

## Termatophylidea opaca Carvalho, a predator of thrips (Hem. - Het.)

by

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During investigations in 1960 on the cocoa thrips *Selenothrips rubrocinctus* (Giard) in Suriname, my attention was drawn to a small mirid and its nymphs, living on the underside of the cocoa leaves. This insect that I recognised to be *Termtophylidea opaca* Carvalho 1955, proved to be predaceous on the cocoa thrips. The egg and the nymphs are described and figured and some biological details are added. The male is still unknown.

The hitherto only known specimen of this species, the holotype in the United States National Museum collection (No. 61949), is in rather poor condition and is somewhat mutilated. Therefore some descriptive remarks are given here in addition to the original description and a figure based on a fresh specimen is included below. All measurements are given in mm.

### TAXONOMY AND DESCRIPTIVE NOTES

The species *Termtophylidea opaca* (fig. 1) shows the following characters which assign it to subfamily, tribe and genus respectively (CARVALHO 1955a):

- a. Tarsal arolia and pseudarolia absent; claws thickened or toothed at their base ..... Deraeocorinae, Douglas & Scott, 1895.
- b. Head elongate, pointed, nearly as long as the pronotum; antennae relatively short ..... Termtophylini Reuter 1884.
- c. First antennal segment reaching beyond the apex of the head; hemelytra more or less hyaline; eyes large but not very prominent, set close to pronotum but still distinctly separate from it; head with long erect pubescence ..... *Termtophylidea* Reuter & Poppius, 1912.

**Diagnostic characters.** Colour: various shades of chamois with red eyes and red markings on the sides of head, first antennal segment, thorax and abdomen; scutellum plain; hemelytra with dark spots at the base of the hairs; membrane with a well-marked red spot at the end of the membranal vein; legs hyaline.

**Characters, additional to original description.** Apex of second antennal segment suffused with red, segments II and III almost hyaline; disc of pronotum with many white somewhat elevated spots from which the hairs arise apically; scutellum light yellow with a narrow brown border; mesosternum and internal angle of cuneus brown; metasternal scent gland orifices white; sides and apex of scutellum as well as the clavi, except for their darker central parts, silvery pubescent; third and fourth antennal segments as long as first, the second one a little more than twice this length. Ovipositor (fig. 2) curved and laterally compressed; first gonapophyses very slender, not fused with each other, very finely serrate along the dorsal edges; second gonapophyses fused together dorsally along the proximal third of their length, each with a row of rounded teeth dorsally near its apex.

