

## ESPECIALLY FOR FIELD COLLECTORS

(Under the supervision of FRED T. THORNE, 1360 Merritt Dr., El Cajon, Calif., U. S. A.)

### BUTTERFLY COLLECTING IN DENMARK

by T. W. LANGER

Denmark covers an area of some 43,000 square km. and consists of the peninsula of Jutland which is connected with Germany to the south, and several thousand islands, some hundreds of which are inhabited. The main islands are Seeland with the capital Copenhagen, Funen with Odense—the native town of HANS ANDERSEN, Lolland, Falster, and Bornholm in the Baltic between Sweden and Germany. The whole country is very flat and does not reach beyond the 400 ft. mark above sea level. The soil is fertile and intensively cultivated with the exception of some arid areas in western Jutland and the northern part of Bornholm, the only place in the country where rock is penetrating to the surface. 10% of the area is covered by woods, in the west by Spruce, in the east by Beech. Although the country is situated between the 58th and 55th degrees of latitude, *i.e.* the latitude of Hudson Bay in Canada, the climate is temperate, with a mean 0° Celsius in winter and 16° in summer. The temperature rarely sinks to more than 10° below 0° and rises very rarely over 30°. Consequently our butterfly fauna shows much resemblance with that of the northeastern states in the U.S., and we catch species here which are to be found in the U.S. too. Several more belong to genera represented in the Nearctic region.

Our area is very poorly supplied with Papilionidæ, the only Swallowtail butterfly to be found being *Papilio machaon* L., distributed over most of the country in May or June and in some years again in August, but most times single-brooded. There is one resident *Parnassius, mnemosyne* L., extremely local and not even numerous in the only locality in northern Seeland; no doubt it is only a question of years before the species will be extinct. The bigger and more showy *P. apollo* L. is sometimes blown over from nearby Sweden but cannot establish itself in the lowlands.

Among the Pieridæ, 11 species in total, we have some of our commonest butterflies, the well-known *Pieris napi* L. and *P. rapæ* L., to be found almost everywhere through summer. Just as common is *P. brassicæ* L. which resembles *P. rapæ* much but is bigger. One Dismorphiinae is found: *Leptidea sinapis* L., a little delicate White, rare and locally distributed in Jutland and northern Seeland in May and June. *Anthocaris cardamines* L. is common in woods in May and June and in appearance is intermediate between *A. sara* and *A. genutia*, while the rather scarce *Pontia daplidice* L., which frequents dry hillsides mainly in Jutland in June and August, reminds one of *Euchloe olympia* or *E. ausonides*. The Hawthorn Butterfly, *Aporia crataegi* L., the

biggest of our Whites, is flying locally in central and southern Jutland and northern Seeland in July and August but seems to be heading for the same fate which has befallen the species in England: complete extinction, probably because of the intensified spraying of fruit-trees, host-plants of the larva. We have 3 *Colias*, the resident and very rare *C. palæno* L., known from Canada, flying in moors in July and known from a very few places in eastern Jutland and northern Seeland, *C. hyale* L., and *C. crocea* Fourcr., which is similar to *C. eurytheme*, while *hyale* reminds me of *C. philodice*. Those two species immigrate every spring from the South and give rise to an indigenous brood in August and September, but cannot hibernate in our cool and wet climate. *C. hyale* is rather scarce, *crocea* scarce to very scarce under normal circumstances. The last "White" is a "Yellow," *Gonepteryx rhamni* L., common all over the country in August and September and again after hibernation in May.

The family Nymphalidæ contains the highest number of species, 27 in total, 3 of which are not resident. We have two *Limenitis*, the big and extremely scarce *L. populi* L. which resembles *L. arthemis*, and the smaller and not so rare *L. camilla* L., found in woods in July all over the country in very varying numbers. Nearly as big as *L. populi* is the magnificent *Apatura iris* L. with the wonderful blue sheen, but luckily enough this beautiful species seems to be growing more numerous and widely distributed. We catch it in July in Lolland and, especially, in the island of Bornholm where it has been rather common since 1954. 5 Melitæinæ have been recorded, 2 *Euphydryas*: *maturna* L. once about 1890, and *aurinia* Rott. which is not uncommon in Jutland and Seeland in June. Our 3 *Meliæa* are *cinxia* L., all over the country, *diamina* Lang in all the islands but not in Jutland, and *athalia* L., locally distributed in Jutland, Seeland, and Lolland but not in the other islands. All 3 are flying in June, and all remind me of *M. harrisii*.

