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# PRELIMINARY NOTES ON A REVISION OF THE LICHOMOLGDAE, CYCLOPOID COPEPODS MAINLY ASSOCIATED WITH MARINE INVERTEBRATES 

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#### Abstract

The family Lichomolgidae Kossmann, 1877 is raised to the rank of a superfamily and subdivided into 5 families ( 3 of them new). Keys are provided to 76 genera belonging to the Lichomolgidoidea ( 32 new), which embrace 324 species. The new genera are diagnosed and of all genera the type-species is indicated.


The poecilostome family Lichomolgidae Kossmann, 1877, contains at present a large number of heterogeneous genera and species whose interrelationships in many cases have not been clear. The substantial increase in recent years in the numbers of newly recognized species has emphasized the need for a revisionary study of this family of copepods.

With the objective of such a revision in mind we have undertaken a restudy of the Lichomolgidae, work which has been in progress over the past four years. We propose to divide Kossmann's family into five families, three of them new, and all included in a new superfamily. Seventy-six genera ( 32 new) are characterized, including 324 species ( 37 new ). Previously known species are recorded from 73 new hosts. The complete revision by Humes \& Stock, containing redescriptions of certain known species, descriptions of new taxa, synonymies, and host records, is currently in press.

The publication of these preliminary notes will indicate the scope and content of the revisionary study. These pages also bring together in a convenient shortened form the major taxonomic concepts adopted, leaving the detailed descriptions for the complete revision. Diagnoses of all old and new genera and descriptions and figures of all new species will be found in the forthcoming revision.

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## Superfamily LICHOMOLGIDOIDEA new superfamily

First antenna usually 7-segmented. Second antenna either 4-segmented or 3-segmented by a fusion of the last two segments. Mandible simple, without terminal elements, but often attenuated into a slender lash. Maxilliped present in both sexes, prehensile in the male.

Legs 1-4 typically with 3-segmented exopods and endopods, but these frequently reduced or sometimes absent. Leg 5 with at most a single free segment, in some cases lacking a free segment entirely, armature usually consisting of three elements, two of them on the free segment if present.

Usually associated with marine invertebrates, in some cases evidently parasitic, with the body form modified or transformed.

## KEY TO THE FAMILIES OF THE SUPERFAMILY LICHOMOLGIDOIDEA

1. Exopods of legs 1 and 2 in the female 2-segmented, in the male 1-segmented .......... Rhynchomolgidae $n$. fam.
Exopods of legs 1 and 2 in the female 3-segmented, in the male at least 2-segmented ............................... 2
2. Leg 5 whout a 1 and

3
2. Leg 5 without a free segment 3

3. Leg 4 endopod 3-segmented .................................................................................................. Urocopildae n. fam.

Leg 4 endopod 1-segmented, reduced to a small knob or absent .............................. Pseudanthessildae n. fam.
4. Leg 4 endopod 2-segmented, 1-segmented, reduced to a small knob, or absent; legs 1 - 3 endopods 3-segmented (except in Amarda and Ravahina); the reduction in the endopods occurring in a posterior to anterior series Lichomolgidae Kossmann, 1877
Legs 1-4 endopods 3-segmented in most genera; if leg 4 endopod 2-segmented, then legs 1 - 3 endopods also 2-segmented; the reduction of the endopods occurring in an anterior to posterior series

Sabelliphilidae Gurney, 1927

## Family SABELLIPHILIDAE Gurney, 1927

Legs 1-4 with 3-segmented rami in most genera. Certain genera with 2-segmented endopods, especially in the male, the reduction occurring in an anterior to posterior series as in males of Scambicornus. Leg 5 present in both sexes and with a free segment, except in Synapticola where in both sexes it is reduced to a short papilla and in Thamnomolgus where in the male it is reduced to a small lobe fused with the body.

## KEY TO THE GENERA OF THE SABELLIPHILIDAE

1. Second antenna 3-segmented ............................................................................................................................................................. 2

2. Legs 1-4 with exopods and endopods 3-segmented in both sexes; leg 5 with a free segment...........................
 Legs 1-4 with 3-segmented exopods and 2-segmented endopods in both sexes; leg 5 without a free segment.. -нн................................................................................................................... Synapticola Voigt, 1892
3. Second antenna with one claw on third segment and 3 or 4 claws on fourth segment ...................................... 4

4. Rostrum bifid; second antenna with first two segments enlarged, second segment with a toothed crest and
 Rostrum not bifid; second antenna with first two segments not enlarged; second segment without toothed crest