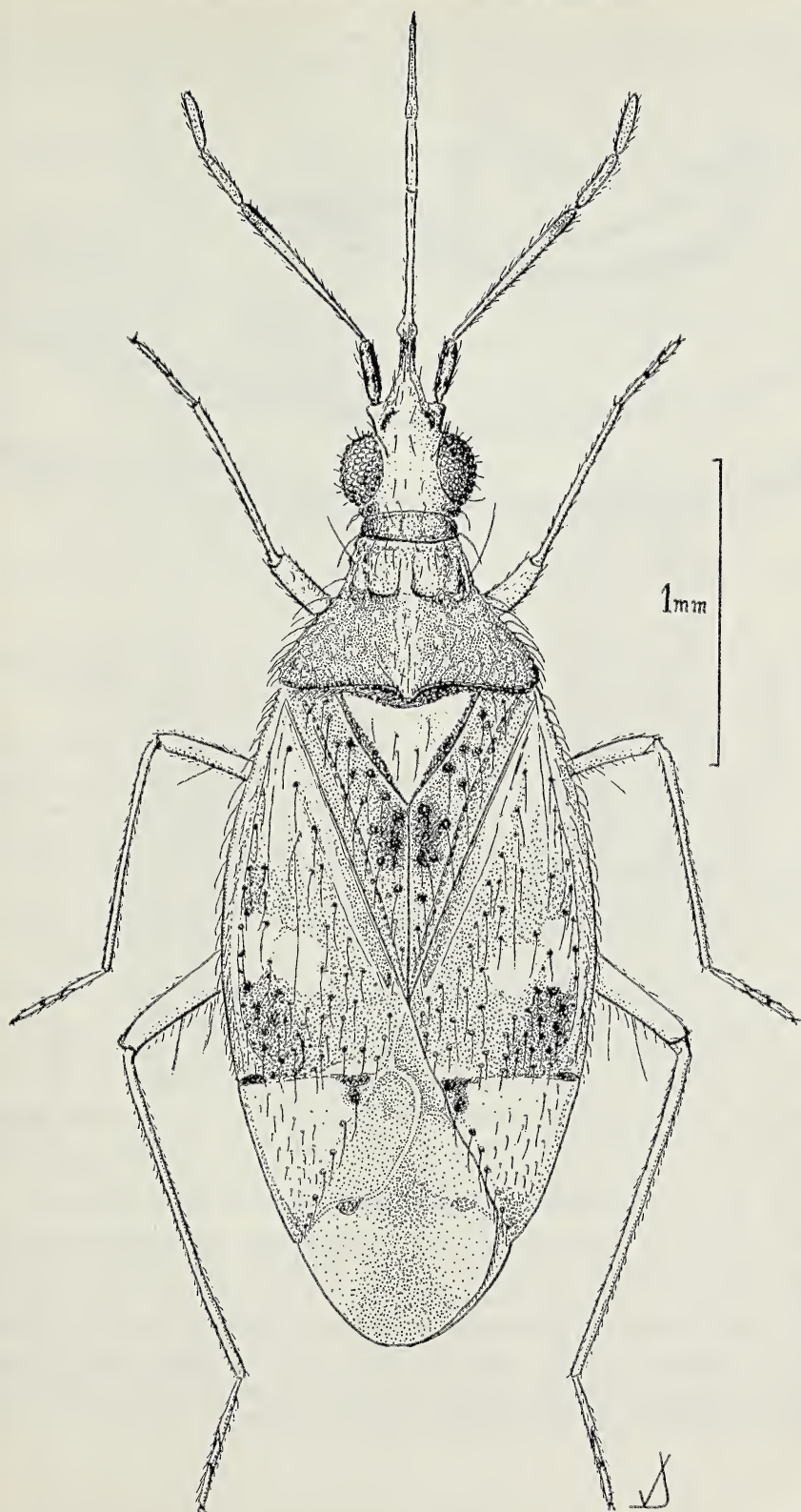


Fig. 1. *Teratophyllidea opaca* Carvalho ♀.

**Measurements.** Overall length based on ten dried mounted female specimens: 3.18—3.30, mean 3.24. The same taken from ten female specimens in

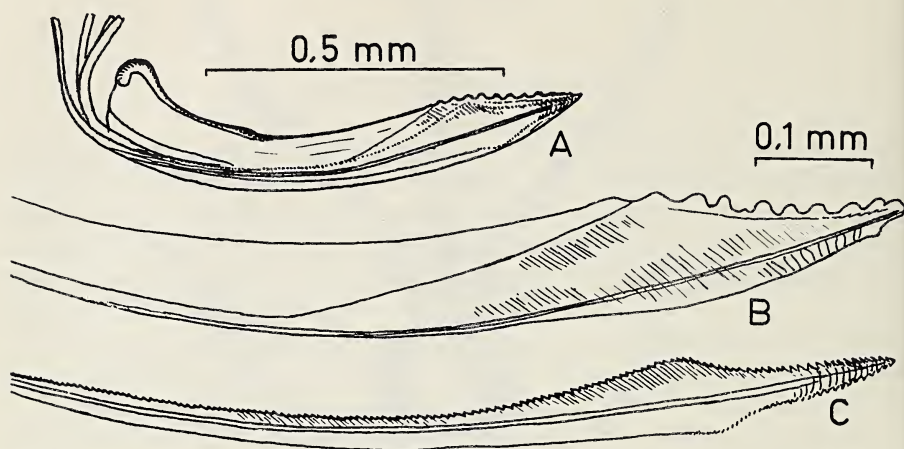


Fig. 2. Ovipositor of *Termatophylidea opaca* Carvalho. A: Lateral view. B: Second gonapophysis. C: First gonapophysis.

70% alcohol: 3.10—3.25 with a mean of 3.16. Width of head across the eyes based on the whole series: 0.44—0.45. Antennal segments: I: 0.24, II: 0.60, III: 0.25, IV: 0.25. Rostral segments. I: 0.13, II: 0.46, III: 0.20, IV: 0.33.

