, *fig.* 8 (1882—1886)	Kerana Diocles.
STAUDINGER, *Iris II, s.* 147 (1889).	Astictopterus Diocles.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 220, 222 (1897)	Kerana Diocles.

W. J. Buitenzorg (265); province of Prajangan (1000); the neighbourhood of the Tjiletou or Sandbay on the south coast (+ 200).

C. J. Province of Tegal (LUCASSEN).

E. J. Province of Pasourouan (+ 500) (FRUHST.).

The larva feeds on *ondjeh* AMOMUM spec.?), on *kounjit* (CURCUMA LONGA L.), on *lempoujang wangi* (ZINGIBER GRAMINEUM Noronha). It is green, sometimes grayish, sometimes with many dark green dots. The testes shine through, the head is black. Larva and pupa have a striking likeness with those of UDASPES FOLUS Cram.

Genus UNKARA Dist.

1. ATTINA Hew. (Pl. X, fig. 82 *a*, *b*).

HEWITSON, *Trans. Ent. Soc. of London, Ser. III*, 2, *p.* 489 (1866)	Hesperia Attina.
FELDER, *Novara, Lep. I, s.* 511, *No.* 892, *Taf.* 71, *fig.* 8 (1867)	„ Latreillii.
PLÖTZ, *Stett. Ent. Zeit.* 1882, *s.* 339, *No.* 122	„ Attina.

DISTANT, *Rhop. Mal.*, *p.* 370, *pl.* 34, *fig.* 11 ♂ (1882—1886)	Unkana Batara.
„ „ „ „ 371, „ 34, „ 30 ♀ (1882—1886)	„ Attina.
STAUDINGER, *Iris II*, *s.* 141, 164 (1889)	Proteides Cruda.
ELWES and EDWARDS, *Trans. Zool. Soc. of London* 14, 4, *p.* 234	Unkana Attina.

W. J. Batavia 3—14); Dèpok (95); Buitenzorg (265).

C. J.?

E. J. Banyouwangy; province of Pasourouan (± 500) (FRUHST.).

The larva lives in a rolled up leaf of *pandan douri* (PANDAMUS FASCICULARIS Lam.) and of *kekopian* (PSYCHOTRIA VIRIDIFLORA Reinw. *var.* SYLVATICA). It is grayish-green with cross-wrinkles and a rounded off flat anal extremity, on which a brown or black spot. The foremost segments are yellowish. The head is double pointed, black or dark brown. The yellowish pupa, surrounded by much white powder, is in a folded leaf and has an extraordinarily long straight haustellum that stretches out far beyond the abdomen. A pupa of the 8th of February gave the imago on the 25th of that same month.

Genus LOTONGUS Dist.

1. ONARA Butl. (Pl. X, fig. 83).

BUTLER, *Trans. Ent. Soc. of London*, *p.* 498	Lotongus Onara.
PLÖTZ, *Stett. Ent. Zeit.*, 1882, *s.* 329.	Hesperia „
DE NICÉVILLE, *Journ. Bombay Soc.*, 12, *p.* 156, *pl. A4*, *fig.* 32 ♂ (1898)	Lotongus „

This species is gathered by FRUHSTORFER on the mount Gedeh (± 1300) on West-Java and figured after a specimen from his collection.

2. CALATHUS Hew. (Pl. X, fig. 84).

HEWITSON, *Ann. and Mag. of Nat. Hist.*, *Ser.* 4, 18, *p.* 353 (1876)	Eudamus Calathus.
DISTANT, *Rhop. Mal.*, *p.* 371, *pl.* 24, *fig.* 14 (1882—1886)	Lotongus „
STAUDINGER, *Iris II*, *s.* 155 (1889)	Plesioneura Aliena.
MABILLE, *Ann. Soc. Ent. Belge*, 37, *p.* 52 (1893) . . .	Proteides Zalathes.
„ „ „ „ *de France*, 1895, *Bull. p.* 59 .	„ Surus.
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 230, 231 (1897).	Lotongus Calathus.

The figure given by DISTANT is but poorly accurate. MABILLE cites also MACULATUS Distant (PARTHENOPE Weymer), but SNELLEN is not sufficiently certain in regarding this as the same species as CALATHUS Hew.

W. J. In the neighbourhood (+ 200) of the Tjiletou or Sandbay and of Pelabouan Ratou or Wynkoopsbay on the south coast.

C. J.?

E. J. Province of Pasourouan (+ 500) (FRUHST).

Genus HIDARI de Nic.

