

ON THE LARVAE OF SOME SPECIES OF COLYDIIDAE, TETRATOMIDAE
AND ADERIDAE OCCURRING IN JAPAN
(COLEOPTERA: CUCUJOIDEA)*

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In the course of my studies on the larvae of the Cucujoidea have been found the larvae of some species belonging to the families Colydiidae, Tetratomidae and Aderidae, of which the descriptions are given in the following pages.

Before going further, I wish to express my sincere gratitude to Prof. C. Watanabe of the Entomological Institute, Hokkaido University for his constant kind guidance. I am especially indebted to Mr. M. Miyatake, Mr. S. Nomura and Dr. H. Sasaji for the identification of the associated adults.

Family Colydiidae

Insofar as I am aware, about 30 species of this family have been known to occur in Japan, and yet their larvae have been scarcely known in detail. In this paper are given the descriptions of the larvae of 4 Japanese species belonging to 4 genera.

Cicones hayashii Sasaji, 1971

Body (Fig. 1, A & B) nearly white, fleshy, strongly elevated dorsally; caudal segments markedly narrowed posteriorly; 9th abdominal segment terminating in small, basally conjoined urogomphi.

Head-capsule (Fig. 2, A & B) about 0.5 mm. in breadth, strikingly depressed, apparently widened basally; frons and clypeus confluent, frontal suture lyre-shaped, colored at basal half; postfrons (region surrounded by frontal suture) extremely narrow; ocelli (Fig.

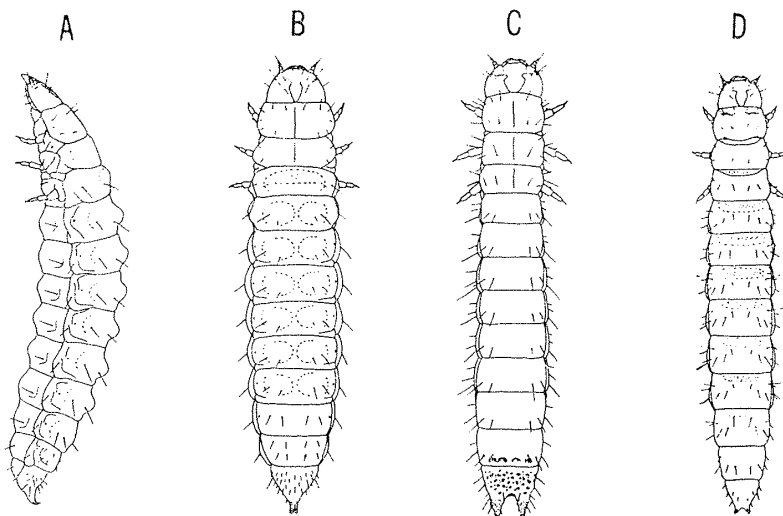


Fig. 1. Mature larvae. A: *Cicones hayashii* (lateral view). B: *ditto* (dorsal view): C: *Sympnotus pictus* (dorsal view). D: *Penthelispa vilis* (dorsal view).

* Hayashi, N: Contributions to the knowledge of the larvae of Cucujoidea VIII.

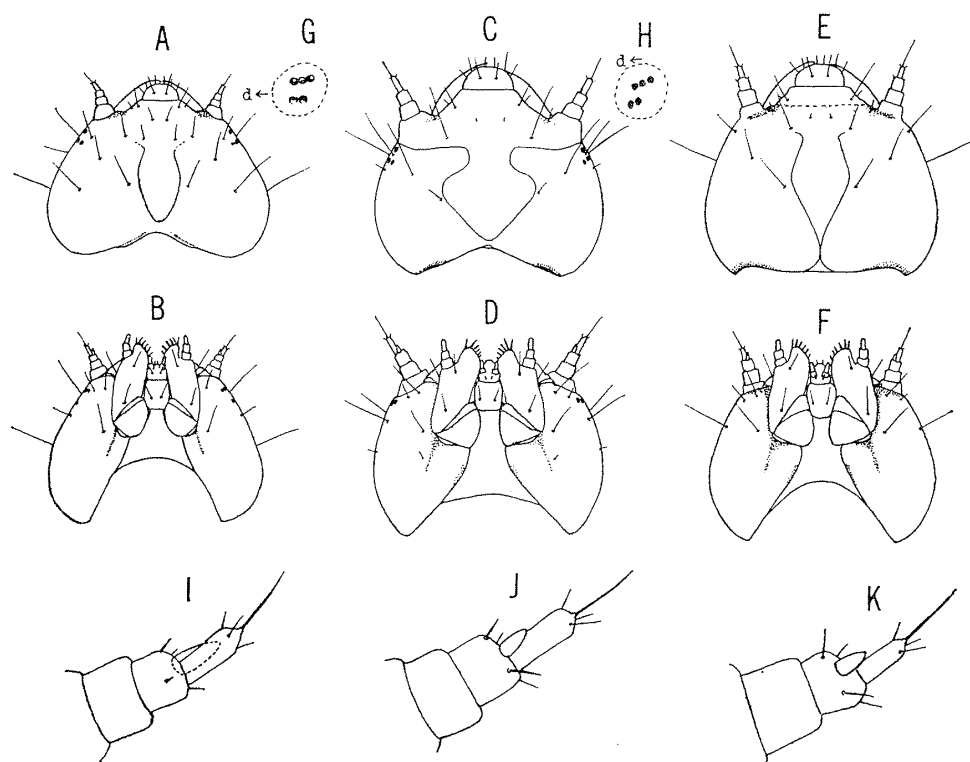


Fig. 2. A-F: Heads. A: *Cicones hayashii* (dorsal view); B: *ditto* (ventral view). C: *Sympanotus pictus* (dorsal view). D: *ditto* (ventral view). E: *Penthelispa vilis* (dorsal view). F: *ditto* (ventral view). G & H: Ocelli (right, d: shows dorsal surface). G: *Cicones hayashii*. H: *Sympanotus pictus*. I-K: Antennae. I: *Cicones hayashii* (right, dorsal view). J: *Sympanotus pictus* (left, ventral view). K: *Penthelispa vilis* (left, ventral view).

