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On the subfamily Manotinae Edw. (Dipt., Mycetophilidae.)

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Abstract. The mycetophilid subfamily *Manotinae* EDW. is usually considered to consist of the genera *Allactoneura* DE MEIJ., *Eumanota* EDW. and *Manota* WILL. Examination of *Allactoneura* shows that it is not closely related to *Eumanota* and *Manota*, but belongs to the *Leiinae* (*Leiini* EDW.). Two new manotine genera, each with one species, are described from northern Burma, viz. *Promanota malaisci* and *Paramanota orientalis*. A revised characterization of the subfamily and a key to its genera are given. The *Manotinae* are considered to belong to the family *Mycetophilidae* sensu MALLOCH, which includes the other subfamilies *Mycomyiinae*, *Sciophilinae*, *Gnoristinae*, *Leiinae*, and *Mycetophilinae*.

EDWARDS, in his classical revision of the mycetophilid system (1925), introduced a new subfamily, the *Manotinae*, to comprise two genera, *Allactoneura* DE MEIJ. and *Manota* WILL., with mainly tropical and subtropical distribution and uncertain affinities. The subfamily was placed between the *Sciarinae* and *Sciophilinae* and distinguished by the shape and setosity of the head and absence of prothoracic bristles (p. 509): »Prothorax without strong bristles, head flat or slightly concave behind, with a row of projecting orbital bristles which are more or less curved backwards; antennae inserted much above the middle of the head».

Later on, the same author (EDWARDS 1933, p. 231, pl. 12, fig. 4) described a remarkable new genus, *Eumanota* EDW., from mountains of North Borneo. The genus was said to show »so many points in common with *Manota* that there seems little doubt that the two are somewhat closely related». In the author's opinion, *Eumanota* »seems to connect the *Manotinae* with the *Leiini*». It was, obviously by an oversight, described as belonging to a subfamily called *Allactoneurinae* instead of *Manotinae*.

Those authors (e.g. HENNIG 1954, TOLLET 1959, ROHDENDORF 1961, 1964) who prefer to treat the mycetophilid subfamilies of EDWARDS as units of family rank, speak of a family *Manotidae*.

The inclusion of *Allactoneura* in this family or subfamily has not been unanimously accepted (SHAW & SHAW 1951, HENNIG 1955, ROHDENDORF 1961).

The genus *Allactoneura* DE MEIJ. (*Scottella* END.) comprises three or four species. According to the available literature (DE MEIJERE 1907, 1913, EDWARDS 1925, 1926, 1928 a, 1928 b, 1929, 1931, 1932, 1933, ENDERLEIN 1910 a, 1910 b, HENNIG 1955) and specimens studied (mainly in British Museum, N. H.), the species have the following distribution: *A. argenteosquamosa* (END.) has been collected in Tanganyika, Seychelles, Mauritius, Ceylon, Assam, Malaya, and Siam, the somewhat heterogeneous *A. cincta* DE MEIJ. (sensu lat., including *A. nigrofemorata* DE MEIJ., possibly also *Scottella formosana* END.) is known from Malaya, Mentawi Islands, Java, North Borneo, Luzon, and probably Formosa, whereas *A. obscurata* (WALK.) has a range extending from North Borneo, Menado (Celebes), Sula, and Buru to Papua (New Guinea), British Solomons, and Northern Queensland.

In his original description of *Allactoneura* and its type species *A. cincta*, DE MEIJERE (1907, p. 202, pl. 5, fig. 2) overlooked the true base of the vein *r* and took a vein-like fold between *r* and *m* for this vein part. His figure of the venation was copied by JOHANNSEN (1909, pl. 5, fig. 3), and must have been a permanent source of error for people relying solely on these figures and the corresponding descriptions. ENDERLEIN (1910 a, p. 60–64), it is true, published two more adequate figures when describing his two *Scottella* species, but unhappily enough placed the genus in the »*Mycetobiinae*» beside *Mesochria* END. (*Mycetobia* and *Mesochria* do not even belong to the same superfamily as *Allactoneura*) and totally misinterpreted the veins behind *r*₃ because of the above-mentioned vein-like wing fold. ROHDENDORF (1938, 1946), probably misled by the descriptions and figures of DE MEIJERE and JOHANNSEN, erected a new family *Allactoneuridae* to include, besides *Allactoneura*, some Jurassic fossils; these latter, however, were subsequently removed by himself (ROHDENDORF 1957, 1964) to a new family, *Fungivoritidae*. For a number of Jurassic fossils he (1946) gave names suggesting some similarity with *Allactoneura* (*Allactoneurisca*, *Allactoneurites*, *Mimallactoneurites*, *Mimallactoneura*, *Mimalycoxia allactoneuroides*, *Protallactoneura*), but none of these seems to have any close relationship with this genus (HENNIG 1954, 1955). HENNIG (1955) gave a fresh figure of the venation of *Allactoneura* and briefly discussed its systematic position.

EDWARDS (1925, p. 545) pointed out that there are great differences between *Allactoneura* and *Manota*, especially in the hair vestiture of the tibiae and in the venation, but nevertheless believed them to be more or less related. SHAW and SHAW (1951) studied the thoracic structure of the two genera and came to the conclusion that they are not closely allied, but that *Allactoneura* is more similar to *Procylloneura* EDW. (*Sciophilinae*, *Leini*), and that a new tribe *Allactoneurini* of the subfamily *Sciophilinae* should be erected for it. HENNIG (1955) agreed with them, expressing doubt of the near relationship of *Allactoneura* and *Manota* on account of the great venational differences, and thought that *Allactoneura*

probably belongs »in den Verwandtenkreis der heute unter dem Namen *Sciophilidae* (oder *Sciophilinae*) zusammengefassten Gattungen».