1. IRAVA Moore (Pl. X, fig. 85 *a*, *b*, *c*).

HÜBNER, *Zutr.* 4, *s.* 20, *fig.* 875, 876 (1832) . . .	Celaenorhinus Thrax.
MOORE, *Cat. Lep. E. I. C.*, *I*, *p.* 254 (1857) . . .	Hesperia Irava.
HEWITSON, *Desc. Hesp.*, *p.* 25 (1868)	„ Hypaepa.
PLÖTZ, *Stett. Ent. Zeit.*, 1882, *s.* 328, *No.* 80 . . .	„ Irava.
DISTANT, *Rhop. Mal. p.* 395, *pl.* 34, *fig.* 15 (1882—1886)	Hidari Irava.
DE NICÉVILLE, *Butt. of Sumatra*, *p.* 543 (1895). . .	„ „
ELWES and EDWARDS, *Trans. Zool. Soc. of London*, 14, 4, *p.* 235 (1897).	„ „

W. J. Dèpok (95); Buitenzorg (265); Sindanglaya (1074); Tjimahi (760); neighbourhood of the Tjiletou or Sandbay on the south coast (+ 200).

C. J.?

E. J. Province of Pasourouan (+ 500) (FRUHST.).

I found seven of these larvae gregariously living in a rolled up part of a leaf of the *kelappa* (COCOS NUCIFERA L.), which abode they left now and then to go and feed on the not folded part of the leaf first of all. It is to be found also on *kiray* (MEIROXYLON SAGU Rottb.). The larva is yellowish green, and so transparent that the vas dorsalis as a dark stroke und the yellow testes shine through. A broad brown line along both sides of the body; both lines unite at the back of the last segment. The anal extremity is rounded off. The head is a reddish-brown, sometimes black, with large dark orange-coloured spots. The pupa also is reddish-brown with a dark brown line on the sides; it is powdered blue; the straight haustellum is not so long as the abdomen. A pupa of the 7th of March gave the imago on the 17th of that same month.

According to J. W. TUTT (*A Natural History of the British Lepidoptera*) it should be mentioned by DE NICÉVILLE that the larvae of this species and

those of AMATHUSIA PHIDIPPUS L. which both feed on COCOS NUCIFERA L. by there numerousness on Sumatra must continue a heavy struggle for existence, in which struggle the Hesperidae, because they know how to make an abode of leaves, mostly gain the victory. I, however, regard this as merely phantastic. On Java, at least, not one of these species are so very numerous while there are, on the other hand, cocoa-trees in abundance, and this last is surely the same on Sumatra. Neither do I see of what avail it can be to live in a folded leaf.

INDEX

OF

JAVA HESPERIDAE.

EXPLANATION OF PLATE V.

Fig. 1. SATARUPA DIRAE Moore, *a* ♂; *b* ♀.

„ 2. SATARUPA AFFINIS Druce, ♂.

„ 3. COLADENIA DAN F., *a* imago; *b* larva; *c* pupa.

„ 4. CELAENORHINUS SUMITRA Moore.

„ 5. CELAENORHINUS LEUCOCERA Kollar. *The antennae are too broadly pictured to denote the white colour.*

„ 6. CELAENORHINUS CHAMUNDA Moore.

„ 7. CELAENORHINUS ASMARA Butl.

„ 8. CELAENORHINUS DHANADA Moore, *a* imago; *b* larva.

„ 9. TAGIADES JAPETUS Cram., *a* ♂; *b* larva; *c* pupa. (*In the illustration only a part of the leaf is coloured*).

