

the front has a few transverse striæ. Mesonotum closely and rather strongly punctured and thickly covered with short fuscous pubescence. The pyramidal scutellum is more sparsely punctured and is covered with long pale fuscous hair; on its sides are two or three longitudinal keels or striæ. The basal half of the postscutellum is closely longitudinally striated. Median segment closely and strongly punctured, except the areola, which is smooth and shining; the posterior median area is coarsely transversely striated, more regularly at the base than elsewhere; in the centre is a stout longitudinal keel. Mesopleuræ closely punctured, except on the apex above, where it is smooth. The spiracular area, behind the spiracles, coarsely obliquely striated; the metapleuræ strongly and closely punctured, the punctures running into striations. Abdomen uniformly coloured; the postpetiole obliquely stoutly striated in the middle; the segments are closely and uniformly punctured; the basal half of the second is stoutly, longitudinally, closely striated; the gastro-cœli smooth, with curved stout striæ on the basal half.

May be known from *E. ferruginea* by the abdomen being entirely ferruginous.

Lagenesta ferruginea, Cam.*

The male of this species agrees with the female in coloration. It has a long and narrow abdomen, as in *Erythrojoppa ferruginea*, with which species it agrees closely in form and coloration. It may be known easily from the latter by the flat, not pyramidal, scutellum. The antennæ are serrate.

[To be continued.]

XXI.—*Some Observations on British Freshwater Harpactids.*
By THOMAS SCOTT, F.L.S.

SINCE the publication of the Monograph of the free and semiparasitic Copepoda of the British Islands by Professor G. S. Brady—a work which gave a fresh impetus to the study of these interesting organisms and which is indispensable to those who desire to become familiar with the group—greater attention has been devoted to the examination of the freshwater forms, and a number of rare and, in some cases,

* Ann. & Mag. Nat. Hist. ser. 7, vol. vii. p. 377.

new species have been added to the fauna of our inland waters*. Several of these additional forms belong to the Harpacticidæ, which is one of the largest of the families of the Copepoda.

The Harpactids which form the subject of the following observations are all included in the subfamily Canthocamptinæ, G. S. Brady, and are distributed amongst the succeeding five genera, viz.:—*Canthocamptus*, Westwood; *Nitocra*, Boeck; *Attheyella*, G. S. Brady; *Moraria*, T. & A. Scott; and *Maraenobiotus*, Al. Mrazek.

A few remarks are made on the distinctive characters of each genus, but the species are not described; descriptions and figures of these will be found in the works which are referred to in connexion with each of the species recorded.

Subfamily CANTHOCAMPTINÆ, G. S. Brady.

Genus CANTHOCAMPTUS, Westwood, 1836.

The nine species grouped together under *Canthocamptus* have eight- or nine-jointed antennules. The inner branches of the first pair of thoracic feet are *non-prehensile*, and they are usually *three-jointed and longer than the outer branches*. The inner branches of the next three pairs are shorter than the outer ones and composed of two or three joints, the *first joint being considerably smaller* than the one next to it.

Canthocamptus staphylinus (Jurine) †.

1820. *Monoculus staphylinus*, Jurine, Hist. des Monocles, p. 74, pl. vii. figs. 1-19.

1880. *Canthocamptus minutus*, Brady, Brit. Copep. vol. ii. p. 48, pl. xliv. figs. 1-17.

This is one of the more common and generally distributed species belonging to the freshwater Harpacticidæ of the British Islands; it is also the largest, and measures rather more than a millimetre in length.

* Prof. W. Lilljeborg has recently published an important work on the freshwater Harpacticidæ of Sweden, 'Kongl. Svenska Vetenskaps-Akademiens Handlingar,' Bd. xxxvi. no. 1. This work should be of interest to British students, for of the seventeen species described by the author twelve at least are also found in the inland waters of the British Islands.

† See Additional Note at end of this paper.

Canthocamptus horridus, S. Fischer.

1860. *Canthocamptus horridus*, S. Fischer, "Beitr. z. Kennt. d. Entomotr.," Abhandl. d. math.-phys. Classe der königl. bayer. Akad. d. Wissensch. 8ten Bandes, 3te Abth. p. 670, t. ii. figs. 57-59, 59a.
 1880. *Canthocamptus northumbicus*, G. S. Brady, *op. cit.* vol. ii. p. 57, pl. xlv. figs. 1-14.

