

SPECIES OF *MYRSIDEA* (INSECTA : MALLOPHAGA) PARASITIC  
ON THE ESTRILDIDAE (AVES)\*

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SYNOPSIS

Two new species of *Myrsidea* Waterston (Menoponidae) are described and one known species re-described, all three parasitic on the Passerine family Estrildidae. The host-parasite relationships of these species and species from other members of the Estrildidae, Ploceidae and Fringillidae are discussed.

TWO NEW SPECIES OF *MYRSIDEA*

The two species of *Myrsidea* described below are distinguished from other known species by the characters of the male genital sclerite ; the female dorsal anal margin is similar to that of some other species parasitic on the Estrildidae. The characters listed below are found in both species and these together with the generic characters of *Myrsidea* as given in Clay, 1966 : 330-331 will not be repeated in the descriptions.

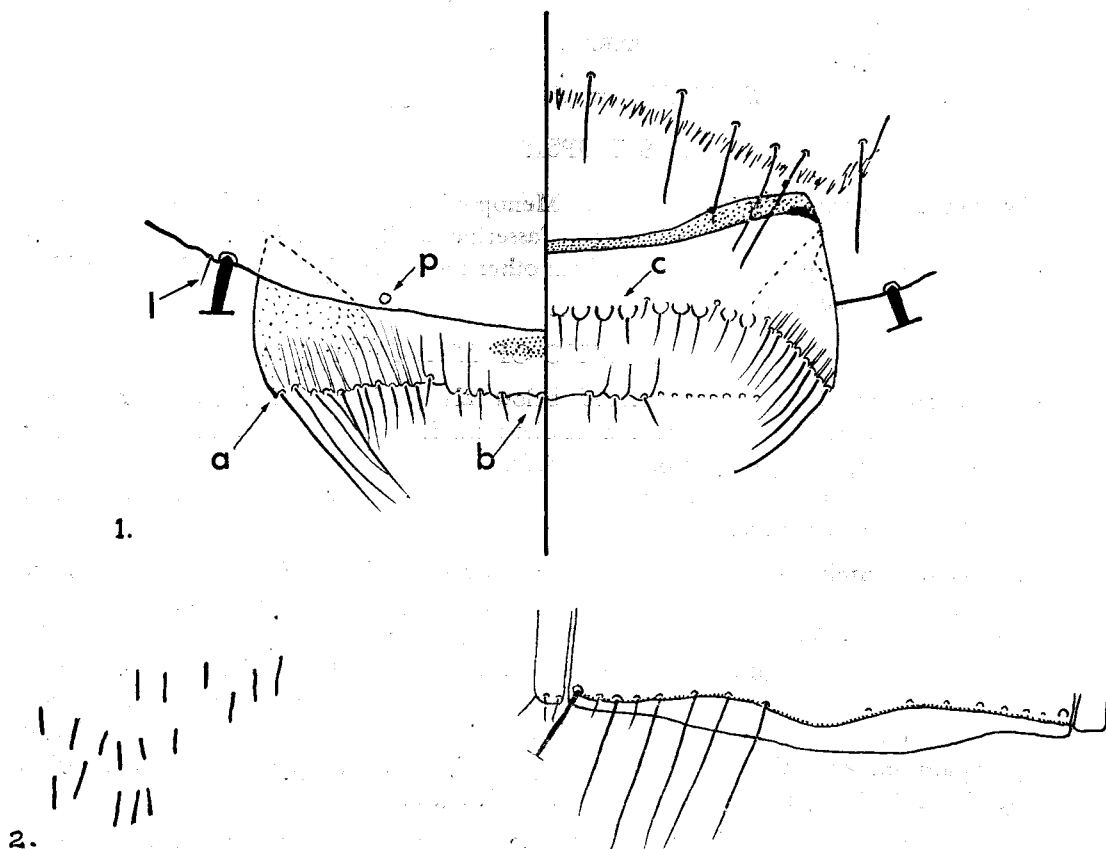
1. Head. Number and position of setae mainly as in *M. thoracica* (Giebel), see Clay, 1966, fig. 1 ; subocular comb-row (=latero-ventral fringe, Clay, 1966, fig. 1) with 9-10 setae each side ; gular setae 4-5 each side (one with 6 on one side) ; the two dorsal setae in the centre of the anterior margin are of medium length : male, 32-44  $\mu$  ; female, 24-50  $\mu$ . Seta 10 (penultimate dorsal marginal seta of pre-ocular region, Pl. I, fig. 3, m.) not markedly shorter than 11 (immediately posterior to 10). Relative lengths of the pair of setae on last segment of maxillary palp similar to those of *thoracica* (Clay, 1966, fig. 1p.). Hypopharyngeal sclerites reduced (as in Pl. I, fig. 3) ; antenna as in Clay, 1966, fig. 2.

