

clavola; the veins are quite divergent. The 3 principal veins are inflated at the base, the median is thickened as far as to the branching-off of the 1. vein, the base of this vein starting directly beyond the base is even also thickened in the ♂ etc. — There is only one species known from the Amazon River, being rare as far as I know.

cuvieri. **L. cuvieri** Godt. (hyperipte *Hbn.*) (97 d). A medium-sized butterfly above and below dark-brown; the forewings with a weak prong below the apex, the hindwings strongly bent at the anal part. Forewings with 6 scattered white punctiform spots in the distal area and faint violet reflection in the inner area. On the under surface the white spots are more numerous, the hindwings with a purple gloss. From the Amazon (Obidos, Teffé, the figured specimen from Santarem). The stated habitat „Jamaica“ might be due to a mistake in confounding it with *Eunica tatila* (100 A a) which is not quite dissimilar. Mostly single and in many places of the range rare.

41. Genus: *Eunica* *Hbn.*

About 80 forms of considerable geographical variability, but concerning the specimens from the same region, mostly being of an amazing constancy, form this genus. The animals are very elegantly shaped, reminding us very much of our *Apatani*, nearly always of a brownish-black ground-colour with few white spots, but often with a magnificent blue reflection which is sometimes also seen in ♀♀. Just like the American *Megabura* are in certain connections to the *Cyrestis* of the Old World, and the *Cyatineura teleboas* to the African *Nepitidopsis*, we find the same connections in *Eunica* to the African *Crenis* having probably also like these numerous though short spines in the larvae*). The butterflies have the median of the forewings strongly thickened or even distinctly inflated at its base, as far as to the branching-off of the middle median vein; sometimes even this is also strongly thickened as well as the subcostal. The forewings are sometimes angled below the apex, the cell of the forewings closed, that of the hindwings often closed by such a fine transverse vein that it is only distinctly noticeable in transmitted light or after desquamation. Antennae gradually thickened to a thin and flat clavola of more than half the length of the costa. Middle and hind-tibiae not prolonged as in *Gynaecia*, *Ageronia* etc. Wings with slightly undulated, smooth or also dentated margin. — The butterflies fly when the sun is shining, but by preference in the shade of the woods, they especially live in the mountains, are mostly found single or even rarely, but at times they suddenly occur in great numbers. Most of the species are to be found in the Amazon-regions and Northern Peru, only 3 species go far to the south. They seem to disdain flowers, but are fond of drinking from wet brook-stones and mud-holes, from lures and rotting fruit.

The colouring and markings of *Eunica* are in nearly all its species so corresponding that even by long descriptions it would hardly have been possible to achieve full clearness. Therefore the illustrations for which the plate 100 had been destined, have been subsequently doubled, thus forming the plates 100 A and B — a designation otherwise unusual in the „Macrolepidoptera“; we thought this augmentation of figures to be necessary for the sake of a better orientation.

tatila. **E. tatila**. This species is at once recognizable by the small projection of the margin below the apex, making an impression as if just below the apex a bit of the top of the wing had been cut out. The butterfly is dark brown with a violet — in the ♀ more cyan-blue — reflection and 6—7 scattered white punctiform spots in the distal area of the forewing. *tatila* *H. Schöff.* (100 A a) is the smallest form lying before me, it comes from Cuba, has rather small, not very sharply demarcated white spots and rather dull blue reflection. — *coerulea*. **coerulea** *Godm. and Salz.* (100 A a) is the form reaching from Colombia to the north through Central America and Mexico as far as to the Southern United States (Florida). Larger, with bright reflection and large, pronounced, and often somewhat four-cornered white spots which in the ♀ are so large that they almost flow together. — *bellaria*. **bellaria** *Frühst.*, from Central Brazil, is said to be smaller than *coerulea*, of a duller violet-blue and with smaller white four-cornered spots. Espírito-Santo. Brazilian specimens are not lying before me, the description, however, pretty well agrees with a specimen found at the „Chanchamayo“. — *tatilina*. **tatilina** *Frühst.* finally, described together with a ? from the Upper Amazon, has on both surfaces more conspicuous and below more sharply demarcated white spots; on the under surface the apical and marginal areas contrast more sharply (aberrantly?) with the more blackish discus. — *tatila* is not only one of the most widely spread, but also one of the most common butterflies of the genus, though like most of the *Eunica*, appearing in great numbers only in certain years.

maja. **E. maja** *F.* (= *naeris* *H.-Schöff.*) (100 A a, b). It approximates the *tatila*, but the white spots on the forewings are covered with brown in the ♂ and the apex of the forewings is straightly clipped off, not cut out. In the ♀ the white spots are large and pure white, being, however, otherwise quite brown and having no blue reflection whatever. Seems to be very much distributed in Central Brazil, is missing, however, in the immediate surroundings of Rio.

concordia. **E. concordia** *Hew.* (100 A b). The upper surface of this species resembles a little that of *maja* by the spots on the forewings being covered with brown scales and thereby veiled. The blue reflection likewise has the violet tinge and even the shape of the wings is similar to that of *maja*, for the apex of the forewings is obliquely clipped off. But the lower surface is quite different, with very bright and beautiful markings, especially

*) These connections have even led to a union of *Eunica* and its homogeneous species with *Crenis* to a subgenus, called *Eunicinae*. Cf. Vol. XIII, p. 204.

