

# Teratological specimens and the curious case of *Girschneria* Townsend

by James E. O'Hara

Canadian National Collection of Insects, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, Ontario, K1A 0C6, Canada. E-mail: james.ohara@agr.gc.ca

In the last issue of *The Tachinid Times*, Jaakko Pohjoismäki illustrated and discussed a specimen of *Gonia divisa* Meigen that has an extra arista protruding from the apex of the left first flagellomere (Pohjoismäki 2015). Deformities or “monstrosities” are occasionally found in Tachinidae but are rarely reported in the literature. To generate interest in such peculiarities, Jaakko issued a “friendly invitation”, challenging “all *Tachinid Times* readers to report their tachinid monsters in forthcoming issues of this newsletter”. I am familiar with one specimen that garnered some interest in the entomological literature in the mid 1880s that I would like to review here. It was described as a new genus and species some 30 years after it was first reported and 25 years after that some similarly deformed specimens in the Canadian National Collection of Insects (CNC) led an author to a simple explanation for the deformity. I located these CNC specimens and have included some images of one of them here. As a parting comment I cite a little-known article of the ICZN *Code* that comes into play concerning the availability of the genus and species names proposed for the original specimen. This is a review of the curious case of *Girschneria* Townsend.

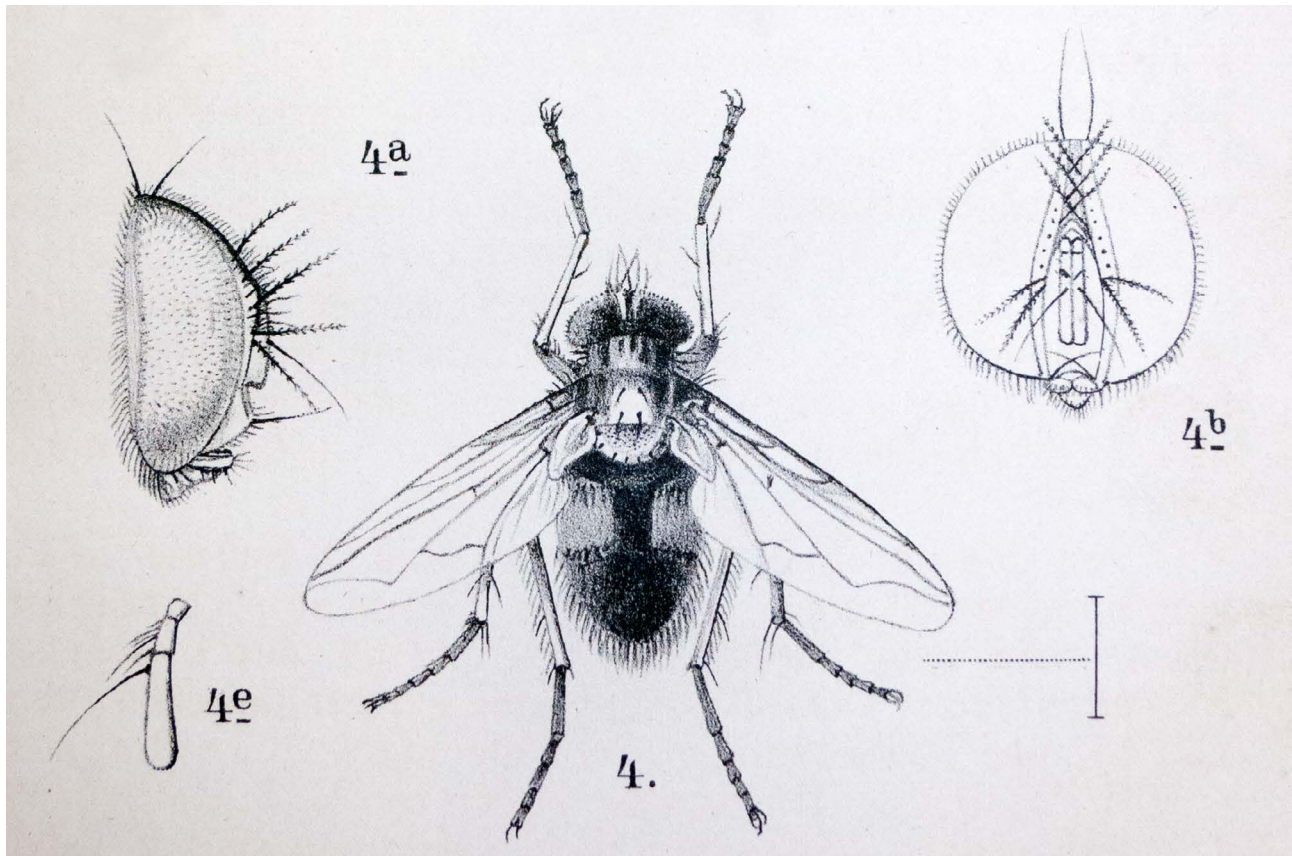


Figure 1. Portion of a plate from Girschner (1855) showing a tachinid fly with peculiar plumose hairs on the head.

