

The Copepoda and Ostracoda of Lancashire and Cheshire

RECORDS TO 31-12-63

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As far as I am aware, no list of Copepoda and Ostracoda of Lancashire and Cheshire as a whole has been published since this Committee's Check List of 1930 (1). There are, however, a number of published records relating to the Lake District and Furness district of North Lancashire in Gurney (2), Holmes (4), Smyly (8, 10 and 11), Fryer and Smyly (9) and Harding and Smith (12); and for the Liverpool district in Galliford (6 and 13) and Galliford and Williams (7). These records are incorporated in this report which also includes hitherto unpublished records culled from manuscript notes by the late D. J. Scourfield (14 and 15) and other records kindly supplied by Dr. G. Fryer of the Freshwater Biological Association, as well as my own records for the Liverpool district.

I am indebted to Dr. Fryer for identifying the Ostracods in my own collections, for extracting the records from Gurney's work and Scourfield's notes relating to the Lake District and for much help and advice in the compilation of this report. I also wish to thank Dr. J. P. Harding and the Trustees of the British Museum for the loan of Scourfield's notes relating to the Delamere district of Cheshire.

Those who wish to study the Callanoid and Cyclopoid Copepods will find the inexpensive key by Harding and Smith (12) extremely useful. There is as yet, unfortunately, no comparable work on the Harpacticid Copepods and the Ostracods, and other comprehensive works (e.g. Gurney (2), Wagler (3) and Klie (5)) are out-of-print and/or expensive. Nevertheless I hope that the publication of this report will encourage others to take up the study of these interesting organisms and help to increase our knowledge of their distribution in the two counties by forwarding specimens or records to me for publication in future reports.

Most of the listed species are freshwater forms, but forms occurring in saline coastal or inland waters such as tidal pools, marine boating lakes, estuaries and salt-marshes, have been included. The figures in brackets indicate the source of published records, and for hitherto unpublished records the most recent date of collection at each station is shown. Where no other authority is quoted, the records are my own. The *Check List* of 1930 (1) included only 12 Copepods and 2 Ostracods; I am now able to list 56 Copepods and 24 Ostracods. There is little doubt that this is still far from exhaustive.

The nomenclature and arrangement of the Ostracoda is as suggested by Dr. G. Fryer. Otherwise I have followed Harding and Smith (12) for the Callanoid and Cyclopoid Copepoda, and Gurney (2) for the Harpacticid Copepoda.

Class CRUSTACEA

Order Copepoda

Sub-order CALLANOIDA

Paracalanus parvus (Claus) C. Brackish pools, Leasowe (7).

Centropages hamatus (Lilljeborg) C. Brackish pool, Leasowe (7); marine boating lakes, New Brighton and West Kirby 25.9.61.

Diaptomus castor (Jurine) L. Low Scathwaite (11); used to occur in a pond in Great Crosby which has been filled in, so may now be extinct in that district.

D. gracilis Sars L. Windermere, Coniston, Esthwaite, Low Water (1); Highlow Tarn (1 and 12); Scale and Hodson Tarns (10); Bigland Tarn (12); Wise Een Tarn (8); Rixton, Warrington 22.6.63; lakes and ponds in Knowsley Park 2.9.63; ponds, Lydiate 19.10.63. C. Rostherne Mere (1) and 31.8.63; Hatchmere (15) and 13.10.62; Oakmere (15); Raby Mere 27.9.61; Serpentine, Eaton Park 6.10.63. Probably the most widely distributed of all the European freshwater Copepods.

D. laticeps Sars L. Goats Water (1, 2 and 11); Windermere (11).

Temora longicornis (Müller) L. Tidal pools, Freshfield 15.10.60; Southport Marine Lake 16.11.63.

C. New Brighton Marine Lake 25.9.61.

Eurytemora velox (Lilljeborg) L. Salt marsh, Banks 2.9.61; shore pool, Southport 16.11.63.

C. Brackish pools, Leasowe (7) and 25.9.61; Bottom Flash, Winsford, Witton Flash, Northwich (15); Serpentine, Eaton Park (E. G. Williams 6.10.63).

Acartia clausi Giesbrecht C. Brackish pool, Leasowe (7); salt marsh, Neston 25.9.61.

A. discaudata Giesbrecht L. Tidal pools, Freshfield 6.7.61.
C. Brackish pool, Leasowe (7).

A. bifilosa Giesbrecht L. Tidal pools, Freshfield 15.10.60; Southport Marine Lake 16.11.63.

Sub-order CYCLOPOIDA

Oithona similis Claus L. Tidal pools, Freshfield 9.9.61.