the hindwing exhibits a beautiful double-eyespot before the apex and from the costa there runs a short anterior and a long posterior brown marginal spot to the interior of the wing. Above the blue reflection is especially bright in the distal half of the hindwings. From the Amazon, Iquitos, Tapajoz and so on.

malvina. **E. malvina** *Bates* (100 A c). Larger than the preceding, upper surface brown, without distinct reflection, the spots on the forewings only noticeable as large dull stains. Easily to be recognized by the under surface of the hindwings which is of a light grey marked with beautiful brown dentated lines and has before the apex a beautiful double-eyespot encircled by yellow, which is followed by 2 or 3 smaller ones towards the anal angle. Southern Central America and South America as far as Ecuador and the Amazon. The ♀ is rather similar to the ♂, the distal part of the forewings of a darker colour. Nowhere common.

brunnea. **E. brunnea** *Salz.* (99 f). Pretty large, above similar to a *caerulis* (100 B b), dark brown, apex and an indistinct oblique band beyond the cell silky lighter brown. Basal part of the wings with a dull violet reflection. Markings of the under surface of the hindwings: dark brown lines on a lighter brown ground. Before the apex a beautiful double-eyespot with a metallic blue nucleus, above the middle median vein a smaller, below it a larger ring-eye. In the subcostal area 2 comma-like streaks, one more at the closing of the cell, and about 2—3 mm before the margin a submarginal line. Bolivia and Peru.

monima. **E. monima**. There are 4 forms of butterflies, obviously nearly allied, but quite easily distinguishable. So far there are 3 names existing for them: *monima*, *modesta*, *pusilla*. As all the descriptions are so inexact that they are adaptable to all the 3 names, and as the only figure (*monima* with CRAMER) is, according to GODMAN and SALZIN, „everything else but good“, the names have now been assigned to one form, now to the other, and often even — at least partially — united (DYAR, GODMAN and SALZIN). I should like to distinguish now the following forms, the appearance of which is to be established by the figures of the four. *monima* *Cr.* (= *myto* *Godt.*) (100 A b) I take to be the smaller form from Cuba, which was several times wrongly denominated *pusilla* (this latter form does not occur at all in Cuba). It is nearly entirely without any reflection, the spots more or less dull, and the same specimens as are found in Cuba, also fly in Florida, Mexico and Yucatan. — *habanae* *form. nov.* (100 A c) likewise flies in Cuba, but is probably a season-form of *monima*, for a whole series lies before me without transitions. It is always larger, the blue reflection considerably stronger and the under surface brighter though not differently marked. — *modesta* *Bates* (100 A b) may then be called the form flying from Guatemala to Colombia. The ♂♂ have a strong blue reflection, but are without spots on the upper surface; size like *monima*; ♀ below rather brightly marked. — *pusilla* *Bates* (100 A b) might be the tiny butterfly which in some districts where *modesta* is missing, seems to replace it. It has hardly the size of a *Lycenon icarus* and no reflection; by far the smallest *Eunica*. The figured specimen comes from the Colombian Province of St. Marta and may be especially small; but GODMAN and SALZIN mention *pusilla* from Panama which is not very distant, whereas the genuine *pusilla* is presumably absent in Cuba.

maeris. **E. maeris** *Godt.* (100 A d) immediately recognizable by the dusty yellowish-grey colour of the upper surface. In typical *maeris* the apex of the forewing is mostly black with a number of white spots, the hindwings have, in front of the irregularly dentated submarginal band, generally a row of 4—5 dark dots corresponding to the pupils of the ocelli on the very much white-mixed under surface of the hindwings. Occurs in Central and Southern Brazil (Bahia, Espírito Santo); near Rio de Janeiro, however, the species does not occur. Further to the south it frequently reappears in Paraguay, the ♂ flying there in two forms; one not to be separated from the northern form from the Amazon valley having a dark white-spotted apex of the forewing and a uniformly dusty-grey ground-colour of the under surface of the hindwings; and a second one with a drab apex of the forewing, little contrasting to the discus, with dots partly overshadowed in brown; with this form we might connect the name ab. *aeschrius* *Frühst.* (100 A d), but the ground-colour of the forewings is just as often lighter as darker than that of typical *maeris*. This form nearly always lacks the row of dark dots on the upper surface of the hindwings. — *heraclitus* *Poey* (100 A d) is the Cuban form; it is coloured the most brightest of all, the forewings below the apex the most strongly angled, the dots on the hindwings large and distinct, the upper surface of the wings also often marked in the discus with dark dentate-lines. Between this and typical *maeris* stands *phasis* *Fldr.* reaching from Colombia to the south of the Amazon; according to FELDER it has the more strongly angled margin of the forewings of the Cuban form, as well as its size, but the colouring of the Southern Brazilians. — On the whole, large series show that both the ground-colour and the grey or black apex vary a great deal in the same district and the denominations much rather signify aberrations than being names of special races.

margarita. **E. margarita** *Godt.* (100 A d). At once noticeable by the pearl-grey ground-colour. The hindwings exhibit black marginal-chains, the forewings a white oblique band and in the black apical part three white little spots. A southern animal. Typical *margarita* are common in the most southern parts of Brazil, and the specimen described first seems to come from Porto-Alegre; in specimens from there, the apical band of the forewings is strangulated on the median. If one travels only some hours to the north, to São Leopoldo, one already finds preponderantly specimens in which the distal margin of the silver-grey basal area penetrates like an immense triangular tooth into the white band of the forewing, not only like a small point as shown in the figure.

