

## Remarks concerning Clubionidae

P. J. van Helsdingen

Rijksmuseum van Natuurlijke Historie,  
Leiden, Netherlands

### Introduction

During a recent faunistic study of the Clubionidae of the Netherlands, the results of which are published elsewhere, I made the following observations which may be of taxonomic importance or serve as an aid for identification.

### Genus *Cheiracanthium*

Of the four species of *Cheiracanthium* reported from the Netherlands (*erraticum* (Walckenaer), *pennyi* O. P.-Cambridge, *punctorium* (Villers) and *virescens* (Sundevall)) only three can be maintained with certainty. *C. punctorium* (Villers) was recorded (as *C. nutrix* Walckenaer) by several authors in the second half of the 19th century, but there is no material left. Since the material of *C. nutrix* in the collection of Van Hasselt, from the subsequent period and well preserved in the Rijksmuseum van Natuurlijke Historie at Leiden, appears to belong to *C. virescens* and *C. erraticum*, it is not unlikely that the other Dutch records of *nutrix* also referred to one of these species. In the past the name *nutrix* has been used for *punctorium* as well as for *erraticum*. The only more recent Dutch record of *punctorium* by Chrysanthus (1961) proved to be a misidentification of a specimen of *C. virescens*.

Of the other species recorded from the Netherlands, *C. pennyi* is most easily distinguished by the genital characters. It has been found on two occasions only, was recorded by Van Hasselt and has not been collected since. The remaining two species, *C. erraticum* (Walckenaer) and *C. virescens* (Sundevall), are more common and slightly less easily distinguished, especially the females. They differ in details of their genitalia, such as the shape of the cymbium and of the tibial spur, and the number of coils of the duct in the vulva, which can usually be seen beneath the cuticle (e.g. Tullgren, 1946: Pl. 6, fig. 69). Moreover *erraticum* has a median dorsal stripe on the abdomen, but this tends to become obscure in preserved speci-

mens. In collections one finds many misidentified specimens, demonstrating that identification is difficult. It now appears that an additional character can be found in the lengths of the legs. The absolute lengths are not much different, showing distinct overlap, but if one plots the length of one segment, e.g. tibia I, against a body measurement, e.g. the width of the cephalothorax (Fig. 1), the existence of two species is clearly demonstrated. Hardly without exceptions the above ratios are scattered around regression lines that are different for ♂ and ♀ of the same species (males have proportionally longer legs), but also for the same sex of the different species. Thus the legs of *erraticum* ♀ are proportionally longer than those of *virescens* ♀, which allows us to use this character as an extra means of identification.

### *Clubiona frutetorum* L. Koch

Comparing our Dutch specimens with Wiehle's (1965: fig. 54) illustrations in his treatment of the genus *Clubiona*, I found our specimens to deviate from his fig. 54 (see also Fig. 3 in the present paper) in respect to the palpal tibial apophysis. In our specimens the ventro-lateral apophysis suddenly widens before the smoothly rounded tip (Fig. 2) giving it more or less the shape of a hatchet, while in Wiehle's figure this apophysis widens more gradually, and the tip is more obliquely truncated. The shape of the apophysis to some degree depends on the angle of vision, but the different shapes observed cannot completely be attributed to this. I would not have bothered about this difference in detail if Tullgren's figure (1946: Pl. 3, fig. 36) had not agreed in this respect with that of Wiehle. In my experience Tullgren's illustrations are extremely accurate and we may safely assume that the apophysis in his specimens was shaped as depicted by him. From inspection of other available illustrations of the male palp of *C. frutetorum* it appears that some show the gradually widening type of apophysis, e.g. L. Koch (1867: Pl. 14, fig. 225), Menge (1873: Pl. 62, fig. 203), Roewer (1928: Pl. 5, fig. 351) and Palmgren (1943: fig. 53). The photograph by Kekenbosch (1956: Pl. 1, fig. C) does not show enough detail for this purpose, but others describe or depict the hatchet-shaped type, e.g. Chyzer & Kulczyński (1897: Pl. 9, fig. 28), Bösenberg (1903: Pl. 26, fig.