C. Marine Lakes, New Brighton and West Kirby 25.9.61.

Cyclopina norwegica Boeck L. In brackish water, locality not specified (I. C. Thompson quoted by Gurney (2)).

Cyclops (Macrocylops) fuscus (Jurine) L. Coniston and Esthwaite Waters; Bigland, Blelham and Highlow Tarns (12); lakes, Knowsley Park 2.9.63; Freshfield dunes 14.7.62.
C. Fishpool, Delamere and Hatchmere (15); ponds, Brimstage, Storeton and Raby, Wirral 19.7.61.

C. (M.) albidus (Jurine) (= *Pachycyclops annulicornis* (Koch)) L. Wise Een Tarn (8); Scale and Hodson Tarns (10); Windermere, Coniston and Esthwaite Waters; Bigland and Blelham Tarns (12); Mott College, Prescot 22.5.63; pond, Lydiate 2.6.62; canal, Rufford 16.6.62; Freshfield dunes 14.7.62; lakes and ponds, Knowsley Park 2.9.63.
C. Fishpool, Delamere and Bottom Flash, Winsford (15); Hatchmere (15) and 13.10.62; Rostherne Mere (1) and 31.8.63; ponds near Storeton, Brimstage and Raby, Wirral 27.9.61.

- C. (M.) distinctus* (Richard) C. Pond, Storeton 29.7.63.
- C. (Tropocyclops) prasinus* (Fischer, Schmeil) L. Freshfield dunes 7.9.63.
- C. (Eucyclops (Leptocyclops)) agilis* s.str. (Koch, Sars) L. Highlow Tarn and Goats Water (1 and 12); Coniston and Esthwaite Waters, Bigland and Blelham Tarns (12); Low Water (1); Wise Een Tarn (8); Scale Tarn (10); Mott College, Prescot 22.5.63; canal, Rufford 16.6.62; ponds and canal, Lydiate 2.6.62; boating lake, Ainsdale 2.6.62; Freshfield dunes 14.7.62; lakes and ponds, Knowsley Park 2.9.63; Rixton, Warrington 22.6.63.
- C. Ponds*, Delamere, Oakmere and Little Budworth; Bottom Flash, Winsford; Budworth Pool; Marbury Mere (15); Hatchmere (15) and 13.10.62; ditch, Rostherne 2.4.63; ponds, Raby and Storeton 14.9.63; Brimstage 14.4.62. Probably the most widely distributed *Cyclops*.
- C. (E.) agilis speratus* (Lilljeborg) L. Bigland Tarn; Coniston, Esthwaite and Goats Waters; Windermere (12); lake, Knowsley Park 2.9.63. C. Hatchmere 13.10.62; Rostherne Mere 31.8.63.
- C. (E.) macruroides* s.str. (Lilljeborg) L. Windermere (2 and 12); Wise Een Tarn (8); Hodson Tarn (10); Esthwaite Water, Blelham and Highlow Tarns (12); pond, Lydiate 29.4.61; Mott College, Prescot 22.5.63; Rixton, Warrington 22.6.63.
- C. (E.) macruroides denticulatus* (Graeter) L. Windermere, Highlow Tarn (12).
- C. (E.) macrurus* (Sars) L. Blelham Tarn, Esthwaite Water, Windermere (12). C. Hatchmere (15).
- C. (Paracyclops (Platycyclops)) fimbriatus* s.str. (Fischer) L. Guide Bridge Sewage Works (1). C. Rostherne Mere 13.6.63.
- C. (P.) fimbriatus poppei* (Rehberg) L. Blelham Tarn, Esthwaite Water, Windermere (12). C. Ditch, Rostherne 2.4.63.
- C. (P.) affinis* (Sars) L. Windermere (12); Rixton, Warrington 22.6.63.
- C. (Ectocyclops (Platycyclops)) phaleratus* (Koch) L. Blelham Tarn (12); Rixton, Warrington 22.6.63.
- C. (Cyclops) strenuus* s.str. (Fischer) C. Rostherne Mere (1) and 31.8.63; fish pool, Delamere (15); ponds near Storeton, Brimstage and Raby 14.9.63; Raby Mere 14.9.63.
- C. (C.) strenuus abyssorum* Sars (= *C. abyssorum* Sars) L. Windermere, Coniston Water (1 and 12); Goats Water (12).
- C. (C.) vicinus* Uljanin L. Mott College, Prescot 22.5.63; Calderstones Park Lake 21.5.63; Ainsdale Boating Lake 16.11.63. C. Bottom Flash, Winsford (15) and 29.6.62; Serpentine, Eaton Park 6.10.62; Rostherne Mere 13.6.63.
- C. (Acanthocyclops) viridis* (Jurine) (= *C. vulgaris* Koch) L. Low Water (1); Wise Een Tarn (8); Scale Hodson Tarns (10); Windermere, Coniston and Goats Water (12); Freshfield dunes 23.3.63; marsh and canal, Rufford 20.4.63; Mott College, Prescot 22.5.63; lake, Knowsley Park 2.9.63. C. Rostherne Mere (1) and 13.6.63; Budworth Pool; pond, Little Budworth; Marbury Mere (15); pond, Brimstage 27.9.61.
- C. (A.) vernalis* s.str. (Fischer) L. Windermere (12); Ainsdale Boating Lake 18.2.61; Freshfield dunes 28.4.62; ditch, Rufford 20.4.63. C. Oakmere; Witton Flash, Northwich (15).