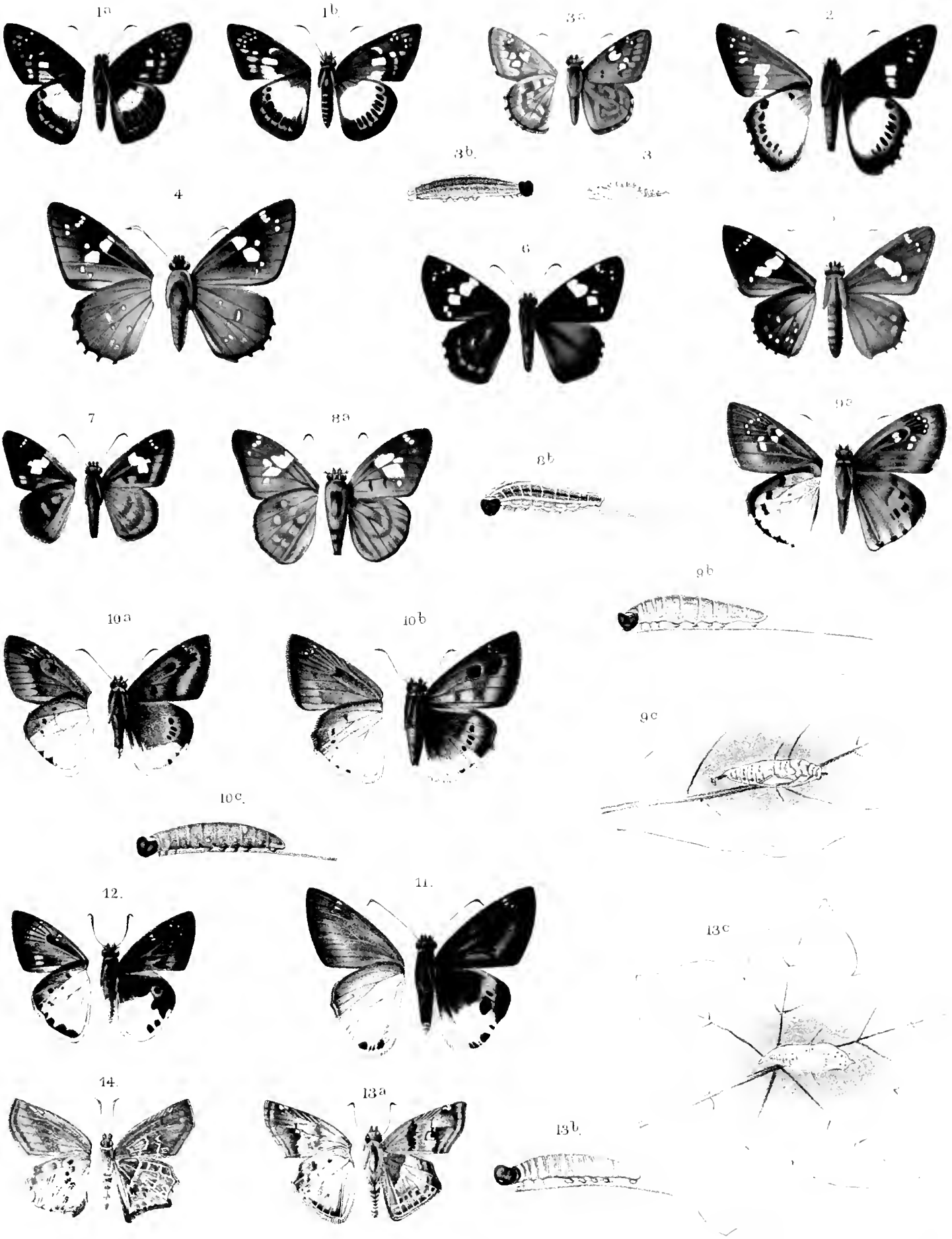
„ 10. TAGIADES MENANTO Plötz, *a* ♂; *b* ♀; *c* larva.

„ 11. TAGIADES GANA Moore, ♂.

„ 12. TAGIADES MENAKA Moore ♂.

„ 13. ODONTOPTILUM ANGULATUM Feld., *a* ♂; *b* larva; *c* pupa. (*In the illustration only a part of the leaf is coloured*).

„ 14. ODONTOPTILUM PYGELA Hew., ♂.



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EXPLANATION OF PLATE VI.

Fig. 15. HASORA BADRA Moore, *a* ♂; *b* ♀; *c* larva.

„ 16. HASORA LIZETTA Plötz, ♂.

„ 16*bis*. HASORA MIXTA Mab., *a* ♂; *b* ♀.

„ 17. HASORA NESTOR Möschl., *a* ♂; *b* ♀.

„ 18. HASORA CHROMUS Cram., *a* ♀; *b* ♂; *c* larva.

„ 19. HASORA ALEXIS F. ♂.

