45

MARINE ENTOMOSTRACA.

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Plates I–III.

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The sources from which the lists of species of the various groups included in this paper (comprising, as they do, many records other than those obtained during the Clare Island Survey) are taken, are given in detail at the head of each group.

The lists themselves vary very much in completeness. The Cladocera, four in number, probably include all that usually occur on this part of the coast. The Ostracoda, numbering 65, comprise two-thirds of those recorded from the west coast of Ireland, and doubtless represent about the same proportion of the fauna of the district.

The Copepoda number 159, about 30 of these being free-swimming, more or less planktonic forms, and the remainder littoral or living on the bottom. The former section is probably fairly complete, the species comprising it being few in number and uniformly distributed; but the latter must be regarded merely as a preliminary list, since it is probable that, if more time were given to collecting and working out the results, the number of species would be more than doubled. The Cirripede list only contains a few of the commoner forms whose presence has been casually noted.

The material, as a whole, being so far from complete, it would be unprofitable to compare the entomostracan fauna with those of other localities, very few of which, it may be remarked, are any better known, or to discuss the respective faunas of different parts of the district.

Attention may be called, however, to one dredging, made in May, 1909, in 24 fathoms off the mouth of Killary Harbour, which contained a large number of scarce species of Copepods. The bottom consisted of finely broken shells with a slight admixture of sand and stones. Out of eighteen species

identified from this station, the following may be noted as being little-known forms:—

Amphiascus attenuatus.
Amphiascus simulans.
Amphiascus spinifer, *n. sp.*
Ameira tenella.
Ameiropsis nobilis.
Stenocopia spinosa.
Leptomesochra attenuata.
Paramesochra dubia.
Tetragoniceps malleolata.
Pteropsyllus consimilis.
Laophonte denticornis.
Cylindropsyllus laevis.

Most of these species have been recorded by Professor G. O. Sars ("Crustacea of Norway") from one or two localities on the west coast of Norway at similar depths.

CLADOCERA.

Evadne Nordmanni Lovén.—Abundant in Ballynakill Harbour, 1901–2. Frequent in the open sea.

Podon intermedius Lillj.—Frequent in the open sea off Cleggan.

P. Leuckarti (G. O. Sars).—Common in Ballynakill Harbour, 1901–2. Killary Harbour. Scarce in the open sea.

P. polyphemoides Leuck.—Frequent in Ballynakill Harbour, especially the least saline parts, 1901–2. Killary Harbour. Not found in the open sea.

OSTRACODA.

Although no collection of Ostracoda from the Survey has been worked out, yet a considerable number of marine species has been recorded from the Clare Island district. These records have been extracted from the paper by Canon Norman on "Irish Crustacea Ostracoda," published in the "Irish Naturalist" (vol. xiv). They are due mainly to Brady and Robertson or to Canon Norman himself. The names of the recorded species are given below; and for details reference should be made to the paper in question.

Fam. CYPRIDAE.

Aglaia complanata *B. & R.*
Paracypris polita *G. O. Sars.*
Pontocypris mytiloides (*Norman*).
trigonella *G. O. Sars.*
Argilloecia cylindrica *G. O. Sars.*

Fam. BAIRDIIDAE.

Bairdia inflata *Norman.*

Fam. CYTHERIDAE.

Cythere lutea *O. F. Müll.*
confusa *Brady & Norman.*
pellucida *Baird.*
porcellanea *Brady.*
macallana *B. & R.*
semipunctata *Brady.*
badla *Norman.*
crispata *Brady.*

OSTRACODA.—*continued.*

Fam. CYTHERIDAE.—*continued.*

Cythere gibbosa *B. & R.*
albomaculata *Baird.*
Robertsoni *Brady.*
convexa *Baird.*
cuneiformis *Brady.*
villosa *G. O. Sars.*
quadridentata *Baird.*
emaciata *Brady.*
tuberculata (*G. O. Sars*).
ungulata (*G. O. Sars*).
antiquata (*Baird*).
Jonesii (*Baird*).
Cytheridea elongata *Brady.*
papillosa *Bosquet.*
Eurycythere declivis *Norman, var.* argus.
anglica *Brady.*
Loxoconcha impressa (*Baird*).
viridis (*O. F. Müll.*).
guttata (*Norman*).
tamarindus (*T. R. Jones*).
multifora *Norman.*
pusilla *B. & R.*
Xestoleberis aurantia (*Baird*).
depressa *G. O. Sars.*
Cytherura gibba (*O. F. Müll.*).
cornuta *Brady.*

Fam. CYTHERIDAE.—*continued.*

Cytherura sella *G. O. Sars.*
acuticostata *G. O. Sars.*
striata *G. O. Sars.*
producta *Brady.*
undata *G. O. Sars.*
nigrescens (*Baird*).
fulva *B. & R.*
cellulosa (*Norman*).
Cytheropteron nodosum *Brady.*
punctatum *Brady.*
depressum *Brady & Norman.*
Bythocythere recta *Brady.*
Sclerochilus contortus (*Norman*).
laevis *G. W. Müll.*
Cytherideis subulata *Brady.*
Cytherois Fischeri *G. O. Sars.*
Paradoxosoma variabile (*Baird*).
obliquum (*G. O. Sars*).
hibernicum *Brady.*
fasciatum *Brady & Norman.*
arcuatum *Brady.*
flexuosum *Brady.*
Machaerina tenuissima (*Norman*).

Fam. POLYCOPIDAE.

Polycope orbicularis *G. O. Sars.*
Polycopsis compressa *B. & R.*

COPEPODA.