- C. (A.) vernalis americanus* (Marsh) L. Canal, Lydiate 2.6.62; ditch, Formby Moss 14.10.62; Ainsdale Boating Lake 17.9.61.
C. Serpentine, Eaton Park 6.10.62.
- C. (A.) venustus* (Norman and Scott) L. Barrow-in-Furness (2).
- C. (A.) bicuspispidatus* s.str. (Claus) L. Esthwaite Water (12); temporary pool, Crosby 10.2.62; ditch, Formby Moss 1.3.62; Freshfield dunes 23.3.63; pond, Knowsley Park 2.9.63.
C. Ditch, Rostherne 2.4.63; pond, Storeton 14.9.63.
- C. (A.) bicuspispidatus lubbocki* (Claus) C. Brackish pool, Leasowe 25.9.61.
- C. (A.) bisetosus* (Rehberg) L. Windermere, Blelham Tarn (12); temporary pool, Crosby 10.2.62.
C. Puddle in cart rut, Delamere Forest 24.9.60.
- C. (A.) languidus* (Sars) L. Windermere (12).
C. Black Lake, Delamere 24.9.60.
- C. (A.) nanus* (Sars) L. Windermere (12).
C. Oakmere (15).
- C. (Microcyclops) varicans* s.str. (Sars) L. Windermere (12).
- C. (M.) bicolor* (Sars) L. Scale Tarn (9); Windermere (12); pond and lake, Knowsley Park 2.9.63.
- C. (M.) minutus* (Claus) L. Near Coniston (2).
- C. (Mesocyclops) leuckarti* (Claus) (= *Mesocyclops obsoletus* (Koch)) L. Windermere, Esthwaite Water (1, 9, 12); Highlow Tarn (1, 12); Wise Een Tarn (8); Coniston Water, Blelham Tarn (12); pond, Ince Blundell 4.7.61; marsh, Rufford 16.6.62; pond, Knowsley Park 2.9.63.
C. Rostherne Mere (1) and 31.8.63; Hatchmere (15); Mere Mere 27.6.62; pond, Raby 14.9.63.
- C. (M.) dybowski* (Lande) L. Windermere (2 and 12); Esthwaite Water (14).
- Thersitina gasterosteii* Pagenstecher C. Brackish pool, Leasowe 14.5.55; salt marsh, Neston 25.9.61.

Sub-order HARPACTICOIDA

- Tachidius littoralis* Poppe L. A brackish pool, locality not specified (2).
C. Brackish pools, Leasowe (7).
- Euterpina acutifrons* (Dana) L. Tidal pool, Freshfield 15.10.60.
C. Brackish pool, Leasowe (7); West Kirby Marine Lake 25.9.61.
- Nitocra typica* Boeck L. Tidal pool, Southport (2).
- Canthocamptus (Canthocamptus) staphylinus* (Jurine) L. Scale Tarn (9); Hodson Tarn (10); Windermere (14); ditch, Formby Moss 1.3.62.
- C. (C.) microstaphylinus* Wolf L. Esthwaite Water (G. Fryer).
- Canthocamptus (Bryocamptus) minutus* Claus L. Windermere (14).
- C. (B.) pygmaeus* Sars (= *Attheyella pygmaeus*) L. Guide Bridge Sewage Works (1); Windermere (14).
C. Oakmere (15).
- C. (B.) weberi* Kessler L. Barrow-in-Furness (2).
- C. (B.) zschorkei* (Schmeil) L. Goats Water (1).
- Canthocamptus (Attheyella) crassus* Sars L. Windermere (14); near Esthwaite Water (2).
- C. (A.) gracilis* Sars A record for Lancashire (locality not specified) by A. Scott is quoted in (1) and (2).
- M. sphagnicola* Gurney L. Barrow-in-Furness (2).
- Moraria brevipes* (Sars) L. Barrow-in-Furness (2).