410 C)<sup>1</sup> and Simon (1932: 913, fig. 1386), and possibly de Lessert (1910: 402). In Dutch specimens so far only the hatchet-shaped type has been found, but apparently the character shows variation when its whole range is considered.

*Clubiona genevensis* L. Koch

The only record of *Clubiona vegeta* Simon for the Netherlands (Van Heerdt & Mörzer Bruyns, 1960) proved to be erroneous and to refer to *C. genevensis* L. Koch. This is not surprising since *C. genevensis* occurs from as far north as southern Sweden, Germany and the British Isles, while *C. vegeta* is more restricted to the south and occurs in southern Switzerland, central and southern France and the Mediterranean Region. However, if one uses *Les Arachnides de France* of Simon (vol. 6, part 4, 1932), Dutch specimens often key out to *C. vegeta* on the basis of the chaetotaxy. Simon separates the males of *vegeta* and *genevensis* (and *leucaspis* Simon) with the

aid of the ventral<sup>2</sup> spines on tibia I, there being a single pro-ventral spine in the apical half in *vegeta*, but a pair of ventral spines in *genevensis*. However, Simon appears to have realized that this character was unreliable, because in a footnote he added that it did not hold with absolute certainty for *decora*: Bertkau, 1880 (non Blackwall) (= *genevensis*), where small specimens often possessed a single ventral spine only. Equally our females of *genevensis* more often than not bear no ventral spines on metatarsi I, according to Simon the condition in *vegeta*.

If one uses the other characters listed by Simon, viz., the shape and coloration of the male chelicerae and the abdominal pattern, it is quite clear that the Dutch specimens belong to *genevensis*, though the separation of the females is not always easy in light specimens with faint abdominal patterns. The genital characters can be helpful, but one has to be very careful. The lateral apophysis of the male palpal tibia can be used to distinguish between *genevensis* and

<sup>1</sup> It is quite obvious that figs. 410C and D on Pl. 26 in Bösenberg's *Spinnen Deutschlands* (1901-1903) represent *Clubiona frutetorum* and should have been incorporated with fig. 406.

<sup>2</sup> In reality he writes 'en dessus' (p. 925, couplet 10, first paragraph), as opposed to 'en dessous' in the second paragraph of the same couplet; since there are no dorsal spines present on tibia I in these species, I consider 'en dessus' a misprint for 'en dessous'.