Further to the interior, this distal projection of the apical area is absent; the apical area is distally not so distinctly delimited in black, the white band of the forewing much broader and more uniform. This form, which especially comes from Paraguay and was imported in great numbers several years ago, is the form figured in STAUDINGER'S "Exotic Day-Butterflies" and called *eburnea* (100 A d) by FRUHSTORFER. Specimens from Petropolis, from the Orgel Mountains, are again somewhat different from specimens from Paraguay; near Rio de Janeiro the species does not occur at all. Still further in the interior we then meet the gigantic form *ingens* form. nov. (100 A d) which lies before me from Bolivia, where it was taken at altitudes of 7 to 800 m. — Like most of the *Eunica*, *margarita* occurs only in certain years, is sometimes rare for a long period, till all of a sudden it appears in great numbers. The larva lives on *Sebastiania*, in its early stages it unites little pieces of leaves with faeces to a shelter, later on it is green with black head and white lateral stripe and rests with slightly raised front and back parts, the horns on the head stretched forward. The latter are rather long, slightly curved and furnished with single accessory spines. The lateral spines of the 4. to 10. ring are stunted to small points, the dorsal spines to small white warts. Pupa green, slender, with short points on the head and faint dorsal ridge; it is fastened to the upper surface of the leaves and raises itself towards the light.

E. cabira (100 A e f). A very variable animal; ♂ above very dark brownish-black with faint, dull blue reflection being only brighter in the sun. The ♀♀ are below and above quite similar to the ♂♂, but from behind the costal middle of the forewings, a very oblique narrow white band runs towards the margin above the anal angle, the posterior part of which band dissolves in spots and is sometimes strewn with small brown grains of dust, especially at the margins. Under surface reddish-brown, in the apex of the forewings mixed with whitish shades, and with a large doubly pupilled eye below the centre of the inner margin of the hindwings. In the same country there occur large and small, lighter and darker, below strongly and faintly marked specimens, probably according to the altitude. Described from Venezuela. — Peruvian specimens with little white on the under surface in the apex of the forewings, very deep-black discus of the forewings and very black-marked under surface of the hindwings are *gerwisa* Fruhst. (100 A f as *gerwisa*). They presumably differ from *tenebrosa* Salb. from Bolivia only by the latter having uniformly deep-black upper surface of the wings in the ♂ and also their under surface being often so darkened that one can hardly any more recognize the characteristic markings — a big double-eyespot before the apex of the hindwings and an angled median line. — *ninetta* Fruhst. from Ecuador (not lying before me) has a blue reflection reaching further towards the margin on the upper side, less black marked under surface of the hindwings, which has a brighter violet reflection in the centre. — Specimens that are, like *tenebrosa* Salb., said to come also from Bolivia, are above a little bit lighter brown, especially in the distal area; they have been called *editha* Fruhst., but have neither below more white in the apex than the Peruvians, nor do they lack the violet hue of the under surface of the hindwings which has, however, not so pronounced black markings as *gerwisa*. — *carias* Hew. (100 A f), a common butterfly in Colombia, is so nearly allied with *cabira* that it is hardly to be called a particular species. Here the forewings are above in the distal half overflowed with a bright golden-brown, their apex is below not white, but otherwise the under surface is similarly marked as in *cabira* from Venezuela. The butterflies are common, especially at mud-holes on the road, but local.

E. amelia Cr. (100 B a). This species reminds us a great deal of *orphise* (100 B a) on the under surface, but is immediately recognizable by the strangely shaped wings: the costal margin of the forewings is considerably shortened, therefore the margin of the wings does not run obliquely, but almost straight, and the inner margin is nearly as long as the costa, the hindwings are very large, too. Moreover the blue reflection is characteristic, being in the ♂ of a magnificent ultra-marine blue and covering the whole forewing up to the apical third which remains black and has white fringes; on the hindwing the blue reflection is in the basal part and the distal half remains black, contrary to the most *Eunica*, *amelia* belongs, according to FELDNER, to the group of the smaller *amycla* Godt. which, however, distinguishes itself by the median and submedian being not only thickened, but expanded to a vesicle. The ♀♀ are spotted white and have a row of beautiful eyes on the under surface of the hindwings. The ♂ of *amelia* has a very conspicuous long tuft of hair before the inner margin of the hindwings.

E. taurione Hbn. (♀ = *marsovia* Godt.) resembles a small *amelia*, but the blue colouring occupies the whole basal two thirds of the forewings. The under surface is lighter and much less marked, especially the eye-markings are much less developed. Brazil and Amazon. — *fasula* Fruhst. are smaller ♀♀; darker, the little white spots on the forewings much smaller, the black margin more extended and the submarginal row of dots of the hindwings more pregnant. From the Amazon.

E. orphise Cr. (= *tryphosa* Hbn., *castalia* Hew.) (100 B a). The ♂ is above black with a dull ultra-marine blue reflection in the proximal half of all the wings and grey fringes; without spots. In the ♀ the whole upper surface is of an iridescent steel-green, the forewing is white in the apical half, otherwise spotted black. The under surface pretty much resembles that of *amelia*, the hindwings are dark ruddle-red with a violet reflection; the markings are to be seen from the figure. The species seems not to be very rare and widely distributed over the northern part of South America, from Guiana to Peru. Specimens from Colombia are larger than those from the Upper Amazon, the blue reflection of the upper side reaches further to the margin, and the under surface is more variegated by violet-white and metallic bluish-grey pruina.