2, G) 5 in number on each side. Antennae (Fig. 2, I) 3-jointed; 1st joint transverse, subequal to the 2nd in length; 2nd joint as wide as long, $2/3$ as long as the 3rd, the sensory appendage being well developed. Labrum transverse, the anterior margin being almost straight. Epipharynx (Fig. 3, A) with antero-lateral setae extremely stout; proximal region with a tuft of microtrichia, which is enclosed by torma. Mandibles (Fig. 3, D & E) symmetrical, 4-dentate, the posterior tooth of dorsal cutting edge being obsolete, without a retinaculum; molar part strongly developed, without asperities. Maxillae (Fig. 3, J) with 3rd joint of palpus longest, about 1.5 times as long as the 1st; mala without an uncus at inner-distal part; caldo indistinct. Maxillary articulating area comparatively well developed, bilobed. Labium (Fig. 3, M) with palpi relatively contiguous to each other at base, the apical joint being a little longer than the basal; ligula weakly elevated; submentum and gula united. Hypopharyngeal sclerome absent.

Thoracic segment progressively thickened towards abdomen in lateral view. Prothoracic segment about twice as wide as long, rounded laterally; presternum (Fig. 4, A) large, subtriangular, moderately swollen ventrally, reaching to coxal cavities. Metathoracic segment nearly 3 times as wide as long, bearing a transverse swelling on tergite. Legs (Fig. 4, D) slender, comparatively small, all legs being equal in length; coxal cavities lying far remote from each other. Abdominal segments except caudal ones about 3 times as wide as long; tergites with a transverse row of about 4 setae, with a pair of knob-like swellings, the cuticle of swelling being obscurely asperated; sternites with a weak, transverse elevation. Ninth abdominal segment (Fig. 4, G & H) strikingly tapered caudally in dorsal view, with scattered pubescence on tergite; urogomphi strongly flexed upwardly. Spiracles (Fig. 4, M) with 2 chambers on margin. Body-length about 3.5 mm.

Specimens examined: 10 exs., living under bark of decaying oak, Kikuna, Yokohama, Kanagawa-ken, 2-22. V. 1967, N. Hayashi *leg.*; 1 ex., Kikuna, Yokohama, Kanagawa-ken, 16. V. III. 1969, N. Hayashi *leg.*

Sympanotus pictus Sharp, 1885

Body (Fig. 1, C) whitish to pale yellowish brown, flattened, parallel-sided or slightly expanded posteriorly; 9th abdominal segment with a number of pigmented tubercles on dorsum, terminating in well developed urogomphi.

Head-capsule (Fig. 2, C & D) about 0.8 mm. in breadth, strongly depressed; lateral side evenly rounded; frons and clypeus confluent; frontal suture lyre-shaped; postfrons nearly as long as wide; ocelli (Fig. 2, H) 5 in number on each side. Antennae (Fig. 2, J) 3-jointed; 1st joint transverse; 2nd joint almost as wide as long, 2/3 as long as the 3rd, the sensory appendage being about half length of 3rd joint. Labrum transverse, the anterior margin being feebly produced forwardly. Epipharynx (Fig. 3, B) with a tuft of microtrichia in proximal region. Mandibles (Fig. 3, F & G) symmetrical, 4-dentate, lacking a retinaculum; molar part moderately developed, provided with many asperities on grinding surface. Maxillae (Fig. 3, K) with 3rd joint of palpus longest, about twice as long as the 1st; mala sharply pointed at inner-distal angle (uncus present); callosity indistinct. Maxillary articulating area comparatively well developed, bilobed. Labium (Fig. 3, N) with palpi moderately separated from each other at base, the apical joint being much longer than the basal; ligula distinctly elevated, practically reaching to apex of palpus; submentum and gula united. Hypopharyngeal sclerome absent.

Prothoracic segment about 1.5 times as wide as long, moderately rounded laterally; presternum (Fig. 4, B) triangular, its posterior angle not reaching to coxal cavities; suture between eusternum and prehypopleurum distinctly visible. Metathoracic segment nearly twice as wide as long. Legs (Fig. 4, E) moderately developed, all legs being equal in length; coxal cavities remote from each other; coxa with small spine-like setae. Abdominal segments except the 9th almost twice as wide as long; tergites with a transverse row of about 4 setae, without conspicuous swellings. Eighth abdominal segment (Fig. 4, I) with a transverse row of 4 dark maculations near hind margin of tergite. Ninth abdominal segment including urogomphi (Fig. 4, I & J) moderately tapered caudally in dorsal view, with many tubercles and several irrorations on tergite; urogomphi exceedingly thickened basally, recurved apically, the excision between urogomphi (hind margin of segment) being very narrowly rounded, provided with a small cavity on upper part and a transverse, corneous plate on lower part. Spiracles (Fig. 4, N) with 2 chambers on margin. Body-length about 7 mm.

Specimens examined: 2 exs., living under bark of decaying oak, Kobotoke-tôge, Tokyo-tôka, 3. V. 1961, N. Hayashi *leg.*; 4 exs., Miyakejima Is., Izu, 5. V. 1966, N. Hayashi *leg.*; 1 ex., Kikuna, Yokohama, Kanagawa-ken, 4. V. 1969, N. Hayashi, *leg.*; 8 exs., near Ôyama, Kanagawa-ken, 21. V. 1971, N. Hayashi *leg.*

Colobicus marginatus Latreille, 1807

Reference: Perris, 1877. Larves de Coléoptères: 54-56, figs. 41 & 42.