2. Thorax. Pronotum with 3+3 long setae on posterior margin ; central setae of metanotum 3-4 each side. Setae of metasternal plate 3+3 each side, occasionally 3+4 ; metapleural setae 3 each side, occasionally 2 or 4, longest seta in female averages more than in previous groups studied (parasitic on Turdinae and Icteridae) : *srivastava*, 42-58  $\mu$ ,  $\bar{x}(4)$  53 ; *amandava*, 52-70  $\mu$ ,  $\bar{x}(6)$  61. First tibia with 6 or less outer dorso-lateral setae (Clay, 1966, fig. 5).

3. Abdomen. Terga of female not greatly modified ; segments II-VII with slight convexity of the posterior margin of tergites and terga (Text-fig. 3), but this is not always apparent especially where there has been some telescoping of the segments during preparation of the specimens. Female sternites not arched or narrowed medianly ; vulval margin concave and deeply and finely serrate ; microtrichia of genital chamber (Text-fig. 2) more widely separated than shown in Clay, 1966, fig. 24 ; bursa copulatrix (see Clay, 1968)

\*This forms Part IV of "Contributions towards a revision of *Myrsidea*."

thin-walled and distorted in available specimens. Male genital sclerite of characteristic form (Pl. II, fig. 5, s; Text-fig. 4); owing to distortion in mounted specimens the outline of



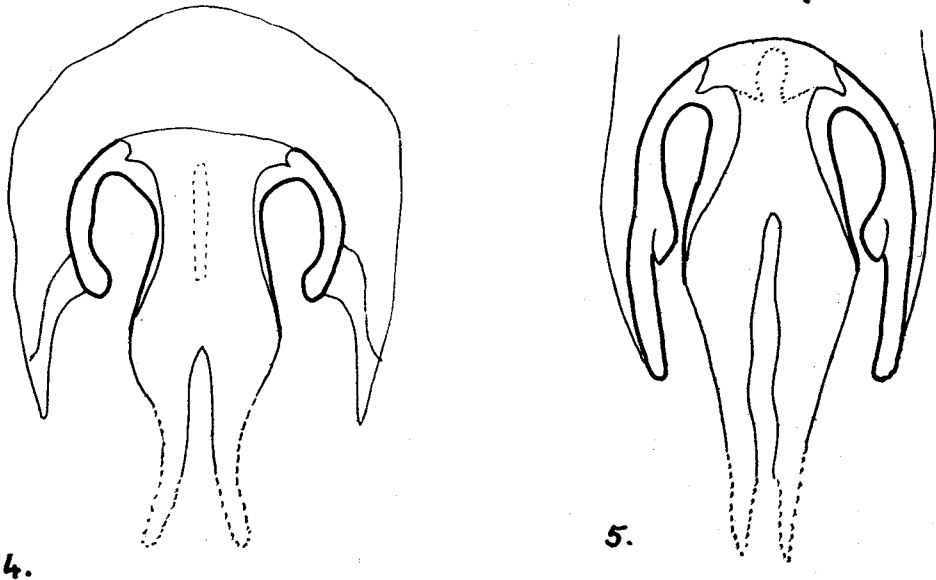
Text-figs. 1-3. *Myrsidea srivastava* (from *Lonchura malabarica*). 1. Posterior segments, dorsal and ventral, of female abdomen. l, lateral marginal seta of last tergum; p, inner posterior seta of last tergum; a, see also Pl. II, fig. 1; b, see also Pl. II, fig. 2; c, see also Pl. II, fig. 3. 2. Microtrichia of female genital chamber. 3. Posterior margins of tergum and tergite IV, female.

the genital sclerite each side and of different specimens is seldom the same and the posterior ends of the divided portion are not clearly demarcated.

4. Abdominal Chaetotaxy. The shorter post-spiracular setae, III, V, and VI fairly long (see below under species). Tergites and pleurites without anterior setae; sternites III-VI without anterior median setae; sternite I without setae; each aster of sternite II with 4 (occasionally 3) spine-like setae in female, 2-4 in male; 2 inner posterior setae on last tergum (Text-fig. 1, p.). Number of tergoventral setae (as given in Clay, 1966) is the number of marginal and submarginal setae of tergite I minus 2 (the post-spiracular setae) and of tergite II-VIII minus 4 (the post-spiracular and associated seta each side). Pleurite VIII with three margi-

nal setae, the outer and inner of approximately the same size. Internal opening of male anus with 8 short setae and posterior margin of abdomen with 4 setae. Female ventral anal margin with 6 shorter setae interspersed with the longer setae which are set on raised papillae (Pl. II, fig. 3) ; dorsal margin (Text-fig. 1) with central portion modified, with 8 more widely separated setae (Pl. II, fig. 2).

In considering the recorded measurements of setae it should be noted that most taper to a fine point, the end of which may be missing ; with phase contrast and good resolution



Text-figs. 4-5. Male genital sclerite. 4. *Myrsidea srivastava*. 5. *M. amandava*.

the tip of the seta can be seen or it is possible to decide whether the tip is missing ; the longer setae seldom lie completely in one plane and often curl to such an extent that measurement must be made by projecting seta and micrometer and measuring the seta with a piece of string. There is a certain amount of individual variation and in many cases measurements have been made of only a small number of setae. For all these reasons exact measurements and comparison of seta length are not possible, but where the differences are sufficient to obviate these difficulties, the length and width of setae may form useful specific characters.