The list of species has been compiled from several sources. A number of records from the district, chiefly from Westport Bay and Clifden Bay, are to be found in Brady and Robertson's paper "On Marine Copepoda taken in the West of Ireland" (Ann. Mag. Nat. Hist., 1873), and in Brady's "Monograph of the British Copepoda." These are indicated in the list by (B. and R.) and (Brady, Mon.). The MS. records of the Marine Laboratory at Ballynakill for 1901–2 contain several references to both free-swimming and bottom forms, though very little detailed work was done on the latter group; and finally during the last few years several small collections have been made by the

ss. "Helga," both in Blacksod Bay and Clew Bay. For the identification of the Ballynakill and Blacksod and Clew Bay specimens I am myself responsible. Species new to Ireland are marked with an asterisk. They number seventy, and, in addition, four species, which appear to be new to science, are described.

Copepoda Gymnoplea.

Family **CALANIDAE.**

Calanus helgolandicus (Cls.).—Better known under the name of *C. finmarchicus*, which has, however, in recent years been reserved for the slightly different and larger form which inhabits the Norwegian seas. *C. helgolandicus* forms, in the spring and summer, immense swarms all along the west coast of Ireland, which extend seawards for from ten to twenty miles, and form the main food of the spring mackerel on their arrival on the coast. It seems to require water of a moderately high salinity for its development, but penetrates into the bays and harbours when driven shorewards by a westerly wind.

Paracalanus parvus (Cls.).—Common along all the west coast, both in the open sea and in bays and harbours.

Pseudocalanus elongatus (Boeck).—Very common both in the open sea and in bays and inlets, and often occurs in shoals.

Calocalanus styliremis Giesbr.—An oceanic species, taken off Shark Head in May and August, 1901.

Clausocalanus arcuicornis (Dana).—An oceanic species, taken three times in the beginning of 1901, off Clare Island, Inishturk, and Inishbofin.

Ctenocalanus vanus Giesbr.—An oceanic species, taken once off Inishturk in June, 1901.

Chiridius armatus (Boeck).—An oceanic species, taken once off Shark Head in April, 1901.

Bradyidius armatus Giesbr.—Taken off Clare Island, 42 fathoms, in a bottom tow-net in February, 1901. It is a bottom-haunting species usually found on muddy ground.

***Stephos Scotti** G. O. Sars.—Taken occasionally in Fahy Bay, Ballynakill, in 1901.

Scolecithricella minor (Brady).—In a bottom tow-net off Shark Head, 54 fms., in July, 1901. Probably should be regarded as an oceanic species.

Diaixis pygmaea (Scott).—In tow-nettings taken off Cleggan in 1901, one to two miles from shore, scarce.

Family **CENTROPAGIDAE.**

Centropages typicus Kroyer.—Common at Ballynakill in 1901, both in the harbour and in the open sea.

C. hamatus (Lilljeborg).—Very common in inshore tow-nettings at Ballynakill in 1901, much scarcer in the open sea. Killary Harbour.

Isias clavipes Boeck.—Clifden Bay (B. and R.). Common in Ballynakill Harbour in 1901, and in the open sea close to shore.

Temora longicornis (Müll.).—Very common in bays and inlets and in the open sea close to shore. Ballynakill Harbour, Clew Bay, Blacksod Bay.

Metridia lucens, Boeck.—Very common in the open sea along all the west coast of Ireland, and found in much smaller numbers in the bays and inlets.

Family **PSEUDOCYCLOPIDAE.**

Pseudocyclops obtusatus Brady.—Frequent in Ballynakill Harbour, 1901–2.

Family **CANDACIIDAE.**

Candacia armata, Boeck.—Occasionally in the open sea off Cleggan, 1901. Clew Bay, surface, August, 1911.

Family **PONTELLIDAE.**

Anomalocera Pattersoni Templeton.—Occasionally in the open sea off Cleggan, 1901.

Parapontella brevicornis (Lubbock).—Westport and Clifden Bays (B. and R.). Plentiful close to shore, and in all the bays and inlets.

Acartia Clausi Giesbr.—Universally distributed throughout the district both in the open sea and in bays and inlets. A small form, ♀ =·7 mm., was found plentifully in Blacksod Bay in September, 1909, in company with others of normal size, ♀ = ca. 1·15 mm.

A. discaudata (Giesbr.).—Common in Ballynakill and Killary Harbours. This species is characteristic of water of low salinity.

Copepoda Podoplea.

Family **CORYCAEIDAE.**

Corycaeus anglicus Lubbock.—Frequent both in Ballynakill Harbour and in the open sea in the winter of 1901–2.

Family **ONCAEIDAE.**

Oncaea conifera Giesbr.—A common oceanic species taken a few times off Cleggan and Clare Island in 1901.

Family **LICHOMOLGIDAE.**

Lichomolgus fucicolus Brady.—Clifden and Westport Bays (B. and R.). Ballynakill Harbour, October, 1901.

***L. agilis** (Leydig).—Ballynakill Harbour, parasitic on *Eolis papillosa* February, 1902.

***L. albens** Thorell.—Ballynakill, 1901, in *Ascidiella aspersa*, few.

L. forficula Thorell.—Blacksod Bay, in *Ascidia mentula*, September, 1910.

***Hermanella arenicola** (Brady).—Ballynakill Harbour, several, December, 1900.

***H. maxima** (I. C. Thompson).—Ballynakill Harbour, 2 fms., in *Pecten maximus*, May, 1902.

Pseudanthessius furcillatus (Thorell).—Westport Bay (B and R.).