5. Second antenna with one claw on third segment, fourth segment without claws .............................................................. 6 Second antenna with 1 - 3 terminal claws, but without a claw on third segment ....................................................... 11
6. Ventral keel on genital segment of female and on first postgenital segment of male; endopods of legs 1-4 in both sexes 2-segmented ....................................................................... Calypsarion Humes \& Ho, 1969 Without a ventral keel on genital segment of female or on first postgenital segment of male; endopods of legs 1-4 not entirely 2 -segmented in both sexes
7. Body much elongated with broad triangular cephalosome; legs $1-4$ with all exopods and endopods 3 -segmented in both sexes; leg 4 endopod with formula $0-1 ; 0-1 ; I, I, 1,1,1$; egg sacs very long with nearly linearly arranged eggs

Lecanurius Kossmann, 1877

Body not unusually elongated and cephalosome not broadened; legs 1-4 with 3-segmented exopods, but endopods sometimes 2-segmented; leg 4 endopodwith formula other than in Lecanurius; egg sacs not unusually long and eggs not linearly arranged
. 8
8. Legs 1-4 in both sexes with rami 3 -segmented except leg $1-3$ with endopod 2 -segmented; rostrum a slender beak; endopod of leg 4 with formula $0-0 ; 0-0 ;$ I, III, I

Calypsinan. gen.
Legs 1-4 in female with 3 -segmented rami, but in male some endopods 2 -segmented; rostrum rounded or weakly developed; endopod of leg 4 with formula other than in Calypsina

9
9. Mandible with a large spinelike element on base; leg 4 with endopod in female $0-1 ; 0-1$; II, I, in male $0-1$; II, 1, 1 ............................................................................................................. Lichothuria Stock, 1968 Mandible without a large spinelike element on base; leg 4 with endopod having formula unlike Lichothuria
10. Legs 1-4 with 3-segmented rami, except in the male legs $1-2$ having 2 -segmented endopods and legs 3-4 having 3 -segmented endopods; leg 4 with endopod in both sexes having formula $0-1 ; 0-1$; I, II, II
. Scambicornus Heegaard, 1944 Legs 1-4 with 3-segmented rami, except in male with all endopods 2 -segmented; leg 4 with endopod in female $0-1$; 0-1; I, II, II and in male 0-1; I, II, II, 1 ............................................................... Caribulus n. gen.
11. Second antenna with one terminal claw 12
Second antenna with more than one terminal claw ............................................................................................... 15
12. Caudal ramus with two median terminal setae vestigial ........................................ Diogenella Stock, 1968 Caudal ramus with two median terminal setae normally developed ................................................................. 13
13. Third segment of leg 3 endopod with fourelements; leg 5 in female with a free segment, in male with the segment fused with body Thamnomolgus Humes, 1969b Third segment of leg 3 endopod with five elements; leg 5 in both sexes with a free segment ..................... 14
14. Terminal lash on second maxilla much shorter than adjacent seta ............... Diogenidium Edwards, 1891 Terminal lash on second maxilla longer than adjacent seta ............................. Herrmannella Canu, 1891

Second antenna with three terminal claws ............................................................................................................. 17
16. Second maxilla lacking an auxiliary lash; maxilliped in female 2-segmented with blunt tip ............................. Lichomolgidium Kossmann, 1877 Second maxilla with an auxiliary lash; maxilliped in female 3-segmented and prehensile
17. Leg 4 endopod with formula $0-1 ; 0-2 ;$ III; leg 3 endopod with $0-1 ; 0-2 ; 1, I I, 2$

Paranthessius Claus, 1889
Leg 4 endopod with formula $0-1 ; 0-1$; II; leg 3 endopod with $0-1 ; 0-1 ;$ II, II, 2 or I, III, 2 Modiolicola Aurivillius, 1882

Calypsarion Humes \& Ho, 1969. Type-species.- Calypsarion carinatum (Stock, 1968).

Calypsina n. gen.
Type-species.- Calypsina changeuxi (Stock \& Kleeton, 1963).
Caribulus n. gen.
Type-species.- Caribulus sculptus (Humes, 1969d).
Diogenella Stock, 1968.
Type-species.- Diogenella spinicauda Stock, 1968.
Diogenidium Edwards, 1891.
Type-species.- Diogenidium nasutum Edwards, 1891.
Henicoxiphium Illg \& Humes, 1971.
Type-species.- Henicoxiphium redactum lllg \& Humes, 1971.
Herrmannella Canu, 1891.
Type-species.-Herrmannella rostrata Canu, 1891.
Lecanurius Kossmann, 1877.
Type-species.- Lecanurius intestinalis Kossmann, 1877.
Lichomolgidium Kossmann, 1877.
Type-species.- Lichomolgidium sardum Kossman, 1877.
Lichothuria Stock, 1968.
Type-species.-Lichothuria mandibularis Stock, 1968.
Modiolicola Aurivillius, 1882.
Type-species.- Modiolicola insignis Aurivillius, 1882.