This species, which has been identified as the *Canthocamptus horridus* of S. Fischer, appears to be rare in British inland waters. The only Scottish record I have for it is Duddingston Loch, near Edinburgh; Dr. and Miss Sprague also record it from Edinburgh, but they do not give any locality*. Dr. Brady obtained it sparingly in the lake at Bolam, Northumberland, and Mr. D. J. Scourfield has taken it near London.

Canthocamptus gracilis, G. O. Sars.

1863. *Canthocamptus gracilis*, G. O. Sars, "Overs. af den indenl. Ferskv.-Copep.," Vidensk. i Christiania Förhandl. for 1862 (Aftr.), p. 22.
 1897. *Canthocamptus inornatus*, T. Scott, Fifteenth Rep. Fishery Board for Scotland, pt. iii. p. 323, pl. ix. figs. 1-12.
 1902. *Canthocamptus gracilis*, Lilljeborg, Synopsis Spec. hucusque in aquis dulcibus Sueciæ observ. Fam. Harpactic. p. 26, t. ii. figs. 8-13 (see footnote, p. 1).

There appears to be no doubt that the species which I described in 1897 under the name of *Canthocamptus inornatus* is identical with the *C. gracilis* of G. O. Sars. I have found it in several small lochs in Scotland, such as Rescobie Loch, near Forfar, Linlithgow Loch, one or two small lochs near Edinburgh, Loch Achroy (Trossachs), and others. It has been taken in the Isle of Wight by Mr. D. J. Scourfield, and my son, Mr. A. Scott, has sent it to me from Lancashire.

Canthocamptus trispinosus, G. S. Brady.

1880. *Canthocamptus trispinosus*, G. S. Brady, *op. cit.* vol. ii. p. 55, pl. xlv. figs. 15-22.

This appears to be a rare species in the inland waters of the British Islands, but it has apparently an extensive continental distribution; it has been recorded by Herr H. Rehberg, Dr. S. A. Poppe, Dr. O. Schmeil, and Prof. W. Lilljeborg. I know of no Scottish locality for *C. trispinosus*, and the only station for it mentioned by Dr. Brady is the River Nene near Peterborough; but Mr. D. J. Scourfield records

* Trans. Edin. Field Nat. & Micros. Soc. vol. iv. (1900-1901).

it from one or two ponds near London*, and the Rev. A. M. Norman has quite recently sent me specimens from Wroxham, Norfolk.

Canthocamptus minutus, Claus.

1863. *Canthocamptus minutus*, Claus, Die frei lebenden Copepoden, p. 122, t. xii. figs. 1-3.

1895. *Canthocamptus minutus*, T. & A. Scott, Ann. Scot. Nat. Hist. (Oct. 1895), p. 236, pl. iv. figs. 14-20.

This is one of the smaller of the freshwater Harpactids, and its distribution appears to be coextensive with the British Islands; but it is only within recent years that it has been recognized as a member of the British Copepod fauna.

Canthocamptus hirticornis, T. Scott.

1895. *Canthocamptus hirticornis*, T. Scott, Thirteenth Rep. Fishery Board for Scotland, pt. iii. p. 251, pl. ix. figs. 13-26.

1902. *Canthocamptus megalops*, Lilljeborg, "Synop. Spec. hucusque in aquis dulcibus Sueciæ observ. Fam. Harpact.," K. Sv. Vet.-Akad. Handlingar, Band xxxvi. no. 1, p. 30, pl. ii. figs. 14-19.

This is a widely distributed species, at least in Scotland; it has been found in small lochs in the Outer Hebrides and in Shetland, as well as in several places on the mainland; but it occurs usually near the sea. It has been obtained in water that appeared to be quite fresh, as well as in slightly brackish water. I have no record of it from any inland locality. Mr. D. J. Scourfield has taken *C. hirticornis* in a marsh near Barmouth Junction, North Wales†.

The form recorded recently by Herr Prof. Lilljeborg in his interesting work on the freshwater Harpacticidæ of Sweden under the name of *Canthocamptus megalops* appears to be identical with *C. hirticornis*.

