

Further investigations upon the European Trichogramminae.

By

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Trichogramma evanescens Westw.

1833 *Trichogramma evanescens* Westwood. Phil. Mag. (3) II, p. 444.

1918 " " Kryger. Entom. Meddel. XII, p. 276.

On October 15th 1918 two eggs of *Gastropacha potatoaria* were found on *Salix repens* at the fence along the road leading from the high way to the ruins of As-serbo. The eggs were hibernated in a cold room and nothing was done to urge the breeding. On May 31st 1919 and the following days were from both eggs bred together 34 specimens of *Trichogramma evanescens* viz 32 ♀♀ and 2 ♂♂, all specimens winged. It will appear that the breeding of the Trichogrammas took place just in due time to enable these to find the eggs of *Sialis* on the waterplants in the neighbouring ditches. It has thus been ascertained that I was right in my supposition formerly set forth, that *Trichogramma* hibernates in the eggs of the host. Whether it is as larva, which I consider to be the most likely to believe, or as pupa must be left to future to ascertain. *Gastropacha potatoaria* may be found abundantly along the rivulet in Bidstrup fen near Roskilde, at which place I have found the largest number of *Sialis*-eggs with parasites.

On July 27th a number of eggs of a harvest-man were found under bark of an old trunk in Fortunens Indelukke. The eggs were inclosed in a tube and some *Tricho-*

gramma evanescens ♀♀ were put to them. These females however would by no means attack the eggs of the harvest-man. The reason might of course be that these females were perhaps not fecundated, but I got that particular apprehension, that the reason was the unwillingness of the wasps, because these eggs did in no way whatever affect the sense-organs on their antennae. I have in the process of years made numerous experiments with *Trichogramma*, but in no case did I encounter such a decided indifference on the part of the wasp as in the present case.

On August 16th 1918 a portion of eggs of *Crocallis elinguaris* was found on grass in Hareskoven; this portion was divided in two parts, each of which was kept in a separate tube; to one of the portions was put a female of *Trichogramma*, which at once began to lay its eggs. Both tubes were then hibernated in a room which was constantly warmed. Early in April 1919 moth-larvas were bred of all the eggs and at the same time from both portions. As it thus appears it had not had the slightest influence on the one half of the eggs that they had been attacked by the *Trichogrammas*.

On July 27th 1919 a bunch of unknown eggs was found on *Glyceria* in the ditch in Skovrøddam in Rudehegn. On July 28th a number of females of *Trichogramma* was captured on the ground in Fortunens Indelukké. The latter locality is so far distant from water, that there can have been no connection with *Sialis*. Some of these females were put to the eggs from Skovrøddam and began at once to attack them. After a few days a *Geometra*-larva was bred from part of the eggs, which larva I have not succeeded in getting determined. The remainder of the eggs remained temporarily unbred. From Septbr. 1st to 4th 1919 about 200 *Trichogramma* were bred from these eggs; most of them were winged and only very few were wingless. This experiment shows that eggs which are exposed to be attacked from the ty-

pical parasite on *Sialis* eggs are easily attacked by specimens captured distantly from water.

On June 4th 1919 a number of eggs of *Vanessa polychloros* was found on *Salix* next to the bridge in Ermelunden. Most of the eggs were already bred and the larvas just elapsed sat close to the eggs. A few eggs were however not yet bred and turned out to be attacked by *Trichogramma*. The wasps were bred on June 10th 1919.

Centrobia Förster.

1856 *Centrobia* Förster. Hym. Stud. II, 1956, p. 87.

1918 " Kryger. Entom. Meddel. XII, p. 287.

In my formerly issued paper (1918) I am writing that genus *Centrobia* seems not to have been refound since Förster described it in 1851.

There was however in the same year (1918) published an essay by Silvestri in Boll. del Lab. di Zool. gen. e agrar. d. R. Scuola sup. di Agricolt. in Portici vol. XII p. 245. This essay was however quite unknown to me when my paper was completed in printing towards the end of 1918; the volume of Boll. in question had owing to war not yet arrived here, which will account for my having not paid regard to the said essay.

Silvestri reports that for some time he has been studying the insects on oak (*Quercus robur*) and hazel (*Corylus avellana*) and that while devoting himself to these studies he succeeded in breeding some species of the genus *Centrobia*. One of these species he describes as *Centrobia Walkeri* Förster, but moreover he describes a variety of *Walkeri*, viz *var. minor* n. var. The drawings and the descriptions show that it is a good typical *Centrobia* which Silvestri has had before him. However I cannot agree to his opinion that the species should be *Centrobia Walkeri*; it must absolutely be a new species.

Its enormous ovipositor exceeds anything that I have seen at these small insects. Förster writes: „langen und starken Legebohrer“, „der fast die ganze Körperlänge erreicht“; these words I consider will have reference to the whole ovipositor and not to the part protruding from the apex of abdomen. The name therefore in my opinion ought to be altered and I propose to name it **Centrobia Silvestrii** after its discoverer.

To Silvestri's other species *Centrobia similis* I have nothing to remark.