Myxomolgus n. gen.
Type-species.- Myxomolgus myxicolae (Bocquet \& Stock, 1958).
Paranthessius Claus, 1889.
Type-species.- Paranthessius anemoniae Claus, 1889.
Sabelliphilus M. Sars, 1862.
Type-species.- Sabelliphilus elongatus M. Sars, 1862.
Scambicornus Heegaard, 1944.
Type-species.-Scambicornus hamatus Heegaard, 1944.
Serpuliphilus n. gen.
Type-species.-Serpuliphilus tenax n. sp.
Distinguishing characters.- Second antenna 4-segmented, with two terminal claws. Maxilliped in the female 3 -segmented and prehensile, the last segment very long and clawlike. Legs 1-4 with 3 -segmented rami. Leg 4 exopod with the third segment having II, I, 5. Leg 4 endopod with the formula 0-1; 0-1; II. Associated with serpulid polychaetes.

Synapticola Voigt, 1892.
Type-species.-Synapticola teres Voigt, 1892.
Thamnomolgus Humes, 1969b.
Type-species.- Thamnomolgus robustus Humes, 1969b.
Family LICHOMOLGIDAE Kossmann, 1877
Legs 1-4 usually with all rami 3-segmented except the endopod of leg 4 which is 1 - or 2-segmented. Reduction occurring in a posterior to anterior series, as in Rakotoa with a vestigial leg 4 endopod, Ravahina with endopods of legs 3 and 4 vestigial, and Amarda with endopods of the first two legs 2- or 3 -segmented, endopods of legs 3 and 4 absent (in this genus leg 3 exopod is 2-segmented and leg 4 exopod is absent). Leg 5 present in both sexes and with a free segment (in a few genera, for example, Octopicola, not clearly delimited from the body).

## KEY TO THE GENERA OF THE LICHOMOLGIDAE

(Two genera, Philoconcha and Paraphiloconcha, have been omitted from the key on account of lack of information in the existing descriptions.)

1. Second antenna 3-segmented.............................................................................................................. 2 Second antenna 4-segmented ............................................................................................................ 11
2. Legs 1 and 2 with 3 -segmented exopods and 2 - or 3 -segmented endopods; leg 3 with 2 -segmented exopod, endopod absent; leg 4 absent ............................................................................................ Amarda n, gen. Legs 1-3 with 3-segmented rami; leg 4 with 3 -segmented exopod and 1- or 2-segmented endopod ............ 3
3. Rostrum with slender needlelike process; claws on second antenna pectinate .... Macrochiron Brady, 1872 Rostrum rounded, triangular, or broadly truncated but lacking a needlelike process; claws on second antenna not pectinate
4. Leg 4 with endopod 1-segmented ........................................................................................................................... 5

Leg 4 with endopod 2-segmented ........................................................................................................ 6
5. With broad shield-shaped prosome; second antenna with two terminal claws; leg 4 endopod armed with II, 1 .. ...................................................................................................... Aspidomolgus Humes, 1969a Prosome not unusually broad; second antenna with one terminal claw; leg 4 endopod armed with II
....................................................................................................... Sewellochiron Humes, 1969c
6. Second antenna with two or three terminal claws ............................................. Astericola Rosoll, 1889

Second antenna with one terminal claw
7
7. Leg 4 with endopod having formula $0-1$; II ............................................................................................ 8

