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I. Wissenschaftliche Mittheilungen.

1. Notes on Irish Freshwater Mites.

By J. N. Halbert.

(With 14 figs.)

eingeg. 19. December 1902.

Most of the Irish Freshwater Mites agree in their characteristics with common and widely distributed species. Yet interesting forms occur which are little known, while a few are new to science.

The following notes chiefly refer to certain of these uncommon species so far as they are contained in the genera *Hydrachna* and *Arrhenurus* based on collections made in various Irish localities during the last four years. At the same time lists of the species of these genera which have hitherto been found in Ireland are given, in the hope that they may be of use to those interested in the distribution of these freshwater organisms.

1) *Hydrachna incisa* n. sp.

During life of a purplish red colour with ill-defined darker markings; legs red, pale yellow at the insertions of the segments. Length 3,5 mm, breadth 2,7 mm. In shape the body is distinctly truncate in

front, and strongly narrowed posteriorly. The skin is closely studded with conical papillae, but when highly magnified these appear almost triangular in shape, presenting an obscurely serrated appearance if a portion of the skin be examined in outline. At a distance of 0,8 mm behind the eyes, on each side, there is a curved chitinous plate (fig. 1 *a*) which is strongly concave on its inner margin; about midway between these plates and the paired eyes there are two small oval depressions in the skin, but these are not chitinous, and are no doubt muscle attachments. The epimera are comparatively large and sharply pointed at the inner angle of the fourth pair; outside of this the subcutaneous process is strongly recurved. The genital area (fig. 2 *a*) measures 0,76 mm in length, by 0,66 mm in breadth, resembling that of *H. Piersigi* Koen., in structure, but besides a decided difference in outline, the anterior cleft is narrower and tapers inwards to a sharp point; genital opening rather quadrate containing two blade-like hyaline

Fig. 1.

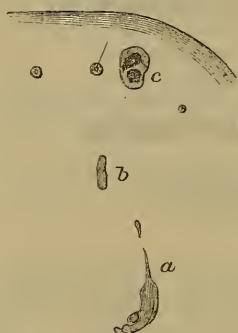


Fig. 2.

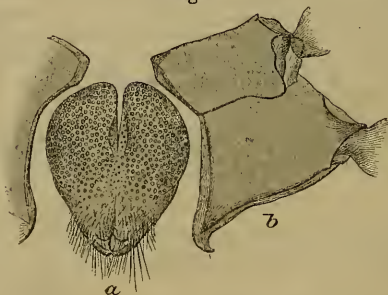


Fig. 1. *Hydrachna incisa* n. sp. ♂ Anterior right hand margin seen from above; *a*, chitinous plate; *b*, muscle attachment forming depression in skin — not chitinous; *c*, paired eye.

Fig. 2. *a*, Genital area of male; *b*, Third and fourth epimeral plates. $\times 31$.

organs which meet at their points; apex densely clothed with white hairs.

The palps are about 1,68 mm in length, the outer margin of the second segment is irregular in outline bearing a number of fine short hairs, and nearly equals the third segment in length, otherwise the palps resemble those of *H. Piersigi* (Deutsch. Hydrach. Taf. L, fig. 181 *a*). Rostrum about 2 mm in length, gradually curved in outline. Legs robust, length of the first pair about 2,4 mm, of the fourth 3,8 mm, well supplied with long swimming hairs.

Locality: An adult male of this mite was sent to me alive by Mr. Dudley Westropp who took it in a pond near Carrigaline County

Cork, early in April, 1900. The body of this specimen was thickly encrusted with a greenish matter, indicating that it had been hibernating through the autumn and winter months.

2) *Hydrachna dissimilis* n. sp. ♀

A species which may be compared with *H. distincta* Koenike¹.

Dorsal plates less curved, measuring 0,8 mm in length with the anterior outer angles well marked. Skin covered with rounded scale-like papillae. The fourth pair of epimera are narrowed towards the inner posterior margins; the subcutaneous process instead of forming a very narrow border, as in *distincta*, forms a recurved projection as indicated in the figure. Genital area (breadth about 0,56 mm) much

Fig. 3.



Fig. 4.