We know 9 Argynninæ from Denmark. *Boloria sifanica* Gr.-Gr. ssp. *alethea* Hemm., resembling *B. toddi*, is found in July where bogs with quagmire are present. *Clossiana selene* Schiff., known from eastern North America in the race *myrina*, is common in woods in June together with the more local and hardly so common *C. euphrosyne* L. which is rather difficult to distinguish from *selene*. *Brenthis ino* Rott. is another and rather uncommon moor-species from July; it has been recorded from all our islands but never from Jutland. *Issoria lathonia* L., easy to recognize by its many and conspicuous silver spots which give the species a certain resemblance to *Agraulis vanillæ*, is common in May-June and July-September on meager soil all over the country. Our bigger Fritillaries are *Fabriciana niobe* L., *F. adippe* L., *Mesoacidalia charlotta* Hw., and *Argynnis paphia* L., *M. niobe*, which together with *adippe* corresponds to *Speyeria aphrodite*, is common in July and August in northern Jutland, northern Seeland, and Bornholm and is not rare elsewhere in the country where meager soil prevails, while the very similar *adippe* L. prefers woods in eastern Jutland and in Seeland, where it is rather rare (Jutland) or not uncommon (Seeland). *Mesoacidalia charlotta* Hw. corresponds with *Speyeria cybele* except that its h.w. underside is greenish and not brown. It is rather common all over the country in July and August in woods. The last and biggest of the Fritillaries is *Argynnis paphia*, the only species which really deserves the generic name

*Argynnis* F. All over the country in woods in July and August, often numerous. The female is dimorphic, as 80-90% are brown, the rest greyish green (f. ♀ "valesina").

We have 10 Vanessinæ. The small *Arachnia levana* L. is distributed over the southern half of the country in two broods which differ so markedly from each other that LINNÉ thought them to be two different species. The spring form "levana" is a real little red-brown *Vanessa*, while the summer form "prorsa" closely resembles *Chlosyne lacinia*. Today the species is numerous, especially in August, but 50 years ago it was one of our scarcest. *Vanessa cardui* L. and *V. atalanta* L. are both rather common and widespread but not truly resident, as they cannot hibernate in our cool climate. Both species immigrate from the south in May or June, and we catch freshly emerged specimens here from August. *Polygonia c.-album* L. is not to be separated by sight and perhaps not even by genitalia from the North American *P. faunus*. *P. c.-album* is rather local and only common in Seeland in August-September and after hibernation in May. *Nymphalis l.-album* Esp. which is conspecific with *N. j.-album*, has only been taken 4 times in Denmark; it is a rare immigrant from the East. *N. polychloros* L. is closely allied to *N. californica* and distributed all over the country but not very common from July to September and again after hibernation, while *N. xanthomelas* Esp. which may be conspecific with *californica* is a rare immigrant from the east, only to be obtained in Bornholm in July and August. *N. antiopa* L. flies in a one-brooded race all over the country on sandy soil from July; after hibernation its wing-borders have turned pure white. *Inachis io* L., the Peacock, is found in gardens and woods all over the country from the end of July and again in spring, common and one of our most beautiful butterflies. The last and commonest of our Vanessinæ is *Aglais urticae* L. which may turn out to be conspecific with *A. milberti*. At any rate the Japanese subspecies, *connexa* Btl., seems to constitute a link between the two.

14 Satyridæ have been recorded, but 5 of them are not resident: *Pararge achine* Scop. (Sweden, central and southern Europe), *P. mæra* L. (the same), *Melanargia galathea* L. (central Europe), *Erebia ligea* L. (Sweden, the Alps), and *Pyronia tithonus* L. (central and southern Europe). Residents are *Pararge aegeria* L., very common in woods in May-June and August, but 50 years ago one of our scarcest butterflies. *P. megera* L. is rather common on sandy soil in May-June and August. *Cænonympha hero* L. resembles *C. haydeni*; it is only found in two small areas in Seeland from the end of May through June, but often common and very numerous, while *C. arcania* L. is confined to 3 small oak-woods in Jutland where it is, however, common in June and July. The *Cænonympha* most frequently met with is *C. pamphila* L. which has the appearance of a small *C. inornata* and is found everywhere in two broods from May to September. *C. tullia* is well distributed but seldom very numerous in meadows and recorded from most parts of the country, but it is very local and not always easy to find. Our form is hard to distinguish from the North American ssp. *nipisiquit*. One brood in June and July. Very common in the vicinity of woods all over the country in July and August is *Aphantopus hyperanthus* L. which bears a certain resemblance to the *Cænonympha*, espe-

cially *C. haydeni*, and equally common in the open grass country is *Maniola jurtina* L., rather similar to the *olympus*-form of *Cercyonis pegala*. It is found in July and August all over the country. The last of our Satyridæ, a common species but only on sandy soil, is *Hipparchia semele* L., with one brood in July and August.

The principally South-American family Riodinidæ is represented in Europe by one sole species found in Denmark too: *Hamearis lucina* L., which closely resembles a small *Melitæa*. This species is extremely local and in Denmark confined to one small wood in central Seeland. As the wood, however, is privately owned and not open to visitors at all there are good possibilities for the species to survive.