Body whitish to pale yellowish brown, moderately swollen above, more or less parallel-sided, terminating in comparatively well developed urogomphi. Ocelli 5 in number on each side. Abdominal segments except caudal ones with a pair of swellings on tergite. Eighth and 9th abdominal segments with a number of pigmented maculations, which are longitudinally elliptical, symmetrically distributed on each surface; 9th abdominal segment with a pair of granulated areas near urogomphi behind maculations, with excision between urogomphi rather broadly rounded, provided with a small cavity on upper portion

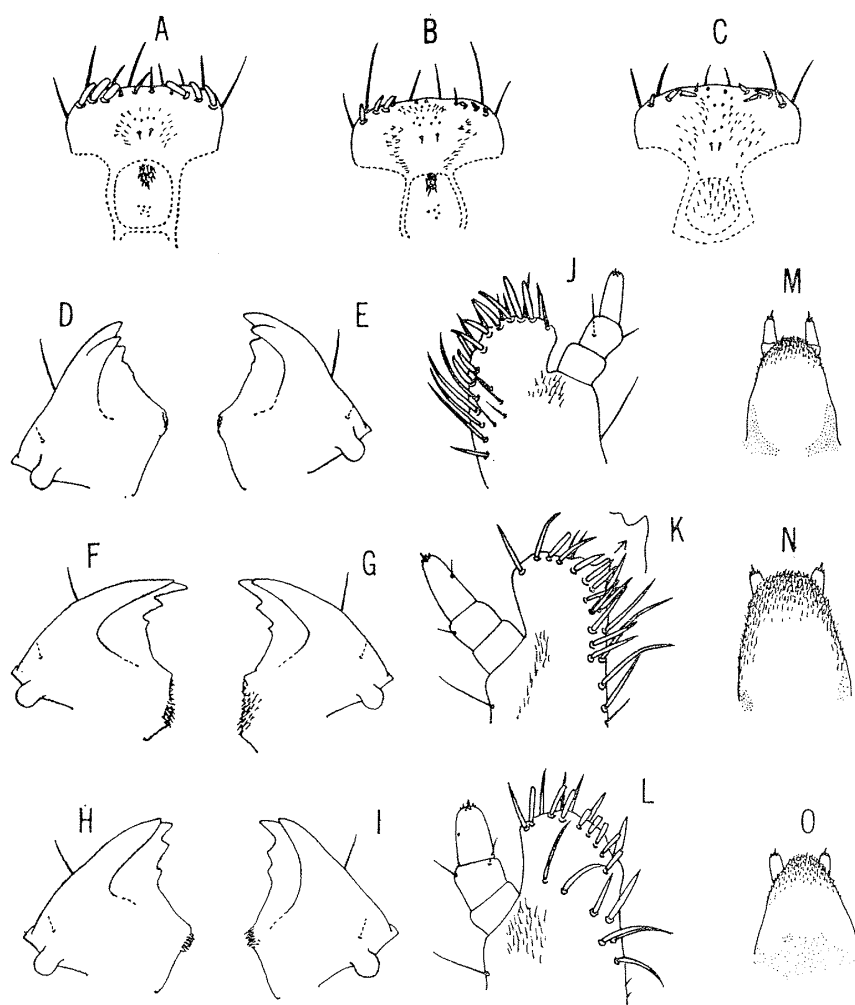


Fig. 3. A-C: Epipharynges. A: *Cicones hayashii*. B: *Sympanotus pictus*. C: *Penthelispa vilis*. D-I: Mandibles (ventral view). D: *Cicones hayashii* (right). E: *ditto* (left). F: *Sympanotus pictus* (right). G: *ditto* (left). H: *Penthelispa vilis* (right). I: *ditto* (left). J-L: Maxillae (buccal view). J: *Cicones hayashii* (right). K: *Sympanotus pictus* (left). L: *Penthelispa vilis* (left). M-O: Labia (buccal view). M: *Cicones hayashii*. N: *Sympanotus pictus*. O: *Penthelispa vilis*.

and a transverse plate on lower portion. Body-length about 7 mm.

Notes: This species is widely distributed in Japan and Europe. The above mentioned features are based upon the description given by Perris (1877).

Penthelispa vilis (Sharp, 1885)

Body (Fig. 1, D) nearly white, moderately swollen above; caudal segments gradually narrowed backwardly; 9th abdominal segment ending in small, basally contiguous urogomphi.

Head-capsule (Fig. 2, E & F) about 0.6 mm. in breadth, depressed, moderately widened basally; hind margin of dorsum of head-capsule bisinuate, distinctly colored; frons and clypeus confluent, but suture between them slightly visible; frontal suture lyre-shaped, its base being sharply angulated; postfrons longitudinal; ocelli absent. Antennae (Fig. 2, K) 3-jointed; 1st joint transverse; 2nd joint nearly as wide as long, and subequal to or slightly shorter than the 3rd, the sensory appendage comparatively well developed. Labrum transverse, the anterior margin being feebly produced forwardly. Epipharynx (Fig. 3, C) with microtrichia at proximal region sparsely distributed, surrounded by torma,