Leg 4 with endopod not thus armed ..................................................................................................... 9
8. Mandible with basal area distal to indentation having on its convex side four slender digitiform processes; first segment of first antenna with four setae ................................................. Schedomolgus n. gen. Mandible with basal area distal to indentation having on its convex side a large hyaline expansion; first segment of first antenna with one seta Spaniomolgus n. gen.
9. Leg 4 with endopod having formula $0-1 ; 1$; mandible with basal area distal to constriction having on its concave side two lobes with serrated margins Prionomolgus Humes \& Ho, 1968a Leg 4 with endopod having more than one element on second segment; mandible with basal area distal to constriction having on its concave side a row of spinules
10
10. Urosome in female 5 -segmented, in male 6 -segmented but with segment of leg 5 fused with genital segment; basis of leg 4 laterally elongated
Stellicola Kossmann, 1877 Urosome in female 4-segmented, in male 5 -segmented (though in both sexes there may be a slight indication of division of anal segment); basis of leg 4 not laterally elongated Synstellicolan. gen.
11. Legs 1-4 with rami 3-segmented except for endopod of leg 4 or endopods of both legs 3 and 4 which are vestigial and represented only by a small unarmed knob 12
Legs 1-4 with all rami 3-segmented except endopod of leg 4 which is either 1- or 2 -segmented ............. 13
12. Only leg 4 with vestigial endopod; legs 1-4 with inner coxal seta; second maxilla with long digitiform process on first segment Rakotoan. gen. Both legs 3 and 4 with vestigial endopod;legs 1-4 lacking inner coxal seta; second maxilla without a long process on first segment
. Ravahina Humes \& Ho, 1968a
13. Leg 4 with endopod 1-segmented ...................................................................................................... 14
Leg 4 with endopod 2 -segmented ....................................................................................................... 20
14. Fourth segment of second antenna with four terminal claws; leg 5 a minute lobe; body elongated with slender prosome ..................................................................................................... Octopicola Humes, 1957 Fourth segment of second antenna with less than four terminal claws; leg 5 with a distinct free segment; body cyclopiform, prosome not unusually slender ...................................................................................... 15
15. Endopod of leg 4 unarmed............................................................. Haplomolgus Humes \& Ho, 1968a Endopod of leg 4 armed 16
16. Second antenna with a claw on third segment in addition to either one or two terminal claws ..... 17
Second antenna without a claw on third segment ..... 18
17. Second antenna with one terminal claw; leg 4 with endopod having two spines
Lichomolgella G.O. Sars, 1918Second antenna with two terminal claws; leg 4 endopod having two spines and a seta
18. Leg 4 endopod armed with two spines and a seta ..... Telestacicola n. gen.
Leg 4 endopod armed with only two spines19
19, Leg 4 with endopod in female almost as long as exopod, in male much shorter than exopod; second antennawith one terminal clawParamacrochiron Sewell, 1949Leg 4 with endopod in both sexes much shorter than exopod; second antenna with two terminal claws ( exceptone clawlike spine in P.fucicolum) ........................................ Pseudomacrochiron Reddiah, 1969
20. Leg 4 with second segment of endopod bearing only one element ..... 21
Leg 4 with second segment of endopod bearing more than one element ..... 24
21. Second antenna with one terminal claw ..... 22
Second antenna with three terminal claws ..... 23
22. Leg 4 with endopod having formula $0-1$; $I$; second maxilla with long digitiform process on first segment .....
Leg 4 with endopod having formula $0-0 ; 1$; second maxilla without such a process on first segmentM onomolgus Humes \& Frost, 1964
23. Body modified with prosome in female pointed anteriorly; leg 4 with endopod having formula $0-1 ; 1$; mandi-ble a broad blade abruptly attenuated distally; third exopod segments of legs $1-4$ with only three spines ......Gelastomolgus Humes, 1968
Body cyclopiform with prosome in female rounded anteriorly; leg 4 with endopod having formula $0-1$; $I_{\text {; man- }}$ mdible with broad base and slender attenuated blade; third exopod segments of legs 1-4 with four spines24. Leg 4 with second segment of endopod bearing more than two elements
Leg 4 with second segment of endopod bearing two elements25
25. Leg 4 with endopod having formula $0-1 ; \mathrm{II}, \mathrm{I}$; mandible with slender base merging into long attenuated lash;leg 4 with third exopod segment having armature II, I, 5 .................................... Ascidioxynus n. gen.Leg 4 with endopod having formula $0-1$; II, 3 , or $0-1$; II, 2 , or $0-1 ; 1,3$; mandible with large basal area in-dented; leg 4 with third exopod segment having armature III, I, 4, or III, I, 5, or I, 1, I, 5Indomolgus Humes \& $\mathrm{Ho}, 1966$
26. Leg 4 with endopod having first segment unarmed Xenomolgus n. gen.
Leg 4 with endopod having an inner element on first segment ..... 27
27. Labrum with a pair of prominent ventrally directed anterolateral setae; leg 4 with endopod having formula$0-1,2 ;$ maxilliped in female slender, with greatly elongated third segment ...... Nas omolgus Sewell, 1949Labrum without such setae; leg 4 with endopod having different formula; maxilliped in female not elongated...
28
28. Leg 4 with endopod having formula $0-1$; 1 , I ..... n.
Leg 4 with endopod having different formula ..... 29
29. Leg 4 with endopod having formula $0-1$ II ..... 30
Leg 4 with endopod having formula $0-1$; II ..... 31
30. Second antenna with one terminal claw; second maxilla in male with large proximally directed seta
Second antenna with two terminal claws; second maxilla in male without such a seta $\qquad$