Family **BOMOLOCHIDAE.**

***Bomolochus soleae** Claus.—Ballynakill, 1900, one.

Family **MISOPHRIIDAE.**

Misophria pallida Boeck.—Ballynakill, 1–2 fms., one, February, 1901

Family **LONGIPEDIIDAE.**

Longipedia Scotti G. O. Sars.—Clifden Bay (B. and R. sub *L. coronata*) Ballynakill, frequent, 1901–2. Clew Bay, 14 fms., August, 1910, common. Blacksod Bay, 4 fms., September 10, few.

L. minor Scott.—Ballynakill, common, 1901–2, often in the open sea close to shore. Inishlyre Roads, March, 1910. Blacksod Bay, September, 1911, frequent.

***Sunaristes paguri** Hesse.—Blacksod Bay, washed from weeds between tide-marks, March, 1911, one male.

***Canuella perplexa** Scott.—Blacksod Bay, 4 fms., September 1910, one. Inishgowla, Clew Bay, 1–4 fms., August, 1909, one.

Family **ECTINOSOMIDAE.**

Ectinosoma melaniceps Boeck.—Ballynakill, 1901–2; off Clare Island, 18 fms., August, 1910; Inishlyre Roads, March, 1910; Blacksod Bay, 1911, frequent.

E. erythrops Brady.—Off Killary Harbour, 24 fms., May, 1909, one. The *E. gracile*, figured in Sars' "Crustacea of Norway," appears to be identical with *E. erythrops*, and does not agree at all with the *E. gracile* of Scott's original description.

***E. gothiceps** Giesbr.—Off Clare Island, 18 fms., August, 1910.

E. propinquum Scott.—Off Killary Harbour, 24 fms., May, 1909.

***E. tenuipes** T. & A. Scott.—Off Killary Harbour, 24 fms., May, 1909.

***E. curticorne** Boeck.—Ballynakill Harbour, 1½ fms., April, 1901.

***Pseudobradya minor** (T. & A. Scott).—Off Killary Harbour, 24 fms., May, 1909. The fifth foot of the single specimen, ♀, resembles Scott's figure more than that given by Sars.

Family **HARPACTICIDAE.**

Harpacticus chelifer (Müller).—Clew Bay, 18 fms., August, 1910; off Clare Island, 5 fms., August, 1911.

***H. littoralis** G. O. Sars.—L. Leam, Blacksod Bay (brackish), September, 1909, several.

***H. uniremis**, Kröyer.—I record this species with some doubt, both on account of the locality in which it was taken, between tide-marks in Blacksod Bay, and because the form of the fifth foot (Pl. II, fig. 12), in the ♀, differs slightly from that figured by Sars, the exopod being a little broader, and its setae longer. The other characters agree fairly well, and the size, ♂ 1·45 mm., ♀ 1·35 mm., is approximately the same. Sars records this species from 20 to 100 fathoms on the west coast of Norway.

H. gracilis (Claus).—Ballynakill Harbour, 1901, common. Clew Bay, common, August, 1910, August, 1911.

H. flexus Br. & Rob.—Westport Bay, type specimen (B. & R.). Ballynakill Harbour, 1½ fms., January, 1901. Inishlyre Roads, 2–4 fms., March, 1910. Blacksod Bay, 4 fms., September, 1910.

Zaus spinatus Goodsir.—Ballynakill Harbour, February, 1901. Clew Bay, 18 fms., August, 1910, several. Blacksod Bay, between tide-marks, March 11th, abundant.

***Z. abbreviatus** G. O. Sars.—Blacksod Bay, between tide-marks, March, 1911, one specimen.

Family **PELTIDIIDAE.**

Alteutha depressa Baird (*Peltidium crenulatum*).—Clew Bay, 18 fms., August, 1910, several. Frequent at Ballynakill, 1901–2. Killary Harbour, 1901.

A. interrupta (Goodsir) (*Alteutha bopyroides*).—Plentiful in tow-nettings in Ballynakill Harbour, 1901–2.

A. purpurocincta Norman (=*P. depressum*, Brady, non Baird). Clifden Bay (B. & R. sub *P. depressum*). Occasionally dredged in 1–4 fms. Ballynakill, 1901–2.

Family **TEGASTIDAE.**

***Parategastes sphericus** (Claus).—Inishlyre Roads, 2–4 fms., February, 1910, common. Blacksod Bay, 1–2 fms., September, 1911, several.

***Tegastes nanus** G. O. Sars.—Blacksod Bay, 4 fms., September, 1910, one.

Family **PORCELLIDIIDAE.**

Porcellidium fimbriatum Claus.—Clifden Bay (B. & R.). Westport Bay (B. & R., sub *P. viride*). Ballynakill Harbour, frequent. Blacksod Bay, between tide-marks, few.

P. tenuicauda Claus.—Clifden Bay (B. & R.).

***P. lecanoides** Claus.—Blacksod Bay, between tide-marks, March, 1911, two specimens. The colour of this species is remarkable, the centre of the cephalon and of the abdominal segments being dark crimson, and the thoracic segments and margins of the body colourless, though rather opaque.

Family **IDYIDAE.**

Aspidiscus littoralis G. O. Sars.—Clifden Bay (B. & R. sub *A. fasciatus*). Ballynakill Harbour, 1910, frequent.