Fig. 3. *Hydrachna dissimilis* n. sp. ♀ Left dorsal eye plate.

Fig. 4. Third and fourth epimera, both figures. $\times 31$.

broader than long, slightly indented on the anterior margin, and very abruptly narrowed to apex, where there is a large circular opening. Immediately over this opening there are four conspicuous ring-like discs, arranged more or less in a line across the genital field. The palps measure about 1 mm in length, more slender than in *distincta*, with the second segment narrower and less irregularly swollen on its outer margin. The rostrum measures about 1,24 mm in length, curved, basal portion very large. Legs normal.

Locality: Found in a brackish ditch on the coast of County Wexford.

3) *Hydrachna biscutata* Thor.

Immature specimens of a species of *Hydrachna* agreeing with *H. biscutata* Thor, are not uncommon in Ireland. The nymph, only, has been described, and from the fact that it is always found here in company with *H. scutata* Piersig, it seems not unlikely that *biscutata* may be

¹ I have to thank Dr. F. Koenike for a loan of his mounted type of *H. distincta* Koen., for comparison with the present species.

an undeveloped stage of that species. In order to prove this, however, it would be necessary to rear the nymph to the adult state. Dr. C. F. George has recently recorded this mite from Lincolnshire in England.

The following list contains all the Irish species of *Hydrachna* which have been brought to light. *H. paludosa* Thon, found in the Shannon at Lough Ree, has not been previously recorded from the British Isles.

<i>Hydrachna paludosa</i> Thon.	<i>Hydrachna maculifera</i> Piersig.
<i>H. scutata</i> Piersig.	<i>H. dissimilis</i> n. sp.
<i>H. biscutata</i> Thor.	<i>H. conjecta</i> Koenike.
<i>H. incisa</i> n. sp.	<i>H. globosa</i> de Geer.
<i>H. Leegei</i> Koenike.	<i>H. sp.</i> (nymph.)

Early last October I found near Dublin an *Arrhenurus* of the sub-genus *Megalurus* which seemed to agree in certain characters with the recently described *A. adnatus* Koen.² On sending drawings to Dr. Koenike, however, he says it is not *adnatus*, and as it does not agree sufficiently with any of the known species, I venture to describe it under the name of

4) *Arrhenurus Freemani* n. sp.³.

Male: Length, including appendage, 1,44 mm, breadth 0,78 mm. Colour green, tending to yellow on the coecal area, and marked with reddish brown blotches. Legs and palps pale green, the former have the terminal segments yellowish. The main body is shaped much as in *A. conicus* Piersig, but it is a larger mite with the anterior margin more rounded. Dorsal impressed line sinuate in front inclosing four circular papillae, and terminating on the underside of the tail. Appendage a little more than half the length of the main body, rather deeply constricted at the base, suddenly widened to its greatest breadth (0,43 mm) at the anterior third, and thence gradually narrowed to the side angles. The latter bear two prominences which slightly overreach the outline of the sides; distal margin noticeably produced in the centre, terminating in two more prominences separated by a shallow indenture. At the end of the dorsal swelling of the appendage there is a mark the exact details of which it is difficult to see clearly, but it is shaped somewhat as in fig. 6. Near the middle of the depression at the end of the appendage there is a small conical papilla. Viewed from the side an irregularly shaped hyaline process can be

² Zool. Anz., Vol. XXV. 1902. p. 615.

³ Named after my friend D. Freeman, M. A., M. B., the first worker to interest himself in the Irish Hydrachnid fauna.

seen projecting beyond the extremity of the appendage. There are no horns on the dorsal surface, the outline agreeing closely with that of *A. conicus*. (Palps described under ♀ — male palps lost during preparation.) Male genital field very like that of *conicus*. Length of first pair of legs about 0,8 mm, of last 1,44 mm, fourth segments of the last pair spurred in the usual manner.

Female: Length 1,28 mm, breadth 1 mm. Similar in shape to *A. caudatus* de Geer. Dorsal impressed line incloses a larger area than in the male, and is similarly narrowed in front. Palps with five bristle-like hairs springing from the vicinity of the outer margin of the second segment, three of these are placed in a group distally, and

Fig. 6.