E. anna Cr. The forewings rather pointy, the basal half in the ♂ with a bright blue reflection and in the ♀ dull-brown spots in the apical area, 3 of them pass by in a row in an oblique direction behind the cell, coming together before the apex and forming an oblique stain. Beneath the scheme of markings in the distal area of the hindwings resembles that of *brunnea* (99 f), but the streaks are thicker and in the proximal part there is a large dark four-cornered spot at the middle of the costa and a thick dark comma-like streak under it. Considerably smaller than *brunnea*, the eyes of the under surface of the hindwings, however, similar.

E. sophonisba Cr. (100 A d). ♂ black with magnificent blue band at the margin of the hindwings, which laps over on the anal part of the forewings; ♀ of a steel-green gloss with white oblique band of the forewings. Much more characteristic, however, is the under surface: light or metal-blue, with very complicated black markings; peculiar is an ochreous ray through the centre of the hindwings, which looks as if faded or like an artificial change of colour. In typical (Guiana-) specimens the blue of the hindwings runs in the ♂ from the margin proximally till over the centre and is therefore very broad; in the ♀ the white oblique band at its proximal margin above the lower cell-angle projects proximally in the shape of a bow, and in both the sexes the ground-colour of the under surface is quite light bluish-grey. — In *agele* form. nov. (100 A e) (= *sophonisba* Stgr.), from the Upper Amazon (Humayta, Iquitos) and Colombia, the blue band of the hindwings of the ♂ occupies scarcely more than 1/3 of the hindwing, the oblique band of the ♀ runs more pointy, the white protuberance at the cell-end is diminished, the ground-colour of the under surface especially in the ♂ much darker, bluish-green, the ray in the hindwings brown instead of yellow (*sophonisba*, as it says in the table, is a misprint).

E. chlorochroa Salb. (100 A e). On the under surface this species is almost exactly like *sophonisba*, but above the distal half of the hindwings is not blue in the ♂, but steel-green, and this colour has a bright whitish-grey gloss in the sun. North-Eastern Peru.

E. mira Godm. and Salb. (100 A e). On the under surface of the hindwings the basal brown here likewise continues, like a thick ray, through the bluish-green hindwing towards the margin, but does not quite reach it. The upper surface of the (unknown) ♂ is certainly black with a broad metallic margin of the hindwings; the ♀ has steel-green, black-spotted forewings with white subapical band, and dark hindwings. The species is only known to me from the figures in the Biologia Centrali-Americana, of which I give a copy. Panama.

E. norica Hew. (100 B a). Forewings under the apex geniculated, upper surface black, the hindwings with a broad blue reflection in the distal area. The under surface with very bright violet-brown and brownish-black markings is at once to be noticed from the figure. The ♀ has on its brown upper surface a white oblique band which is widely discontinued behind the cell. Typical *norica* come from Chanchamayo in Peru; a smaller form with more reddish-hued under surface comes from Bolivia (Oroya), seems to be more of a mountainous form and was separated as *occia* Fruhst. (100 B a). The species is apparently common where it occurs.

E. mygdonia Godt. (100 A c). This rather large *Eunica*, occurring in great numbers in some years near Rio de Janeiro and then frequently seen on the Corcovado, the Tijuca, at the foot of the Orgel Mountains, coming even into the gardens of Sa. Thereza, as far as Botafogo and into the Botanical Garden, in order to disappear almost entirely for years, has a unicolorous dark upper surface with 5 quite effaced little spots in the distal area of the forewing. It has a characteristic under surface which is easily seen from the figure and only varies in the tinge of the colouring. The ♀ has a white oblique band on the forewing and 2 little subapical spots. If GODMAN and SALVIN have correctly construed this species (against which there are many arguments), *anna* Btlr. and *Dru.* would coincide with it and the range would be very great reaching from Guatemala to Ecuador in the west and Southern Brazil in the east.

E. augusta Bat. (100 A f). ♂ above black, the basal half of the forewings with a magnificent bright metallic-blue reflection the intensity of which in sunshine reaches up to that of many a *Morpho*. Before the apex of the forewing a white oblique band which is double as broad in the ♀ as in the ♂, the upper surface of the wings being here, however, steel-green almost as far as the margin. The species is at once recognizable by the dentated margin of the wings which is otherwise only noticed in *caelina*, and by the bark-like marked under surface of the wings. Typical *augusta* originate from Central America and are not rare there. The figure in STAUDINGER'S "Exotic Day-Butterflies" is the narrow-banded Colombia-form going in the north as far as Costa Rica. The fringes are white-speckled. — *olympias* Pldr. (100 A f) has less blue on the forewing and the white oblique band is missing altogether in the ♂. The under surface is almost exactly as in *augusta*, but the hindwings are less deeply dentated and the fringes not so bright white-speckled. Likewise Colombia.

E. caelina Godt. (100 B b). Hindwings above and beneath almost exactly as in the preceding, also so deeply dentated; but the forewings more ultramarine blue than cyan-blue, upper surface with 3 separated white subapical spots, beneath there runs through the forewing from the costal centre towards the anal angle, a broad white oblique band strongly covered with brown in the ♂. Southern Brazil. — *alycia* Fruhst., founded upon 1 ♂ and which has not been lying before me, from the Upper Amazon, is said to be considerably larger, the forewings much lighter violet, the hindwings lighter brown, the white dots on the forewings more diffuse, under surface of hindwings with more white markings. Local and not common.