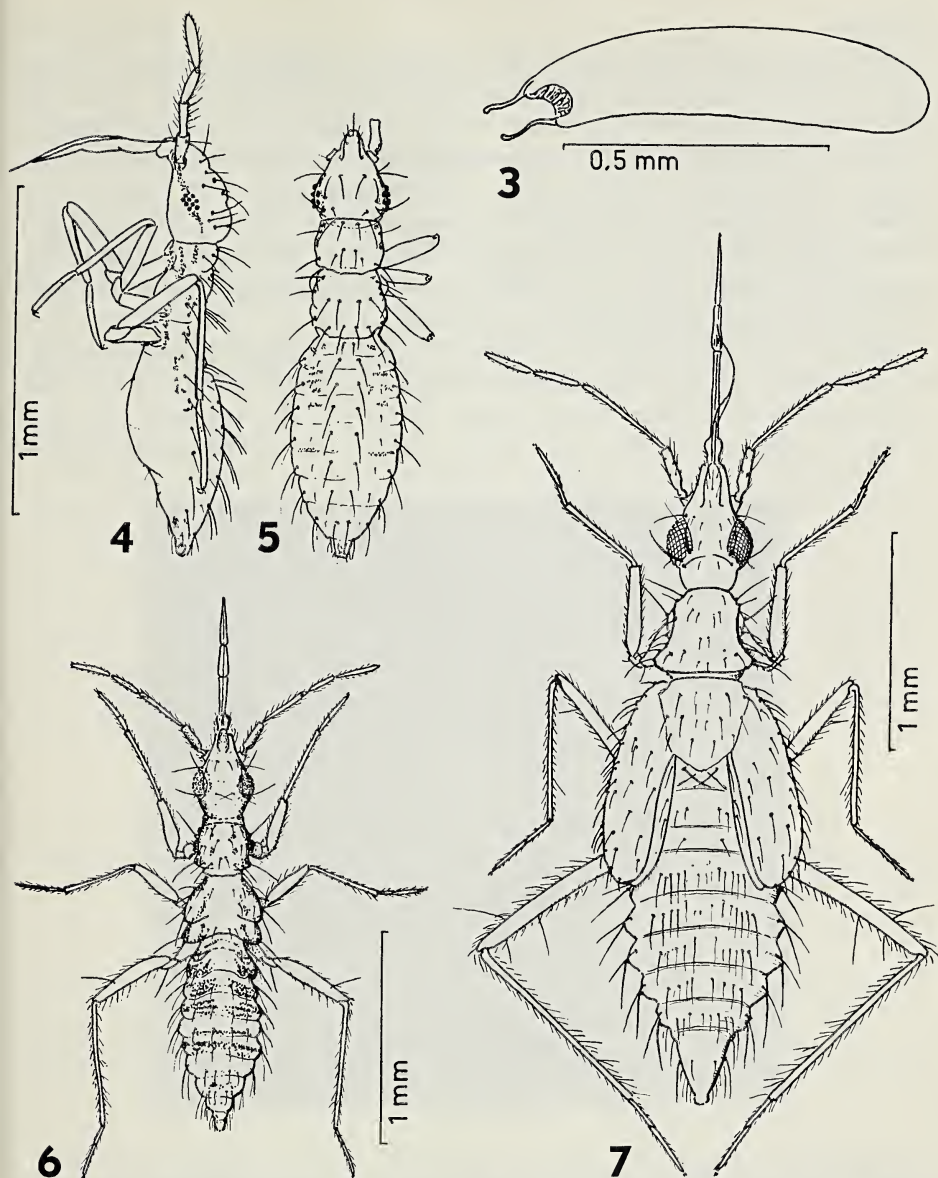
**Egg** (fig. 3). Eggs were obtained from the abdomen of a gravid female preserved in alcohol. There were nine eggs in various stages of maturation, ranging from a shapeless lump of yolk to well-formed mature eggs, coloured from red to pale yellow respectively. The most mature eggs on both sides were those most lateral in the abdomen; in this specimen they were already descending.

These eggs are long, slightly recurved, cylindrical, structures provided apically with two slender and curved processes. Measurements (not included the processes):  $0.75 \times 0.15$ .

**Nymphs** (figs. 4—7). First instar: whitishly translucent with a few scattered red markings at the base of the first antennal segment, on the sides of the head and the dorso-lateral parts of the thoracic and abdominal segments. Eyes, each consisting of nine ommatidia, are red. Antennae, rostrum and legs hyaline. Body slender and with long erect setae dorsally. Head egg-shaped; first antennal segment reaching beyond the apex of the head. Pronotum nearly cylindrical, wider than long.

The later instars become increasingly more whitish cream in colour; the red spots on the body increase rapidly in size and number, giving the last instars a more pinkish appearance. Antennae, rostrum and legs remain hyaline. In the last instars the pronotum is constricted anteriorly and its sides concavely sinuated. At the fourth instar brown spots appear at the base of the long bristles on the sides of the pronotum and on the wing buds; in the third instar these spots accompany only the distal-most setae on each wing bud. At the time of ecdysis to fifth instar, the postero-lateral seta on each hind wing bud is lost.





*Termatophylidea opaca* Carvalho: fig. 3: egg; fig. 4: first instar, lateral view; fig. 5: idem, dorsal view; fig. 6: third instar; fig. 7: fifth instar.