Fig. 5.

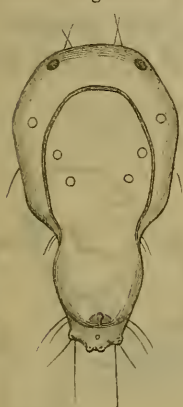


Fig. 7.



Fig. 8.



Fig. 5. *Arrhenurus Freemani* n. sp. Dorsal view of male $\times 31$ — legs and palps not drawn.

Fig. 6. Extremity of body appendage. $\times 73$.

Fig. 7. Inner side of right palp of female. $\times 100$.

Fig. 8. Genital area of ♀. $\times 31$.

there are two or three much shorter hairs on the inner side of the same segment (these are seen directed downwards in fig. 7). The minute tactile hair on the middle of the distal margin of the fourth segment is distinctly forked. Genital field shaped much as in the accompanying figure.

Locality: Both sexes of this species occurred in a pond on the Grand Canal bank near Lucan, County Dublin, October, 1902.

5) *Arrhenurus ornatus* George.

This distinct species is common and widely distributed with us, and it seems equally common in England. So far as I am aware it has

not been recorded by Continental workers. In general shape the body of this mite is very like that of *A. compactus* Piersig, but as may be seen in fig. 9 the petiole is quite different in structure.

Fig. 9.

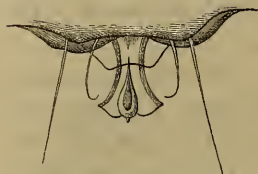


Fig. 9. *Arrhenurus ornatus* George. End of body appendage showing petiole and hyaline membrane. $\times 73$.

6) *Arrhenurus dilatatus* n. sp.

Closely allied to *A. battilifer* Koenike, agreeing with that species in general shape, structure of the body appendage, genital area, and epimeral plates — the fourth pair of the latter are however larger than in a type of *A. battilifer* kindly sent to me by Dr. Koenike.

Length of the male 1,16 mm, breadth 0,88 mm. Colour green tinged with blue towards the sides of the body, dorsal surface with a series of black markings. Palps (fig. 12) with simple bristle-like hairs arranged as in figure, minute tactile hairs on the distal margin of the fourth segment

Fig. 12.

Fig. 10.

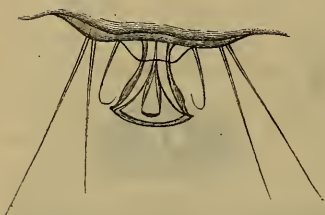


Fig. 10. *Arrhenurus dilatatus* n. sp. End of appendage of male showing petiole and hyaline membrane. $\times 73$.

Fig. 11.



Fig. 11. Side view of same. $\times 73$.



Fig. 12. Palps and capitulum of male. $\times 100$.

sharply angled. The specific characters lie in the shape of the petiole and hyaline membrane. In *battilifer* the petiole is gradually and evenly widened from base to the extreme side angles, but in the present species this organ is swollen into a prominence, on each side, beyond the middle giving the apex a truncate appearance. The hyaline membrane, also, is broader than it is in *battilifer*, in the specimen figured this measures about 0,2 mm across the apex.

Locality: Raheny ponds near Dublin, October, 1902.

Fully developed males of this species were found in this locality on two occasions, which would tend to prove that the above described

characteristics are not a result of casual variation. *Arrhenurus battilifer* Koenike, has not yet been recorded as a British species.

7) *Arrhenurus affinis* Koenike.

This rare species, hitherto recorded only from Germany and Bohemia, occurred in the vicinity of Lough Derravaragh, Westmeath, in May 1901. Allowing for local variation in size and colour, this specimen agrees excellently with Dr. Koenike's description⁴. The chief difference is in the colouring which in the German mite is described as cinnabar red with brownish yellow legs and palps. In the Irish mite the colour is greenish changing to violet towards the sides of the body, and especially on the appendage, while the palps legs and petiole (fig. 13) are pale blue.

8) *Arrhenurus sculptus* n. sp.

Allied to *A. solidus* Piersig, but differs in the appendage.