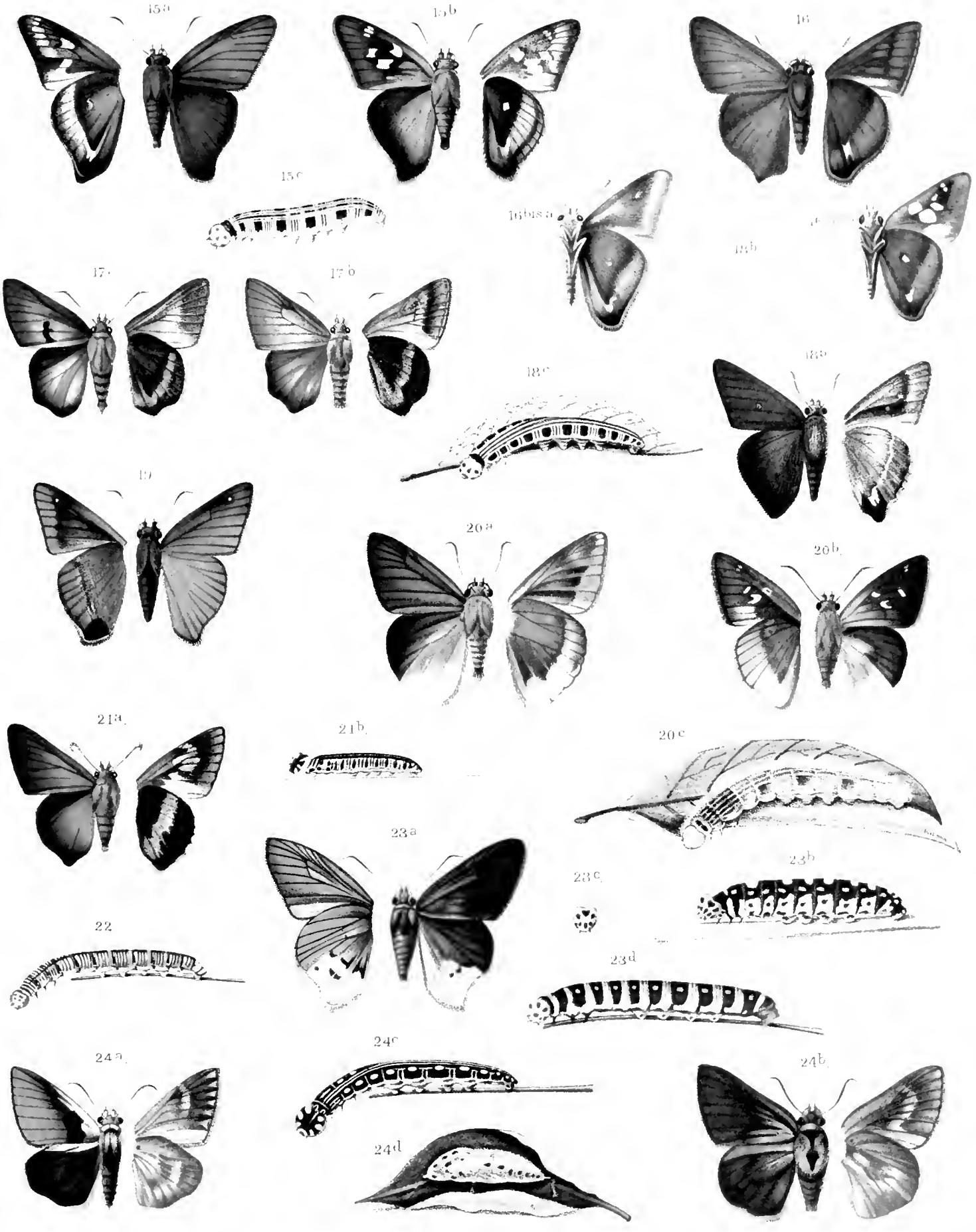
„ 20. HASORA MYRA Hew., *a* ♂; *b* ♀; *c* larva.

„ 21. BIBASIS SENA Moore, *a* ♀; *b* larva.

„ 22. BADAMIA EXCLAMATIONIS F. larva.

„ 23. RHOPALOCAMPTA SUBCAUDATA Feld., *a* ♂; *b* larva; *c* head of the larva; *d* larva.

„ 24. ISMENE OEDIPODEA Swains., *a* ♂; *b* ♀; *c* larva; *d* pupa.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15c
16bis a
16bis b
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18b
18c
19
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21b
20c
23a
23b
23c
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23d
24a
24c
24b
24d

EXPLANATION OF PLATE VII.

Fig. 25. Ismene Harisa Moore, *a* ♂; *b* ♀; *c* larva.

„ 26. Ismene Gomata Moore, *a* ♂; *b* ♀; *c* larva: *d* pupa.

„ 27. Suastus Sala Hew. ♀.

„ 28. Suastus Tripura de Nic.

„ 29. Suada Swerga de Nic., *a* imago; *b* larva.

„ 30. Jambrix Stellifer Butl., *a* ♂; *b* ♀.

„ 31. Aeromachus Discreta Plötz. ♂.

„ 32. Itys Jadera de Nic. ♂.

„ 33. Lophoides Japis de Nic., *a* ♂; *b* ♀.

„ 34. Zographetus Salwa de Nic. ♀.

„ 35. Zographetus Ogygia Hew. ♂.