Among the Lycænidæ we have 6 representatives of the Coppers, Lycænini, one of which, the purple Copper *Heodes alciphron* Rott. is not resident and has only been recorded twice. Another species is well-known from the U.S.: *Lycæna phlæas* L., common here all through the summer. *Heodes virgaurea* L. whose ♂ is clear golden with narrow black borders and whose ♀ resembles the ♀ of *L. belloides* very much, is rather common on meager soil all over the country with the exception of the island of Funen; one brood in July and August. *H. iityrus* Poda is smaller and colored much as *L. xanthoides dione*. This species is only known from the islands but there often numerous in May and July-August. Our biggest prize is *Thersamonia dispar* Hw. ssp. *rutilus* W., just as big as a very big *L. thoe* and uniformly golden red with a bit of black borders. It was not discovered in Denmark until 1934 but is still to be found in small numbers in the sole locality in the island of Falster in June and July. Our locality represents the northern limit of the species in Europe. The last Lycænini is *Palæochrysophanus hippothoe* L., as big as *dione* but with the purple hue of *L. dorcas*. Once a very common species in moors, today it is growing scarce and possibly heading for extinction, due to the drainage. One brood in June and July.

The second tribe, Polyommagini, has 11 members in Denmark, one of which, *Lycænopsis argiolus* L. is found in the U.S. too. *L. argiolus* is found in moors in many parts of the country but never numerous, in May and June, sometimes a single specimen in August too, belonging to a partial second brood. The small brown *Cupido minimus* Fuessl. is locally distributed but often numerous from May to August, probably in two broods. We have two big *Maculinea*, *M. arion* L. in many places on sandy soil in July and August, but rather rare, and the very similar *M. alcon* Schiff. in northern and southern Jutland but not in any of the islands. *M. alcon* is flying at the same time as *arion*, but seems to be more numerous. *Lycæides idas* L. and *Plebeius argus* L. are very easy to confound and both rather common on meager soil in July and August in all parts of the country; they bear great resemblance to *P. melissa*. The dark-brown *Aricia agestis* Schiff. with the orange upper-side lunules is locally distributed all over the country in May-June and July-August and often numerous, while *Cyaniris semiargus* Rott. is only common in Jutland but much more local and scarce in the islands in June. Our commonest Blue is *Polyommatus icarus* Rott. in May-June and July-August everywhere in the country. A rare and very local species is *Vacciniina optilete*

Knoch, found only in a few moors with quagmire in different parts of the country in July; it has a nice purple color. The icy bluish *Lysandra amanda* Schn. is one of our biggest species, locally distributed and moderately common in most parts of the country with the exception of Bornholm. One brood in July.

The subfamily Theclinae has 6 members from 3 genera. *Thecla quercus* L. is distributed with the oak all over the country in July and August, but seldom very numerous, while *T. betulæ* L. follows the sloe and flies in August and first half of September. Our 3 *Strymonidia* species are very closely allied to and similar to American *Strymon*. *S. ilicis* Esp. and *S. pruni* L. are rare and very locally distributed in July. *S. ilicis* is found in a few places in Jutland and one in Falster, while *pruni* has been recorded from central and southern Seeland and Lolland-Falster. Wider distribution and greater frequency characterize *S. w-album* Knoch, in July and August. A single *Callophrys* finishes the series: *C. rubi* L., dark brown above and shining green below, locally distributed all over the country with the exception of Bornholm in May and June, often very numerous.

The family Hesperiidæ comprises 11 species, some of which are very common and others extremely rare. We have one *Erynnis: tages* L., fairly common all over the country in May and June, not yet recorded from Bornholm. 3 *Pyrgus*: the common *malvæ* L., found in most parts of the country in May and June, the hardly Danish *serratulæ* Rbr. with only two specimens recorded in 1908-09, and the locally distributed *armoricanus* Obth., flying along the northwestern coast of Seeland and all over Bornholm in May and August, but seldom numerous. 3 "new" species for Denmark are *Carterocephalus palæmon* Pall., known from North America too, 2 specimens 1954 in Bornholm, its congener *C. silvicola* Meig., discovered 1941 but now numerous in June in certain woods in Lolland, and the resident but extremely scarce *Heteropterus morpheus* Pall., caught about a dozen times since 1939 in a wood in Lolland. By far more common and wider distributed are *Adopœa lineola* Ochs., the European Skipper, known from the U.S., found all over the country in July and August, and *A. flava* Müll. which is only found west of Storebælt, i.e. in Jutland and Funen where it is just as common and widespread as *lineola*. The two species are very difficult to separate from each other and are flying together. Our sole *Hesperia* is *H. comma* L., rather common on meager soil in July and August, while the very similar and closely allied *Ochlodes venatus* Brem. & Grey prefers better soil and is more numerous in July.

This short survey gives a total of 89 butterfly species, 66 of which can be taken in July and August, if one has a car at his disposal. The author would be glad to help anybody asking for advice.