Canthocamptus palustris, G. S. Brady.

1880. *Canthocamptus palustris*, G. S. Brady, Mon. Brit. Copep. vol. ii. p. 53, pl. xxxix. figs. 13-23.

1895. *Canthocamptus palustris*, var. *elongatus*, T. & A. Scott, Ann. & Mag. Nat. Hist. (6) vol. xv. p. 459, pl. xvi. figs. 7-17.

Though *Canthocamptus palustris* has a distribution extending from Shetland to the Scilly Islands it does not appear to be very common. Its usual habitat is in ponds and

* "The Entomostraca of Epping Forest, Part II.," The Essex Naturalist, vol. x. p. 260, tab. i. (1898).

† "Entomostraca of North Wales," Journ. Quekett Microscopical Club, ser. ii. vol. vi. p. 135 (Nov. 1895).

marshes within reach of the sea. It was taken by Dr. G. S. Brady in a brackish-water pond at St. Mary (Scilly), also in the vicinity of the River Stour at Manningtree, and in Oulton Broad (Suffolk); and the Rev. A. M. Norman obtained it at Isle Oronsay, Skye. I found *Canthocamptus palustris* in 1890 in shore-pools on May Island, Firth of Forth; the same species occurred in a gathering of Entomostraca sent to me from Shetland by Mr. Robert Duthie, Fishery Officer, collected in the Loch of Beiton in Unst in 1895; this loch is situated somewhat above high-water mark, and at that time the water it contained, if at all brackish, was only slightly so. In 1896 *C. palustris* was taken with other brackish-water forms in gatherings from shore-pools near Langbank and near Dumbarton, Firth of Clyde, and in 1898 in a gathering from shore-pools at Hunterston, also in the Clyde district.

Canthocamptus Schmeilii, Mrazek.

1893. *Canthocamptus Schmeilii*, Mrazek, "Beitrag zur Kenntniss der Harpacticidenfauna des Süßwassers," Zool. Jahrb. sieb. Bd. p. 116, t. vii. figs. 107-117.

1895. *Canthocamptus Schmeilii*, T. & A. Scott, Ann. Scot. Nat. Hist. (Oct. 1895), p. 234, pl. iv. figs. 1-13.

Though this species resembles those previously mentioned in having the inner branches of the first pair of thoracic feet longer than the outer branches, it differs in having these branches composed of two subequal joints, instead of being three-jointed. *C. Schmeilii* appears to be moderately rare in the lochs of Scotland. The only records I possess are as follow:—Loch Leven, Kinross, collected in June 1890, but not described till 1895 (in this gathering the species was moderately frequent); Park Loch, near Campbeltown, Cantyre, collected in August 1897; Loch Lomond, near Balmaha, collected in June 1898.

Canthocamptus crassus, G. O. Sars.

1863. *Canthocamptus crassus*, G. O. Sars, "Overs. indenl. Ferskv.-Copep.," Vidensk. i Christiania Förhandl. for 1862 (Aft.), p. 23.

1880. *Attheyella spinosa*, Brady, Mon. Brit. Copep. vol. ii. p. 58, pl. xliii. figs. 15-18, pl. xlvi. figs. 13-18.

1893. *Attheyella spinosa*, T. Scott, Eleventh Rep. Fishery Board for Scotland, pt. iii. p. 225, pl. vi. figs. 11-20.

1893. *Canthocamptus crassus*, O. Schmeil, Deutschl. freileb. Süßw.-Copep., ii. Teil, Harpact. p. 37, t. iv. figs. 1-13.

In this species, though the inner branches of the first thoracic feet are three-jointed, they are comparatively short, being only slightly longer than the outer branches.

Canthocamptus crassus appears to be generally distributed and moderately frequent in most of our inland waters from Unst to Land's End, and it is one of the more easily recognized forms.

I am in doubt as to whether this species should be ranked among the members of the present genus; but as it seems to be equally out of place in any of the other groups of *Canthocamptinæ*, I thought it was better to leave it in the genus to which G. O. Sars assigned it.

Genus NITOCRA, Boeck.