$\bar{X}$ =mean ; number of specimens given in brackets.

***Myrsidea srivastava* sp. n.**

(Pl. I, figs. 1-2 ; Pl. II, figs. 1-3, 5. Text-figs. 1-4)

Type host : *Lonchura malabarica* (Linn.)

This species is distinguished from *M. amandava* n. sp. by the male genital sclerite ; the greater length of head seta 10 (at least in the female) and the larger ratio 10/11. The number of tergoventral setae is less, but this is more marked in the male than female.

**Male and Female.** Head seta 10 : male, 72-74  $\mu$ ,  $\bar{x}$  (3) 72.6  $\mu$ ; female, 76-91  $\mu$ ,  $\bar{x}$  (4) 84.7  $\mu$ . Seta 11 : male, 86-97  $\mu$ ,  $\bar{x}$  (3) 89.6; female, 94-98  $\mu$ ,  $\bar{x}$  (6) 96.3. Ratio 10/11 : male, 0.81; female, 0.89. Outer dorsal setae of first tibia : male, 4-5,  $\bar{x}$  (4) 4.2; female, 4-5,  $\bar{x}$  (6) 4.3. The small number of specimens available from *Amadina fasciata* tend to have a greater number of outer dorsal setae : male, 4-6,  $\bar{x}$  (6) 5.2; female, 5 (6). Setae of femoral brush : male, 16-20,  $\bar{x}$  (3) 18; female, 17-21,  $\bar{x}$  (6) 19.5. Posterior margin of female tergite and tergum IV as in Text-fig. 3; shape of last female sternite as in Text-fig. 1. Male genital sclerite as in Text-fig. 4.

**Abdominal Chaetotaxy.** Lengths in mm. of post-spiracular setae I, III, V, VI compared with II of 1 female (from *Lonchura malabarica*) : II, 0.43; I, 0.26; III, 0.21; V, 0.20; VI, 0.25. Tergocentral setae. Male (2). I, 10-11; II, 13-15; III, 12-13; IV, 12; V, 12-13; VI, 11-12; VII, 11; VIII, 6. Female (4). I, 10-13,  $\bar{x}$  11.3; II, 12-15,  $\bar{x}$  13.2; III, 12-15,  $\bar{x}$  13.2; IV, 12-15,  $\bar{x}$  13; V, 12-13,  $\bar{x}$  12.7; VI, 10-12,  $\bar{x}$  11.2; VII, 9-12,  $\bar{x}$  10.7; VIII, 7-9,  $\bar{x}$  8. Anterior setae of sternite II : male, 7-9 (2); female, 9 (1). Marginal sternal setae: male (2). II, 10; III, 15-18; IV, 19-22; V, 20-21; VI, 16-18; VII, 10; VIII, 4; terminal sternites, 10. Female (4). II, 11-13,  $\bar{x}$  12; III, 20-21,  $\bar{x}$  20.3; IV, 20-22,  $\bar{x}$  21.3; V, 22-24,  $\bar{x}$  22.8; VI, 18-19,  $\bar{x}$  18.8; VII, 11-13,  $\bar{x}$  12; terminal sternites, 13-17,  $\bar{x}$  15.2. Vulval margin, 10-12,  $\bar{x}$  10.8; ventral anal margin (including the six shorter setae) 39; dorsal anal margin each side of the 8 central setae; 11+14, 13+11, 12+13, 11+13. Anterior lateral sternal setae: male, III, 0-1 each side; IV, 3-5; V, 6-9; VI, 4-6; VII, 2; VIII, 0-4. Female, III, 1-4; IV, 9-11; V, 9-14; VI, 6-13; VII, 4-7. Length of inner posterior seta of last tergum : male (4), 22-45  $\mu$ ,  $\bar{x}$  36.5; female (8), 52-65  $\mu$ ,  $\bar{x}$  58. Length of short lateral marginal seta of last segment (Text-fig. 1, l.) : male (2), 16-20  $\mu$ ; female (4), 26-30  $\mu$ ,  $\bar{x}$  28.5.

**Material examined.** 2 males, 4 females from *Lonchura malabarica* (Linn.), Pakistan, Sind, i. 1937 (R. Meinertzhagen, no. 10407).

**Holotype** male, slide no. 10407a in the British Museum (Natural History). **Paratypes**, 1 male, 4 females with the above data.

I have much pleasure in naming this species in honour of Dr. H. D. Srivastava.