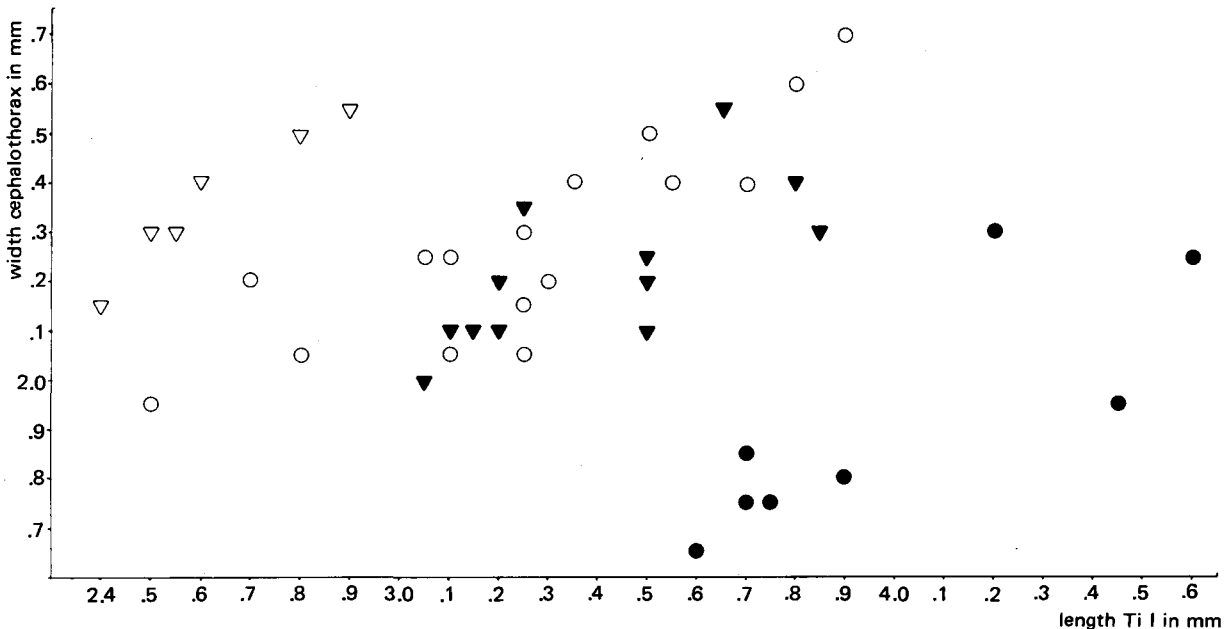
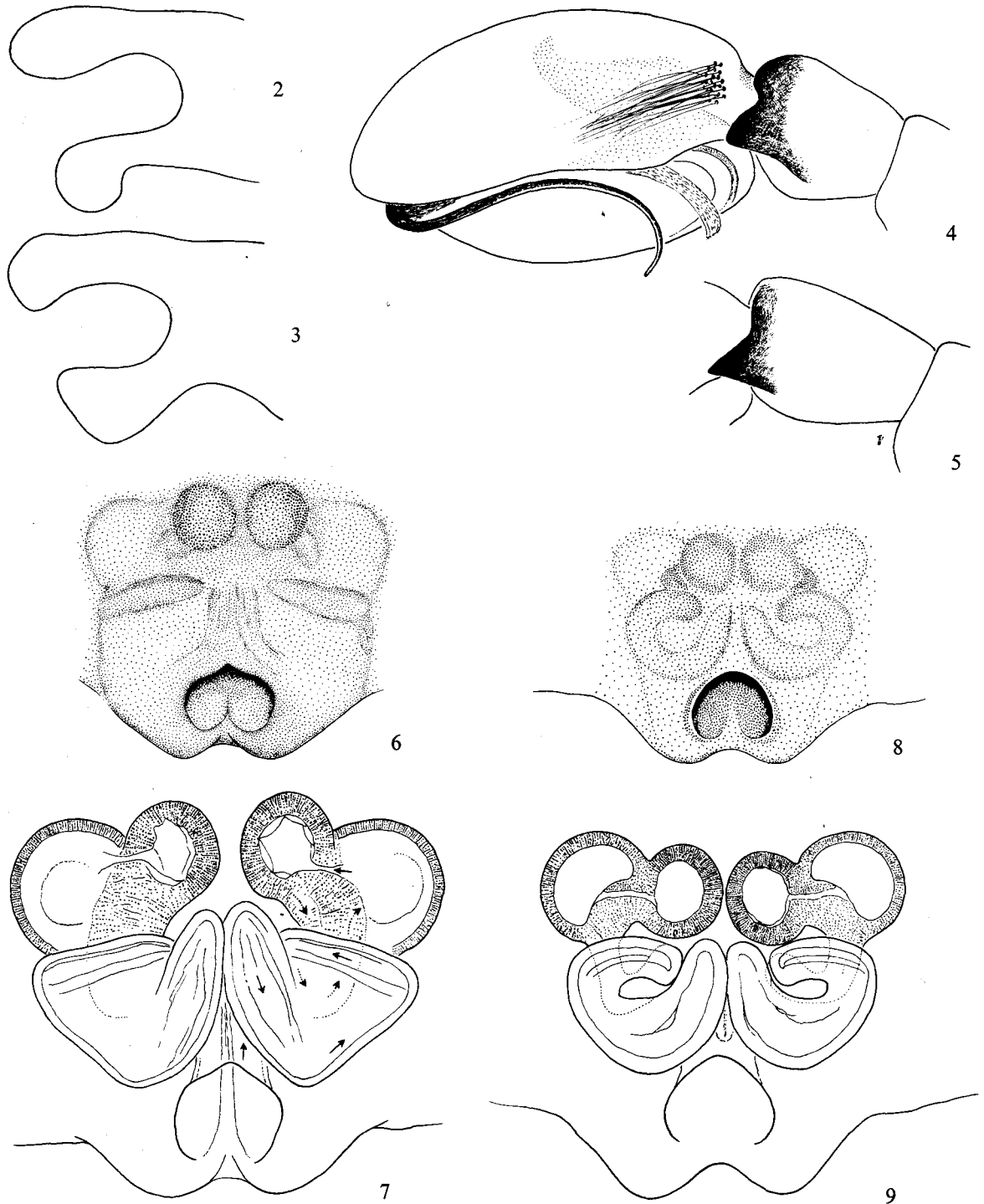


