Annals and Magazine of Natural History: Series 8

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/tnah14>

XLIV.—A note on the apparent absence of sexual characters in the shell of *Neritina fluviatilis*

A.E. Boycott ^a & J.W. Jackson ^a

^a Victoria University

Published online: 11 Sep 2009.

To cite this article: A.E. Boycott & J.W. Jackson (1914) XLIV.—A note on the apparent absence of sexual characters in the shell of *Neritina fluviatilis*, *Annals and Magazine of Natural History: Series 8*, 14:83, 369-375, DOI: [10.1080/00222931408693587](https://doi.org/10.1080/00222931408693587)

To link to this article: <http://dx.doi.org/10.1080/00222931408693587>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses,

actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Parasphcodes bryotrichus sordidulus, subsp. n.

♀.—Smaller, length about $7\frac{1}{2}$ mm.

Abdomen dusky, the hind margins of the segments especially with dusky suffusion; first r. n. entering apical corner of second s.m.

Hab. Brisbane, Queensland, Aug. 5, 1913 (*Hacker*; Queensl. Museum, 122).

Halictus oxoniellus, sp. n.

♀.—Length about 5 mm.

Of ordinary form, with thin white hair; head and thorax black, except the mesothorax and scutellum, which are a fine dark blue; mandibles and antennæ black; tegulæ ferruginous, clouded with piceous. Wings dusky hyaline, the stigma large, piceous, obtuse apically; nervures dilute scpia, outer r.n. and t.-c. almost wholly obsolete, first r.n. entering second s.m. Legs black, the small joints of middle tarsi reddish; hind femora thin and arched, hind tibiæ very robust; hind spur with three large teeth. Abdomen bright ferruginous, the first segment black except a broad apical band, the other segments with black patches on extreme lateral margins; venter with long curled hairs, mesothorax shining in front, dull behind; area of metathorax with very delicate raised lines, evanescent apically; clypeus slightly metallic, with a microscopically tessellate sculpture and sparse punctures; front minutely striate.

Hab. Bribie Island, Queensland, Nov. 2, 1913 (*Hacker*; Queensl. Museum, 108).

A distinct species, easily known from *H. erythrurus*, Ckll., by the dark stigma and blue mesothorax. The specific name is in allusion to the dark blue colour.

XLIV.—A Note on the Apparent Absence of Sexual Characters in the Shell of *Neritina fluviatilis*. By A. E. BOYCOTT and J. W. JACKSON (Victoria University).

WE give here the result of an enquiry into the possible occurrence of differences between the shells of male and female *Neritina fluviatilis*. Our material has been derived from two sources:—(1) the Preston-Lancaster Canal in the neighbourhood of Barton, Lancashire, collected in June

1914; and (2) the River Wye between Whitechurch and Monmouth, where it forms the boundary between Herefordshire and Gloucestershire, collected in July 1913. The two localities are essentially different in character, the canal being very sluggish, while in the Wye the species is only to

be found in shallow quick-running rapids. Of the Barton series the whole were dissected and examined, in all 288, though naturally in collecting the specimens more attention was paid to large individuals. The same selection was made in the case of those from the Wye, but of these only 93 of

the larger specimens were examined. Of the Barton series 159, or 55 %, were females; of the Wye specimens 42, or 45 %.

(1) *Measurements*.—It is not very easy to select dimensions of *Neritina* which are capable of precise and relatively easy determination, and at the same time comparable with those of shells of more conventional shape *. In an enquiry such as the present the former consideration seems to be the more important, and we have accordingly measured three dimensions of each shell, which are at any rate objective if their nomenclature is open to question. With the shell resting on a flat surface, mouth downwards, we measure (α) length, (β) width, and (γ) height. The two former are parallel to the surface on which the shell rests, the latter at right angles; the essential points are shown in the accompanying sketch. The measurements were made with sliding callipers reading with a vernier to 0.1 mm.

The results of the *Barton series* are summarized in Table I., which shows the mean figures classified in eight groups, according to the length of the shell. All the dimensions are in millimetres.

It appears in the first place that there is no substantial difference in *size* between males and females. The males range from 4.7 to 11.3 mm. long, the females from 5.2 to 11.6 mm. Of the larger specimens (8 mm. long and upwards) rather more are females than males, but the difference is well within the possible chance discrepancy. In the various size groups (Table II.) the percentage of males varies from 32 to 52; but here again the differences are not significant. The question would be simple if we had some structural criterion of sexual maturity; without this, however, there is no reason for thinking that the two sexes differ in size.

Differences in *shape*, which are shown by measurements of this sort, are more appreciable if the data are expressed in a relative form, as in Table III. The widths and heights are here shown as percentages of the length. It will be seen that the small shells are relatively wider and, to a less extent, higher than the larger specimens, but there is no evidence of any sexual difference.

Magnified camera-lucida drawings of the *opercula* were made in a number of the larger specimens of each sex, but no difference in size or shape could be found.

* In many cases the apex is eroded, and in some of the larger specimens has in this way disappeared, rendering it impossible to take the apex as a fixed point for any dimension.

TABLE I.