31. Second antenna with one claw on third segment and three or four terminal claws ....................................... 32
Second antenna without claw on third segment but with 1-4 terminal claws .................................................... 34

Second antenna with four terminal claws; mandible without toothlike process on convex edge .................... 33
33. Female with prosome strongly inflated, and with a median ventrally produced postoral structure terminating
in two small hooks
$\qquad$
Lichomolgides Gotto, 1954
Female with prosome not inflated and without such a hooked structure........................................................................................................................
34. Second antenna terminally with one claw and one clawlike spine ........... Epimolgus Bocquet \& Stock, 1956
Second antenna terminally with different armature
35
35. Mandible of simple type, with slender base merging gradually into long attenuated lashLichomolgus Thorell, 1859
Mandible of more complex type, with large base often indented on convex side and variously ornamented; lash
variable, very short to long ..... 36
36. Second antenna with one terminal claw ..... 37
Second antenna with two terminal claws (or inDoridicola fishelsoni with one claw and one long spine)43
37. Mandible with a scalelike area on convex side of base ..... 38
Mandible without a scalelike area but with digitiform processes or tooth on convex side ..... 40
38. Mandible with lash reduced, and represented only by a small pointed process....... Colobomolgus n. gen.Mandible with a long pectinate lash39
39. Leg 4 with third exopod segment II, I, 5 ..... Paramolgus n. gen.
Leg 4 with third exopod segment III, I, 5 Paradoridicolan. gen.
40. Mandible with convex side of base bearing a proximally directed tooth ................. Odontomolgus n . gen.
Mandible with convex side of base bearing one or more small digitiform lobes ..... 41
41. Second maxilla with a large digitfform process on first segment ..... Panjakus n. gen.
Second maxilla without such a process ..... 42
42. Mandible with convex side of base bearing two small digitiform lobes; leg 4 with third exopod segment II, I, 5
exopod segment III, I, 5 Zamolgus n. gen.
43. Mandible with very short lash ..... 44
Mandible with long lash ..... 45
44. Mandible with convex side of base having a scalelike area with spinules; lash of second maxilla not 'folded';leg 4 with third exopod segment III, I, 5Contomolgus n. gen.
Mandible with convex side of base having a large hyaline area without spinules; lash of second maxilla
"folded"'; leg 4 with third exopod segment II, I, 5 Ascetomolgus n. gen.
45. Mandible with convex side of base bearing a tooth ..... 46
Mandible with convex side of base bearing a scalelike area with spinules ..... 47
46. Tooth on mandible proximally directed; leg 4 with third exopod segment II, I, $5 \ldots .$. Plesiomolgus $n$. gen.Tooth on mandible distally directed; leg 4 with third exopod segment III, I, $5 \ldots \ldots$. Paredromolgus n . gen.
47. Mandible with basal area beyond indentation densely spinose; free segment of leg 5 with distal inner processMandible with basal area beyond indentation with a row of spinules on concave side and scalelike area withrow of spinules followed by a serrated fringe on convex side; free segment of leg 5 without a distal innerprocess
18, 4 wh 48. Leg 4 with third exopod segment II, I, 5 . Metaxymolgus n. gen.
Leg 4 with third exopod segment III, I, 5 ..... Doridicola Leydig, 1853
Acaenomolgus n. gen.
Type-species.- Acaenomolgus protulae (Stock, 1959).Acanthomolgus n. gen.
Type-species.- Acanthomolgus exilipes (Humes \& Ho, 1968b).
Amardan. gen.
Type-species.- Amarda cultrata n. sp.
Distinguishing characters.- Body transformed. Second antenna 3-segmented, with a single terminalclaw. Mandible with a winglike process on the convex side of the base; lash relatively short andsmooth. Legs 1-3 similar in both sexes with reduced armature. Legs 1-2 with 3-segmented exopodsand 2 -segmented endopods. Leg 3 with 2 -segmented exopod ( $0-0 ; I$, II) but lacking an endopod. Leg4 absent in both sexes. Leg 5 in both sexes with a small free segment not clearly delimited from thebody. Associated with madreporarian corals.