***A. fasciatus** Norman.—Blacksod Bay, between tide-marks, 1911, two specimens.

Psamathe longicauda Philippi.—Clifden Bay (B. & R. sub *Scutellidium thisboides*). Ballynakill Harbour, 3–4 fms., December, 1901, two. Blacksod Bay, between tide-marks, September, 1911, one.

Idyaea furcata (Baird).—Blacksod Bay, between tide-marks, 1911. common.

***I. angusta** G. O. Sars.—Blacksod Bay, 1–3 fms., September, 1909, three, 2 fms., September, 1911, one.

***I. tenera** G. O. Sars.—Clew Bay, 18 fms., Aug. 1910, one; 5–6 fms. August, 1911, three.

***I. longicornis** (Scott).—Off Clare Island, 56 fms., August, 1911, two.

Family **THALESTRIDAE.**

Thalestris longimana Claus.—Common at Ballynakill both in dredged material and in tow-nettings taken at night, as are many other species of the Thalestridae. Occasionally taken in the open sea. Frequent in Blacksod Bay.

Parathalestris Clausi (Norman).—Clifden and Westport Bays (B. & R.). Ballynakill, 1901–2, common. Clew Bay, 5–7 fms., May, 1899, August, 1911, common.

P. harpactoides (Claus).—Ballynakill, 1901, frequent. Clew Bay and Blacksod Bay, common. Found swarming in immense numbers under stones between tide-marks, below the whaling station in Blacksod Bay.

P. hibernica (Br. & Rob.).—Westport Bay, type-specimen (B. & R.). Ballynakill Harbour, 1911. Blacksod Bay, surface tow-net, September, 1909.

Phyllothalestris mysus (Claus).—Westport and Clifden Bays (B. & R.). Ballynakill, 1901, frequent in small numbers. Inishlyre Harbour. March, 1910. Blacksod Bay, September, 1909.

Rhynchothalestris rufocincta (Norman).—Clew Bay and Clifden Bay (Brady, Mon.). Ballynakill, 1901, frequent. Blacksod Bay, between tide-marks, September, 1911, common.

R. helgolandica (Claus).—Clifden Bay (Brady, Mon.). Ballynakill, 1901–2 frequent. Blacksod Bay, between tide-marks, September, 1911, frequent.

***Microthalestris littoralis** G. O. Sars.—All the specimens of Microthalestris examined from Clew Bay and Blacksod Bay agree in the form of the fifth feet with *M. littoralis*; but as the variation in size is considerable (·5 mm.–·85 mm.), it is possible that a second species may also be present. Frequent between tide-marks, Blacksod Bay; Clew Bay, 18 fms., August, 1910.

Dactylopusia thisboides (Cls.).—Clifden and Westport Bays (B. & R.). Ballynakill, 1901-2, common. Blacksod Bay, September, 1911, few. A ♀ form of this species with seven setae on the exopodite of the fifth foot and a nine-jointed first antenna, was taken in 24 fms. off Killary Harbour in May, 1909.

D. vulgaris G. O. Sars.—Clew Bay (Brady, Mon. sub *D. Stromii*). Ballynakill, 1901-2, common. Clew Bay, 18 fms., August, 1910, common. Blacksod Bay, 2 fms.

Dactylopodella flava (Cls.).—Clew Bay (Brady, Mon.). Ballynakill, 1901-2, several. Inishlyre Roads, March, 1910, one. Blacksod Bay, between tide-marks, September, 1911, several.

Idomene forficata, Phil.—Off Killary Harbour, 24 fms., May, 1909, one.

Westwoodia nobilis (Baird).—Ballynakill, 1901, few. Clew Bay, 18 fms., August, 1910, several. Blacksod Bay, between tide-marks, September, 1911, several.

W. minuta, Cls.—Westport Bay (Brady, Mon.). Blacksod Bay, between tide-marks and in 2 fms., September, 1911, common.

***W. pygmaea** (Scott).—Ballynakill, 1–2 fms., 1901, one. Blacksod Bay, between tide-marks and in 2 fms., September, 1911, several.

***W. monensis** (Brady).—Ballynakill, in stomach of white trout, 1901, one. Clew Bay, 18 fms., August, 1910, one.

W. SATURNI. n. sp. (Pl. I, figs. 1–4).—FEMALE (Pl. I, fig. 1), length, ·8 mm. Body short and stout, but not so robust as in *W. nobilis*; abdomen bent sharply backwards, about half as long as the cephalothorax, slightly tapered; caudal rami broad and short; 2nd caudal seta from the inside markedly thickened at the base. 1st antenna (Pl. I, fig. 2) short, six-jointed, the terminal part consisting of three joints; proportional length of joints, $\frac{1\ .\ 2\ .\ 3\ .\ 4\ .\ 5\ .\ 6}{14\ .\ 11\ .\ 24\ .\ 6\ .\ 9\ .\ 4}$. Other cephalic appendages as in *W. nobilis*. 1st pair of feet (Pl. I, fig. 4) with endopodite about two and a half times as long as the exopodite. Outer edge seta of 1st joint of endopodite not reaching to the end of the joint, inner terminal claw about three times as long as the outer; exopodite two-jointed, 1st joint with one outer-edge spine, 2nd joint with three outer-edge spines, the middle one being very small, one terminal spine and one terminal seta. 5th pair of feet (Pl. I, fig. 3) almost as in *W. nobilis*, except that the innermost seta on the endopodite is proportionately much shorter. Colour, yellow.

Two specimens dredged in Fahy Bay, Ballynakill, in 1½ fms., February, 1901.