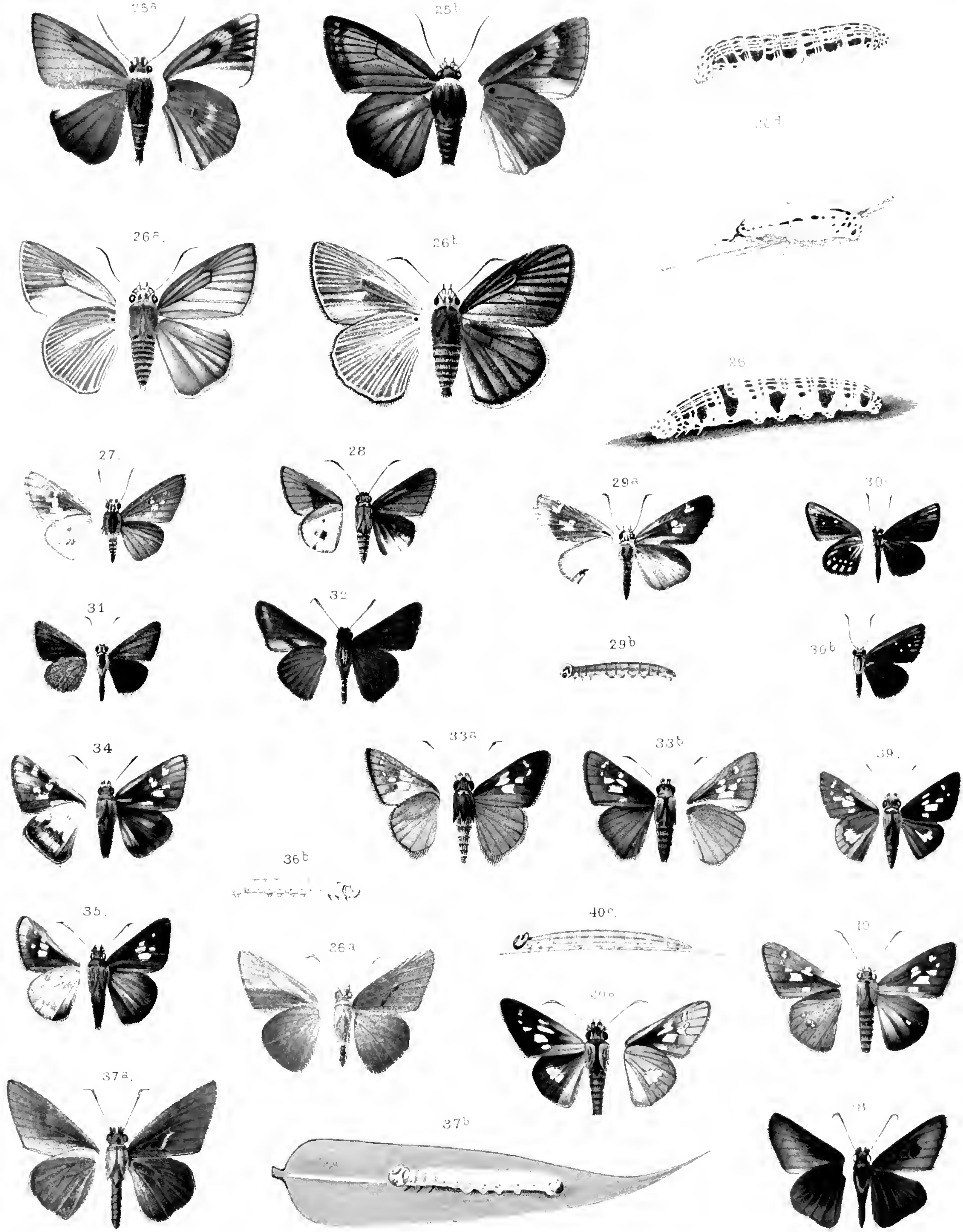
„ 36. Matapa Aria Moore, *a* ♂; *b* larva. (*The caterpillar becomes twice as large*).

„ 37. Matapa Druna Moore, *a* ♂; *b* larva.

„ 38. Ge Geta de Nic. ♂.

„ 39. Scobura Boxonia Hew. ♂.

„ 40. Scobura Feralia Hew., *a* ♂; *b* ♀; *c* larva.



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EXPLANATION OF PLATE VIII.

Fig. 41. ACERBAS ANTHEA Hew., *a* ♂; *b* ♀.

„ 42. ERIONOTA THRAX Clerck, L., *a* larva; *b* pupa.

„ 43. ERIONOTA LEBADEA Hew., *a* ♂; *b* ♀; *c* larva.

„ 44. GANGARA THYRSIS F., *a* larva; *b* pupa.

„ 45. KORUTHAIOLOS XANITES Butl.; *a* ♂; *b* ♂; *c* ♀; *d* VERONES Hew.

„ 46. KORUTHAIOLOS KOPHENE de Nic., *a* ♂; *b* ♀. (*In the pictured* ♂ *the abdomen was wanting*).

