News on insects considered as spider commensals and their hosts

by André Lopez

Various insects, mainly tropical, are known to be commensals of spiders. They inhabit the webs and even, on occasions, rest on the very body of their hosts.

Among such insects, the most frequently found are Diptera and Hemiptera. During the last five years, I have had the opportunity to observe and collect four different species associated with Araneae. One of them – a bug – is new to Science.

Diptera

(1) On the occasion of a trip in the Seychelles islands (August 1979), I met with one case of milichiid fly commensalism towards the large *Nephila inaurata* (Walck.), a golden-web spider widespread in the archipelago. Observation occurred in Mahé, near Anse Takamaka, on the south western coast of this island. The *Nephila*, an adult female, had established its asymmetrical orb web between shrubs, under coconut trees. It was sucking dry a pentatomid bug, *Bathycoelia* sp. (*), just captured, while one tiny *Nephila* male was waiting to mate on the dorsum of its abdomen (Fig. 1: M) (**). Four very small Brachycera rested directly on the female's cephalothorax, two of them boldly sitting very close to the chelicerae and mouth parts where they were obviously dabbing up juice (Fig. 1: arrows A and B). Flying off when brushed away, they tenaciously came back (Fig. 1: arrow C) to perch on the spider again. I captured the flies (females *only*) that were identified much later as Milichiidae (*), in all probability belonging to two species: *Milichiella lacteipennis* (Loew) recognisable from its milky wings and the smaller *Milichiella tristis* Lamb., known, in fact, from the Seychelles.

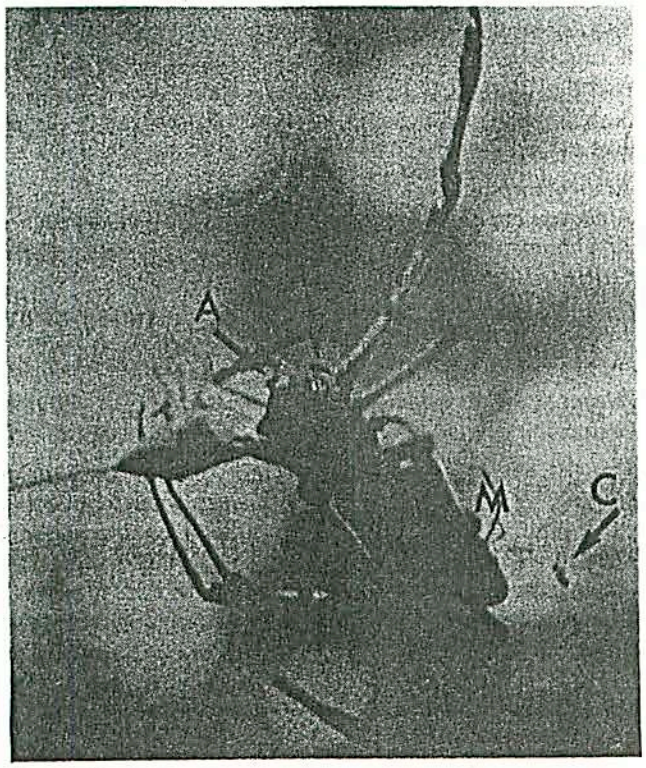

Figure 1

Such dipteran behaviour, called "dipsoparasitism" (Robinson and Robinson, 1977) has been related several times from tropical countries: it concerns either Milichiidae (genus *Desmometopa*, *Phyllomyza* and *Neophyllomyza*) or Chloropidae (genus *Oscinella* and *Conioscinella*), sharing liquid food with large orb-weavers (Levi, 1978; McMillan, 1975; Robinson and Robinson, 1977; Robinson, 1980; Sivinsky and Stowe, 1980). The interest of my observation consists in the fact that it appears to be the first instance of Diptera commensalism with spiders in this part of the Indian Ocean and also, that two different Milichiidae species were found simultaneously on the same spider host.

(2) Two summers ago, while prospecting the Minervois region (Herault, southern France), I found a dangling dead honey-bee grasped by a *Synaema globosum* (Fabr.) (Thomisidae) on a Scabious flower (Fig. 2). The bee was literally "harassed" by a swollen-bellied microbrachyceran, which took up a position either on its abdomen or on its wings (Fig. 2: arrow). Captured, it was later identified as *Desmometopa sordida* Fall.

This second case confirms what was recorded elsewhere from Europe by three observers quoted in Bristowe (1941) and Seguy (1950). However, the spiders concerned were uniformly *Misumena vatia* (Cl.) and *Thomisus onustus* Walck., while, this time, the species was *Synaema globosum*. Anyhow, as a consequence one may suppose a rather regular association between Milichiidae (*Desmometopa*) and Thomisidae in Europe.

Figure 2

Hemiptera

The Heteroptera which are the most apt to colonise spider webs as commensals are Plokiophilinae (Plokiophilidae) and Arachnocorinae (Nabidae) (China and Myers, 1929). It seems they feed on small prey killed by the spiders.