This species agrees in size with *W. nobilis*, but differs in the jointing of the 1st antenna, the two-jointed exopodite of the first feet, and the length of the setae on the 5th feet. It agrees with *W.* (*Pseudothalestris*) *imbricata* Scott, from Ceylon, in most respects, differing in its larger size and in the presence of a small additional outer-edge seta on the second joint of the exopodite of the first feet and in the absence of an inner-edge seta on the same joint.

Family **DIOSACCIDAE.**

Diosaccus tenuicornis (Cls.).—Clifden and Westport Bays (B. & R.). Ballynakill, 1901–2, frequent. Inishlyre Roads, Clew Bay, to 18 fms., and Blacksod Bay, between tide-marks and 18 fms., frequent.

AMPHIASCUS VARICOLOR n. sp. (Pl. II, figs. 1–8; Pl. III, figs. 1, 2).—FEMALE (Pl. III, figs. 1, 2), length 1·05 mm. Body of the usual Amphiascus form, moderately slender, with well-developed rostrum ending bluntly in dorsal view. Anal segment a little shorter than the preceding one. Caudal rami short, about as wide as long, and widely separated. Caudal setae

uniformly tapering. 1st antenna (Pl. II, fig. 1) eight-jointed, moderately long; proportional length of joints, $\frac{25.24.18.22.12.17.10.15.}{1.\ 2.\ 3.\ 4.\ 5.\ 6.\ 7.\ 8}$ 2nd antenna as usual in the genus, exopodite two-jointed, first joint with one, and second with three setae. Mandible (Pl. II, fig. 4) with strongly denticulate cutting edge, three inner-edge setae on second joint, exopodite very small with two setae, and endopodite with two lateral and five terminal setae. Maxilla (Pl. II, fig. 3) with strongly chitinized and denticulate inner basal lobe, which almost forms a second mandible, distal portion feebly developed, but of usual form. 2nd maxilla (Pl. II, fig. 8) with three stout basal lobes as in Diosaccus, with short spines. Maxillipede (Pl. II, fig. 9) with large concave hand and strong claw as in Diosaccus, but comparatively smaller than in that genus. 1st pair of feet (Pl. II, fig. 5) as in Diosaccus rather than Amphiascus, both branches being rather slender, and the two terminal joints of the endopodite smaller than in Amphiascus. 2nd pair of feet, exopodite with 1 . 1 . 3 outer-edge and one terminal spine, and 0 . 1 . 3 inner-edge setae, endopodite with 0 . 0 . 1 outer-edge, one terminal and 1 . 2 . 2 inner-edge setae. 3rd pair of feet, exopodite with 1 . 1 . 3 outer-edge and one terminal spine, and 0 . 1 . 4 inner-edge setae, endopodite with 0 . 0 . 1 outer-edge, one terminal, and 1 . 2 . 3 inner-edge setae. 4th pair of feet similar to the 3rd, except that there are only 1 . 1 . 3 inner-edge setae on the endopodite. 5th pair of feet (Pl. II, fig. 6), small, with comparatively short spiniform setae, inner extension of basal joint with five setae, distal joint with six setae. The 6th pair of feet is represented by three fine setae on each side of the front margin of the genital segment.

Male, length 1·0 mm. 1st antenna of usual prehensile form. 1st pair of feet with a short, blunt hook on the inner margin of the second basal joint. Endopodite of 2nd pair of feet with the second joint terminated by two strong spines and two very small setae. 5th pair of feet (Pl. II, fig. 7) with two setae on the inner extension of the first joint, and four on the second joint.

Colour, second and third thoracic segments bright crimson, abdomen yellow.

This species might be mistaken for *Amphiascus cinctus*, which it greatly resembles when fresh, but it may be distinguished by the absence of the longitudinal dorsal band on the cephalon, and by the abdomen being yellow instead of colourless. A few specimens have been found of a uniform yellow colour.

This species is in some respects intermediate between the genera Diosaccus and Amphiascus; it is, however, quite distinct from Scott's Pseudodiosaccus, which also exhibits characters of both genera. The first pair of feet and the 1st and 2nd maxillipedes agree with Diosaccus rather than Amphiascus, but the form and proportions of the body and the form of the 2nd antenna are of the Amphiascus type.

***A. cinctus** (Cls.)—? Westport Bay (B. & R.). Blacksod Bay, between tidemarks, September, 1911, common.

***A. obscurus** G. O. Sars.—Clew Bay, 18 fms., August, 1910, two. Blacksod Bay, between tidemarks, March, 1911, two. These specimens do not agree exactly with Sars' description and figures. They are distinctly larger, ♀ 1·28 mm., ♂ 1·12 mm., and the female has only six setae on the second joint of the 5th pair of feet, which thus resemble those of *A. cinctus*. The colour is the same as in Sars' specimens, the thoracic and abdominal segments being of a dark reddish chocolate with the appendages and caudal rami stained indigo.

***A. similis** Claus.—Ballynakill, 1901, 6–8 fms., one, 1–2 fms., one. Blacksod Bay, between tidemarks, September, 1911, one.

***A. phyllopus** G. O. Sars.—Blacksod Bay, 4 fms., September, 1910, one ♀. The 5th feet in this specimen are slightly wider than shown in Sars' figure, approaching in form those of *A. latifolius*.

***A. minutus** Claus.—Inishlyre Roads, 2–4 fms., March, 1910, several.

***A. longirostris** Claus.—Clew Bay, 18 fms., August, 1910, two.

***A. debilis** G. O. Sars.—Ballynakill, 2 fms., 1901, one.

A. imus (Brady).—Clew Bay, in dredge (Brady, Mon.).

***A. simulans** (Scott).—Off Killary Harbour, 24 fms., May, 1909, several. The peculiar form of the first antennae, amongst other characters, distinguishes this species from the allied *A. sinuatus* and *A. spinulosus*.