Anchimolgus n. gen.
Type-species.- Anchimolgus digitatus (Humes \& Ho, 1968a).
Andrianellus n. gen.
Type-species.- Andrianellus exsertidens n. sp.
Distinguishing characters.- Body modified. Second antenna 4-segmented, with a single terminal claw. Second maxilla with the first segment bearing a long digitiform process. Legs 1-4 with 3segmented rami except for leg 4 endopod which is 2 -segmented. Leg 4 exopod with the third segment having II, I, 5. Leg 4 endopod 0-1; I. Associated with madreporarian corals.

Anisomolgus n. gen.
Type-species.- Anisomolgus protentus (Humes \& Frost, 1964).
Ascetomolgus n. gen.
Type-species.-Ascetomolgus plicatus n. sp.
Distinguishing characters.- Second antenna 4-segmented, with two terminal claws. Mandible with a very short lash. Second maxilla with a lash of peculiar form ("folded"). Legs 1-4 with 3-segmented rami, except for leg 4 endopod which is 2 -segmented. Leg 4 exopod with II, I, 5. Leg 4 endopod with $0-1$; II, the seta on the first segment being naked. Leg 1 endopod of the male with the third segment having I, I, 4 instead of I, 5 as in the female. Associated with octocorals.

Ascidioxynus n. gen.
Type-species.- Ascidioxynus floridanus n. sp.
Distinguishing characters.- Second antenna 4-segmented, with two terminal claws. Mandible of simple form, with the slender base merging into a long pectinate lash. Legs 1-4 with 3-segmented rami, except leg 4 endopod which is 2 -segmented. Leg 4 exopod with the third segment having II, I, 5. Leg 4 endopod with the formula $0-1$; II, 1. Associated with ascidians.

Aspidomolgus Humes, 1969.
Type-species.- Aspidomolgus stoichactinus Humes, 1969a.
Astericola Rosoll, 1889.
Type-species.- Astericola clausi Rosoll, 1889.
Colobomolgus n. gen.
Type-species.- Colobomolgus dentipes (Thompson \& A. Scott, 1903).
Contomolgus n. gen.
Type-species.- Contomolgus lobokeensis n. sp.
Distinguishing characters.- Second antenna 4-segmented, with two terminal claws. Mandible with a very short lash. Legs 1-4 with 3 -segmented rami, except for leg 4 endopod which is 2 -segmented. Leg 4 exopod with the third segment having III, I, 5. Leg 4 endopod with $0-1$; II, the seta on the first segment naked. Leg 1 endopod of the male with the third segment having I, I, 4 instead of $I, 5$ as in the female. Associated with alcyonaceans.

Debruma n. gen.
Type-species. - Debruma clavelinae n. sp.
Distinguishing characters.- Second antenna 4-segmented, with three terminal claws. Mandible with the base bearing a slender bipectinate blade. Maxilliped of the female 2 -segmented, the second and third segments fused. Legs 1-4 with 3 -segmented rami, except for leg 4 endopod which is 2-segmented. Leg 4 exopod with the third segment II, I, 5. Leg 4 endopod having the formula 0-1; I. Associated with ascidians.

Doridicola Leydig, 1953.
Type-species.- Doridicola agilis Leydig, 1853.
Epimolgus Bocquet \& Stock, 1956.
Type-species.-Epimolgus trochi (Canu, 1899).
Gelastomolgus Humes, 1968.
Type-species.- Gelastomolgus spondyli Humes, 1968.
Haplomolgus Humes \& Ho, 1968a.
Type-species.- Haplomolgus montiporae Humes \& Ho, 1968a.
Indomolgus Humes \& Ho, 1966.
Type-species.- Indomolgus brevisetosus Humes \& Ho, 1966.
Kelleria Gurney, 1927.
Type-species.- Kelleria regalis Gurney, 1927.
Lichomolgella G.O. Sars, 1918.
Type-species.- Lichomolgella pusilla G.O. Sars, 1918.
Lichomolgides Gotto, 1954.
Type-species.- Lichomolgides cuanensis Gotto, 1954.
Lichomolgus Thorell, 1859.
Type-species.- Lichomolgus albens Thorell, 1859.
Macrochiron Brady, 1872.
Type-species.- Macrochiron fucicolum Brady, 1872.
Meringomolgus n. gen.
Type-species.- Meringomolgus facetus n. sp.
Distinguishing characters.- Second antenna 4-segmented, with a single terminal claw. Second maxilla sexually dimorphic, the outer (ventral) proximal element on the second segment in the female being minute, but in the male an unusually large proximally directed seta. Legs $1-4$ with 3 -segmented rami, except for leg 4 endopod which is 2 -segmented. Third segment of leg 4 exopod III, I, 5. Leg 4 endopod with $0-$ I; II. Leg 1 endopod of the male with the third segment having I, I, 4 instead of I, 5 as in the female. Associated with alcyonaceans.