E. caresa Hew. (100 B b, d). Very nearly the largest species of the genus; the forewings below the

apex very prominent, in the ♂ the upper surface black, with dull violet reflection (except the marginal area) and with white fringes. ♀ dark brown with oblique white band of the forewings and 2 or 3 subapical little spots between the band and apex. Beneath the hindwings are subdued speckled red-brown or brownish-black, overpowdered in white, with generally only suggested ring-chains or dentate-stripes, without sharply marked eyes and bands. Rather common, distributed from Colombia to Peru, but local, absent in vast districts, especially in the mountains. The confused markings of the under surface changes off enormously, either predominantly grey, or violet, brown or reddish tinged, and on the upper surface the band of the forewings of the ♀ may be in one specimen broader, in another narrower. — In Venezuelan specimens that were separated as *picea* *Fldr.*, as a rule, the white overpowdering of the under surface is thinner so that the markings of the rings and bands are still well noticeable below it.

empyrea. **E. empyrea** *H. Schöff.* (100 B b). Above very similar to the preceding. Smaller, without the white fringes, the violet reflection more confined upon the costal area of the forewings. Beneath the wings are much more unicolorous, the hindwings not so much overpowdered, the markings, consisting of dark transverse lines, more distinct. Brazil.

caralis. **E. caralis** *Hew.* (100 B b). Like the preceding, larger, the upper surface with hardly distinguishable reflection only to be seen distinctly in the sunshine; a quite slightly lighter colour of the brownish black ground-colour runs bow-shaped before the apex from the costa to the middle of the distal margin. The under surface is rather one-coloured, the hindwing with bands of a silky gloss, on the whole little marked. From Colombia

to Peru. — *campana* *Fldr.* is above quite similar, the ♂ above in the proximal forewing-area a little brighter blue and the apex of the forewing on the under surface of a stronger violet-white; beyond the silky-glossy median band of the under surface of the hindwings, 4 eye-rings are somewhat more distinctly prominent than in Peruvian *caralis*; from Colombia. — *indigophana* *Fldr.* from Venezuela exhibits above still brighter blue reflection and is easily recognizable by the ♂ showing above as well as beneath a dark undulate-stripe before the margin.

ariba. — **ariba** *Fruhst.* Pretty large (length of forewings 35 mm), the apex still more curved. Wings above of a deep dark-blue with a faint violet hue excepting the submarginal area, the latter light brown, with a faint gloss and a row of blackish-brown, rudimentary, only partially coherent punctiform spots. Hindwings beneath greyish-violet, basal region greyish-reddish, slightly glossy with diffuse narrow median bands, otherwise without markings. Probably from the Amazon; described according to 1 ♂; unknown to me.

volumina. **E. volumina** *Godt.* A group of partly interosculating forms of butterflies. The most common of them is *tithonia* *Fldr.* from Bahia where the ♂♂ are in some years rather common. On the upper surface the ♂ shows only before the hindwing-margin a narrow iridescent stripe, the dull-blue iridescent ♀ a white oblique band which is downwards reduced in width. The under surface is distinguished by very variegated colouring, especially blue forewing-cell which is black only at and before the end. The typical *volumina* probably hardly differing from it, was presumed from the environs of Rio de Janeiro, but it is not likely that another *Eunica* occurs there beside *alcmena* and *myrthis*. — *intricata* *Fruhst.* from Blumenau in St. Catharina has the iridescent band of the hindwings as thin as a thread, the hindwings are beneath grey, along the zig-zag bands with a greenish hue. The median and submarginal transverse lines are sharply and several times broken. Between

them a doubly-pupilled upper eyespot and a double lower eyespot. — *celma* *Hew.* (100 B c) is above almost entirely like *tithonia*, but the forewings have below black ground-colour with very metallic blue embedding, and the hindwings are very much lighter only before the distal margin; the blue anti-marginal stripe of the upper surface of the hindwings is quite narrow in the ♂; Amazon. — The name of *celmina* *Fruhst.* was founded upon a single ♂ from Scapi in Bolivia which shows above a light greyish-blue submarginal band of the hindwings and beneath smaller ocelli.

venusia. **E. venusia** *Fldr.* (100 B c). The ♀ quite similar to the preceding, but the ♂ distinguished by a very broad, intensely radiant blue-iridescent spot becoming visible before the margin of the hindwing in certain light; Colombia. — *persephone* *Fldr.* likewise exhibits this radiant spot of the ♂, but upon it there are black spots, and on the under surface the eyes of the hindwings and the discal spots of the forewings are larger; likewise from Colombia.

araucana. **E. araucana** *Fldr.* This form entirely resembles the figured *excelsa* *Salv.* and *Godm.* (100 B c, d), but the under surface is still more unicolorous and duller, and the blue reflection of the ♂ duller, too. The latter is in *excelsa* of almost just as magnificent brightness as in *venusia*, from which *excelsa*, however, immediately distinguishes itself by the margin of the forewings projecting less angled below the apex and by the much less variegated under surface which, on the forewing, lacks the beautiful blue distinguishing the *volumina*, *celma* and *venusia*-group; the *excelsa*-♀, however, has in the forewing-discus on the upper surface a blue reflection (being, individually, developed very differently), in which we notice a white oblique band consisting of 3 separated spots. *excelsa* occurs on the Chiriqui in Panama and in scarcely differing specimens in Colombia where FASSL took them at the Rio-Songo. — *aspasia* *Fldr.* with above very brightly iridescent discus of the forewing, from Ecuador, is larger and forms a right transition to the following form *E. cinara*.