***A. attenuatus** G. O. Sars.—Off Killary Harbour, 24 fms., May, 1909, two.

A. hispidus (Brady).—Clew Bay, 10 fms. (Brady, Mon.). Ballynakill, 1901, one.

A. SPINIFER, n. sp. (Pl. III, figs. 3–9).—FEMALE (Pl. III, fig. 3), length 6 mm. Body moderately slender, slightly tapered posteriorly. Rostrum (Pl. III, fig. 6) very long, more than half the length of the cephalic segment, contracted towards the tip as in *A. lagenirostris*, but not so wide basally as in that species. The 5th thoracic segment bears dorsally a pair of large upward-directed spines, and the posterior dorsal margins of the abdominal segments (Pl. III, fig. 4) bear transverse rows of much smaller spines, about eight spines in each row. Anal segment short, deeply hollowed between the furcal rami, which are short, slightly longer than

wide, and separated by about two and a half times their own width. First antenna (Pl. III, fig. 6) slender, eight-jointed, proportional length of joints $\frac{1.\ 2.3.\ 4.5.6.7.8}{16.22.7.10.3.4.4.7}$, the second joint with a small tooth on its upper distal margin. Second antenna (Pl. III, fig. 7) slender, outer branch three-jointed, the first two joints each with a distal seta, the third joint with a lateral and two much smaller terminal setae. Maxillipede (Pl. III, fig. 9) with a slender hand and claw. First foot (Pl. III, fig. 5) slender, outer branch much shorter than the inner, inner branch with second and third joints together equal to about one-third of the first joint, third joint twice as long as the second. Second to fourth feet almost exactly as in *A. lagenirostris*.

Fifth feet with long and narrow parallel-sided second joint bearing one inner edge, two terminal and three lateral setae. First joint with three terminal and two lateral setae and a small tooth distally on the outer margin.

This species is allied to *A. lagenirostris*, but can easily be recognized by its narrower rostrum and the great development of spines on the abdomen and last thoracic segment. Several specimens were taken in May, 1909, off Killary Harbour in 24 fms. in a tow-net attached to a dredge.

Family **CANTHOCAMPTIDAE**.

***Mesochra pygmaea** Cls.—Blacksod Bay, between tidemarks, one.

***Ameira attenuata** Thomps.—Off Killary Harbour, 24 fms., one. Agrees with Sars' figures as given under *A. tenella*.

***A. tau** (Giesbrecht).—Ballynakill, 1901, 1–3 fms., one.

***A. minuta** Boeck.—Blacksod Bay, March, 1911, between tidemarks, two.

***Ameiropsis longicornis** G. O. Sars.—Blacksod Bay, September, 1911, 2 fms., one. The specimen differs slightly from Sars' figures; and I give figures of the first and fifth feet (Pl. II, figs. 13, 14).

***A. nobilis** G. O. Sars.—Off Killary Harbour, 24 fms., May, 1909, one.

***Stenocopia spinosa** (Scott).—Off Killary Harbour, 24 fms., May, 1909, few.

***S. longicaudata** (Scott).—Ballynakill, 1901, 1–2 fms., one.

***Leptomesochra attenuata** (Scott).—Off Killary Harbour, 24 fms., May, 1901, one.

***Paramesochra dubia** Scott.—Off Killary Harbour, 24 fms., May, 1909, two females, length ·54 mm.

***Tetragoniceps malleolata** Brady.—Off Killary Harbour, 24 fms., May, 1909, few. This is the true *T. malleolatus* of Brady, and not the species referred

to under that name by Scott, which, as Sars has pointed out, was a new species (*T. Scotti* Sars). Both females and males were present, the latter, until now, unknown. The fifth feet of the male are here figured (Pl. III, fig. 10).

***Pteropsyllus consimilis** Scott.—Off Killary Harbour, 24 fms., May, 1909, few.

Family **LAOPHONTIDAE**.

***Laophonte cornuta** Phil.—Ballynakill, 1901, few. Blacksod Bay, between tidemarks, several. Inishlyre Harbour, 24 fms., March, 1910, few. Clew Bay, 18 fms., August, 1910, two.

L. similis (Claus).—Westport and Clifden Bays (B. & R.). Clew Bay, 18 fms., August, 1910, common. Blacksod Bay, between tidemarks, March, 1911, one.

L. horrida Norman.—Inishgowla Harbour, Clew Bay, 1–4 fms., August, 1909, one.

***L. stromi** (Baird).—Clew Bay, 18 fms., August, 1910, two. Blacksod Bay, between tidemarks, March, 1911, one.

L. serrata (Claus).—Clew Bay (Brady, Mon.). Clew Bay, 18 fms., August, 1910, one.

***L. thoracica** Boeck.—Inishlyre Harbour, 2–4 fms., March, 1910, one.

***L. Koreni** Boeck.—Clew Bay, 18 fms., August, 1910, one. Blacksod Bay, between tidemarks, March, 1911, several.

***L. brevirostris** (Claus).—Blacksod Bay, between tidemarks, September, 1911, common. Inishlyre Harbour, 2–4 fms., March, 1910, two.