Order Ostracoda

- Candona candida* (O. F. Müller) L. Scale Tarn (10); pond near Wray Cottage (14); Windermere (G. Fryer 1963).
- C. neglecta* G. O. Sars L. Windermere (4 and 14).
- C. rostrata* Brady & Norman L. Windermere (margin of Borran's Field) (14).
- C. vavrai* Kaufmann (= *Cryptocandona vavrai*) L. Windermere (4 and 14).
- Paracandona euplectella* (Brady & Norman) L. Normoss (Claife Heights) (14).
- Cyclocypris globosa* G. O. Sars L. Windermere and small pool near junction of Wray-Hawkshead roads (14); small pool near "Drunken Duck", Furness (G. Fryer 1963).
- C. ovum* (Jurine) L. Windermere; pond between Ambleside and Hawkshead (14); Leighton Moss (G. Fryer 1963); Freshfield dunes 14.3.62.
- C. laevis* (O.F.M.) L. Highlow Tarn and pool nearby (14).
- C. serena* (Koch) L. Windermere, Coniston, Blelham Tarn, Normoss; "Priest Pot", Esthwaite; pond between Ambleside and Hawkshead (14).
- C. Fishpond*, Delamere; pond near Little Budworth; Hatchmere; Witton Flash, Northwich (15).
There is a manuscript note by Scourfield himself that some of these records might be more correctly attributable to *C. laevis*, so they should be regarded as subject to confirmation.
- Cypria ophthalmica* (Jurine) L. Windermere (14); Leighton Moss (G. Fryer 1963).
C. Fishpond, Delamere; Hatchmere; Marbury Mere (15).
- C. exsculpta* (Fischer) L. Hodson Tarn (10); Windermere (margin of Borran's Field); tarns between Coniston and Windermere (14).
- Ilyocypris bradyi* G. O. Sars (= *Ilyocyprella bradyi*) L. Windermere (14).
- Notodromus monacha* (O. F. Müller) L. Clay pond, Wray Castle (G. Fryer 1963).
- Eucypris virens* (Jurine) L. Ditch, Formby Moss 1.3.62.
- E. pigra* (Fischer) L. Seepage, Russland (G. Fryer 1962).
- Cypricercus affinis* G. O. Sars (= *Eucypris affinis*) L. Freshfield dunes 14.3.62.
- C. fuscatus* (Jurine) (= *Eucypris fuscata*) L. Ditch, Formby Moss 1.3.62; Freshfield dunes 24.3.62; "Drunken Duck" tarn, Furness (G. Fryer 1963).
- C. obliquus* (Brady) L. Windermere; High Cross Tarn; Coniston; pool in rocks, Skelwith Force; Three Dubs Tarn; lower reservoir, Great Green Hows; pools near Highlow Tarn (14); Wraymires and Wise Een Tarns (G. Fryer 1963); White Man's Dam, Knowsley Park 2.9.63.
- Heterocypris salina* (Brady) (= *Cypris prasina* Brady & Norman), etc.
C. This is probably the species recorded by Scourfield (15) from Witton Flash, Northwich under the name *Cyprinotus prasinus*.
- Herpetocypris reptans* (Baird) L. Windermere (14) and G. Fryer 1963; pond and marsh near Blelham Tarn; lower reservoir, Great Green Hows (14); Wise Een Tarn (G.F. 1963).
C. Marbury Mere (15); pond on Hilbre Island (6).

Ilyodromus olivaceus (Brady & Norman) (= *Prionocypris olivacea* B. & N.)
L. Seepage, Russland (G. Fryer 1962).

Cypridopsis vidua (O.F.M.) (= *Prionocypris vidua*) L. Windermere (14)
(G. Fryer 1963); Eleham Tarn and pond and marsh nearby; ponds,
Wray Castle and Cottage and between Ambleside and Hawkshead;
Normoss; reservoir, Great Green Hows (14).
C. Bottom Flash, Winsford (15); White Man's Dam, Knowsley Park
2.9.63.

C. aculeata (O. G. Costa) C. Witton Flash, Northwich (15); pond, Hilbre
Island (6); brackish pools, Leasowe (7).

Cytherissa lacustris G. O. Sars L. Windermere (14 and 4).

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