The species included under this genus resemble very closely some of those in the genus *Canthocamptus*. The antennules are usually eight-jointed; the secondary branches of the antennæ are small and one-jointed; the mandible-palp is two-jointed, and the inner branches of the first pair of thoracic feet, which are not much longer than the outer branches, are three-jointed and *prehensile*. The inner branches of the next three pairs are also composed of three joints. The *prehensile* character of the inner branches of the first pair appears to constitute the chief point of difference between *Nitocra* and *Canthocamptus*. One British freshwater Harpactid has been assigned to this genus.

Nitocra hibernica (G. S. Brady).

1880. *Canthocamptus hibernicus*, G. S. Brady, Mon. Brit. Copep. vol. ii. p. 52, pl. xlv. figs. 1-12.

1893. *Nitocra hibernica*, Schmeil, Deutschl. freileb. Süßw.-Copep., ii. Teil, Harpact. p. 78, t. vii. figs. 1-16.

I do not at present know of any Scottish station for this species. Prof. G. S. Brady states that specimens were sent to him by the late David Robertson of Millport, who found them plentifully in Mullingar Canal at Dublin and in a lake near Newport, Co. Mayo. Mr. D. J. Scourfield has taken *Nitocra hibernica* in a pond near London*.

Genus ATTHEYELLA, G. S. Brady, 1880.

The species included here under *Attheyella* have the antennules short and usually eight-jointed; the secondary branches of the antennæ are small and one- (rarely two-) jointed; mandible-palp small and composed of two articulations; inner branches of first pair of feet scarcely, if at all,

* "Entomostraca of Epping Forest, Part II.," The Essex Naturalist, vol. x. p. 260, tab. i. (1898).

longer than the short outer branches, and composed of *two subequal joints*; inner branches of the second, third, and fourth pairs two-jointed, *first joint small*.

Attheyella pygmæa (G. O. Sars).

1863. *Canthocamptus pygmæus*, G. O. Sars, "Overs. indenl. Ferskv.-Copep.," Vidensk.-Selsk. i Christiania Förhandl. 1862 (Afttr.), p. 21.
 1880. *Attheyella cryptorum*, Brady, *op. cit.* vol. ii. p. 60, pl. lii. figs. 1-18.
 1893. *Attheyella cryptorum*, T. Scott, Eleventh Rep. Fishery Board for Scotland, pt. iii. p. 225, pl. vi. figs. 21-31.

This small species appears to be generally distributed and of frequent occurrence in the inland waters of the British Islands. It may be distinguished from the closely allied species *Attheyella Zschokkei* (Schmeil) by the long curved terminal setæ of the outer branches of the fourth pair of thoracic feet and by the depressed opercular plates.

Attheyella Zschokkei (Schmeil).

1893. *Canthocamptus Zschokkei*, Schmeil, Copep. des Rhätikon-Gebirges, pp. 31-36, Taf. iii.
 1893. *Attheyella propinqua*, T. Scott, Eleventh Rep. Fishery Board for Scotland, pt. iii. p. 227, pl. vii. figs. 1-11.

This species, which may readily be mistaken for the one previously described, appears to have an equally extensive distribution, but it is not so frequently met with. There are, however, comparatively few of the Scottish lochs which I have examined where it has been entirely absent. Mr. D. J. Scourfield has taken *A. Zschokkei* near London. In this species the terminal setæ of the outer branches of the fourth feet have not the long, slender, curved ends so characteristic of *A. pygmæa*, but the opercular plate is more prominent. Dissection shows, of course, other points of difference, but the differences just referred to may be seen without dissection and with the aid of a hand-lens.

Attheyella Duthiei, T. & A. Scott.

1895. *Attheyella Duthiei*, T. & A. Scott, Ann. & Mag. Nat. Hist. (6) vol. xviii. p. 4, pl. ii. figs. 1-13; also Fourteenth Rep. Fishery Board for Scotland, pt. iii. p. 241, pl. ix. figs. 1-11.
 1902. *Canthocamptus Duthiei*, Lilljeborg, "Synop. Spec. hucusque in aquis dulcibus Sueciæ observ. Fam. Harpactic.," K. Sv. Vet.-Akad. Handlingar, Bd. xxxvi. no. 1, p. 41, pl. iii. figs. 5-10.