Our story begins with a short communication by Girschner (1885) about two species of Diptera from the Thuringia region of Germany. One is described and given a new name and the other is described but not named beyond a tentative assignment to “*Exorista (Carcelia R.D.)*”. This second specimen is unusual in possessing some remarkable and symmetrically-placed plumose hairs originating from both sides of the ptilinal fissure on the front of the head (Fig. 1, photographed from an original printed copy of the journal). Girschner is unsure whether these plumose hairs are of extraneous origin but thinks they are probably not. He mentions that Mik, a dipterist in Vienna to whom he had sent the specimen for examination, disagrees and believes the hairs probably originated from some other animal, perhaps a caterpillar. Girschner argues against this citing the symmetry of the hairs and concludes that the finding of a second specimen similar to this one will settle the matter.

Mik felt compelled to respond to Girschner’s published remarks with an elaboration of his own opinion on the strange fly they had both examined (Mik 1885). He notes that the plumose hairs, in addition to being pale instead of black, are not of a kind he has ever seen in a dipteran before, and he has seen a lot of flies. After a careful consideration of the available evidence he is still of a mind that the plumose hairs are not the product of the fly and most likely came from the caterpillar in which it lived during its early life.

The last paper in this exchange was a further discussion by Girschner (1886) about some points raised by Mik (1885). Girschner maintains his original view but acknowledges that proof of his opinion will only come with the discovery of second specimen matching the first.

These observations by Girschner and Mik should have ended the matter until the true nature of the peculiar hairs on the front of their fly could be uncovered, but unfortunately Townsend (1919) intervened first. Townsend, never one to shy away from an opportunity to name a new genus and species from the works of others (see for example O’Hara *et al.* 2013), named the specimen of Girschner as “*Girschneria mirabilis*, new genus and species”. The genus was named in honour of the original author and the species in recognition of the fly’s appearance (*mirabilis* being Latin for “wonderful”). Townsend surmised that the plumose hairs on the head are likely found only in the male of the species and noted at the end of his brief description that “They [the plumose hairs] were believed by Mik to be of extraneous origin, but are unquestionably structures of the fly”. Townsend treated *Girschneria* as valid in his key to the genera of Carceliini (Townsend 1936: 208) and *Manual of Myiology* (Townsend 1941: 151). In the last, Townsend listed the holotype of *G. mirabilis* as lost but the figures in Girschner (1885, reproduced here as Fig. 1) provide a lasting record of the general features of the fly and the arrangement of the plumose hairs on the head.

Interestingly, to this point in our tale no author has drawn attention to the functional role of the ptilinal fissure that frames the face in schizophoran flies. Behind the face is the ptilinum, a membranous sac that is inflated to help the fly emerge from its puparium. This ptilinum is retracted back into the head as the fly’s exoskeleton hardens but its presence can be inferred by the fine outline of the ptilinal fissure. The role of the ptilinum has been known since the studies of the famous French scientist Réaumur in the early 1700s (Strickland 1953). Yet, neither Girschner nor Townsend considered the possibility that caterpillar hairs caught in the ptilinal fissure might account for the plumose hairs on the head of *G. mirabilis*, and even Mik did not infer this despite suggesting that the plumose hairs might have come from the host caterpillar. We will never know why none of these authors advanced this argument. Instead, it was left to Canadian entomologist Brooks (1945) to prove beyond reasonable doubt that the plumose hairs of *G. mirabilis* were nothing more than the hairs of its host caught in the ptilinal fissure when the ptilinum was retracted. Brooks examined a series of tachinid specimens belonging to the genus *Leschenaultia* Robineau-Desvoidy reared from *Lophocampa caryae* Harris (as “*Halisidota caryae*”) (Arctiidae). He noted that some of the specimens had hairs of the caterpillar stuck in the ptilinal fissure much like they were in *G. mirabilis*, with additional hairs on other parts of the body. Brooks (1945: 185) concluded:

“These plumose bristles are identical with those making up the cocoon of the host, their position in the ptilinal suture and in various body membranes indicating that they had become stuck to these parts as the fly was emerging from the host cocoon, at which time the membranes are greatly expanded. While the bristles show a remarkable symmetry in their position, ranging from one or two on each side of the face to twenty or more, there can be no doubt as to their origin.”



**Figures 2–4.** A paratype of *Leschenaultia halisidotae* Brooks showing plumose hairs from the host attached to the ptilinal fissure and other parts of the body.