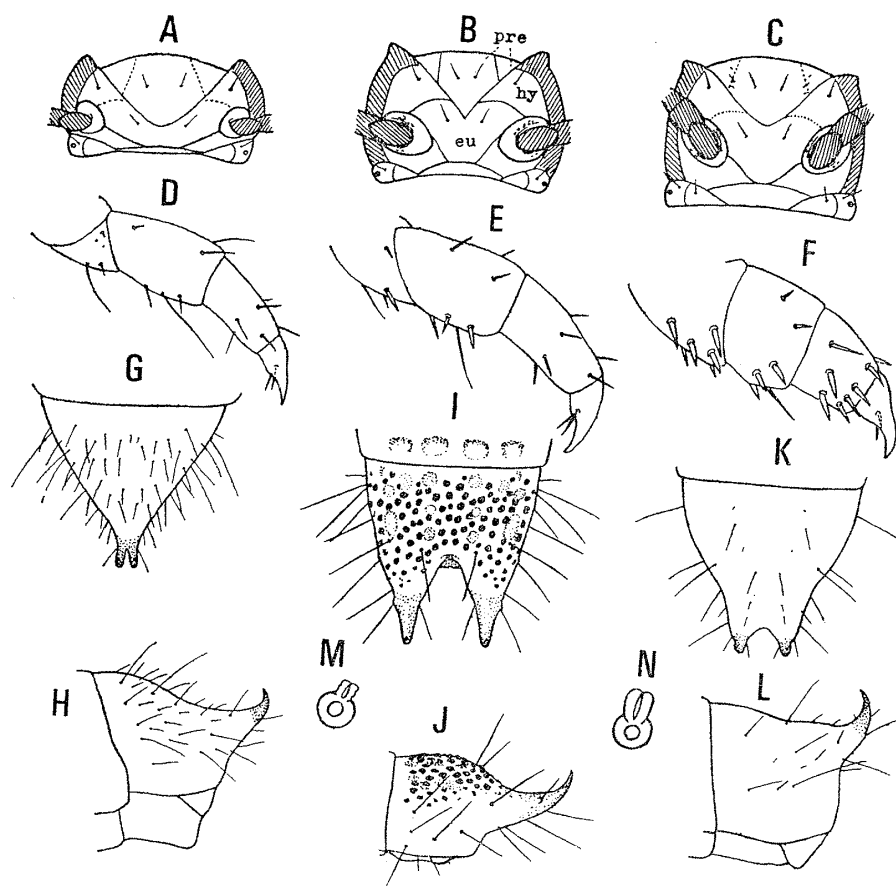


Fig. 4. A-C: Prothoracic segments (ventral view, eu: eusternum; hy; prehypopleurum; pre: presternum). A: *Cicones hayashii*. B: *Sympanotus pictus*. C: *Penthelispa vilis*. D-F: Metathoracic legs (left, posterior view). D: *Cicones hayashii*. E: *Sympanotus pictus*. F: *Penthelispa vilis*. G-L: Ninth abdominal segments. G: *Cicones hayashii* (dorsal view). H: *ditto* (lateral view). I: *Sympanotus pictus* (dorsal view). J: *ditto* (lateral view). K: *Penthelispa vilis* (dorsal view). L: *ditto* (lateral view). M & N: Spiracles of abdominal segments. M: *Cicones hayashii*. N: *Sympanotus pictus*.

not forming a cluster. Mandibles (Fig. 3, H & I) symmetrical, 4-dentate, lacking a retinaculum; molar part well developed, asperated at extremity of grinding surface. Maxillae (Fig. 3, L) with 3rd joint of palpus longest, almost twice as long as the 1st; mala without an uncus, but slightly produced at inner-distal part; caldo indistinct by well developed maxillary articulating area, this area being bilobed. Labium (Fig. 3, O) with palpi rather contiguous to each other at base, the apical joint being much longer than the basal; ligula markedly elevated, practically reaching to apex of palpus; submentum and gula united. Hypopharyngeal sclerome obscure, not heavily sclerotized.

Prothoracic segment about 1.5 times as wide as long, weakly rounded laterally; presternum (Fig. 4, C) subtriangular, not reaching to coxal cavities. Legs (Fig. 4, F) comparatively short, stout, all legs being equal in length, with short, spiniform setae on each joint; coxal cavities lying far remote from each other; tibia nearly as long as wide, subequal to claw in length. Metathoracic and abdominal segments except caudal ones with a transverse, asperated area on anterior portion of each tergite, the abdominal segment being about twice as wide as long, bearing 8 to 10 conspicuous setae on tergite. Ninth abdominal segment (Fig. 4, K & L) markedly tapered and moderately constricted in dorsal view; urogomphi strongly recurved upwardly. Spiracles similar to that of the larva of *Sympanotus pictus*, furnished with 2 conspicuous chambers on margin. Body-length