Metaxymolgusn. gen.
Type-species.- Metaxymolgus securiger (Humes, 1964).
Monomolgus Humes \& Frost, 1964.
Type-species.- Monomolgus unihastatus Humes \& Frost, 1964.
Nasomolgus Sewell, 1949.
Type-species.- Nasomolgus cristatus Sewell, 1949.
Octopicola Humes, 1957.
Type-species.- Octopicola superbus Humes, 1957.
Odontomolgus n. gen.
Type-species.- Odontomolgus actinophorus (Humes \& Frost, 1964).
Panjakus n. gen.
Type-species.- Panjakus hydnophorae n. sp.
Distinguishing characters.- Second antenna 4-segmented, with a single terminal claw. Mandible with the basal area distal to the indentation having on the convex side a short distally directed digitiform process. Second maxilla with a large stout digitiform process on the first segment. Legs 1-4 with 3-segmented rami except for leg 4 endopod which is 2 -segmented. Leg 4 exopod with the third segment having II, I, 5 or III, I, 5. Leg 4 endopod with $0-1$; II, the seta on the first segment being
feathered. Leg 1 endopod of the male with third segment having I, I, 4 instead of I, 5 as in the female. Associated with madreporarian corals.

Paradoridicolan. gen.
Type-species.- Paradoridicola squamiger (Humes \& Frost, 1964).
Paramacrochiron Sewell, 1949.
Type-species.- Paramacrochiron maximum (Thompson \& A. Scott, 1903).
Paramolgus n. gen.
Type-species.- Paramolgus politus (Humes \& Ho, 1967c).
Paraphiloconcha Yamaguti, 1936.
Type-species.- Paraphiloconcha meretricis Yamaguti, 1936.
Paredromolgus n. gen.
Type-species.- Paredromolgus decorus (Humes \& Frost, 1964).
Pennatulicola n. gen.
Type-species.- Pennatulicola pteroidis (Della Valle, 1880).
Philoconcha Yamaguti, 1936.
Type-species.- Philoconcha amygdalae Yamaguti, 1936.
Plesiomolgus n. gen.
Type-species.- Plesiomolgus organicus (Humes \& Ho, 1967a).
Prionomolgus Humes \& Ho, 1968a.
Type-species.- Prionomolgus lanceolatus Humes \& Ho, 1968a.
Pseudomacrochiron Reddiah, 1969.
Type-species.- Pseudomacrochiron parvum (A. Scott, 1909),
Rakotoan. gen.
Type-species.- Rakotoa proteus n. sp.
Distinguishing characters.- Body modified. Second antenna 4-segmented, with a single terminal claw. Second maxilla with the first segment bearing a long digitiform process. Legs 1-4 with 3segmented rami except for leg 4 endopod which is vestigial and represented only by an unornamented lobe which may bear a minute distal lobe suggesting a 2 -segmented condition. Armature of legs 3-4 reduced, leg 3 endopod being 0-1, 0-2; 1 and leg 4 exopod I-0; 0-1, I, 3. Associated with madreporarian corals.

Ravahina Humes \& Ho, 1968a.
Type-species.- Ravahina tumida Humes \& Ho, 1968a.
Schedomolgus n. gen.
Type-species.- Schedomolgus arcuatipes (Humes \& Ho, 1968a).
Sewellochiron Humes, 1969c.
Type-species.- Sewellochiron fidens Humes, 1969c.
Spaniomolgus n. gen.
Type-species.- Spaniomolgus compositus (Humes \& Frost, 1964).
Stellicola Kossmann, 1877.
Type-species.-Stellicola thorelli Kossmann, 1877.
Synstellicola n. gen.
Type-species.- Synstellicola affinis (Humes \& Ho, 1967d).
Telestacicolan. gen.
Type-species.- Telestacicola angotin. sp.

Distinguishing characters.- Second antenna 4-segmented, with two terminal dentate claws. Legs 1-4 with 3 -segmented rami except for leg 4 endopod which is a single segment. Leg 4 exopod with the third segment having II, I, 5 . Leg 4 endopod with II, 1 , the seta being feathered. Leg 1 endopod of the male with the third segment having I, I, 4 instead of I, 5 as in the female. Associated with telestacean octocorals.