The following specimens from other hosts (as given below) are included in this species. 5 males, 4 females from *Lonchura c. cantans* (Gmelin), Sudan, iv. 1936 (R. Meinertzhagen, nos. 7769, 7770). 2 males, 3 females from *Lonchura cantans orientalis* (Lor. and Hellm.), Saudi Arabia, iii. 1948 (R. Meinertzhagen, nos. 17468, 17491). 2 males, 7 females from *Amadina fasciata alexanderi* Neumann, Kenya, iii. 1936 (R. Meinertzhagen, nos. 6993, 6995). 1 male from *Amadina fasciata meridionalis* Neunzig, Botswana (Bechuanaland), Tsessebe, i.i.1965 (F. Zumpt). From *Amadina erythrocephala* (Linn.) : 3 males, 2 females, S. W. Africa, v. 1949 (R. Meinertzhagen, no. 19028); 1 male, 1 female, W. Transvaal, Bloemhof, 3.xii. 1956 (F. Zumpt). From *Uraeginthus angolensis* (Linn.) : 1 male, 1 female, N. Transvaal, Gravelotte, 12.vii. 1958 (F. Zumpt); 1 male Botswana, Debeete, 25.vii.1956.

Examination of the small amount of material available from these hosts shows that while in specimens from some of the hosts there is some difference in the average

numbers and lengths of some of the setae and body measurements, there is sufficient overlap in ranges to make taxonomic divisions unsatisfactory. Populations parasitic on *Uraeginthus angolensis* will probably prove to be the most distinct.

***Myrsidea amandava* sp. n.**

(Text-fig. 5)

Type host: *Amandava amandava* (Linn.)

The differences between this species and *M. srivastava* have been given above.

Male and Female. Head seta 10: male (1), 60  $\mu$ ; female (7), 50-69  $\mu$ ,  $\bar{x}$  62.1. Seta 11: male (2), 86-90  $\mu$ ; female (8), 84-100  $\mu$ ,  $\bar{x}$  92. Ratio 10/11: male 0.68; female 0.67. Outer dorsal setae of first tibia: male, 4 (3); female, 4-5,  $\bar{x}$  (8) 4.1. Setae of femoral brush: male, 15-17,  $\bar{x}$  (4) 16.5; female, 17-21,  $\bar{x}$  (8) 19.5. Male genital sclerite as in Text-fig. 5.

Abdominal Chaetotaxy. Lengths in mm. of post-spiracular setae compared with II, 0.43: I, 0.29; III, 0.22; V, 0.20; VI, 0.26. Tergocentral setae. Male (1-2). I, 16; II, 20; III, 24; IV, 21-23; V, 20-24; VI, 19; VII, 14-18; VIII, 10. Female (3). I, 14-15,  $\bar{x}$  14.7; II, 13-16,  $\bar{x}$  15; III, 16-18,  $\bar{x}$  17; IV, 14-17,  $\bar{x}$  15; V, 13-18,  $\bar{x}$  15.7; VI, 13-14,  $\bar{x}$  13.7; VII, 11-12,  $\bar{x}$  11.7; VIII, 12(1). Anterior setae of sternite II: male 5 (1); female 7-9,  $\bar{x}$  (3) 7.7. Marginal sternal setae (including marginal setae of lateral brushes). Male. II, 13; III, 23; IV, 24; V, 23-24; VI, 20-21; VII, 12-16; terminal sternites, 9. Female. II, 12-14; III, 19-29; IV, 24-26; V, 22-27; VI, 20-22; VII, 12-13; terminal sternites, 17-20. Vulval margin, 9-12; ventral anal margin; 37-40; dorsal anal margin each side of the 8 central setae; 15+14, 12+13 (2), 14+13, 11+11. Anterior lateral sternal setae. Male. III, 0-1 each side; IV, 3-5; V, 8; VI, 3-7; VII, 2-3. Female. III, 0-3; IV, 8-11; V, 9-13; VI, 7-10; VII, 2-5. Length of inner posterior seta of last tergum: male (4), 42-58  $\mu$ ,  $\bar{x}$  47.5; female (8), 48-71  $\mu$ ,  $\bar{x}$  60. Length of short seta each side of last tergum: male (3), 32-40  $\mu$ ,  $\bar{x}$  34.7; female (5), 46-79  $\mu$ ,  $\bar{x}$  55.6.

Material examined. 2 males, 4 females from *Amandava amandava* (Linn.), India, Hyderabad, ii.1937 (R. Meinertzhagen, no. 8660).

Holotype male, slide no. 8660a in British Museum (Natural History). Paratypes, 1 male, 4 females with the above data.

***Myrsidea cyrtostigma* (Kellogg and Chapman, 1902)**

(Pl. I, fig. 3; Pl. II, figs. 4, 6)

Type host: *Vestiaria coccinea* (Forster). Error.

*Menopon cyrtostigmum* Kellogg and Chapman, 1902. *J. N. Y. ent. Soc.*, 10: 65, fig. 1.