Though the distribution of this species appears to be extensive, it has not been very frequently met with. It was

obtained in one or two small lochs in Shetland in 1894 by Mr. Robert Duthie, Fishery Officer, who was at that time stationed there. It was collected by myself in Loch Leven, Kinross, in 1890 (but not determined till 1895), and again in 1897 and 1898, and these are the only British localities for this species known to me. The discovery of it in Sweden by Prof. Lilljeborg is very interesting and indicates an extensive distribution for the species.

Attheyella rhætica (Schmeil).

1893. *Canthocamptus rheticus*, Schmeil, Copepodes des Rhätikon-Gebirges*, p. 23, t. ii.

1895. *Attheyella MacAndrewæ*, T. & A. Scott, Ann. & Mag. Nat. Hist. (6) vol. xv. p. 457, pl. xvi. figs. 1-6.

I have found this species in only a single Scottish locality, viz. in Lochan-a-Chaite—a small loch on Ben Lawers, Perthshire, situated at an altitude of about 2400 feet above sea-level. Mr. D. J. Scourfield has obtained the same species amongst wet algæ from Cym Glas, Snowdon, North Wales†. In September 1896 I collected in Loch Vennachar, Perthshire, specimens of what appeared to me at the time to be a variety of *Attheyella rhætica*‡; but these turned out to belong to the next species.

Attheyella cuspidata (Schmeil).

1893. *Canthocamptus cuspidatus*, Schmeil, *op. cit.* p. 36, t. iv.

1897. *Canthocamptus cuspidatus*, T. Scott, Fifteenth Rep. Fishery Board for Scotland, pt. iii. p. 323, pl. ix. figs. 21, 22.

This species has been obtained in Loch Vennachar, Perthshire, and Loch Fad, in Bute; also in Loch of Tingwall (Scalloway) and Loch of Brough (Bressay), both in Shetland. It was taken in Loch Etichan and in Loch-an-eion, Aberdeenshire, in 1898, by Mr. R. M. Clark, B.Sc., F.L.S. Loch Etichan is situated to the northward of Braemar, the other is a small loch on the north-west shoulder of Lochnagar, in West Aberdeenshire§.

Genus MORARIA, T. & A. Scott (March 1893).

Syn. *Ophiocamptus*, Mrazek.

The Harpactids included under *Moraria* have *seven-jointed*

* Abhandl. d. naturf. Gesellschaft zu Halle, Bd. xix.

† "Entom. of North Wales," Journ. Quekett Microscopical Club, ser. ii. vol. vi. p. 10 (separate copy).

‡ Fourteenth Rep. Fishery Board for Scotland, pt. iii. p. 169 (1896).

§ 'Annals of Scottish Natural History,' July 1901, p. 160.

antennules; the secondary branches of the antennæ are small and one-jointed; the mandible-palp is small and composed of two joints, the end one being smaller than the other; the first pair of thoracic feet are short, the two branches are subequal in length, and the inner branches are two-jointed, as in *Attheyella*, the end-joint being the shortest; the inner branches of the next three pairs are short and consist of *two subequal joints*.

Moraria brevipes (G. O. Sars).

1863. *Canthocamptus brevipes*, G. O. Sars (non Mrazek & Scott), *op. cit.* p. 24.
 1889. *Canthocamptus gracilis*, S. A. Poppe (non *C. gracilis*, G. O. Sars), *Abhandl. d. naturwiss. Vereine zu Bremen*, Bd. x. p. 544, t. viii. figs. 5-9.
 1893. *Moraria Anderson-Smithi*, T. & A. Scott, *Ann. & Mag. Nat. Hist.* (6) vol. vi. (March 1893) p. 213, pl. viii.
 1893. *Ophiocamptus Sarsi*, Mrazek, "Beitrag zur Kenntniss der Harpacticidenfauna des Süßwassers," *Zool. Jahrb.* (May 1893), *Abth. f. Syst., Geogr. u. Biol. d. Thiere*, 7ter Bd. p. 113, t. v. figs. 60-65.
 1893. *Ophiocamptus Sarsi*, Schmeil, *Deutschl. freileb. Süßw.-Copep.*, ii. Teil, *Harpact.* p. 86, pl. vi. figs. 1-16.
 1900. *Moraria Sarsi*, W. Hartwig, "Die freileb. Copep. der Provinz Brandenburg," *Forschungsber. der Biol. Stat. z. Plön* (Separat-abdruck), p. 11.