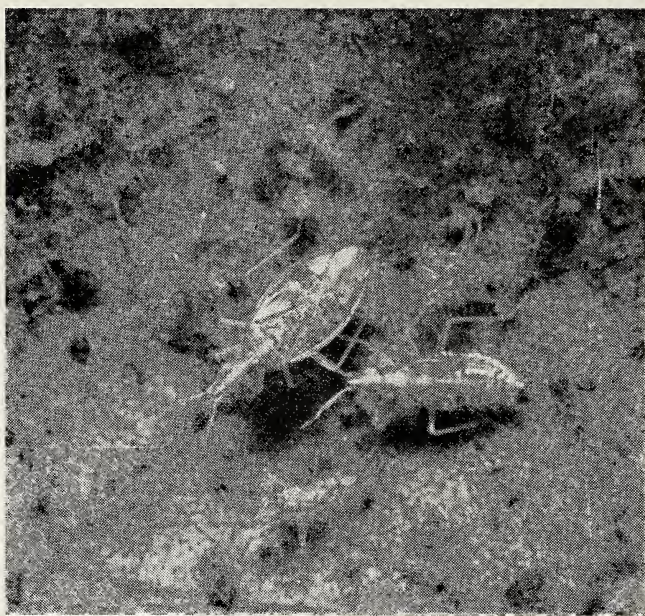
Measurements based on alcohol material:

Instar	I	II	III	IV	V	Adult
length	1.25	—	1.94	2.22	2.96	3.16
width	0.25	0.32	0.38	0.62	0.90	1.25
head width incl. eyes	0.22	0.26	0.30	0.35	0.41	0.45
width pronotum	0.20	0.23	0.26	0.35	0.46	0.56
length pronotum	0.15	0.17	0.20	0.27	0.39	0.36

## BIOLOGY

The mirids were found only on the undersides of mature cocoa leaves, mostly in the thrips colonies or in their immediate vicinity. A noteworthy feature was that the spot often was covered with a fine web, sometimes making the mirids difficult to detect. I presume that the thrips, and therefore their predators too, prefer a sheltered microhabitat, perhaps one formerly occupied by small spiders. Adults and nymphs are often found together (fig. 8) but sometimes the latter occur gregariously on the undersides of the leaves; by reason of their light colour, they are more likely to draw the attention of the investigator than do the more dirty-yellow adults, which anyway are less active.

Because I found only females in the field, I tried to get males by rearing nymphs in the laboratory, using Petri-dishes to contain the pieces of cocoa leaves with colonies of thrips and some mirid nymphs. In this way they may easily be reared. They may also be observed while feeding on the nymphal thrips; adult thrips



were not predated. When a mirid, in search of a prey finds a thrips nymph, it puts out its rostrum and punctures the thrips. The victim, trying to free itself by running away, is simply pulled up from its substrate by the mirid and suspended struggling on the tip of the beak. Sucking out the prey lasts for about ten to fifteen minutes. Every two or three days new leaves with thrips colonies must be placed in the culture. In this way I succeeded in obtaining about thirty adults from nymphs of various stages, but all of them turned out to be females.

Using this same culture method, some gravid females caught in the field, were kept in captivity in order to observe their oviposition. These specimens however suffered an untimely death and no eggs were found afterwards in or on the leaves.



## CONCLUSIONS

The remarkable absence of males is suggestive of parthenogenesis, but more detailed observations and experiments are needed to confirm this supposition. Also observations are too scanty for any estimation of the possible importance of this predator for the control of the cocoa thrips pest. The very low population density of *Termtophylidea* in the groves rather counts against the likelihood of any great importance. On the other hand the number of the thrips nymphs that they consume individually is considerable and a small colony can be wiped out by a single mirid. Another noteworthy fact is that in the "Geijersvlijt" grove, where the cocoa was regularly sprayed with dieldrin, I found this bug more frequent than elsewhere. A more detailed investigation seems worthwhile to learn more about *Termtophylidea* as a predator of the noxious cocoa thrips.

## ACKNOWLEDGEMENTS

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## Literature

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*Spilosoma lubricipeda* L. (Lep., Arctiidae). Ik mag nu wel als bekend veronderstellen, dat met deze naam de witte soort bedoeld wordt en niet de gele, zoals we sinds de dagen van ESPER gewend geweest zijn. Hiervoor zijn twee redenen: LINNAEUS beschouwde de witte soort als de soort en de gele als een aberratie ervan (op gezag van DE GEER) en zijn exemplaar in de collectie te Londen is eveneens de witte. Nu weet ik wel, dat vooral het laatste argument niet voor iedereen even zwaar telt. Maar elk spoor van twijfel verdwijnt, als we lezen wat LINNAEUS zegt van zijn *Phalaena Noctua leporina*: „*Similis Pb. lubricipeda, sed alae paucioribus punctis adspersae & corpus album, nec flavum, nec Abdomen nigro punctatum*” (Syst. Nat., ed. X, p. 511, 1758). („Gelijkend op *Pb. lubricipeda*, maar” enz.) Had ESPER dat ook maar even gelezen! Dan had hij er geen ogenblik over gedacht de witte als een nieuwe soort te beschrijven en hadden wij niet de mogelijkheid gehad van het verspringen van de naam van de ene soort op de andere. — LPK.