Group.	Range of length.	Males.				Females.			
		Number.	Length.	Width.	Height.	Number.	Length.	Width.	Height.
A ...	4-4.9	1	4.7	3.6	2.6	0	...	...	...
B ...	5-5.9	7	5.73	4.34	3.01	15	5.66	4.24	2.93
C ...	6-6.9	55	6.46	4.68	3.34	51	6.41	4.67	3.33
D ...	7-7.9	31	7.42	5.37	3.91	38	7.37	5.29	3.85
E ...	8-8.9	11	8.38	5.83	4.36	22	8.35	5.79	4.30
F ...	9-9.9	14	9.49	6.39	4.87	19	9.53	6.40	4.79
G ...	10-10.9	8	10.45	6.99	5.24	10	10.46	6.87	5.26
H ...	11-11.9	2	11.25	7.35	5.60	4	11.35	7.35	5.56
		129	7.44	5.30	3.84	159	7.61	5.35	3.92

TABLE II.

Group.	Percentage of total males in each group.	Percentage of total females in each group.	Percentage of total specimens in each group which are males.
A	1	...	...
B	5	9	32
C	43	32	52
D	24	24	46
E	8	14	33
F	11	12	42
G	6	6	44
H	2	3	33
Total	100	100	45

TABLE III.

Group.	Males.			Females.		
	Length.	Width.	Height.	Length.	Width.	Height.
B	100	76	53	100	75	52
C	100	72	52	100	73	52
D	100	72	53	100	72	52
E	100	70	52	100	69	51
F	100	67	51	100	67	50
G	100	67	50	100	66	50
H	100	65	50	100	65	49
	100	71	52	100	70	52

The *Wye series* were examined in the same way, and gave the following results:—

TABLE IV.

Group.	Range of length.	Males.				Females.			
		Number.	Length.	Width.	Height.	Number.	Length.	Width.	Height.
B ...	5-5.9	1	5.9	4.4	3.0	...	...	...	...
C ...	6-6.9	7	6.49	4.56	3.24	2	6.55	4.60	3.35
D ...	7-7.9	28	7.48	5.10	3.71	24	7.38	5.05	3.67
E ...	8-8.9	15	8.24	5.54	3.98	15	8.46	5.63	4.09
F ...	9-9.9	...	...	...	...	1	9.3	6.0	4.3
		51	7.54	5.14	3.71	42	7.77	5.26	3.82

The males range in length from 5.9 to 8.7 mm., the females from 6.5 to 9.3 mm. As in the Barton series, there

is some suggestion that the females may be rather larger than the males, but the difference is inconclusive. The length, width, height ratios are given in Table V. These

TABLE V.

Group.	Males.			Females.		
	Length.	Width.	Height.	Length.	Width.	Height.
B	[100	75	51]	...	...	...
C	100	70	50	[100	70	51]
D	100	68	48	100	68	50
E	100	67	48	100	67	48
F	...	...	...	[100	65	46]
	100	68	49	100	68	49

show that the Barton shells are relatively wider and higher than the Wye specimens, but they fail to bring out any difference between the male and female shells in the latter series.

(2) There are, of course, many differences in shape and other characters which would not be brought out by the simple measurements which we have made. Careful comparison and inspection has, however, failed to reveal any constant sexual difference in shape, texture, colour, or any other feature. In the Wye series many (54 %) of the females and relatively few (18 %) of the males showed a ragged notch or notches on the upper lip, *i. e.* on the snail's right-hand side as it crawls, and close to the generative orifice. This was, however, quite wanting in the Barton series, so that less stress can be laid upon it. It may, indeed, be artefact; if so, it possibly indicates that in the rapid currents of the Wye the females cling more closely to the stones than the males, and are more liable to damage during collection.

We do not know the reproductive habits of *Neritina* nor how the eggs are laid. There may, indeed, be no reason for supposing that there might be sexual characters in the shell; the male generative organs are roughly about the

same bulk as those of the female, the vas deferens and its coiled-up lower end taking up a good deal of room. Equally roughly, however, the same is true of *Cyclostoma*, in which the females are larger than the males *.

We may, perhaps, add that the examination of some forty radulæ did not suggest that further enquiry would lead to the discovery of any sexual character in that organ.

Summary.—We have not been able to find any sexual characteristic in the shell of *Neritina fluviatilis*.

XLV.—*Brief Descriptions of new Thysanoptera*.—IV. By RICHARD S. BAGNALL, F.L.S., F.E.S. (Hope Department of Zoology, University Museum, Oxford).

Suborder TEREBRANTIA.

Family *Æolothripidæ*.

Æolothrips gloriosus, sp. n.

♀.—Length about 1.1 mm.

General colour lemon-yellow. Abdominal segments 9 and 10 and tergite 8 entirely black; tergites 5 to 7 each with a blackish-brown bar almost covering the tergite, and signs of brownish markings on the anterior halves of other tergites. Eyes black. Head shaded with light greyish-brown, excepting the vertex and posterior corners, and pronotum with an indistinct marking down mid-line, expanding anteriorly and posteriorly and in centre of disc. Mesonotum and triangular disc of metanotum greyish-brown. Fore-wings lightly tinged with brown at base and with an irregular brown bar across second and fourth fifths; cilia brown. Antennal joints 1, 2, and basal half or thereabouts of 3 light lemon-yellow; rest black, the apical joints somewhat greyish black. Tips of tarsi with brown fleck.

Head rather long, quadrate, and not quite as long as the pronotum; basal joint of maxillary palpus much larger than the two apical joints together; mouth-cone large and long. Antennæ about 2.5 times as long as the head; joint 2 rather long; 3 pedicellate, cylindrical, and narrower than 2, 4, or 5; 4 distinctly angularly produced distally; 5 to 9 closely united, with 5 as long as 6 to 9 together. 3 1.5 times as

* · *Journal of Conchology*, vol. xii. (1909) p. 323.