This species was described from specimens taken from three species of Drepanidae: *Vestiaria coccinea*, *Himatione sanguinea* and *Chlorodrepanis virens*. Through the kindness of Mr. Jerry A. Powell of the University of California three slides of type material have been seen as follows: 1 male from *Vestiaria*, 1 nymph from *Himatione* and 1 male from *Chlorodrepanis*. The

two males are not in good condition but appear to be conspecific, both have the distinctive genital sclerite (Pl. II, fig. 6) as shown in the figure of the original description; they are also conspecific with one of the males on the type slide of *Myrsidea conspicua* (Kellogg and Chapman, 1902). Clay (1965: 122) designated as lectotype of *M. conspicua*, the male with the genital sclerite similar to some other species parasitic on the Fringillidae (Text-fig. 7 B.); it was assumed that the other male conspecific with *cyrtostigma*, was a straggler from one of the Drepanidae. However, since this was published specimens of *Myrsidea* have been seen from *Lonchura punctulata* (Linn.) taken in India, Nepal, Thailand, Malaya and Taiwan, and there seems little doubt that these are *cyrtostigma*. According to Henshaw (1902: 128) *Munia nisoria punctata*=*Lonchura punctulata* was introduced into Hawaii from the Malayan Peninsula and was at the time he wrote "apparently distributed over all the islands of the group and abundant in most localities." It seems most probable therefore that the specimens of *cyrtostigma* recorded from members of the Drepanidae and from *Carpodacus mexicanus* in Hawaii were stragglers from *Lonchura punctulata*, perhaps due to contamination during collecting.

This species is distinguished in the male from other known species by the distinctive genital sclerite; the female is distinguished from the two species described above by the form of the microtrichia of the genital chamber, the flattened not concave vulval margin and by head seta 10 being longer than 11. Characters which are common to the three species will not be repeated here.

**Male and Female.** Shape of head as in Pl. I, fig. 3. Subocular comb-row: 8-10,  $\bar{x}$  (32) 9. Gular state: 9-12 (4-6 each side); male,  $\bar{x}$  (6) 10.1; female,  $\bar{x}$  (9) 11.1. Head seta 10 longer than 11. Male: seta 10, 100-104  $\mu$ ,  $\bar{x}$  (6) 102; seta 11, 86-96  $\mu$ ,  $\bar{x}$  92. Ratio 10/11: 1.06-1.16,  $\bar{x}$  (6) 1.11. Female: seta 10, 102-124  $\mu$ ,  $\bar{x}$  (9) 110; seta 11, 93-104  $\mu$ ,  $\bar{x}$  (9) 97. Ratio 10/11: 1.09-1.21,  $\bar{x}$  1.14. Central setae of metanotum: male, 8-9,  $\bar{x}$  (6) 8.3; female, 8-11,  $\bar{x}$  (5) 9.8. Setae of metasternal plate: male, 8-10,  $\bar{x}$  (6) 9.3; female 6-7,  $\bar{x}$  (9) 6.2. Metapleural setae: male, 2-3 (each side),  $\bar{x}$  (12 sides) 2.3; female, 3-4,  $\bar{x}$  (18) 3.2. Length of longest: male, 41-56  $\mu$ ,  $\bar{x}$  (8) 47; female, 41-62  $\mu$ ,  $\bar{x}$  (9) 52. Outer dorsal setae of first tibia, 4. Setae of femoral brush: male, 11-16,  $\bar{x}$  (12 legs) 14.5; female, 15-20,  $\bar{x}$  (20) 17.7. Shape of terga and tergites as in *srivastava*; sternites IV-VI slightly more arched than in *srivastava*. Vulval margin flattened medianly, deeply serrate; shape of last female sternite as in Pl. II, fig. 4. Microtrichia of posterior part of genital chamber comblike as in Clay, 1966, fig. 23. No bursa copulatrix can be seen in the available material. Male genital sclerite large (Pl. II, fig. 6): length; 0.21-0.23 mm,  $\bar{x}$  (7) 0.22.

**Abdominal Chaetotaxy.** Lengths in mm. of post-spiracular setae of one female: II, 0.42; I, 0.22; III, 0.22; V, 0.19; VI, 0.26. Tergocentral setae. Male (7). I, 12-15,  $\bar{x}$  13.3; II, 12-16,  $\bar{x}$  14.4; III, 13-19,  $\bar{x}$  14.4; IV, 13-18,  $\bar{x}$  15.3; V, 14-16,  $\bar{x}$  15; VI, 12-17,  $\bar{x}$  14.1; VII, 10-14,  $\bar{x}$  12.3; VIII, 7-10,  $\bar{x}$  8.4. Female (7). I, 14-17,  $\bar{x}$  15.3; II 13-17,  $\bar{x}$  15.1; III, 13-19,  $\bar{x}$  16.7; IV, 16-23,  $\bar{x}$  17.1; V, 13-20,  $\bar{x}$  17.2; VI, 15-21,  $\bar{x}$  17.4; VII, 13-19,  $\bar{x}$  16; VIII, 10-12,  $\bar{x}$  10.8. In both sexes there is a short spine-like seta each side among the longer tergocentral setae; in the female the short seta, usually lying submarginal near the post-spiracular seta, appears as part of the row of tergocentral setae, but it is not included in the count of these setae. Length of inner posterior setae of last tergum: male, 14-38  $\mu$  (7); female,