Brooks illustrated his short paper with a drawing of the head of one of the *Leschenaultia* specimens in which the host's plumose hairs arise from the ptilinal fissure. He later revised the North American species of *Leschenaultia* (Brooks 1947) and included the specimens mentioned in his earlier paper in the type series of his new species *Leschenaultia halisidotae* Brooks. One CNC paratype of this species is illustrated here in Figs. 2–4.

As for the fate of the name *Girschneria mirabilis* Townsend, Herting (1984: 56) treated the genus name as a junior synonym of *Carcelia* Robineau-Desvoidy, 1830 and briefly explained the history of the name in Note 40 (p. 187). The species *G. mirabilis* was treated as an unidentified species in Herting's catalogue and was later listed as a doubtful species (i.e., a *nomen dubium*) by Herting and Dely-Draskovits (1993: 215).

There is one more aspect of this “curious case” that bears mention. In the glossary of the *International Code of Zoological Nomenclature* (ICZN 1999), “an abnormal specimen or a monstrosity” is termed a teratological specimen. According to Article 1 of the *Code*, under “[exclusions] from the provisions of the *Code* are names proposed ... for teratological specimens as such.” There is some ambiguity as to what is meant by “as such” and not everyone agrees with how to interpret this provision of the *Code*. The most common interpretation, and the one I follow here, is this: if an author knows he or she is proposing a new name for a teratological specimen then the name is unavailable (i.e., a *nomen nudum*) and if the author does not know then the name is available. Following this interpretation of *Code* Article 1.3.2, *Girschneria mirabilis* is an available name. Regardless of the availability of the name it is not valid because it is a junior synonym of *Carcelia*.

## ACKNOWLEDGEMENTS

I thank Alan Fleming (AAFC, Ottawa) for the images of *Leschenaultia halisidotae* used in Figs. 2–4 and Jaakko Pohjoismäki for suggesting articles on tachinid monsters.

## REFERENCES

- Brooks, A.R. (1945) The genus *Girschneria* Townsend (Diptera, Tachinidae). *Canadian Entomologist*, 77, 184–185.
- Brooks, A.R. (1947) A revision of the North American species of *Leschenaultia sens. lat.* (Diptera, Larvevoridae). *Canadian Entomologist*, 78 [1946], 169–182.
- Girschner, E. (1885) Dipterologische Studien. (Beiträge zur Dipterenfauna Thüringens.) VII. Ueber eine merkwürdige Muscide. *Entomologische Nachrichten*, 11, 3–6 + 1 pl.
- Girschner, E. (1886) Ueber die “Entomologische Nachrichten” Jahrg. 1885 pag. 3 beschriebene Muscide. *Entomologische Nachrichten*, 12, 20–21.
- Herting, B. (1984) Catalogue of Palearctic Tachinidae (Diptera). *Stuttgarter Beiträge zur Naturkunde. Serie A (Biologie)*, 369, 1–228.
- Herting, B. & Dely-Draskovits, Á. (1993) Family Tachinidae. Pp. 118–458. In: Soós, Á. & Papp, L. (eds.), *Catalogue of Palaearctic Diptera*. Volume 13. Anthomyiidae – Tachinidae. Hungarian Natural History Museum, Budapest. 624 pp.
- International Commission on Zoological Nomenclature (1999) *International Code of Zoological Nomenclature*. Fourth edition adopted by the International Union of Biological Sciences. International Trust for Zoological Nomenclature, London. xxix + 306 pp.
- Mik, J. (1885) Einige dipterologische Bemerkungen. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 35 (Abhandlungen), 327–332.
- O’Hara, J.E., Raper, C.M., Pont, A.C. & Whitmore, D. (2013) Reassessment of *Paleotachina* Townsend and *Electrotachina* Townsend and their removal from the Tachinidae (Diptera). *ZooKeys*, 361, 27–37.
- Pohjoismäki, J. (2015) A tachinid with a homeotic mutation – a report and a challenge to fellow collectors. *The Tachinid Times*, 28, 12–13.
- Strickland, E.H. (1953) The ptilinal armature of flies (Diptera, Schizophora). *Canadian Journal of Zoology*, 31, 263–299.
- Townsend, C.H.T. (1919) New muscoid genera, species and synonymy (Diptera) [concl.]. *Insecutor Inscitiae Menstruus*, 6 [1918], 157–182.
- Townsend, C.H.T. (1936) *Manual of myiology in twelve parts. Part IV. Oestroid classification and habits. Dexiidae and Exoristidae*. Privately published, Itaquaquecetuba, São Paulo. 303 pp.
- Townsend, C.H.T. (1941) *Manual of myiology in twelve parts. Part XI. Oestroid generic diagnoses and data. Goniini to Trypherini*. Privately published, Itaquaquecetuba, São Paulo. 330 pp.