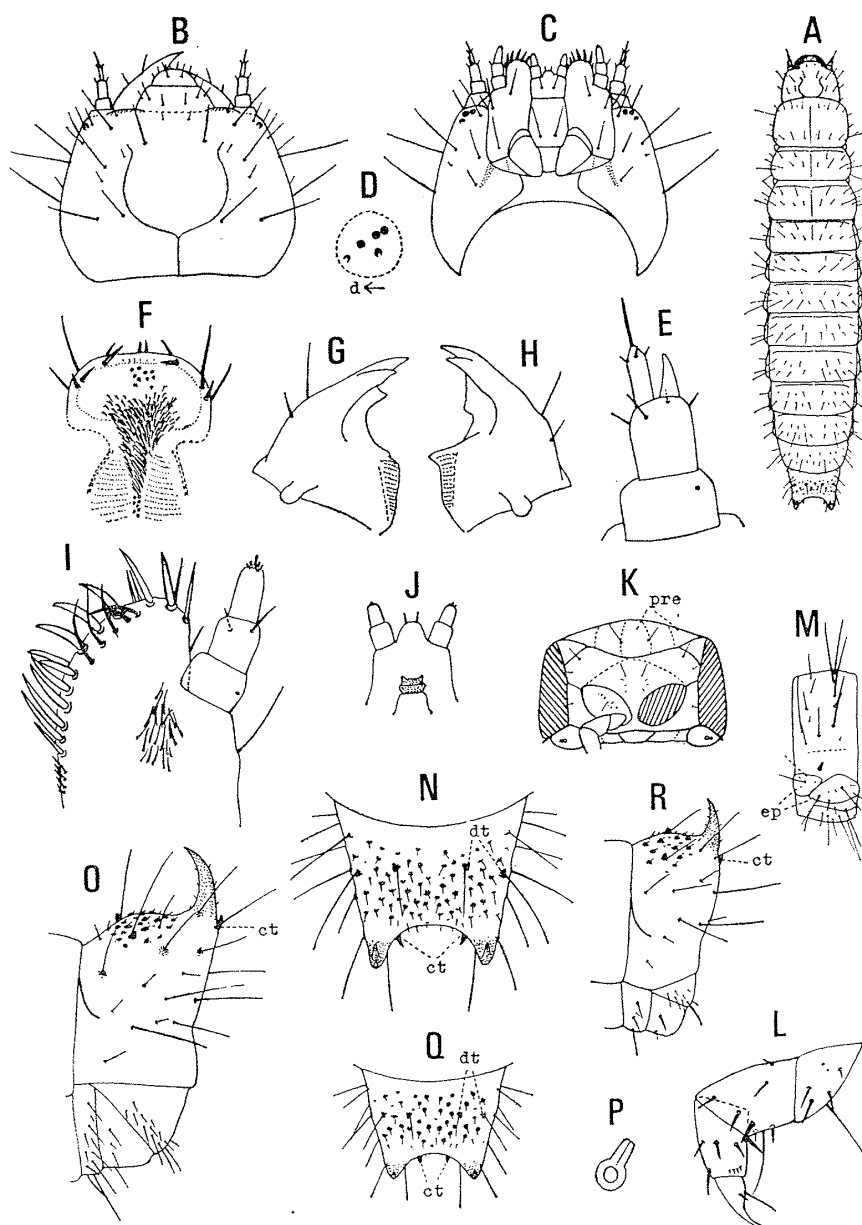


Fig. 5. Mature larvae of *Pisenus* spp. A-P: *P. rufitarsis*. A: Larva (dorsal view). B: Head (dorsal view). C: *ditto* (ventral view). D: Ocelli (right, d: shows dorsal surface). E: Antenna (left, ventral view). F: Epipharynx. G: Mandible (right, ventral view). H: *ditto* (left, ventral view). I: Maxilla (right, buccal view). J: Labium (buccal view). K: Prothoracic segment (ventral view, pre: presternum). L: Metathoracic leg (left, posterior view). M: Third abdominal segment (lateral view, ep: epipleurum). N: Ninth abdominal segment (dorsal view, dt: dorso-median tubercles; ct: caudal tubercles). O: *ditto* (lateral view). P: Third abdominal spiracle. Q & R: *P. insignis*. Q: Ninth abdominal segment (dorsal view, dt: dorso-median tubercles; ct: caudal tubercles). R: *ditto* (lateral view).

about 6 mm.

Specimens examined: 3 exs., living within decaying conifer or oak, Jiyôkôji, Aichi-ken, 1. V. 1971, N. Hayashi *leg.*; 1 ex., near Sagamiko, Kanagawa-ken, 3. V. 1971, N. Hayashi *leg.*; 2 exs., near Hachiôji, Tokyo-toka, 27. IX. 1971, N. Hayashi *leg.*; 5 exs., Ukenson, Amami-Ôshima, Kagoshima-ken, 22. V. 1960, N. Hayashi *leg.*

The larvae of the Colydiid-species mentioned in this paper are distinguished by the following key:—

Key to the species based on the larvae

1. Ninth abdominal segment with tubercles or markings on dorsal surface. 2.
- . Ninth abdominal segment without tubercles or markings on dorsal surface. 3.
2. Abdominal segments except caudal ones each with a pair of swellings on tergite. Eighth abdominal segment with many markings on whole surface of tergite.
 *Colobicus marginatus* Latreille
- . Abdominal segments except caudal ones without swellings on tergite. Eighth abdominal segment with 4 markings near caudal margin of tergite. *Sympanotus pictus* Sharp
3. Abdominal segments except caudal ones each with a pair of knob-like swellings on tergite. Ninth abdominal segment including urogomphi dully pointed backwards in dorsal view.
 *Cicones hayashii* Sasaji
- . Abdominal segments except caudal ones without knob-like swellings on tergite. Ninth abdominal segment including urogomphi not dully pointed backwards in dorsal view.
 *Penthelispa vilis* (Sharp)

Family Tetratomidae

The larvae of *Pisenus rufitarsis* (Reitter), *P. insignis* (Reitter) and *Penthe japana* Marseul occurring in Japan are described herein after.

Pisenus rufitarsis (Reitter, 1889)

References: Hayashi & Nakamura, 1952, New Ent. 2 (3/4): 7-17 (pl. 1-4): Hayashi, 1959, Illustrated insect larvae of Japan, Tokyo, No. 833: 446.

Body (Fig. 5, A) nearly white, slightly enlarged medianly, subcylindrical in cross-section, with sparse, transversely arranged, long setae on dorsum; 9th abdominal segment with a number of pigmented tubercles on dorsum, terminating in urogomphi.

Head-capsule (Fig. 5, B & C) about 1 mm. in breadth, moderately widened basally; frons and clypeus tending to be confluent, the suture between them being very obscure; hind margin of dorsum of head-capsule almost straight or slightly incurved; median (coronal) and frontal sutures present, the latter being lyre-shaped, strongly expanded forwards from basal junction; ocelli (Fig. 5, D) 5 in number on each side. Antennae (Fig. 5, E) 3-jointed; 1st joint transverse, subequal to the 3rd in length; 2nd joint a little longer than the 1st or 3rd, the sensory appendage being cone-shaped, projecting beyond middle of the 3rd. Labrum semicircular. Epipharynx (Fig. 5, F) with a large cluster of microtrichia in median region, the posterior microtrichia forming a longitudinal, comb-shaped lobe. Mandibles (Fig. 5, G & H) asymmetrical, bidentate apically; right mandible with a conspicuous additional tooth on dorsal cutting edge behind apical tooth; molar part obscurely asperated ventrally, the grinding surface of left mandible being strikingly produced at extremity; external surface with 2 setae. Maxillae (fig. 5, I) with 3rd joint of palpus a little longer than the 1st or 2nd; mala widened basally, rounded apically, lacking uncus. Maxillary articulating area bilobed, not reaching to middle of mentum. Labium (Fig. 5, J) with palpi moderately separated from each other at base, the basal joint being subequal to the apical in length; ligula moderately elevated; submentum very small, strongly constricted by maxillary articulating areas, the suture between submentum and gula being indistinct, but gular region distinctly sunken from submental region. Hypopharyngeal sclerome as in Fig. 5, J.