29-40  $\mu$  (11), one specimen with setae 100+92  $\mu$ . Length of the short lateral marginal seta of last tergum (Text-fig. 1, 1) longer in female than in male, and longer than in female of *M. srivastava*: male, 17-30  $\mu$ ,  $\bar{x}$  (5) 25; female, 55-82  $\mu$ ,  $\bar{x}$  (8) 68. Anterior setae of sternite II: male (6), 9-15,  $\bar{x}$  13.7; female (5), 9-11,  $\bar{x}$  10.4. Spine-like setae of sternite II; male (12 sides), 3-4,  $\bar{x}$  3.4; female (12), 3-5,  $\bar{x}$  4. Marginal sternal setae. Male (6). II, 12-14,  $\bar{x}$  13.3; III, 20-21,  $\bar{x}$  20.3; IV, 20-23,  $\bar{x}$  22; V, 18-21,  $\bar{x}$  20.2; VI, 17-20,  $\bar{x}$  18.5; VII, 14-17,  $\bar{x}$  15.5; VIII, 7-9,  $\bar{x}$  7.8; terminal sternites, 5-6,  $\bar{x}$  5.8. Female (5). II, 13-18,  $\bar{x}$  14.8; III, 24-28,  $\bar{x}$  25.6; IV, 23-28,  $\bar{x}$  26; V, 22-29,  $\bar{x}$  25.6; VI, 21-25,  $\bar{x}$  22.6; VII, 12-18,  $\bar{x}$  14.4; terminal sternites, 14-20,  $\bar{x}$  16.8; vulval setae in three groups, 3+2+3 (7), 2+2+3 (4) and one specimen each with 1+2+3, 3+2+4, 3+3+3. Ventral anal setae 41-42; central dorsal anal setae 6 (11), 7 (1). Anterior lateral setae of sternites. Male (10 sides). III, 0-2 (each side); IV, 3-6; V, 4-6; VI, 4-5; VII, 2-5; VIII, 0-3. Female (10 sides). III, 1-5; IV, 6-8; V, 5-9; VI, 6-8; VII, 4-7. Setae of pleurite VIII, 3+3, one female, 3+4.

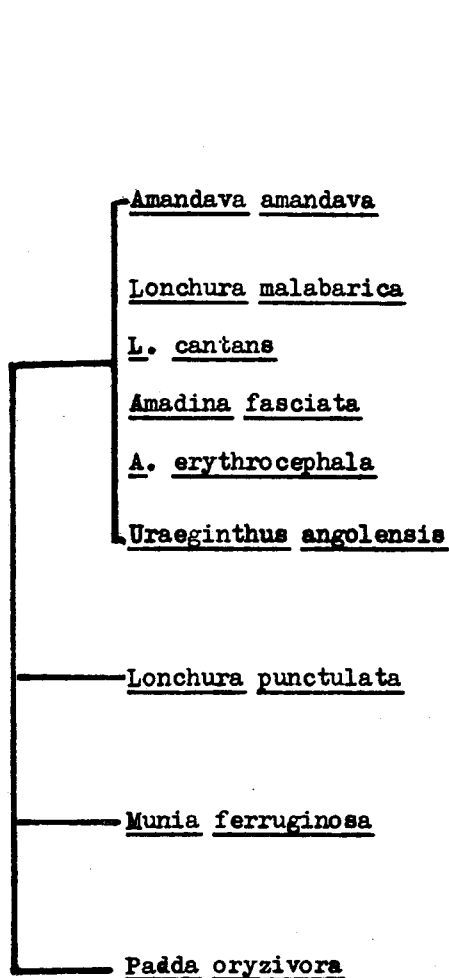
Material examined. Hawaiian Islands: Hawaii Is., Hilo, 1 male (syntype) from *Vestiaria coccinea*; Maui Is., Iao Valley, 1 male (syntype) from *Chlorodrepanis virens*. 23 males, 17 females from *Lonchura punctulata* (Linn.) as follows: India; Hyderabad, 3 males 4 females, ii.1937 (R. Meinertzhagen, nos. 8746-7). Nepal: 1 male, x.1935 (R. Meinertzhagen, no. 4539). Thailand: Chiangmai, 16 males, 8 female ii.iii, v, vi, 1962 in K.C. Emerson collection. Malaya: Sungei Way, 1 male, 24.i.1963 in Emerson collection. Taiwan: Tunghai, 1 male 13.iii.1965 (H. E. McClure no. E-51720), in K. C. Emerson collection. Captive bird, 2 males, 4 females, 19.vi.1966 (R. S. Balter) in B. M. (N. H.).

Lectotype of *Myrsidea cyrtostigma* here designated: male in the Kellogg collection on slide labelled, *Vestiaria coccinea*. Hilo.