The Genus *Centrobia* thus embodies 4 European species and one variety which may be distinguished by the following characters:

1. Stigma absent *C. Försteri* Kryger.
Stigma present 2.
2. The visible part of ovipositor beyond apex of abdomen longer than half the length of the body 3.
The visible part of ovipositor beyond apex of abdomen shorter than half the length of the body 4.
3. The visible part of ovipositor almost equal to the total length of the body; the whole ovipositor $1\frac{1}{2}$ times the length of the body *C. Silvestrii* n. n.
The visible part of ovipositor almost $\frac{2}{3}$ of the whole length of the body; the whole ovipositor slightly longer than the length of the body *C. Silvestrii. var. minor* Silv.
4. The visible part of ovipositor more than $\frac{1}{4}$ of the whole length of the body; the whole ovipositor a little shorter than the body *C. similis* Silv.
The visible part of ovipositor equal $\frac{1}{2}$ of the total length of the body; the whole ovipositor a little longer than the body
C. Walkeri Förster.

1. **C. Försteri** Kryger.

1918 *Centrobia Försteri* Kryger. Entom. Meddel. XII, p. 291.

Description and drawings see Kryger l. c.

2. **C. Silvestrii** nom. nov.

1918 *Centrobia Walkeri* Silvestri Boll. Lab. Zool. gen. agrar. Sc. Agric. Portici XII, p. 249.

Female chestnutbrown, the upper part of the head,

the median part of the thorax in extension equal to the breadth of the scutellum (except the front part of scutellum which is chestnutbrown), the ascelli and the front part of the abdominal segments rustcoloured or ochreous; Antennae reddish yellow, darker beneath; wings hyaline with brown veins, legs chestnut coloured with apex of femorae, base and apex of tibiae and the 2 first joints of tarsi rust-coloured, 3rd joint and pretarsus more or less dark.

Length of the body (without ovipositor) 1 mm.

Length of ovipositor, visible part 0,8 mm.

Total length of ovipositor 1,56 mm.

The male resembles the female also with regard to the colour. The other characteristics are seen on Silvestri's drawings. The aedeagus is produced 0,13 mm beyond the apex of abdomen.

Bred on May 1st to 23rd from oak twigs (*Quercus robur*) cut off the preceding autumn. The wasp may have been parasitic on eggs of some Hemiptera which has laid its eggs in the wood of the tree.

2a. *C. Silvestrii* var. *minor* Silv.

1918 *Centrobia Walkeri* var. *minor* Silvestri. Boll. Lab. Zool. gen. agrar. Sc. Agric. Portici XII, p. 250.

Among the typical *Silvestrii*-specimen which Silvestri bred from oak twigs there were several specimens of a *Centrobia* agreeing with the main species except as to the size which was perceptibly smaller:

Total length of the body 0.65 mm.

Length of ovipositor, visible part 0.40 mm.

Total length of ovipositor 0,78 mm.

As Silvestri did not find sizes between this form and the main species he is of the opinion that it is a special variety.

3. *C. similis* Silv.

1918 *Centrobia similis* Silvestri. Boll. Lab. Zool. gen. agrar. Sc. Agric. Portici XII, p. 250.

Female: Colour more or less bright reddish yellow, anterior part of 3rd to 6th abdominal segments chestnut-brown, antennae and legs reddish yellow, wings hyaline with chestnut-brown veins.

Length of the body 0,90 mm.

Length of ovipositor, visible part 0.26 mm.

Total length of ovipositor 0.78 mm.

Male like female. Aedeagus is produced to an extent of 0.13 mm (refer besides to Silvestri's drawings).

This species is easily distinguished from *C. Silvestrii* in colour, in comparatively greater length of 2nd subanellus, in large width of stigma, in the length of the visible part of the ovipositor which is produced to an extent of $\frac{1}{3}$ of its total length, whereas in *C. Silvestrii* it is always produced at least to an extent of half part of its total length.

Bred from hazel in May. Is also probably parasitic on eggs of Hemiptera.

4. *C. Walkeri* Förster.

1856 *Centrobia Walkeri* Förster. Hym. Stud. II, p. 87.

1918 *Centrobia Walkeri* Kryger. Entom. Meddel. XII, p. 289.

Description and drawings see Kryger l. c.

Oligosita Engelharti Kryger.

1918 *Oligosita Engelharti* Kryger. Entom. Meddel. XII p. 327.

On July 23rd 1919 a female of this species was found in Dyrehaven; of the species was formerly only known one specimen, also a female, captured in Vestergade in Copenhagen. The fact of the former capture being made at the glade next to Fortunen in Dyrehaven, indicates the correctness of my supposition, formerly expressed, that the capturing of this species at Copenhagen being accidental.

Brachista nigra Kryger.

1918 *Brachista nigra* Kryger. Entom. Meddel. XII, p. 335.

For this species, which was described by me, the date of capture is stated to be 26th and 27th August; this is however a misprint, the correct date is 26th and 27th July.

Gentofte, $\frac{5}{6}$ 1920.