L. BULLIGERA n. sp. (Pl. I, figs. 5–10, Pl. II, fig. 11).—FEMALE (Pl. I, fig. 5), length ·53 mm. Body slightly depressed, thus appearing slender in lateral view, with posterior margins of all the segments finely spinulose. There is a marked constriction indicating the fusion of the 1st and 2nd abdominal segments to form the genital segment, and the postero-lateral margins of 1st–3rd abdominal segments are produced and spinulose (Plate I, fig. 10). Anal segment as long as the preceding. Furcal rami small, widely separated, about half as long as the anal segment, and two-thirds as wide as long. Furcal setae long and slender, uniformly tapering. First antenna (Pl. I, fig. 7) slender, moderately long, six-jointed, with scanty setae; proportional length of joints $\frac{1.\ 2.\ 3.\ 4.\ 5.\ 6}{21.24.23.7.4.19}$. Second antenna (Pl. I, fig. 6); endopodite one-jointed with one stout terminal and three more slender lateral setae. Maxillipede with narrow hand and slender finger. First feet (Pl. I, fig. 8), endopodite slender with moderately strong terminal claw, exopodite two-

jointed, first joint with one, second with five setae. Second and third feet of the usual type. Fourth feet (Pl. II, fig. 11), endopodite two-jointed, first joint without setae, second joint with two terminal and two inner-edge setae. The second inner edge seta has a remarkable expanded base, to the distal side of which is attached a curious glandular or sensory organ which appears to consist of an oval mass of protoplasm without any definite structure or chitinous covering, analogous probably to the "aesthetasks" of the 1st antennae, occurring throughout the order, or the modified setae on the second maxillae of the Scolecithricidae. Fifth feet (Pl. I, fig. 9) of the same type as in *Laophonte elongata* and *L. typhlops*, the second joint being parallel-sided, about five times as long as broad, with four outer-edge setae, the two most proximal being placed almost alongside each other, one slender terminal seta and one on the inner edge. The short parallel-sided portion of the first joint carries two terminal setae, and there are two setae on the inner margin.

This species is closely allied to *Laophonte elongata*, *L. typhlops*, and *L. longiremis*, but may be readily distinguished from the first two by its much shorter furcal rami, and from the last by its six-jointed antenna, two-jointed exopodite of the first feet, and different number and arrangement of setae on the fifth feet. In the peculiar structure of the fourth feet it agrees with none of the three.

Several specimens were taken in Blacksod Bay, 1–3 fms., in September, 1909, and September, 1911.

***L. littoralis** Scott.—Clew Bay, 18 fms., August, 1910, two. Though the habitat, tidal pools and brackish water, recorded by Scott and Sars for this species, differs from that in which specimens were found in Clew Bay, there seem to be no structural grounds for regarding them as distinct.

L. curticauda Boeck.—Clifden and Westport Bays (Brady, Mon.).

***L. congenera** Sars.—Ballynakill, 1901, 6–8 fms., one.

***L. denticornis** Scott.—Off Killary Harbour, 25 fms., May, 1909, one.

L. longicaudata Boeck.—Off Killary Harbour, 25 fms., May, 1909, one.

***L. elongata** Boeck.—Off Killary Harbour, 25 fms., May, 1909, several.

***L. bulbifera** Norman.—Ballynakill, 1901, in dredged material from 1–2 fms., one; Blacksod Bay, 4 fms., September, 1910, one.

Laophontopsis lamellifera (Claus).—Ballynakill, 1901, 1–2 fms., one.

Asellopsis hispida Br. & Rob.—Westport Bay, surface-net, type-specimen (B. & R.). Clew Bay, 15–17 fms., tow-net on dredge, August, 1910, one.

***Laophontodes bicornis** (A. Scott).—Ballynakill, 1901, frequent in dredged material. Inishlyre Roads, 2–4 fms., March, 1910, one. Blacksod Bay, between tide-marks, September, 1911, few.

Normanella minuta (Boeck).—Clew Bay (Brady, Mon., sub *Normanella dubia*).

Family **CLETODIDAE.**

Cletodes limicola Brady.—Westport Bay, dredge (B. & R.).

***C. tenuipes** Scott.—Inishowla Harbour, Clew Bay, 1–4 fms., August, 1909.

Orthopsyllus linearis (Claus).—Westport Bay, on a sponge (B. & R.).

***Eurycletodes similis** (Scott).—Ballynakill, 1901, 1–2 fms., one. Off Killary Harbour, 24 fms., May, 1909, one. Blacksod Bay, ½–3 fms., September, 1909, one.

Enhydrosoma propinquum (B. & R.).—Clew Bay (Brady, Mon.). Blacksod Bay, 4 fms., September, 1910, one.

***E. curticaudatum** (Boeck).—Ballynakill, 1½–2 fms., one.

Rhizothrix curvata Brady.—Inishgowla Harbour, Clew Bay, 4 fms., August, 1909, several.

Family **CYLINDROPSYLLIDAE.**

***Cylindropsyllus laevis** Brady.—Off Killary Harbour, 24 fms., May, 1909, two.

Family **TACHIDIIDAE.**

Tachidius brevicornis Lilljeb.—L. Leam, Blacksod Bay, September, 1909, one.

Family **METIDAE.**

Metis ignea Phil.—Blacksod Bay, between tide-marks, September, 1909, September, 1911, several.

Family **CYCLOPIDAE.**

Cyclopina littoralis Brady.—Ballynakill and Killary Harbour, 1901, frequent.

C. gracilis Claus.—Ballynakill Harbour, 1901.

Eurete longicaudata Phil.—Westport and Clifden Bays (B. & R. sub *Thorellia brunnea*).

Oithona nana Giesbr.—Common in Ballynakill and Killary Harbours in 1901.