cinara. **E. cinara** *Hew.* (100 B d). Very approximate to *aspasia* and *excelsa*, but differing from *excelsa* by the ♂ exhibiting, before the margin of the hindwings, not a bright, but quite dull blue reflection; the light spots on the under surface of the forewings are not pure white like in *excelsa*, but tarnished greyish-brown, and in the ♀

the forewings have before the apical third not three separated white spots, but a broad white oblique band proximally bordered with blue reflection. Colombia, Amazon. — The name *oreandra* *Fruhst.* denotes Peruvian specimens in which the blue reflection is more brightly and decoratively prominent than in the northern affinities.

clytia. **E. clytia** *Hew.* (100 B e). Compared with the preceding, plainly coloured and with hardly any decorations. ♂ above dark-brown with uniform violet reflection, ♀ brown with 5 white spots standing in 2 oblique rows. Under surface of hindwings plain ashy grey, the dentate-lines and eye-rings formed of plain dark streaks. Peru, Rio Madeira and Upper Amazon.

veronica. **E. veronica** *Bates* (100 B e) likewise from the Amazon, has the same size and about the same colours as *clytia*, but the markings of the hindwings being beneath unicolorous yellowish ash-grey are still more reduced.

violetta. **E. violetta** *Stgr.* (100 B d). As the description of this species by the author refers to the figure, specimens corresponding exactly to it are, however, not lying before me, I bring a copy of STAUDINGER's figure which is said to be painted according to 2 not quite sound ♂♂ and, therefore, may be inexact. The ♀ is not described. Pebas. — Maybe it is only a form of *viola* *Bates* also originating from Pebas, which would thus form the type of the name; although the latter has a more reddish-coloured under surface, and red markings, yet the design of both is the same. On the upper surface of *viola* the small light spots in the apical area are covered up with dark, or missing altogether, and the bluish-violet reflection is less; these differences also occur in *clytia* and *veronica* and are only individual there. Teffé, Pebas.

europa. **E. europa**. ♂ above black with blue reflection of magnificent splendour, extending in a broad band along the costal margin of the forewings and reaching, in the shape of a glossy oval, proximally convex, from the margin of the hindwings as far as almost to the cell-end. The ♀ is dark-brown with a white oblique band of the forewing and often white preapical spots in addition. The under surface of the hindwings is comparatively very plainly marked: a submarginal cucullated line, a median line turning almost rectangularly round the cell, between both above one double eye-ring and below it 2 or 3 single ones. The range is very great so that numerous sub-forms have been distinguished which, however, were mixed up several times. — The most southern is *euphemia* *Godt.* (= *dolores* *Pritze.*, *alcmena* *Boenningh.*) from Southern Brazil, which chiefly distinguishes itself by the very dark, almost black under surface of the hindwings. Espirito Santo and Rio de Janeiro, in the alpine districts. — *europa* *Cr.* (100 B e) from Surinam to Colombia, is lighter and somewhat smaller, but the blue iridescent stripes of the upper surface are broader and more lustrous, especially those on the hindwing. — *flora* *Fldr.* is the race occurring from the Upper Amazon as far as up to Peru. The blue of the hindwings in the ♂ does not reach quite to the margin, and in the ♀ there are yet 2 small subapical spots behind the white oblique band. The animals vary exceedingly, and from the Chanchamayo there are lighter and darker specimens lying before me, more or less blue decorated; those with a lighter under surface have been branched off as a form of the Upper Amazon, *myrthis* *Fruhst.* — *theophania* *Fruhst.* is smaller than *flora*, in the ♂ the bands are more subdued, more violet, those on the hindwing broader. Under surface reddish instead of brown or grey with light spots in the distal area of the forewing. A ♀ is mentioned having the white band of the forewings dissolved into 3 spots what may be constant for this form the habitat of which is on the Middle Amazon (Manaos).

alcmena. **E. alcmena**. This magnificent species has in the ♂ above a blue costal-marginal stripe, which is sometimes continued even at the distal margin, and a blue marginal band of the hindwings; the ♀ brown with a white oblique band of the forewing. Characteristic is the under surface. Here there is, near the base in the cell and above it, a velvet-brown spot; near the costal margin, behind the middle of the wings, a large eye-spot, encircled by yellow and with two pupils; (proximally) before this 2 arch-like stripes touching each other, the lower one lying on the transverse vein; from this lower one a brown shadowy outline runs rectangularly to the inner margin and beyond this line there is an eye-spot, to which sometimes another small accessory eye-spot adheres. Before the hindwing-margin a dark shadowy outline. Furthermore the *alcmena*-♂ is distinguished by the place, where the first median vein branches off from the median principal vein (near the base of the forewing), showing also on the under surface a blue iridescent spot. *alcmena* *Dbl.* and *Hew.* (100 B e, f) flies from Mexico to Panama. Here the blue stripe of the costal margin is at the cell-end somewhat overpowdered by the dark ground-colour and thereby strangled or even interrupted; it ends in a thick wedge before the apex without extending any further along the margin. — *amata* *Druce* from Costa Rica resembles in the male sex pretty much the typical *alcmena*, the ♀ I do not know. In the ♂♂ — certainly also in the ♀ — the eye-rings on the under surface are (according to DRUCE) smaller, above the blue is considerably more abundant and more violet. — *pomona* *Fldr.* (100 B f) which may be a species of its own (there are, however, transitions of it to *alcmena* lying before me, from the Chiriqui), shows the blue costal-marginal stripe bent round before the apex and following the margin to the anal angle, but sometimes with attenuations or slight interruptions behind the cell. Costa Rica to Colombia and Venezuela, varying in almost every locality. — Such a local form is *pompata* *Fruhst.* with more blue than violet stripes; the under surface darker, all the ocelli of the hindwings smaller, surrounded by a softer yellow, the dark submarginal band more prominent. Colombia. — *irma* *Fruhst.* (100 B f) has decidedly the loveliest ♂♂ (♀ not at hand); a band of magnificent blue lustre in the sunshine runs from the base of the forewings as far as before the apex, where it makes a broad bend going as far as into the anal angle. The band of the hindwing is broader, but somewhat shorter, otherwise like in *alcmena*. Under surface