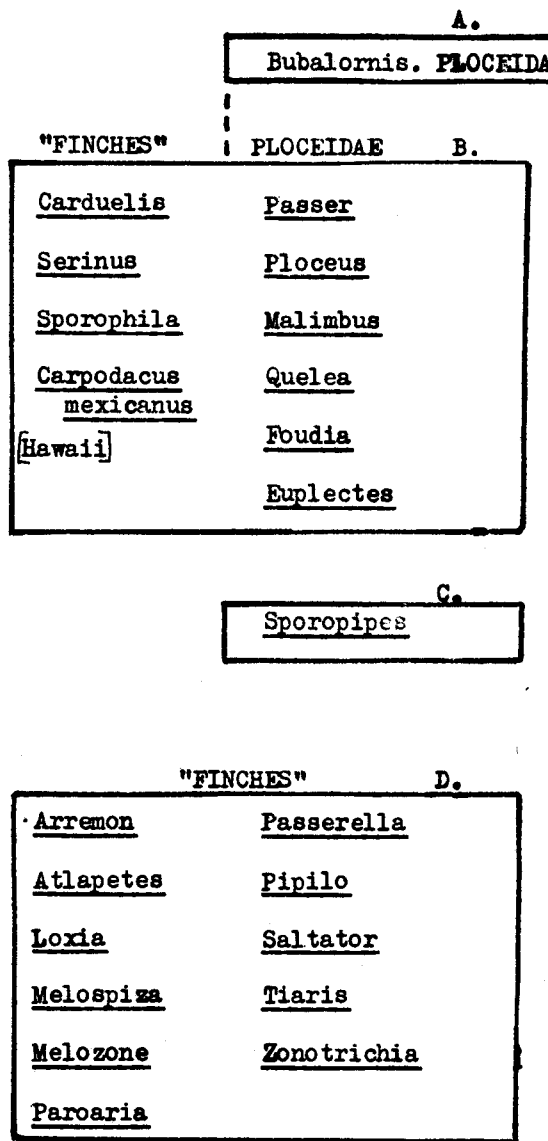
#### HOST-PARASITE RELATIONSHIPS

Although in the majority of cases the relationships of the Mallophga reflect those of their hosts, based on other evidence, it should be re-emphasized that a species of Mallophaga may be found on a given host due to contamination during collecting, temporary natural straggling or establishment on a new host any time in the evolution of host or parasite, resulting in geographical not host distribution of a species (See Clay, 1964).

Elsewhere (Clay, 1966: 341, and 1968) it has been shown that species of *Myrsidea* separated into groups based on the characters of the male genital sclerite and female bursa copulatrix are frequently parasitic on groups of related hosts; examples are the *Myrsidea* species on the Hirundinidae, Icteridae and some of the species of *Corvus*. In some of the species parasitic on hosts belonging to the Estrildidae a different character which appears to show group relationships is the modification of the central part of the female dorsal anal margin (Text-fig. 1). It is found in the three species described above and in new species from *Munia* (= *Lonchura*) *ferruginosa* (Sparam.) and *Padda oryzivora*. Text-fig. 6 shows the degrees of similarity of the *Myrsidea* populations parasitic on 9 species belonging to the Estrildidae; the separation is mainly on the form of the male genital sclerite. The small number of specimens of *Myrsidea* available from other genera of Estrildidae (*Nigrita*, *Cryptospiza*, *Estrilda*) do not fit into this group.



Text-fig. 6



Text-fig. 7.

Figs. 6-7. Diagrams showing relationships of the *Myrsidea* populations on different hosts. 6. Estrildidae. 7. Ploceidae and some of the "finches".



It might also be of interest to consider briefly the groupings of the species of *Myrsidea* parasitic on the Ploceidae and the "finches", birds which have at various times been associated with the Estrildidae. Any suggestions of relationships must be of a tentative nature until more material has been seen. Many of the finches rarely (or perhaps never) seem to harbour *Myrsidea*.

In the available material none of the species from the Estrildidae belong to groups found on the Ploceidae or Fringillidae (sens. lat.). Text-fig. 7 shows the groupings of the known *Myrsidea* on the "finches" and Ploceidae. The *Myrsidea* species (A) on *Bubalornis* is similar but distinct from those known from the rest of Ploceidae, while that parasitic on *Sporopipes* is quite distinct. Group B contains all the species known from the rest of the Ploceidae together with species parasitic on four genera usually placed with the "finches."\* The rest of the *Myrsidea* species known from "finches" are contained in group D; these are mostly New World birds, with *Loxia* being parasitized by the same species of *Myrsidea* in the Old and New World. It appears that *Myrsidea* is commoner on the New World than the Old World finches. Further, *Myrsidea* species also belonging to group D are found on other New World families such as the Cyclarhidae, Parulidae, Mimidae, Thraupidae, and some of the Turdidae and Tyrannidae. This suggests the possibility of a partly geographical and partly host distribution.

#### ACKNOWLEDGEMENTS

I am indebted to Mr. C. J. O. Harrison for advice on the generic names in the Estrildidae and to Dr. K. C. Emerson for the loan of material.