This species has been obtained in lochs in Unst and elsewhere in Shetland; in Barra and North Uist, Outer Hebrides. It was obtained in Loch Morar, Inverness-shire, Loch Doon, Ayrshire, and other lochs in the west of Scotland; and in lakes in Aberdeenshire, Midlothian, and elsewhere in the east of Scotland. Mr. D. J. Scourfield has also taken it near London.

According to Lilljeborg* the form described by Herr Al. Mrazek and myself under the name of *Moraria* (*Ophiocamptus*) *brevipes* (G. O. Sars) is not the species described by Sars under that name, the true *Canthocamptus brevipes*, G. O. Sars, being, on the contrary, the form described by me under the name of *Moraria Anderson-Smithi*, and by Mrazek under the name of *Ophiocamptus Sarsi*. It is interesting to note that this species, which is still retained in the genus *Canthocamptus* by Prof. Lilljeborg, was, by Mrazek and myself, unknown to each other, considered to be sufficiently distinct from the typical *Canthocamptus* to warrant its removal to another genus.

* 'Svenska arter af. Familien Harpacticidæ,' pp. 44-48 (1902).

Moraria Mrazeki, T. Scott (new name).

1893. *Ophiocamptus brevipes*, Mrazek (not Sars), "Beitrag zur Kenntniss der Harpact.-fauna des Süsswassers," Zool. Jahrb. 7ter Bd. p. 116, t. v. fig. 66, t. vi. figs. 67-70.

1895. *Ophiocamptus brevipes*, T. Scott, Thirteenth Rep. Fishery Board for Scotland, pt. iii. p. 254, pl. x. figs. 1-9.

1897. *Moraria brevipes*, T. Scott, Fifteenth Rep. Fishery Board for Scotland, pt. iii. p. 325.

As this is not the *Canthocamptus brevipes* of G. O. Sars, the species will require to be renamed, and I propose that *Mrazeki* should be adopted. The species has been obtained in several Scottish lakes; it was first observed in Loch Lubnaig, Perthshire, and afterwards in Rescobie Loch, Loch Balgavie, and Forfar Loch, Forfarshire; Loch Achray, Trossachs; and in Loch Doon, Ayrshire. The recent increase in the interest that is being taken in the examination of the British lochs will probably add to the number of the stations for this as well as the other species recorded here.

Moraria Poppei (Mrazek).

1893. *Ophiocamptus Poppei*, Mrazek, *op. cit.* p. 114, t. v. figs. 54-59.

1897. *Moraria Poppei*, T. Scott, Fifteenth Rep. Fishery Board for Scotland, pt. iii. p. 325, pl. ix. figs. 13-20.

This small species appears to be rare; it was first taken in some marshy ground at the side of Loch Fad, in Bute, and afterwards, in 1899, in shore-pools near Hunterston, Firth of Clyde, and in 1901 in marshy ground near Ellon, Aberdeenshire. These are the only British records for this species known to me.

Genus MARAENOBOTUS, Mrazek (1893).

This genus was established by Dr. Mrazek for an interesting Harpactid discovered by him in the vicinity of Pribram in Bohemia. The antennules are eight-jointed. The secondary branches of the antennæ are small and two-jointed, the mandible-palp is *rudimentary, consisting of a tubercle bearing two or three apical setæ*. First pair of thoracic feet short, *both branches two-jointed*. The inner branches of the next three pairs short, two-jointed, the outer branches longer and three-jointed. Only one species has been described.

Maraenobiotus Vejdovskyi, Mrazek.

1893. *Maraenobiotus Vejdovskyi*, Mrazek, *op. cit.* p. 103, t. iv. figs. 17-32, t. v. figs. 33-37.

1896. *Maraenobiotus Vejdovskyi*, T. & A. Scott, Ann. & Mag. Nat. Hist. (6) vol. xviii. p. 3, pl. i. figs. 13-21, pl. ii. fig. 23 (July 1896).