Prothoracic segment about 1.5 times as wide as long, presternum (Fig. 5, K) not conspicuously developed backwardly. Legs (Fig. 5, L) comparatively short, the posterior pair being longest (40:41:42); coxal cavities well approaching to each other; coxa with several small, spiniform setae; femur and tibia with ventral setae spiniform, the tibia being about 1.5 times as long as wide, a little longer than claw; setae of claw unequal in length. Abdominal segments except caudal ones about 3 times as wide as long, provided with 2

transverse rows of setae on each tergite, the posterior row consists of 8 to 10 setae; epipleurum (Fig. 5, M) markedly swollen, bilobed. Ninth abdominal segment (Fig. 5, N & O) narrower than head-capsule, moderately tapered posteriorly in dorsal view; hind margin of segment (between urogomphi) broadly roundly incurved; dorsal surface of segment with many unisetiferous tubercles, of which 4 (dorso-median tubercles) (Fig. 5, N: dt) are much larger, bearing a long seta; caudal surface of segment with a tooth-like tubercle (caudal tubercle) (Fig. 5, N & O: ct) on base on each urogomphus, the caudal tubercles projecting inwardly and backwardly, far separated from each other; urogomphi strongly flexed upwardly. Spiracles (Fig. 5, P) with 2 well developed chambers on margin. Body-length about 6.5 mm.

Specimens examined: 11 exs., living in tree-fungi, Ôyama, Kanagawa-ken, 7. V. 1948, N. Hayashi leg.; 3 exs., Kirizumi, Gumma-ken, 27. V. 1962, N. Hayashi leg.; 3 exs., Karuizawa, Nagano-ken, 5. V. 1971, N. Hayashi leg.; 1 ex., Karuizawa, Nagano-ken, 17. V. 1971, N. Hayashi leg.

Pisenus insignis (Reitter, 1889)

The larva of this species is very similar to that of *P. rufitarsis*, from which it differs in the following points:—

Head-capsule about 0.7 mm. in breadth. Ninth abdominal segment (Fig. 5, Q & R) with dorso-median tubercles (dt) subequal to or slightly larger than other tubercles; caudal tubercles (ct) projecting backwardly, moderately separated from each other. Body length about 4.5 mm.

Specimens examined: 12 exs., living in tree-fungi, Karuizawa, Nagano-ken, 26. V. 1969, N. Hayashi leg.; 2 exs., Amagisan, Shizuoka-ken, 17. V. 1970, N. Hayashi leg.

Notes: The above mentioned *Pisenus*-larvae are similar to Mycetophagid-larvae ever known in many points, especially in mandibles, but the labial and hypopharyngeal structures of *Pisenus*-larvae apparently differ from those of Mycetophagid-larvae.

Penthe japana Marseul, 1895

Body (Fig. 6, A) above testaceous brown in various degrees, glabrous, rather fusiform, subcylindrical in cross-section; 9th abdominal segment small, terminating in urogomphi.

Head-capsule (Fig. 6, B to D) about 2 mm. in breadth, strikingly widened basally; hind margin of dorsum of head-capsule moderately incurved; frons and clypeus tending to be confluent; median (coronal) and frontal sutures present, the latter being exceedingly expanded forwardly from basal junction, characteristically shaped as in Fig. 6, B; frons with 4 cone-shaped knobs, of which 2 are located anteriorly, far remote from each other, with surface between anterior knobs strongly sunken; ocelli (Fig. 6, D) 5 in number on each side, situated separately. Antennae (Fig. 6, E) 3-jointed; 1st joint transverse, subequal to the 3rd in length; 2nd joint about twice as long as the 1st, the sensory appendage practically reaching to middle of the 3rd. Labrum trilobed. Epipharynx (Fig. 6, G) with anterior setae contiguous to each other, located laterally; median region with a longitudinal cluster of microtrichia; posterior sensillae transversely arranged. Mandibles (Fig. 6, H & I) asymmetrical, bidentate apically; right mandible with an additional tooth on dorsal cutting edge behind apical tooth, while left mandible strongly pointed at base of dorsal cutting edge; molar part obsolete, without asperities; external surface with 2 short setae. Maxillae (Fig. 6, J & K) with 3rd joint of palpus about 1.5 times as long as the 1st or 2nd, tapering apically; mala more or less parallel-sided, rounded apically, provided with a small uncus at inner-distal part; ventral surface of mala (Fig. 6, K) with several setae. Maxillary articulating area large, bilobed, practically reaching to apex of mentum. Labium (Fig. 6, L) with palpi comparatively contiguous to each other at base, the apical joint being