Xenomolgus n. gen.
Type-species.- Xenomolgus varius n. sp.
Distinguishing characters.- Body transformed, elongated. Second antenna 4-segmented, with terminally one claw and one long almost clawlike seta. Mandible with a very short naked spiniform lash. Legs 1-4 with 3 -segmented rami except for leg 4 endopod which is 2 -segmented. Last segment of the exopod of legs $1-3$ with III, I, 4; III, I, 4; and II, I, 2 respectively. Last segment of the endopod of legs 1-3 with I, 5; I, II, 3; and II, 1. Leg 4 exopod with the last segment III, I, 1. Leg 4 endopod with 0-0; II. Considerable variation in the armature of legs 1-4. Inner coxal seta on all four legs usually absent. Associated with madreporarian corals.

> Zamolgus n. gen.

Type-species.- Zamolgus tridens n. sp.
Distinguishing characters.- Second antenna 4-segmented, with a single terminal claw. Mandible with the basal part having on its convex side a slender proximally directed digitiform process. Legs 1-4 with 3 -segmented rami, except for leg 4 endopod which is 2 -segmented. Leg 4 exopod with the third segment having III, I, 5. Leg 4 endopod having the formula $0-1$; II, the seta on the first segment being naked. Leg 1 endopod of the male with the third segment having I, I, 4 instead of $\mathrm{I}, 5$ as in the female. Associated with alcyonaceans.

Zygomolgus n. gen.
Type-species.- Zygomolgus tenuifurcatus (G.O. Sars, 1917a).

Family UROCOPIIDAE n. fam.
With the characters of Urocopia.

Urocopia G.O. Sars, 1917b.
Type-species.- Urocopia singularis G.O. Sars, 1917b.

## Family PSEUDANTHESSIIDAE n. fam.

First antenna usually 7-segmented, but 3- or possibly 6-segmented in Kombia. Legs 1-4 with a reduction occurring in a posterior to anterior series. In Heteranthessius and Pseudanthessius with 3 -segmented rami except leg 4 endopod which is 1 -segmented or reduced to a small knob (in one species of Heteranthessius). In Meomicola legs 1 and 2 with 3 -segmented rami and leg 3 exopod 3 -segmented, leg 4 exopod 1 -segmented, legs 3 and 4 endopods absent. In Temnomolgus legs 1 and 2 with 3 -segmented rami, leg 3 reduced to a small sclerotization with two setae, leg 4 absent. In $\mathrm{K} \circ \mathrm{mbia}$ legs 1 and 2 with 3 -segmented exopods and 2 -segmented endopods, leg 3 exopod 3 -segmented but endopod absent, leg 4 absent. Leg 5 without a free segment and represented by two or three elements.

## KEY TO THE GENERA OF THE PSEUDANTHESSIIDAE


Leg 4 present, though in some cases much reduced .................................................................................................
2. Legs 1 and 2 with 3 -segmented exopods and 2 -segmented endopods; second antenna with one terminal claw.... Kombia Humes, 1962
Legs 1 and 2 with 3 -segmented rami; second antenna with two terminal claws $\qquad$ Temnomolgus Humes \& Ho, 1966
3. Leg 3 with 3-segmented exopod, endopod absent; prosome truncated anteriorly $\qquad$ Meomicola Stock, Humes \& Gooding, 1963
Leg 3 with both rami 3-segmented; prosome not truncated anteriorly ............................................................. 4
4. Leg 4 endopod represented only by a small segment or knob without spines or setae or with reduced elements; body of female transformed, with swollen prosome .................................. Heter anthessius T. Scott, 1904 Leg 4 endopod 1-segmented with two well-developed elements; body of female cyclopiform, not transformed... Pseudanthessius Claus, 1889

Heteranthessius T. Scott, 1904.
Type-species.- Heteranthessius dubius (T. Scott, 1904). (See also T. Scott, 1903).

Kombia Humes, 1962.
Type-species.- Kombia angulata Humes, 1962.
Meomicola Stock, Humes \& Gooding, 1963.
Type-species.- Meomicola amplectans Stock, Humes \& Gooding, 1963.
Pseudanthessius Claus, 1889.
Type-species.- Pseudanthessius gracilis Claus, 1889.
Temnomolgus Humes \& Ho, 1966.
Type-species.- Temnomolgus eurynotus Humes \& Ho, 1966.

Family RHYNCHOMOLGIDAE n. fam.
With the characters of Rhynchomolgus.
Rhynchomolgus Humes \& Ho, 1967b.
Type-species.- Rhynchomolgus corallophilus Humes \& Ho, 1967b.

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