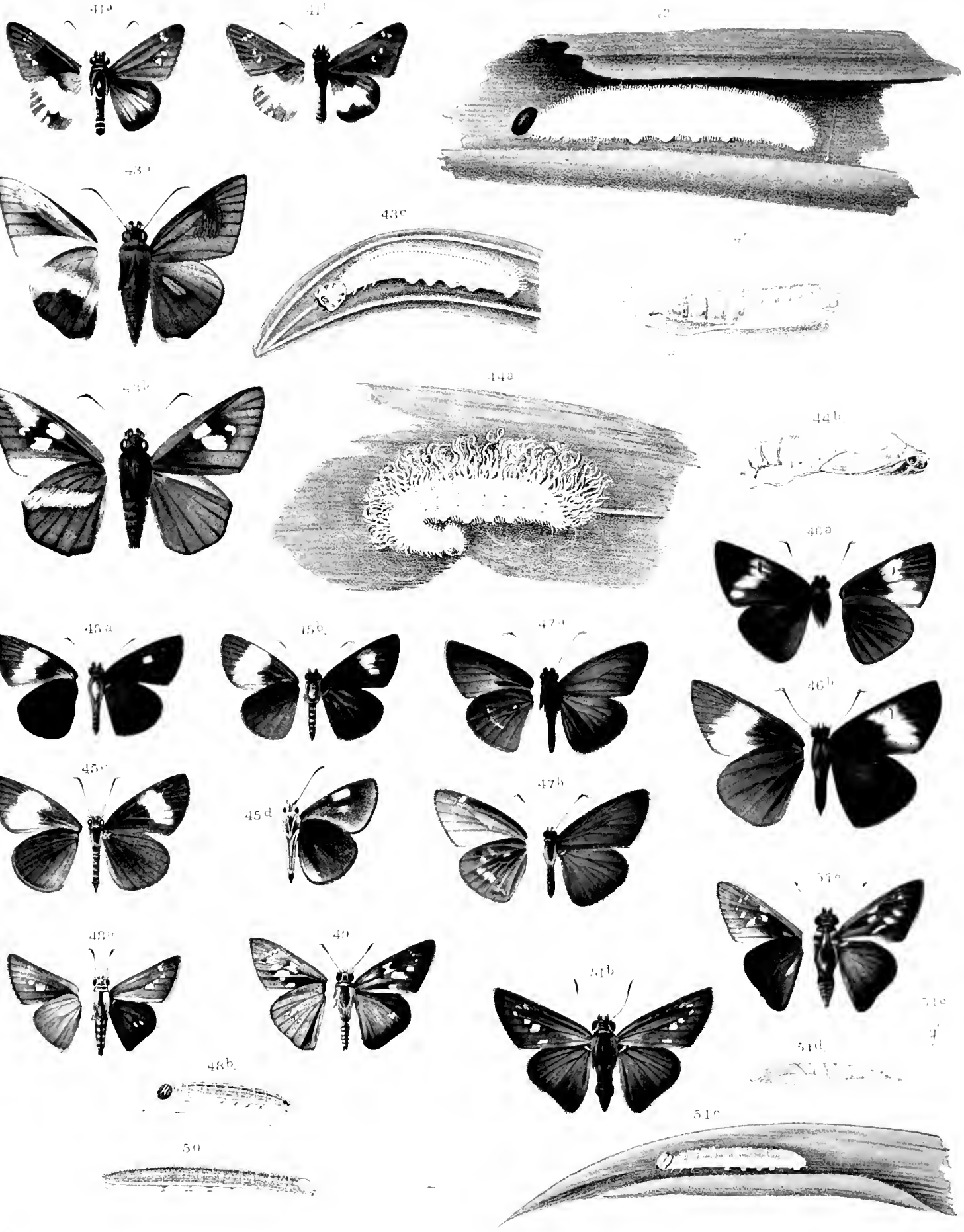
„ 47. SANCUS PULLIGO Mab., *a* ♂; *b* ♀.

„ 48. PARNARA PHILINO Möschl., *a* ♀; *b* larva.

„ 49. PARNARA TOONA Moore ♂.

„ 50. PARNARA MATTHIAS F., larva.

„ 51. PARNARA BRUNNEA Snell., *a* ♂; *b* ♀; *c* larva; *d* pupa. (*The green of the pupa is somewhat too dark*); *e* cremaster.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EXPLANATION OF PLATE IX.

Fig. 52. PARNARA MOOLATA Moore, *a* ♂; *b* .

„ 53. PARNARA CONJUNCTA Herr.—Sch.; *a* image; *b* larva. (*The green of the larva is somewhat too dark*); *c* the not yet full grown caterpillar.

„ 54. PARNARA TULSI de Nic. ♂.

„ 55. PARNARA PLEBEJA de Nic. ♂.

„ 56. PARNARA KUMARA Moore, *a* ♂; *b* ♀.

„ 57. PARNARA OCEIA Hew.; *a* ♂; *b* ♀.

„ 58. PARNARA BEVANI Moore, *a* ♂; *b* ♀; *c* larva. (*The green of the larva is somewhat too dark*); *d* head.

„ 59. PARNARA APOSTATA Snell. ♂.

„ 60. HALPE ZEMIA Hew. ♂.

„ 61. HALPE HOMOLEA Hew., *a* ♂; *b* ♀; *c* larva.

„ 62. HALPE MARSENA Hew., *a* ♂; *b* ♀.

„ 63. HALPE PELETHRONIX Fruhst.

„ 64. PADRAONA GOLA Moore, *a* ♂; *b* ♀; *c* larva; *d* pupa. (*The green of the pupa is somewhat too dark*).

