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NOTES ON COLLEMBOLA.—PART 5.

## SOME LANCASHIRE AND CHESHIRE COLLEMBOLA.

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This preliminary paper deals with the Collembola I had collected in Lancashire and Cheshire before I was asked to act as recorder for that group for the Lancashire and Cheshire Fauna Committee, and in addition gives a few records kindly sent by Dr. A. D. Imms, to whom my best thanks are due. Some specimens, collected by members of the committee, have been sent to my English address, but, so far, these have not been sent on to me in South Africa, and will be dealt with in another paper.

As I am writing this paper in the Transkeian Territories of South Africa, away from the bulk of my literature, I have not given an account of the previous work on Collembola for the two counties, and this must wait till my return to England. There are some species already recorded, for Sir John Lubbock, in one of his papers, notes at least one form as occurring at Liverpool, and Mr. R. S. Bagnall has taken Collembola in Cheshire.

The classification adopted is the one proposed by Börner (1913). See also my paper on classification (1917) which gives a synopsis of sub-orders, sections, families, sub-families and tribes, together with a list of British genera. In this system there are 8 families, and of these, 7 are represented by the species here recorded.

In all cases I have given the situations in which the species were found, and these, together with the hints in my paper (1914) on collection and preservation, should guide the collector to the best localities for these interesting insects.

To save repetition under the various species, I may say that all my collections were made during the month of November, 1913.



Order **COLLEMBOLA** Lbk.Sub-order **ARTHROPLEONA** C.B.Section **PODUROMORPHA** C.B.Family **HYPOGASTRURIDÆ** (C.B.)Subfamily **HYPOGASTRURINÆ** C.B.Genus **HYPOGASTRURA** Bourl., C.B.= *Achorutes* Templeton.

- (1) **Hypogastrura armata** (Nic.). Warrington, under moist sticks (14); Holmes Chapel, under damp log (4).
- (2) **Hypogastrura purpurescens** (Lbk.). Warrington, on a flower pot, in a hotel (4).
- (3) **Hypogastrura manubrialis** (Tbg.). Holmes Chapel, on pool of water by the roadside (7).

Subfamily **ACHORUTINÆ** C.B.Tribe **PSEUDACHORUTINI** C.B.Genus **ANURIDA** Laboulb.

- (4) **Anurida granaria** (Nic.). Lancaster, under a board, lying on damp earth (5).

Tribe **ACHORUTINI** C.B.Genus **ACHORUTES** Templ., C.B.  
= *Neanura* Macgillivray.

- (5) **Achorutes muscorum** Templ. Lancaster, under moist sticks (8); Holmes Chapel, under a damp log (4).

Family **ONYCHIURIDÆ** (C.B.).Genus **ONYCHIURUS** Gerv., C.B.= *Lipura* Burmeister.*Aphorura* Macgillivray.

- (6) **Onychiurus inermis** (Tbg.). = *Lipura fimetaria* (Linn.) Lbk. Fallowfield, Manchester, 14-3-1912 (A. D. Imms); Warrington, under a flowerpot (5).
- (7) **Onychiurus ambulans** (Linn., Tbg.). Fallowfield and Didsbury, Manchester, 29-3-1912 (A. D. Imms); Knutsford, under a moist board (2).



Genus *PROTAPHORURA* (Absln.) C.B.

- (8) *Protaphorura armata* (Tbg.). Lancaster, in damp soil (3); Holmes Chapel, under damp log (6).

Genus *TULLBERGIA* Lbk., C.B.

- (9) *Tullbergia krausbaueri* (C.B.). Warrington, under a flower pot (4); Holmes Chapel, under bark of rotting log (2).

Section *ENTOMOBRYOMORPHA* C.B.

Family *ISOTOMIDÆ* (Schffr., C.B.).

Subfamily *ISOTOMINÆ* Schffr.

Genus *ISOTOMA* Bourl., C.B.