Length about 1 mm. Colour greenish yellow, paler on coecal area, with brown markings. Compared with *A. solidus* Piersig, a structural difference will be found in the shape of the body appendage (fig. 14),

Fig. 14.

Fig. 13.

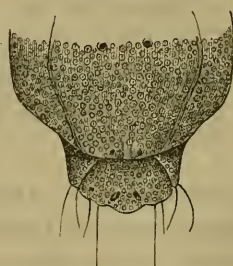


Fig. 13. *A. affinis* Koen. End of appendage showing petiole and hyaline membrane.
× 73.

Fig. 14. *A. sculptus* n. sp. Dorsal view of posterior half of body with body appendage.

which is much narrower and more sharply marked off from the main body than it is in that species. The body is also more truncate in outline. Fourth segments of the last pair of legs unmodified.

Locality: The male, only, of this species occurred at Raheny near Dublin, towards the end of April 1899. In the same pond with it, were both sexes of the rare *A. truncatellus* Müller.

⁴ Schriften der naturforsch. Gesellschaft in Danzig VII., Taf. 1. p. 1—4.

Irish Species of *Arrhenurus*.

Of these species three are new records for the British Islands i. e., *A. cuspidifer* Piersig, *A. affinis* Koenike, and *A. crenatus* Koenike, the last is common in the Royal Canal near Dublin.

<i>Arrhenurus globator</i> Müller.	<i>Arrhenurus affinis</i> Koenike.
<i>A. securiformis</i> Piersig.	<i>A. claviger</i> Koenike.
<i>A. cylindratus</i> Piersig.	<i>A. Bruzelii</i> Koenike.
<i>A. caudatus</i> de Geer.	<i>A. albator</i> Müller.
<i>A. Freemani</i> n. sp.	<i>A. crassicaudatus</i> Kramer.
<i>A. Halberti</i> Piersig.	<i>A. Kanei</i> Halbert.
<i>A. cuspidifer</i> Piersig.	<i>A. sinuator</i> Müller.
<i>A. ornatus</i> George.	<i>A. forpicatus</i> Neuman.
<i>A. maculator</i> Müller.	<i>A. solidus</i> Piersig.
<i>A. dilatatus</i> n. sp.	<i>A. sculptus</i> n. sp.
<i>A. crenatus</i> Koenike.	<i>A. truncatellus</i> Müller.
<i>A. tricuspidator</i> Müller.	

The nomenclature followed in the foregoing lists is that used by Dr. R. Piersig in his recent monograph of the group in the Tierreich (13. Lief. Berlin, 1901).

Dublin, National Museum, 17th December, 1902.

2. Über eine neue Nephthyidengattung aus dem südatlantischen Ocean.

Von Prof. Kükenthal.

eingeg. 20. December 1902.

Die Verbreitung der Alcyonaceenfamilie der Nephthyiden ist bis jetzt nachgewiesen vom Indopacifischen Ocean, dem arktischen und antarktischen Gebiet, und nur im nordatlantischen Ocean sind noch 3 Formen der Verrill'schen Gattung *Eunephthya* gefunden worden. Die Verbreitung der einzelnen Gattungen ist folgende: *Lithophytum* Forsk. (= *Ammonothea* aut.) ist indopacifisch, und zwar finden sich von den 16 sicher dahin gehörenden Arten 11 an der ostafrikanischen Küste. Ebenfalls indopacifisch ist *Capnella* Gray (= *Paranephthya* Wr. und Stud.), von deren 5 Arten 3 an der ostafrikanischen Küste vorkommen. Desgleichen sind die Gattungen *Lemnalia* Gray em. Bourne und *Scleronephthya* Wr. und Stud. indopacifisch, ebenso wie die 24 Arten umfassende Gattung *Nephthya* Sav., von denen übrigens keine von der ostafrikanischen Küste bekannt ist. Arktisch ist die Gattung *Eunephthya* Verrill (incl. *Paraspongodes* Kükth.), eine Form dieser Gattung ist antarktisch und drei Arten finden sich im nordatlantischen Ocean. Ausschließlich indopacifisch ist dagegen wieder

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