Fig. 1: Diagram showing correlations between body size and leg measurements in *Cheiracanthium erraticum* (Wlk.) and *C. virescens* (Snd.) (*erraticum*: ○ = ♀, ● = ♂; *virescens*: ▽ = ♀, ▼ = ♂).



Figs. 2, 3: *Clubiona frutetorum* L. Koch, male palpal tibiae. 2 Dutch specimen; 3 after Wiehle (1965).

Figs. 4-9: *Clubiona genevensis* L. Koch (4, 6, 7) and *C. vegeta* Simon (5, 8, 9). 4 *genevensis* male palp; 5 *vegeta* palpal tibia; 6 *genevensis* epigyne; 7 *genevensis* vulva; 8 *vegeta* epigyne; 9 *vegeta* vulva.

*vegeta*, as indicated and well illustrated by Simon (figs. 1409, 1411). Tullgren's figure (1946: Pl. 1, figs. 5, 6) is correct, but Wiehle (1965: fig. 35) depicts a palpal tibia which resembles *leucaspis* (a western Mediterranean species) rather than *genevensis*; the shape of the tibial apophysis is definitely more triangular than in his figure (see Fig. 4 in the present paper, drawn after a specimen from France). If one compares the palps of *genevensis* and *vegeta* (Figs. 4 and 5), it is clear that the differences in shape of the tibial apophysis are slight (but constant); in *genevensis* the dorsal margin of the apophysis is slightly convex, giving the apophysis a bluntly pointed appearance, while in *vegeta* the dorsal margin is more straight and the apophysis forms a sharply pointed, triangular projection; in *genevensis* the distal margin of the tibia slightly protrudes dorsally of the apophysis, whereas in *vegeta* it hardly does so.

As to the female genital organs, I have illustrated the epigynes and vulval structures of *genevensis* (Figs. 6, 7) and *vegeta* (Figs. 8, 9). I cannot find any constant distinguishing characters in the superficial structures of the epigyne. The vulvae of the two species seem to differ mainly in the rather angular way in which the entrance duct curves towards the receptacula seminis in *genevensis*, while in *vegeta* it is more rounded. Also, in *vegeta*, the inner, strongly sclerotized, terminal receptacula are distinctly more exclusively attached to the outer, less sclerotized, subterminal receptacula, while in *genevensis* the terminal and subterminal receptacula have a common stem. However, the reliability of these distinguishing characters is not supported by the literature. Tullgren (1946: text-fig. 2B), for his *C. genevensis* from southern Sweden, clearly indicates a roundish coiled duct and an outward directed stem of the receptaculum, both in agreement rather with the *vegeta* specimens I studied from France (coll. Muséum National d'Histoire Naturelle, Paris); it should also be pointed out here that there is no indication of a subterminal receptaculum in Tullgren's figure. The only other sufficiently detailed illustrations of a vulva of *genevensis*<sup>3</sup> can be found in Wiehle (1965: fig. 34), where the coils of the duct are roundish; the two re-

ceptacula at either side seem to have a common stem, but curiously enough the terminal, i.e. medially situated receptacula, are wide apart in the median line, which may have been caused by pressure in the slide; the figure is again more in accordance with the specimens of *vegeta* from France.