#### REFERENCES

- Clay, T. 1964. Geographical distribution of the Mallophaga (Insecta). *Bull. B. O. C.* **84**: 14-16.  
Clay, T. 1965. Contributions towards a revision of *Myrsidea* Waterston (Mallophaga: Menoponidae). II. *Proc. R. ent. Soc. Lond. (B)*. **34**: 117-122.  
Clay T. 1966. Contributions towards a revision of *Myrsidea*. I. *Bull. Br. Mus. nat. Hist., Entom.* **19**: 327-395.  
Clay, T. 1968. Contributions towards a revision of *Myrsidea*. III. *Bull. Brit. Mus. nat. Hist., Entom.* **21**: 205-243.  
Henshaw, H. W. 1902. Birds of the Hawaiian Islands, Honolulu.

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\**Myrsidea* from *Vidua macroura*, recently collected by J. A. Ledger, belongs to group B.

## EXPLANATION OF PLATES

## Plate I

- Fig. 1. *Myrsidae srivastava*. Male (B. M. neg. no. 45719).  
Fig. 2. *Myrsidae srivastava*. Female (B. M. neg. no. 45718).  
Fig. 3. *Myrsidae cyrtostigma*. Female head. m, head seta 10.

## Plate II

- Fig. 1. Lateral setae of dorsal anal margin, see Text-fig. 1, a.  
Fig. 2. Central modification of dorsal anal margin, see Text-fig. 1, b.  
Fig. 3. Setae of ventral anal margin, see Text-fig. 1, c.  
1-3 *Myrsidae srivastava*.  
Fig. 4. Last sternite and ventral anal margin of female *Myrsidea cyrtostigma*.  
Fig. 5. Male genitalia of *Myrsidea srivastava*. s, genital sclerite.  
Fig. 6. Male genital sclerite of *Myrsidea cyrtostigma*.

Theresa Clay  
(*Opposite p. 570*)

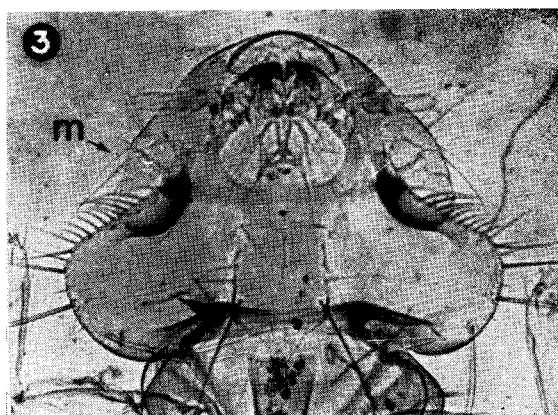
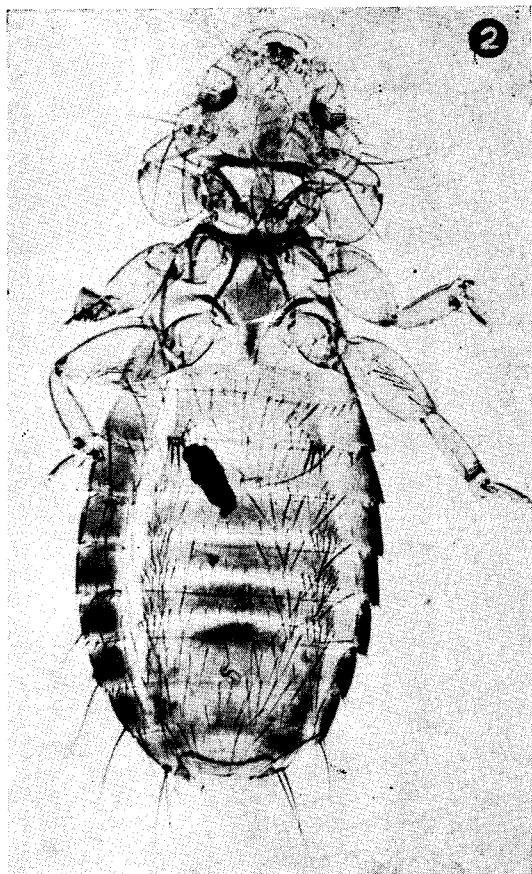
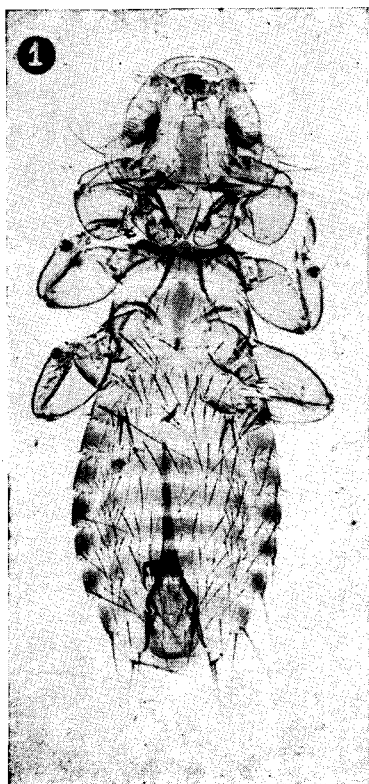


Plate I