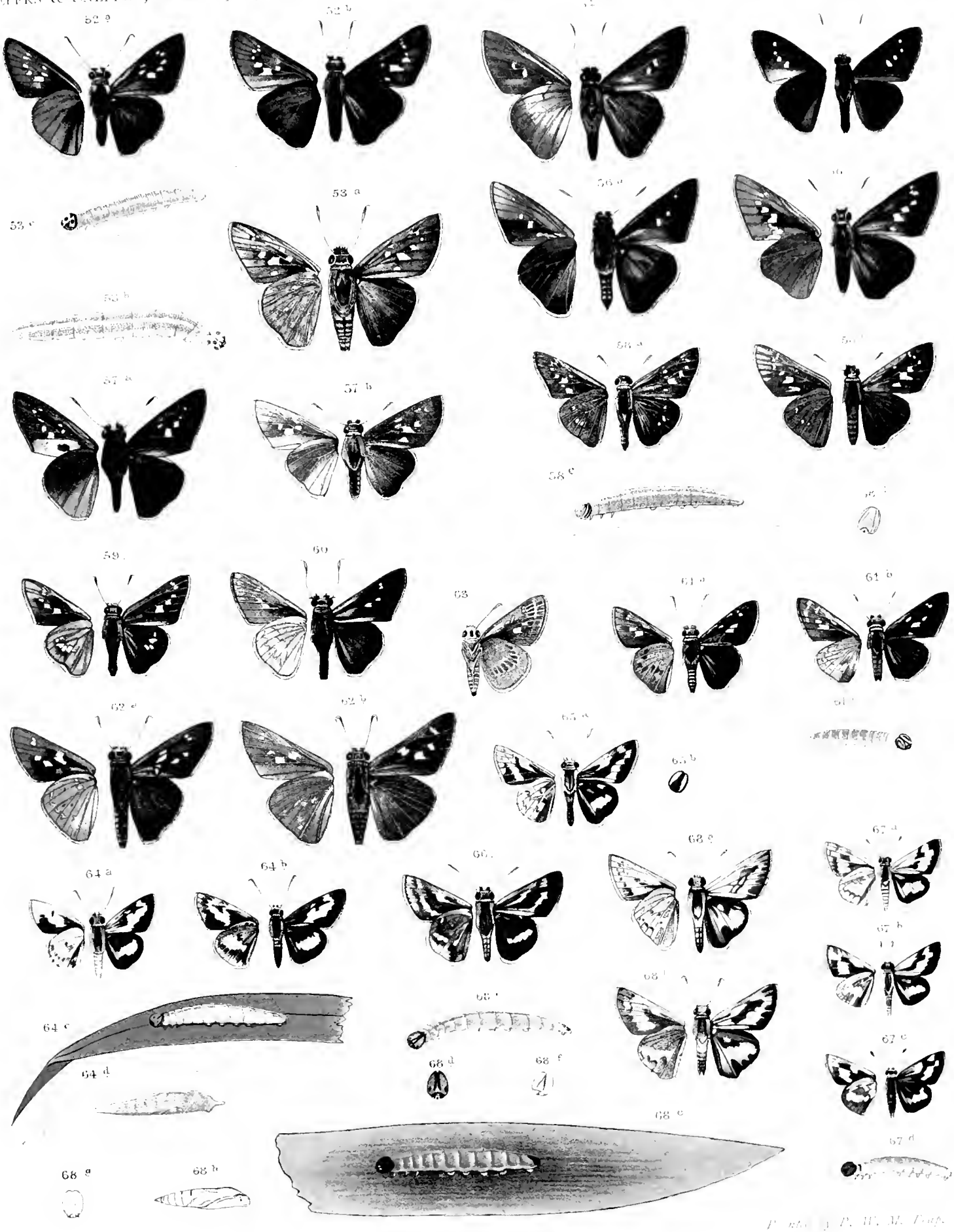
„ 65. PADRAONA DARA Koll., *a* ♂; *b* head of the larva.

„ 66. PADRAONA ORPHITUS Mab.

„ 67. PADRAONA ARCHIAS Feld., *a* ♂; *b* ♂; *c* ♀; *d* larva.

„ 68. TELICOTA AUGIAS L., *a* ♂; *b* ♀; *c*, *e*, larvæ; *d*, *f*, *g* various heads of larvæ; *h* pupa.

PIEPERS & SNELLEN, *The Rhop. of Java.*



EXPLANATION OF PLATE X.

Fig. 69. TELICOTA AUGIADES Feld., *a* ♂; *b* ♀; *c* larva; *d* pupa. (*The pupa is somewhat too dark*).

„ 70. PIRDANA HYELA Hew., larva. (*The spots on the head are not always the same*).

„ 71. PIRDANI DISTANTI Staud., *a* ♂; *b* ♀; *c* larva, not quite full-grown; *d* larva before the last moulting.

„ 72. PLASTINGIA CALLINEURA Feld. ♂.

„ 73. PLASTINGIA TESSELLATA Hew., *a, b.* imagines; *c* larva not quite full-grown.

„ 73*bis*. PLASTINGIA NAGA de Nic., VALENIA Fruhst.