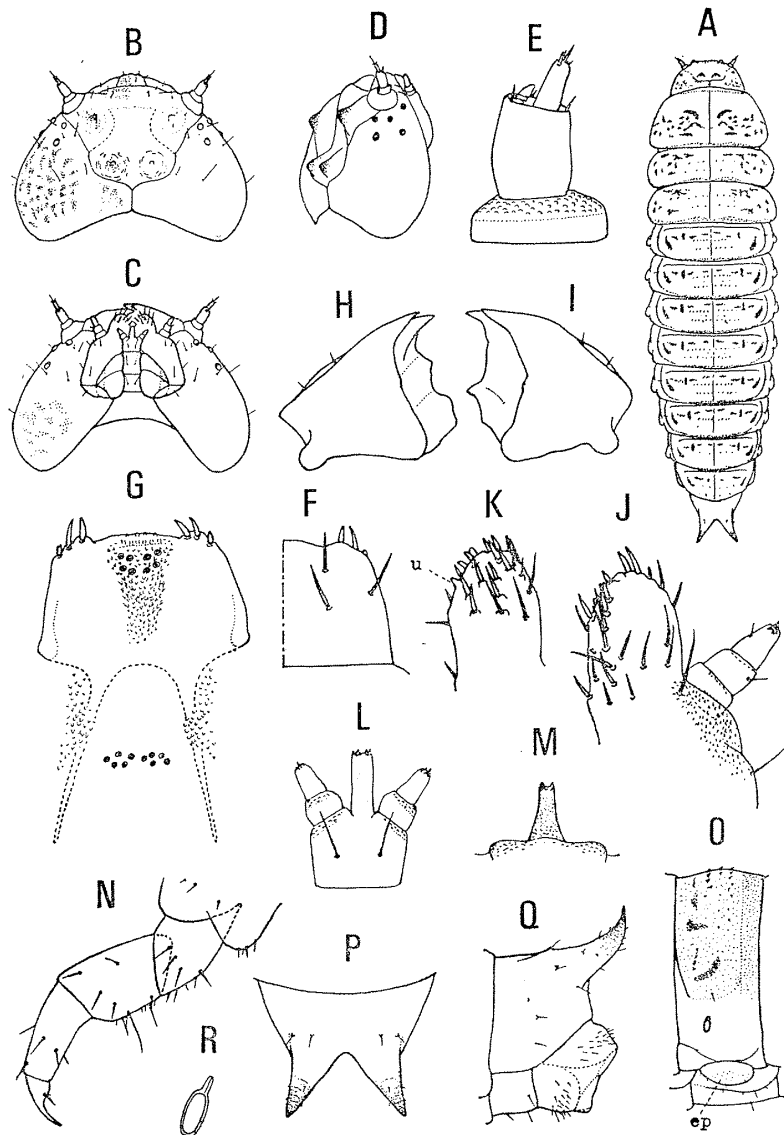


Fig. 6. Mature larva of *Penthe japana*. A: Larva (dorsal view). B: Head (dorsal view). C: *ditto* (ventral view). D: *ditto* (lateral view). E: Antenna (right, inner-lateral view). F: Labrum (right half). G: Epipharynx. H: Mandible (right, ventral view). I: *ditto* (left, ventral view). J: Maxilla (right, buccal view). K: Mala (left, ventral view, u: uncus). L: Labium (anterior part, ventral view). M: Hypopharynx. N: Metathoracic leg (left, posterior view). O: Third abdominal segment (lateral view, ep: epipleurum). P: Ninth abdominal segment (dorsal view). Q: *ditto* (lateral view). R: Third abdominal spiracle.

about 1.5 times as long as the basal, tapered apically; ligula considerably elongate, sclerotized, slanted towards buccal cavity, provided with 4 small spines at apex; suture between submentum and gula indistinct, but gular region distinctly sunken from submental region. Hypopharynx (Fig. 6, M) with a transverse swelling on base of ligula.

Prothoracic segment about twice as wide as long, markedly widened basally; presternum not developed backwardly. Legs (Fig. 6, N) moderately developed, the posterior pair being longest (13:14:15); coxal cavities approaching to each other; coxa with a number of small, spine-like setae; tibia almost twice as long as wide, and about 1.5 times as long as claw; setae of claw unequal in length. Abdominal segments except caudal ones 3 to 3.5 times as wide as long, produced laterally, with dark maculations and microscopic spines on tergite; epipleurum (Fig. 6, O) forming a transverse, elliptical swelling. Ninth abdominal segment (Fig. 6, P & Q) strongly tapered backwards in dorsal view; dorsal surface with 4

small tubercles; excision between urogomphi very narrowly rounded; urogomphi large, expanded apically, moderately flexed upwardly; anal region strikingly projecting. Spiracles (Fig. 6, R) oval, furnished with 2 long chambers on margin; thoracic and 8th abdominal spiracles much larger. Body-length about 12 mm.

Specimens examined: 2 exs., living in tree-fungi, Daibosatsu-tôge, Yamanashi-ken, 24. X. 1971, N. Hayashi leg.

The larvae of the Tetratomid-species mentioned in this paper are distinguished by the following key:—

Key to the species based on the larvae

- | | |
|--|---|
| 1. Tergites except caudal one nearly white, with many long setae. Body shorter than 9 mm. | 2 |
| - Tergites except caudal one testaceous brown, without long setae. Body longer than 9 mm. | |
| 2. Ninth abdominal segment with dorso-median tubercles much larger than the remaining ones; caudal tubercles far separated from each other. Body longer than 5.5 mm. | |
| - Ninth abdominal segment with dorso-median tubercles not much larger than the remaining ones; caudal tubercles moderately separated from each other. Body shorter than 5.5 mm. | |
- Penthe japana* Marseul
Pisenus rufitarsis (Reitter)
Pisenus insignis (Reitter)

Family Aderidae

Up to the present time, no larvae of this family have been studied in detail. In this paper the larva of *Escalerosia rubrivestis* (Marseul) occurring in Japan is described.

Escalerosia rubrivestis (Marseul, 1876)

Body (Fig. 7, A) nearly white, strikingly flattened, markedly expanded caudally, bearing long setae on lateral sides of body; 9th abdominal segment semicircular, ending in small urogomphi.

Head-capsule (Fig. 7, B & C) about 0.45 mm. in breadth, strongly depressed; lateral side evenly rounded, bearing a long seta; hind margin of dorsum undulated; frons and clypeus confluent, slightly pigmented anteriorly; frontal suture lyre-shaped; dorsal surface with a long seta near lateral side behind antenna; ocelli absent. Antennae (Fig. 7, D) 3-jointed; 1st joint transverse; 2nd joint about 4 times as long as the 1st, the sensory appendage being cone-shaped, comparatively well developed; 3rd joint nearly 2/3 as long as the 2nd, the apical seta being much longer than the combined length of 3 joints. Labrum semicircular. Epipharynx (Fig. 7, E) with microtrichia distributed longitudinally; unisetiferous sensillae (Fig. 7, E: us) not on the same level, located near base. Mandibles (Fig. 7, F & G) tridentate apically, the tooth of dorsal cutting edge of left mandible being obsolete; molar part well developed, provided with a fleshy, hyaline lobe (Fig. 7, F: hl) at base; grinding surface of left mandible strongly projecting at extremity; external surface with 4 to 6 setae, of which one is apparently longer. Maxillae (Fig. 7, H) with 3rd joint of palpus about 1.5 times as long as the 1st or 2nd, the apical papillae being well developed, of which one is much larger; mala rather elongate, feebly widened basally, furnished with a bidentate uncus at inner-distal angle. Maxillary articulating area bilobed. Labium (Fig. 7, I) with palpi moderately separated from each other at base, the apical joint being a little shorter than the basal, bearing well developed apical papillae, of which one is extremely larger; ligula elevated, reaching to apex of labial palpus; submentum and gula united. Hypopharynx (Fig. 7, I) with many microtrichia; hypopharyngeal sclerome heavily sclerotized, forming a transverse trapezoid.