O. similis Giesbr.—Common throughout the district, both in the open sea and in bays and inlets.

O. pelagica Farran.—I use this name for the species usually recorded from the north-east Atlantic as *O. plumifera*, although it appears to be specifically distinct. It is an oceanic form, but occurred a few times in the open sea off Cleggan in 1901.

Cyclops aequoreus Fischer.—Clifden Bay (B. & R.).

Family **MONSTRILLIDAE.**

***Thaumaleus rostratus** Scott.—Off Inishbofin Harbour, 1900, two females.

***T. rigidus** (I. C. Thompson).—Ballynakill Harbour, 1901–2, tow-nets 1–2 fms., four females, lengths, 2·1–2·7 mm. These specimens agree in size and proportion with *T. rigidus* as re-described by T. Scott. The last two segments of the abdomen are, however, completely separated—not partially as in Scott's specimens.

Family **ASCIDICOLIDAE.**

***Ascidicola rosea** Thorell.—Blacksod Bay, March, 1911, 2 fms., one in *Cynthia* sp.

Notodelphys Allmanni Thorell.—Killary Bay (Brady, Mon.). Blacksod Bay, September, 1911, from *Ascidia mentula* between tide-marks.

***Notopterophorus elongatus** Buchholz. (*Dorypygus auritus*).—Blacksod Bay between tide-marks, September, 1910, in *Ascidiella aspersa*; September, 1911, in *Ascidia mentula*.

***Notopterophorus papilio** Hesse.—Ballynakill, 1902, in *Ascidia mentula*, many. These agree with the form figured by Scott, in which the wings are not greatly developed.

***Enterognathus comatulae** Giesbr.—Taken a few times in Ballynakill Harbour in 1901, parasitic in *Antedon rosea* dredged in about 5 fms. The parasite is to be found lodged in the anal extremity of the intestine of the Antedon with the furcal rami projecting into the open. When disturbed it withdraws itself completely within the body of its host.

Family **ASTEROCHERIDAE.**

Asterocheres lilljeborgi Boeck.—Westport Bay, on a sponge (B. & R.).

Dermatomyzon nigripes (Br. & Rob.).—Ballynakill, 1902, 3–8 fms., one.

***Rhynchomyzon purpurocinctum** (Scott).—Ballynakill, 1901, 4–6 fms., one.

Acontiophorus scutatus (Br. & Rob.).—Clifden Bay, on Laminaria fronds, type-specimen (B. & R.). Westport Bay (Brady, Mon.). Ballynakill, 1902, 3–8 fms., one.

***Scottocheres elongatus** (Scott).—Ballynakill, 1902, 4–6 fms., one.

Dyspontius striatus Thorell.—Ballynakill, 1902, 3–8 fms., one.

***Cancerilla tubulata** Dalyell.—Killary Harbour, 1911, 3 fms., on *Amphiura elegans*.

CIRRIPEDIA.

Lepas anatifera Linn.—Frequently drifted into the district on floating timber.

L. fascicularis Ell. & Soll.—Much scarcer than the last, but occasionally occurs on floating weed. Unusually large numbers of well-grown colonies were noticed off Cleggan, and for several miles to seaward in August, 1903.

Verruca stromia Müll.—Plentiful in Blacksod Bay, from L.W.M. downwards, on bare rocks and stones. Only exposed by very low spring-tides.

Balanus balanoides Linn.—Universally covering exposed rocks and stones from high- to low-water mark.

B. porcatus Da Costa.—Blacksod Bay, September, 1909, on *Mytilus modiolus* from $4\frac{3}{4}$ fms.

EXPLANATION OF PLATES.

PLATE I.

Westwoodia saturni, n. sp.

FIG.

1. Female lateral view.
2. „ first antenna.
3. „ fifth foot.
4. „ first foot.

Laophonte bulligera, n. sp.

5. Female, lateral view.
6. „ second antenna.
7. „ first antenna.
8. „ first foot.
9. „ fifth foot.
10. „ abdomen dorsal view.

PLATE II.

Amphiascus varicolor, n. sp.

FIG.

1. Female, first antenna.
2. „ endopodite of second antenna.
3. „ first maxilla.
4. „ mandible.
5. „ first foot.
6. „ fifth foot.
7. Male, fifth foot.
8. Female, second maxilla.
9. „ maxillipede.
10. „ endopodite of second foot.

Laophonte bulligera, n. sp.

11. Female, fourth foot.

Harpacticus uniremis Kröyer.

12. Female, fifth foot.

Ameiropsis longicornis, G. O. Sars.

13. Female, fifth foot.
14. „ first foot.

Plate III.

Amphiascus varicolor, n. sp.

Fig.

1. Female, dorsal view.
2. „ lateral view.

Amphiascus spinifer, n. sp.

3. Female, lateral view.
4. „ abdomen dorsal view.
5. „ first foot.
6. „ rostrum and first antenna.
7. „ second antenna.
8. „ fifth foot.
9. „ maxillipede.

Tetragoniceps malleolata, Brady.

10. Male, fifth foot.

Plate III.

Amphiascus varicolor, n. sp.

Fig.

1. Female, dorsal view.
2. „ lateral view.

Amphiascus spinifer, n. sp.

3. Female, lateral view.
4. „ abdomen dorsal view.
5. „ first foot.
6. „ rostrum and first antenna.
7. „ second antenna.
8. „ fifth foot.
9. „ maxillipede.

Tetragoniceps malleolata, Brady.

10. Male, fifth foot.