This species was obtained for the first time in Scotland in a shore-gathering collected in Loch Vennachar, Perthshire, and afterwards in shore-gatherings collected in Loch Doon, Ayrshire, in December 1897, and in Loch of Park, Aberdeenshire, in 1899. I do not know of any other station for this species in Britain.

Besides the Harpactids mentioned in the foregoing notes, all of which, with one or two exceptions, are usually confined to freshwater localities, there are a considerable number that find a habitat in our brackish-water estuaries, ponds, and marshes; and though these for the most part belong to the same subfamily as those already noticed, they include also representatives of nearly all the subfamilies into which the Harpacticidæ have been divided. And while the Canthocamptinæ comprise most, if not all, the British freshwater Harpactids, the majority of the species belong to the genus *Canthocamptus*, and are, with few exceptions, all freshwater species. But *Canthocamptus hirticornis*, though found in fresh water, occurs also occasionally in water that is slightly brackish; *Canthocamptus palustris*, as has been already mentioned, is usually found in places within the influence of the tide; *Canthocamptus parvus*, T. & A. Scott, and *Canthocamptus propinquus*, T. Scott, are, on the other hand, marine species, and for that reason have been excluded from the preceding notes. *C. propinquus* has been obtained in the Moray Firth and the Firth of Forth, and appears to be moderately rare; *C. parvus* appears to be more generally distributed; the antennules of these two species are composed of six joints instead of eight or nine, but otherwise there is nothing to distinguish them from typical freshwater species. For these and other reasons the line dividing the freshwater species from brackish-water forms, and these again from marine, is at best somewhat arbitrary.

ADDITIONAL NOTE.

After the preceding notes had been forwarded to the printers I received a letter from my kind friend the Rev. A. M. Norman, in which he refers, among other things, to the two freshwater Harpactids *Canthocamptus staphylinus* (Jurine) and *Canthocamptus minutus*, Claus; and as his remarks on these two species should be of interest to students of the freshwater Copepoda, I have, with his permission, transcribed them here.

Referring to *Canthocamptus staphylinus*, he says:—"O. F.

Müller described *Cyclops minutus* in 1776 and 1785, which afterwards became *Canthocamptus minutus* of Baird, Fischer, and Lilljeborg; Claus for this name substituted that of Jurine—*Monoculus staphylinus* (1820)—and then immediately after described another *Canthocamptus minutus* of his own. Now it will be admitted that, though without the detailed drawings of Jurine, Müller's figures of *C. minutus* are excellent representations for the time of a *Canthocamptus*, and if not sufficient to distinguish it from some recent species, the name ought to be retained for that species which is the most common and the first determined. Therefore I consider that *C. staphylinus* (Jurine) should become a synonym of *Canthocamptus minutus* (O. F. Müller), and that *C. minutus*, Claus—a name he should not have employed, on account of confusion with Müller's species,—will have to give way to Rehberg's more recent name *C. lucidulus*.

"That author was quite right in restoring the name of Müller's to Jurine and Claus's *C. staphylinus*, and substituting for Claus's *C. minutus* his new name of *Canthocamptus lucidulus*."

I may add that, though I leave my notes on these two species as they were written, I quite agree with the Rev. A. M. Norman that O. F. Müller's name should be restored, that *C. staphylinus* (Jurine) should become a synonym of *C. minutus* (Müller), and consequently that *C. minutus*, Claus, will become a synonym of *C. lucidulus*, Rehberg.

XXII—*Descriptions of some new Species of Lepidoptera, chiefly from South America.* By HERBERT DRUCE, F.L.S.

Fam. Syntomidæ.

Isanthrene joda, sp. n.

Male.—Head, antennæ, tegulæ, thorax, and legs black, collar and middle of thorax dark blue; abdomen black, the first four segments edged with yellow, the anal segments banded with dark blue. Primaries yellowish hyaline, the base and inner margin black, the apex broadly black, the fringe black: secondaries yellowish hyaline, the costal and outer margin edged with black; fringe black.

Expanse 2 inches.

Hab. Peru, Cuzco (*Mus. Druce*).



Scott, Thomas. 1903. "XXI.—Some observations on British freshwater Harpactids." *The Annals and magazine of natural history; zoology, botany, and geology* 11, 185–196. <https://doi.org/10.1080/00222930308678749>.

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