like *pomona* (100 B f), but the black lines and the borders of the eye-spots thicker and darker. Peru. — *alcmena* and its forms are mostly very common in their range.

beckina. **E. beckina** Hew. (99 f). Under surface quite similar to that of *elytia* and *veronica*, but the upper surface differing by the presence of white punctiform spots in the apical area of the male forewings. Typical *beckina* come from the Upper Amazon. Wings above quite darkbrown with violet-blue iridescent centre; forewings with 5 light spots in the apical area, 4 of which are white, the middle spot, however, overshadowed dark.

evelide. — **evelide** Botes is beneath a little darker and more strongly black marked and the lower row of the spots in the apical area is often effaced; from Colombia. — Likewise originating from Colombia (Rio San Juan), there are specimens in which also only the 2 apical spots are faintly suggested, but besides, the blue reflection on the upper surface is so much reduced that it hardly reaches as far as the middle of the wings; this is **emmelina** Stgr. — As contrasted with this, **medellina** Fruhst. is distinguished by especially intensive light and vast blue colouring of the upper surface of the wings and 2 very large white subapical dots; the middle dot of the discal row is absent; Colombia. — **chorienes** Fruhst. finally, from Southern Brazil, has again more subdued reflection and all the 3 dots of the discal row are absent. — *beckina* though being a widely distributed species, is not common.

careta. **E. careta** Hew. (100 B f) entirely resembles on the upper surface *beckina* and also varies like this. On the non-iridescent upper surface there are generally 2 subapical punctiform spots and one before the middle of the margin, and on the under surface there is in the centre of the hindwing-costa a darkbrown, three-cornered spot behind a loam-yellow place. But the spots on the forewings may be augmented, also all or partially covered with brown (in typical specimens only the spot before the middle of the margin) and on the under surface the hindwing-costa may have 2 or also 3 dark spots, the otherwise loam-yellow spot of the costal margin may be absent, or grey, whitish, or with dark filling etc. Described from the Amazon, but probably widely distributed in the northern part of South America, although often occurring in rare specimens.

sydonia. **E. sydonia** Godt. from „Brazil“ is not lying before me, but is described with denticulated wings, above brownish-black, without spots, of a violet gloss at the base; beneath with 4 greenish dots. Reflection of the hindwings of less extension. Under surface of the forewings dark grey with one dot and 2 oblique bands of blackish colour; distally there is opposite the faintly violet margin a curved transversal row of 4 greenish dots. Under surface of the hindwings violet-brown, with some dark curved and little-prominent lines, and with 4 greenish dots that approach each other by twos. The ground-colour of all the wings is faintly pierced by whitish tints. The abdomen has the colour of the wings. Antennae brown, with grey ringlets and yellowish point of the clavola. — In **poppaeana** Fruhst. from Surinam the violet touch on the hindwing is much more expanded, the animal larger, the under surface of the hindwings densely besprinkled with grey.

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alpais. **E. alpais** Godt. from „Brazil“ is not at hand. The description runs thus; wings denticulated, brownish-black. Forewings suffused with bluish-violet, marked with 5 white spots; from the margin of the hindwings there extends a blackish undulated line. Under surface of the forewings very much like the upper surface, but towards the base with a single whitish crescent and the margin is of a violet grey with 6 blackish dots, the 4 posterior ones of which are arranged in a bent transversal line. Under surface of the hindwings violet-grey with 2 spots and hereafter 2 curved lines of a chestnut-brown colour. Between these 2 lines there are 3 black eye-spots with white pupil and yellowish iris. The front eye-spot is separated from the others and has 2 pupils; the second eye-spot is of half the size of the anal-eye-spot which it almost touches.

elegans. **E. elegans** Salv. (100 B f). This butterfly which is not rare in Peru, can at once be recognized by the shape of the wings. The distal margin of the forewings is bulged out here, while in the similar *Eunica*-species it is concave, gnawed out or straight at most. The upper surface is brownish-black, the proximal half of the wings of a violet-blue reflection; the under surface silky yellowish-grey with black discus of the forewings and numerous dark lines on the hindwings, formed from little bows. ♀ with above and beneath similar white oblique band of the forewings.

H.-Group: Catagrammidi.

Very normally and uniformly shaped butterflies, above black with metallic bands, on the under surface mostly brilliant, with variegated and changeable markings. The spines of the larvae somewhat reduced; habitat nearly in the tropics many very rare.