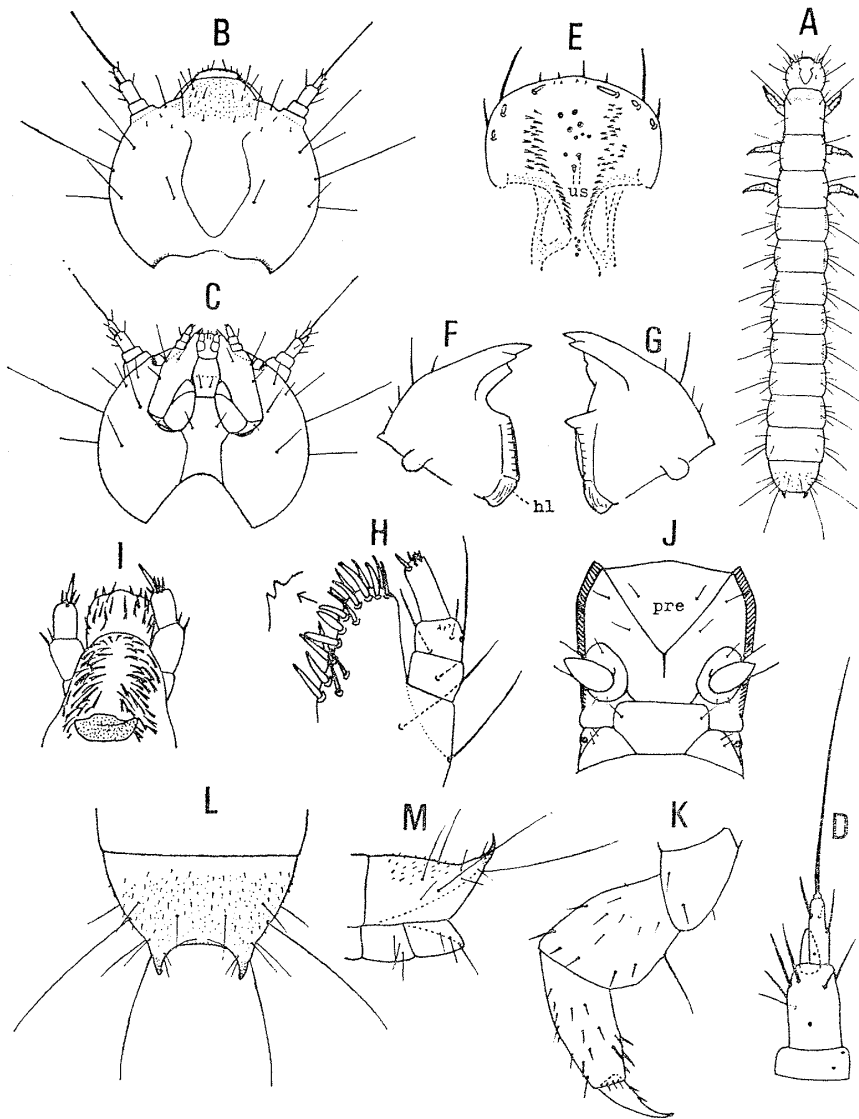


Fig. 7. Mature larva of *Escalerosia rubrivestis*. A: Larva (dorsal view). B: Head (dorsal view). C: *ditto* (ventral view). D: Antenna (left, dorsal view). E: Epipharynx (us: unisetiferous sensillae). F: Mandible (right, ventral view, hl: hyaline lobe). G: *ditto* (left, ventral view). H: Maxilla (right, buccal view). I: Labium (buccal view). J: Prothoracic segment (ventral view, pre: presternum). K: Metathoracic leg (left, posterior view). L: Ninth abdominal segment (dorsal view). M: *ditto* (lateral view).

Prothoracic segment nearly as wide as long, tapered anteriorly at apical third, constricted just before hind angles in dorsal view; lateral side with an extremely long seta behind cephalic margin; presternum (Fig. 7, J) large, triangular, not reaching to point between coxal cavities. Legs (Fig. 7, K) comparatively stout, the posterior pair being longest (20:21:22); coxal cavities lying far remote from each other; femur and tibia with a number of short setae; setae of claw short, not on the same level. Abdominal segments except the 9th smooth, without setae on dorso-median portion, with 4 setae on lateral half in dorsal view, of which one is much longer; 8th segment about 1.5 times as wide as head-capsule or prothoracic segment. Ninth abdominal segment (Fig. 7, L & M) with dorsal and ventral surfaces slightly shagreened, the former being slightly pigmented, scattered with minute setae; lateral sides roundly convergent to urogomphi, bearing long setae; excision between urogomphi (hind margin of segment) colored, broadly rounded; urogomphi slender, flexed upwardly; anal region (10th abdominal segment) semicircular,

located on venter. Spiracles annular, without chambers on margin. Body-length about 6 mm.

Specimens examined: 12 exs., living in rotten wood, Nenoue-kôgen, Gifu-ken, 30 IV. 1971, N. Hayashi *leg.*; 1 ex., Miyakejima Is., Izu, 5. V. 1966, N. Hayashi *leg.*

Notes: The larva of this species is similar to Anthicid-larvae ever known in many points, but it is easily distinguished from the Anthicid-larvae by the shape of the 9th abdominal segment.

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