The females, therefore, are best separated with the aid of the abdominal pattern, as outlined by Simon. The males can easily be separated, apart from using the palpal tibial apophysis, by the shape and colour of the chelicerae, which are blackish-brown and conspicuously swollen in *vegeta*, while in *genevensis* they are brown, less swollen and less protruding. In that respect our Dutch specimens fully agree with Simon's description of *genevensis*.

I certainly have no intention to suggest that Tullgren or Wiehle had specimens of *vegeta* before them when preparing their illustrations. Most likely they made their drawings after specimens of *genevensis*, but not being acquainted with the closely related *vegeta* they did not realize the importance of the details. Or, in the case of the vulvae of the two species, the differences observed in the French material are not constant throughout the ranges of the species.

In fact there are a number of closely related species (*genevensis*, *vegeta*, *leucaspis*, *diniensis* and *decora* (sensu Blackwall, from Madeira)), partly with broadly overlapping distributions. As far as I know only Simon knew them all, except *decora* from Madeira. It is not surprising then that the diagnostic characters given by him are the most accurate, the chaetotactic remarks excepted.

#### *Clubiona similis* L. Koch

Wiehle's (1965) figure of the epigyne (fig. 66) is misleading. The two entrances of the ducts are indicated as round apertures, but in reality they are slit-like, as correctly depicted in *British Spiders*, vol. 3 (fig. 7D). Tullgren (1946: Pl. 3, fig. 42) also correctly indicates the slits.

#### References

- BÖSENBERG, W. 1901-1903: Die Spinnen Deutschlands. *Zoologica, Stuttg.* 35: 1-465.  
 CHRYSANTHUS, P. 1961: Spinnen uit Limburg VII (1958-1960). *Natuurh.Maandbl.* 50: 40-41.

<sup>3</sup> Dahl's figure in Reimoser (1937: fig. 13) is too inaccurate to distinguish the course of the ducts and the connections between the various parts.

- CHYZER, C. & KULCZYNSKI, W. 1891-1897: *Araneae Hungariae* 1: 1-170, 2: 1-151, 3: 147-366. Budapest.
- HEERDT, P. F. VAN & MÖRZER BRUYNS, M. F. 1960: A biocenological investigation in the yellow dune region of Terschelling. *Tijdschr.Ent.* 103: 225-275.
- KEKENBOSCH, J. 1956: Notes sur les araignées de la faune de Belgique. II. Clubionidae. *Bull.Inst.r.Sci.nat.Belg.* 32 (46): 1-12.
- KOCH, L. 1867: *Die Arachniden-Familie der Drassiden* 7: 305-352. Nürnberg.
- LESSERT, R. DE 1910: Araignées. In *Catalogue des Invertébrés de la Suisse* 3: 1-635. Genève.
- LOCKET, G. H., MILLIDGE, A. F. & MERRETT, P. 1974: *British Spiders* 3: 1-314. Ray Society, London.
- MENGE, A. 1873: Preussische Spinnen 6. *Schr.naturf.Ges. Danzig* (N. F.) 3: 327-374.
- PALMGREN, P. 1943: Die Spinnenfauna Finnlands 2. *Acta zool.fenn.* 36: 1-112.
- REIMOSER, E. 1937: Clubionidae oder Röhrenspinnen. *Tierwelt Dtl.* 33: 45-99.
- ROEWER, C. F. 1928: Araneae. Echte oder Webspinnen. *Tierwelt Mitteleur.* 3(2): 1-144.
- SIMON, E. 1932: *Les Arachnides de France* 6(4): 773-978. Paris.
- TULLGREN, A. 1946: *Svensk Spindelfauna* 3: 1-141. Stockholm.
- WIEHLE, H. 1965: Die Clubiona-Arten Deutschlands, ihre natürliche Gruppierung und die Einheitlichkeit im Bau ihrer Vulva (Arach., Araneae). *Senckenberg.biol.* 46: 471-505.
-