42. Genus: *Callithea* Bsd.

This genus numbers about a dozen of species distributed from Colombia to the Amazon; in the latter district most of the species occur. The Callitheae are medium-sized, on both surfaces of the wings magnificently coloured and with some, however larger, *Agrias*-species, they exhibit an interesting example of congruence in shape, which may, however, not be taken to be a symptom of mimicry, as the species of both the genera are not considered as „patented“ species.

The exterior of the Callitheae is so characteristic that it is impossible to mix them up with other genera and that the mentioned similar *Agrias*-species are distinguished by their greater size. The Callitheae have

curiously buttoned antennae, the palps are densely covered with scales and hair, their last joint is small and pointed, the eyes are naked, the hindwings have a double-furciform precostal.

The larva of *Call. sapphira* was observed by OTTO MICHAEL near Santarem on the Lower Amazon, but unfortunately he did not give any further details; he merely states that the male larvae are of a beautiful blue colouring, while the female larvae are more greenish or orange coloured; they have sharp spines containing a caustic or venomous substance and live in single specimens on a bean-like creeper. The time of flight lasts but a short time; they mostly stay in the woods, but also fly single into the boroughs where they have been found after the night's rest on the walls of houses.

PAUL HÄHNEL reports about the intellectual powers of the Callitheae that a *markii* (*hewitsoni*) after having been several times chased up, at last took refuge on a small trunk where it, however, hardly rested and in the very same moment changed its mind and immediately went some inches higher up in order to hide itself on the under surface of a leaf hanging down above it — it probably imagined to be quite safe there; the observer was really astonished at this clear thinking power of the animal so hardly pressed upon by its persistent pursuer. The Callitheae (like many butterflies with an intensive blue) have, according to the same observer, a scent very similar to that of vanilla.

A. ♂ on the upper surface of the hindwings in the discocellular without shaggy hair.

C. sapphira Hbn. (99 c) from the Lower Amazon (Santarem) exhibit, as is to be seen from the figures, *sapphira*, a conspicuous sexual difference. The wonderful sapphire blue of the ♂ is not equalled by any other *Callithea*-species and the ♀ is on account of a broad ochre-yellow band of the forewings a most remarkable appearance. — The larva has been described above.

C. hewitsoni Stgr. (99 c) from Colombia and from the Upper Amazon differs from the following *hewitsoni*, *markii* (99 f) by a larger yellowish-red basal area of the upper surface of the forewings; the colouring of this part of the wings changes off rather considerably, since all shades from yellowish-red to ochre-yellow are found in it. This area has also on the under surface of the forewings the same extension, its colouring, however, does not change off so very much and is generally ochre-yellow.

C. markii Hew. (= *wallacei* Stgr.) (99 f) from the Upper Amazon has, with the exception of the *markii*, inner margin, totally blue, glossy hindwings and a broad blue-shining distal band of the forewings. The ♀ has a rather broad verdigris band on the upper surface of the forewings.

C. batesii Hew. (99 f) from the Upper Amazon. ♂ similar to the ♀ of *markii*, but it has much less blue *batesii*, gloss and is of orange-red colour on the basal part of the hindwings. On the under surface, which is much more marked in black, the basal third of the hindwings is orange-yellow, too.

C. buckleyi Hew. (99 e) from Ecuador differs from **standingeri** *subsp. nov.* (= *buckleyi* Stgr.) from *buckleyi*, *standingeri*, the Upper Amazon (São Paulo de Olivença and Jurimaguas) by its somewhat smaller size, broader green margins of the upper surface, and beneath by less black colouring on the forewings and reduced black markings also on the hindwings, especially conspicuous on the band bordering on the ochre-yellow basal part.

C. degandii Hew. (99 f not *degandei*) from the Upper Amazon has a bluish-black upper surface with *degandii*, very broad verdigris margins. According to HEWITSON'S figure the whole middle part of the upper surface of the wings is of a deep blue gloss, which is seen in the ♀ only exceptionally.

C. bartletti Godm. and Salv. from the Lower Ucayali and Rio Napo is described as follows: ♂ above deep *bartletti*, purple (blue), central area of the forewings mostly black. Apex of forewings (broad) and distal margin of the fore- and hindwings metallic green. Beneath: basal third of the forewings and basal half of the hindwings ochre-yellow; rest of all the wings green; at the cell-end and at the first median vein of the forewings blackish; 1 black spot between the 1. and 2. median vein and 3 others run parallel to the distal margin; the hindwings have 4 bands of black spots on the discal half (? distal half), placed parallel to the distal margin. The apex of the hindwings is more rounded in the ♀ than in the ♂; base of the wings greenish-black instead of purple (blue); the green margin of all the wings broader. — We cannot perceive from this description whether *bartletti* is a form of *degandii* or *adamsi*. Presumably the latter is also a form of *degandii*.

C. adamsi Lothy (99 c) from Peru (Perené, 4000 feet) is above much darker than *degandii* and has *adamsi*, narrower verdigris margins, the blue gloss is dark violet, the centre of the wings without gloss. On the under surface the orange-yellow basal part is darker, very much reduced and, on the forewings, confined to a basal spot, the black markings are different, too. — **frigga** *subsp. nov.* from Peru (Cuzco) is above hardly differing *frigga*, from *adamsi*, but shows beneath the yellow basal area on the hindwings extended as in *degandii*, on the forewings, however, more extended, the black markings are also much more developed.