Arachnocorinae show adaptations of their tarsal claws to move along the silk threads (Fig. 3) (***). On the subject of this subfamily, in August 1983, I captured an *Arachnocoris* n.sp. during spider collecting in La Guadeloupe island (French Lesser Antilles). This Hemipteran (Fig. 4) (***) is under description by Pr. J. Carayon (Museum national d'Histoire naturelle, Paris). It differs from the six other species already known in the genus and, especially, from the West Indian *Arachnocoris berytoides* (Uhler) which inhabits Grenada island.

Figure 3

Figure 4

Arachnocoris n.sp. lives in the rain forest of Basse Terre, near the "route de la Traversée", where it colonises the composite webs of a pholcid *Modisimus* sp. (*glaucus*?). These webs are often spun in the "stalls" formed by the basal trunk buttresses of giant *Sloanea* (Tiliaceae). The bugs observed were either stationary or moving slowly beneath the dome-shaped sheath and among the tangled part of the web. Close to them, unidentified Mycetophilidae (Nematocera) were often found hanging from their front legs. *Arachnocoris* n.sp. and the probable micro-association in which it participates need further observations as regards ecology and ethology.

* Milichiids were kindly examined and identified by Dr. Curtin W. Sabrosky (Systematic Entomology Laboratory, U.S. national Museum, Washington) and the pentatomid, by his colleague, T. J. Henry.

** Photograph somewhat fuzzy on account of the strong wind.

*** Scanning electron microscope photograph by Dr. M. Emerit (Laboratoire de Zoologie, USTL, Montpellier, France)

References

Bristowe, W. S. (1941). *The Comity of Spiders.* II. The Ray Society, London.

China, W. E. and Myers, J. G. (1929). A reconsideration of classification of the Cimicoid families. *Ann.Mag.nat.Hist.* 10, 3: 97-126.

Levi, H. W. (1978). Orb-Weaving Spiders and their Webs. *Amer. Scient.* 66 (6): 734-742.

McMillan, R. P. (1975). Observations of flier[illegible]

Robinson, M. H. and Robinson, B. (1977). Associations between Flies and Spiders: Biblocommensalism and Dipsoparasitism? *Psyche* 84 (2): 150-157.

Robinson, M. H. (1980). The ecology and behaviour of tropical spiders. *Proc.8th Intern.Cong.Arachnol., Vienna*: 13-32.

Seguy, E. (1950). La Biologie des Diptères. *Encycl.entom.*, XXVI, Lechevalier edit., Paris.

Sivinski, J. and Stowe, M. (1980). A kleptoparasitic Cecidomyiid and other flies associated with spiders. *Psyche* 87 (3-4): 337-348.

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British Fossil Spiders

by Paul A. Selden

Where in Britain would you go to find indigenous liphistiomorph spiders? To the site of the nearest rain forest; there are none here now of course, but there used to be–300 million years ago! At that time the area we now call Britain lay near the equator and much of the region was covered with lush equatorial vegetation. One locality in particular has produced a number of arachnid fossils from the Carboniferous period: a brick pit at Coseley, near Dudley in the West Midlands. Though now a corporation rubbish tip (a fate which befalls many fine localities, for fossil or living animals), amateur collectors in the last century found five specimens which have been referred to the Araneida. The complete list of British fossil spiders is given below (see Petrunkevitch 1953, 1955, for details).

Liphistiomorphae

Eoctenlza silvicola Pocock, 1 specimen, Carboniferous, Coseley.

Protocteniza britannica Petrunkevitch, 1 spec., Carb., Coseley.

Mygalomorphae

Eoatypus woodwardii McCook, 1 spec., Palaeogene, Isle of Wight.

Immature mygalomorph, 1 spec., Palaeogene, Isle of Wight (Jarzembowski 1976).

Araneomorphae

Archaeometa nephilina Pocock, 2 specs, Carb., Coseley.

Arachnometa tuberculata Petrunkevitch, 1 spec., Carb., Coseley.

Dinopilio parvus Petrunkevitch, 1 spec., Carb., Canterbury.

Araneida incertae sedis

Palaeocteniza crassipes Hirst, 1 spec., Devonian, Rhynie, Grampian.

This list might seem like the record of a bad day's spider hunting: 9 specimens (including one, though probably more, immature) and 7 species, rather than the hundred years return it represents. Moreover, whilst their classification appears sound, when the actual fossils are examined, it soon becomes apparent that it is based on general appearance rather than formal characters, in most cases. For example, spinnerets are not known in any of these specimens, so some may not be spiders at all!

If it really is a spider, *Palaeocteniza crassipes* would be the oldest known, at about 380 million years. Of the five Carboniferous species, two are liphistiomorphs; the other three, though classified as araneomorph by Petrunkevitch (1953), are somewhat dubiously placed therein[illegible]