„ 74. PLASTINGIA CORISSA Hew.

„ 75. PLASTINGIA PUGNANS de Nic.

„ 76. NOTOCRYPTA RESTRICTA Moore, *a* image; *b.* larva:

„ 77. CUPITHA PURREEA Moore,

„ 78. OERANE NEAERA de Nic., *a* ♂; *b* ♀.

„ 79. UDASPES FOLUS Cram., *a* larva; *b* pupa; *c* cremaster.

„ 80. ASTICTOPTERUS OLIVASCENS Moore, *a* ♂; *b* ♀.

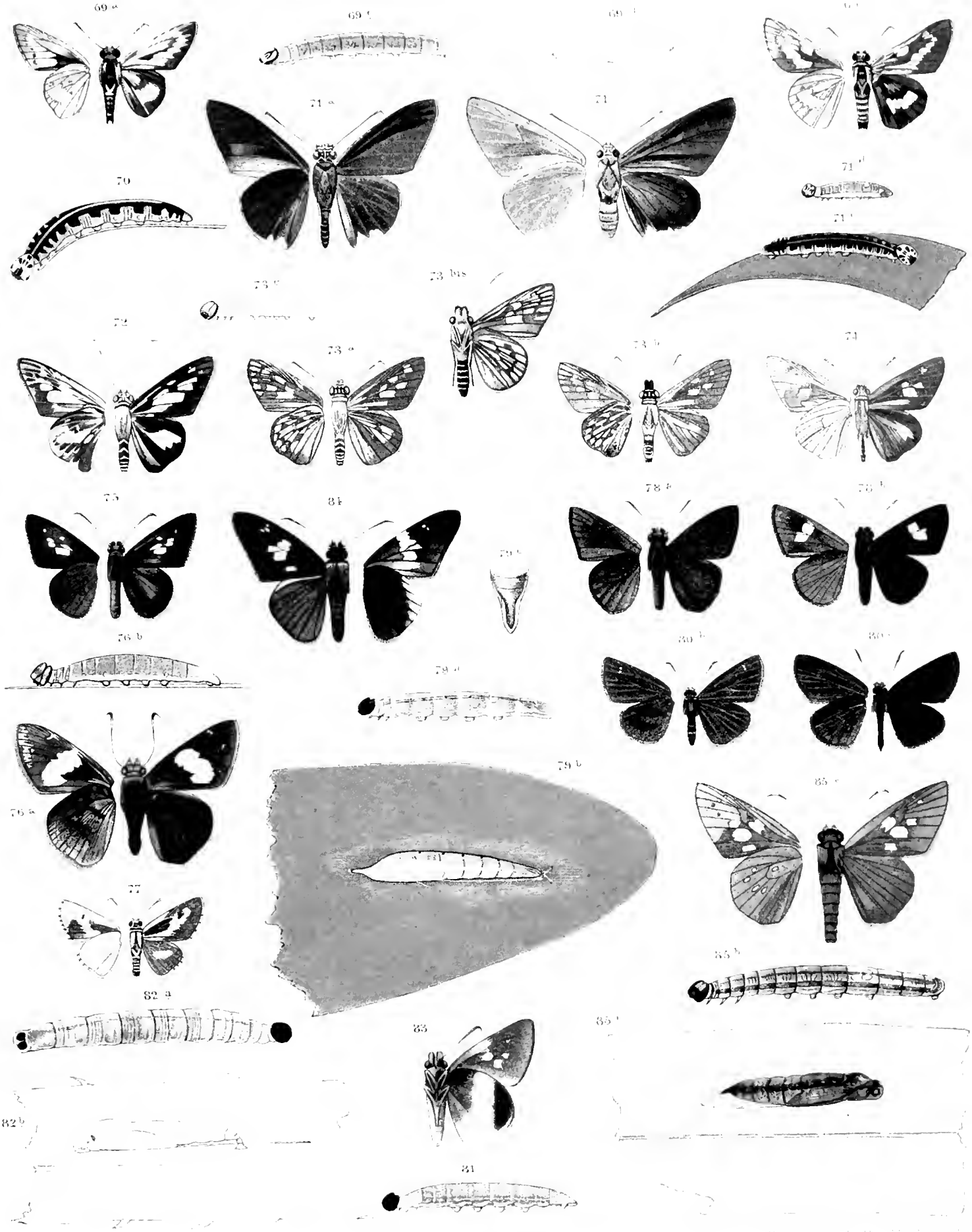
„ 81. KERANA DIOCLES Moore, larva.

„ 82. UNKARA ATTINA Hew., *a* larva. (*The green colour of the larva must be lighter*); *b* pupa.

„ 83. LOTONGUS ONARA Butl.

„ 84. LOTONGUS CALATHUS Hew.

„ 85. HIDARI IRAVA Moore, *a* ♂; *b* larva; *c* pupa.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79 c
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85 d
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