- (10) *Isotoma viridis* Bourl., Schtt. Knutsford, under a brick (7); Holmes Chapel, under a damp stick (2).  
(11) *Isotoma arborea* (Linn.) Agr. Lancaster, under bark of fence-post (7).  
(12) *Isotoma minor* Schffr. Preston, under flower pots (4).  
(13) *Isotoma grisea* Lbk. Fallowfield, Manchester, 4-7-1912 (A. D. Imms).

Genus *FOLSOMIA* Wllm.

- (14) *Folsomia quadrioculata* (Tbg.). Holmes Chapel, under bark of a rotting log (4).  
(15) *Folsomia fimetaria* (Linn., Tbg.). Warrington, in damp soil (5).

Genus *ISOTOMURUS* C.B.

- (16) *Isotomurus palustris* (Müll.). Delamere (A. D. Imms).

Family *TOMOCERIDÆ* (Schffr.).

Subfamily *TOMOCERINÆ* (C.B.).

Genus *TOMOCERUS* Nic.

- (17) *Tomocerus minor* (Lbk.). Delamere (A. D. Imms; Knutsford, under a brick (1); Warrington, under a board (3); Holmes Chapel, under a damp stick (4).

Family *ENTOMOBRYIDÆ* (Schffr.).

Subfamily *ENTOMOBRYINÆ* (C.B.).

Tribe *ENTOMBRYINI* C.B.

Genus *ENTOMOBRYA* Rond.



- (18) **Entomobrya nivalis** (Linn.). Knutsford, under a brick (1).
- (19) **Entomobrya albocincta** (Templ.). Lancaster, under bark of fence-post (10).
- (20) **Entomobrya multifasciata** (Tbg.). Lancaster, amongst decaying leaves (2); Warrington, under a board (2); Knutsford, under a brick (4).

Genus **LEPIDOCYRTUS** Bourl.

- (21) **Lepidocyrtus cyaneus** Tbg. Warrington, under a board (4); Holmes Chapel, under damp sticks (7).
- (22) **Lepidocyrtus albus** Pack. (Schffr.). Warrington, in damp soil (3).

Genus **WILLOWSIA** Shbthm. (1917, p. 431).  
= *Sira* Lubbock (1870) *ad part.*

- (23) **Willowsia buski** (Lbk.). = *Sira buskii* Lubbock. Warrington, under flower pots (3).

Tribe **ORCHESELLINI** C.B.

Genus **ORCHESELLA** Templ.

- (24) **Orchesella cincta** (Linn.) Lbk. Lancaster, amongst decaying leaves (5); Holmes Chapel, under a damp stick (2).

**Suborder SYMPHYPLEONA** C.B.

Family **NEELIDAE** Flsm.

Genus **MEGALOTHORAX** Wlsm.

- (25) **Megalothorax minimus** Wlsm. Preston, under flower pots (8); Warrington, under a flower pot (5).

Family **SMINTHURIDAE** Lbk.

Subfamily **SMINTHURIDINAE** C.B.

Tribe **KATIANNINI** C.B.

Genus **SMINTHURINUS** C.B.

- (26) **Sminthurinus niger** (Lbk.). Preston, under a flower pot (1); Warrington, under flower pots (7).

Genus **ARRHOPALITES** C.B.

- (27) **Arrhopalites caecus** (Tbg.). Warrington, under a flower pot (4).



## SUMMARY.

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Number of species from the Faunal Area -	-	-	27
"                    "            Lancashire -	-	-	22
"                    "            Cheshire -	-	-	14
"                    "            common to both counties -	-	-	9

This is only a small beginning, and we can look to a big increase in the size of the list when the district is properly worked. There are well over one hundred species in the British Isles; and, possessing an extensive sea-board which forms the habitat of several kinds, the faunal area should produce a good proportion of the British forms.

In looking through the above list it will be seen that the family *Poduridæ* is unrepresented, and that in the *Sminthuridæ* only two species are recorded. The species belonging to the latter family are chiefly met with in summer time, and doubtless they will be well represented in collections made during the warmer months of the year.

## REFERENCES.

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