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On the internal taxonomic characters of the genus *Leucauge* White (Araneida)

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Summary

In contrast to *Tetragnatha* and *Pachygnatha*, *Leucauge* has a chitinized epigyne and a distinct cheliceral boss. The intestinal caeca are, however, of the type found in the other two genera, a type which differs from all other anatomically studied araneomorph spider families.

Introduction

In two earlier papers (Palmgren, 1978a, 1978b) I showed that all tetragnathid species that I have examined differed from the dissected species of all other families studied (24 European families, 62 species) in the following respects: (1) The paired intestinal caeca have not only dorsal pouches anterior to the dorsal apodeme (often fused), but also a posterior dorsal pouch caudal to the apodeme; (2) Lateral branches of the paired caeca extend not only to the coxae of the walking legs, but also to the chelicerae and the pedipalps (the pedipalpal branches seemed to be absent in *Tetragnatha striata* L. Koch (= *Eugnatha striata* of some earlier authors), but it is possible that weak pedipalpal branches had been macerated to invisibility); (3) The branches extending to the walking legs emit lateral pouches, protruding between the anterior and posterior coxo-tergal muscles (levatores coxae of earlier authors) and extending more or less widely under the carapace margin, visible externally owing to the guanine crystal content of their walls.

Mr G. H. Locket, Stockbridge, kindly pointed out to me that the internal anatomy of *Leucauge* would be of interest: the genus has the femoral trichobothria typical of Tetragnathidae (an anterior and a posterior row, each with 15-20 hairs, see Kaston, 1948, fig. 836), but it has also a typical although small epigyne (see Kaston, 1948, fig. 843). Moreover, *Leucauge* has a distinct cheliceral boss and accordingly a strengthened margin to the head (Fig. 1).

At the request of Mr Locket, the Section of Arachnida and Myriapoda of the British Museum (Natural History) kindly provided me with a ♂ sample of *Leucauge granulata* Walck. (syn. *L. tuberculata* Keys.) from Samoa (leg. B. J. Marples).

Results

The dissection of two adult females disclosed typical tetragnathid characters. The posterior caecal pouch is, however, not sharply delimited but is a general enlargement of the tube. The anterior dorsal pouches show the same character. They extend as almost cylindrical bulky tubes to the chelicerae, where they end bluntly on the median side of the poison glands, which are short as in all tetragnathids that I have dissected. There is a narrow branch to the pedipalpal coxa. The caecal branches to the legs extend well into the interior of the coxae; before

Figs. 1-2: *Leucauge granulata* Walck. ♀. Drawn perpendicularly from the left. **1** Tergo-coxal muscles. Line of origin of Musculus lateralis indicated by wavy line; **2** Musculature, endosternum and intestinal caeca visible after removing tergo-coxal muscles.

Abbreviations. *al* Musculus antero-medialis lateralis, *as* M. endosterno-pedipalpalis antero-superior, *av* M. antero-medialis verticalis, *C1* M. tergo-coxalis anterior profundus, *C2* M. tergo-coxalis medius anterior, *C3* M. tergo-coxalis medius posterior (muscles C1-C3 denoted only for legs I and IV), *cae I-IV* branches of intestinal caecum to legs I-IV, *caea* anterior pouch of intestinal caecum, *caec* branch to chelicera, *caepe* branch to pedipalp, *caepo* posterior caecal pouch, *c 5-8 I* trunk of endosterno-coxal muscles of leg I, *c 5-8 II* endosterno-coxal muscles of leg II, *d* dilator muscle of pharynx-oesophagus, *E* endosternum, *ed* M. plagulo-endosternalis dorsalis, *ex* M. extensor chelicerae, *fl* M. flexor chelicerae, *gl* poison gland, *L* lorum, *la* M. lateralis anterior, *le* M. loro-endosternalis, *lp* M. lateralis posterior, *lt* M. loro-tergalis, *mc* M. postero-medialis carapacis of chelicera, *me* M. postero-medialis endosterni of chelicera, *Ml* Musculus lateralis (line of origin), *P* plagula, *pa* M. tergo-pedipalpalis anterior, *pd* origin of musculus medialis pro-descendens of chelicera, *pm* M. tergo-pedipalpalis medius, *pp* M. tergo-pedipalpalis posterior, *ps* M. endosterno-pedipalpalis postero-superior, *pt* M. plagulo-tergalis, *rd* origin of musculus medialis retro-descendens of chelicera, *S1-4* suspensor muscles 1-4, *Sc* suspensor centralis.

Black = cerebrum, *short strokes* = endosternum and tendons, *rings* = areas of origin of muscles, *dots* = areas of insertion of muscles. Scale line in mm.

entering them the branches 2-4 protrude between the "levator" muscles and are widened to form horizontal pouches along the margin of the carapace. They glisten owing to the content of guanine.

Other features of the anatomy are normal. The musculature is depicted in some detail, because the other components of the anatomy are largely moulded by the spatial needs of the muscles.

The presence or absence of an epigyne should apparently not be overrated as a taxonomic character.

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