The present author thinks that SHAW & SHAW were perfectly right in emphasizing that *Allactoneura* is rather closely allied to *Procydoneura*, or, in general, to some *Leiini*, and not to *Manota* at all. Moreover, its relationship with the *Leiini* is so marked that the introduction of a separate tribe for it and of another new one (*Cycloneurini*) for *Cycloneura* and *Procydoneura*, as proposed by SHAW and SHAW, appears somewhat premature on the basis of material insufficient to cover the variation within the much diversified *Leiini*. In any case, if *Procydoneura* is retained in the *Leiini*, as it probably should be, the same must be done with *Allactoneura*. If the *Leiini*, in a future reclassification of the *Mycetophilidae*, are raised to subfamily rank, the adoption of *Cycloneurini* and *Allactoneurini* as tribes under this subfamily can be reconsidered.

It must be admitted that *Allactoneura* is strongly apomorphic in the shape of the head, the thoracic structure, the scaly vestiture of the scutum, and also in the longitudinal folding of the wings, which gives the insect a somewhat wasp-like appearance. In the pleural structure, however, *Allactoneura* represents an extreme development of the type characteristic of the *Leiinae*, such as can be seen, for example, in *Greenomyia*, and in a more advanced degree in *Procydoneura*. The wing venation is quite typical of the *Leiinae*, except for the presence of a chitinized fold between r_5 and m , and of a right-angled bend on $r-m$ at the site of this fold, but in *Syndocosia* SPEISER, which EDWARDS placed in his *Leiini* without further comment, there is a similar chitinized fold between r_5 and m . The ventrites of the abdomen are broad, evenly chitinized and unfolded, as probably in all true *Leiinae*. The male terminalia of *Allactoneura* (studied in *A. cincta*) do not seem to differ from the type of the *Leiinae*, but a more detailed comparative study of these organs is, of course, needed. A patch of short bristles of the base of the posterior coxa is typical of many *Leiinae*.

To sum up: there seems to be nothing against the inclusion of *Allactoneura* in the *Leiinae* as an extremely apomorphic representative of the subfamily. The clarification of its position within the *Leiinae* must await a thorough revision of the whole subfamily.

The genus *Manota* WILL. (*Cerato* MEUN., *Aphanizophleps* END.) is represented in the recent fauna by about eight species from different parts of the world, viz. from Brazil, West Indies, British Columbia, Europe (Crimea, Hungary, England), Seychelles, Burma, Formosa, Samoa, and New Zealand (BUKOWSKI 1934, EDWARDS 1925, 1928 a, 1941, ENDERLEIN 1910 a, 1910 b, HENNIG 1955, LANE 1948, LUNDSTRÖM 1913, SHERMAN 1920, TONNOIR & EDWARDS 1927, WILLISTON 1896); as a fossil it is known from Baltic amber (*Cerato longipalpis* MEUNIER 1904, p. 76, pl. 7, figs. 6–8).

Prior to the introduction of the tribe *Manotinae*, the position of *Manota* was

somewhat uncertain. WILLISTON, in his original description of *Manota*, simply placed the West Indian type species of the genus in the large family *Mycetophilidae* (including *Sciaridae*). MEUNIER, without further comment, described *Cerato* as a sciarid. JOHANNSEN (1909) placed *Manota* (with *Cerato* as a synonym) in the mycetophilid subfamily *Mycetophilinae* (sensu WINN., nec EDW.), but later on (1912) included it in the *Sciarinae* with the remark that in ENDERLEIN's classification it would be placed with the *Mycetophilinae*. ENDERLEIN (1911) found no eye-bridge in the type specimen of *Cerato longipalpis* MEUN. studied by him and considered the insect to represent a typical mycetophilid (i.e., not a sciarid) in other respects as well. SHAW & SHAW (1951) considered *Manota* so different in thoracic structure that they agreed with EDWARDS that a separate subfamily should be recognized for it, but disagreed as to the inclusion of *Allactoneura* in this subfamily. The discovery of the related *Eumanota* EDW. (EDWARDS 1933) did not much moderate the impression of the isolated position of the *Manotinae*, though EDWARDS suggested some connexion with the *Leiini*.

The present author has studied two manotine species from northern Burma, collected by Dr. RENÉ MALAISE in 1934, and apparently representing two new genera. One of these, described below as *Paramanota orientalis*, in some respects connects *Manota* with *Eumanota*, thus affording evidence of their relationship, while the other species, *Promanota malaisi*, is more like *Eumanota* but still more primitive in certain respects than this genus. The new material helps to characterize the subfamily *Manotinae* more sharply than before.

Manotinae EDW., emend. (excl. *Allactoneura*).

Eyes hairy, not or but slightly emarginate above the antennae, or (in *Paramanota*) forming a complete eye-bridge across the front. Ocelli three, in an almost straight line; the lateral ones not far removed from the eye-borders. Some few stronger hairs or bristles, erect or somewhat recurved, behind the hind margins of the eyes; face hairy all over. Antennae rather short, inserted above the middle of the head; flagellar segments short, with short pilosity only, fourteen in number; last segment apparently without recurved sensory hairs at the tip. Palpi probably four-segmented; the first (or palpiger?) short; the second rather short and expanded; the third much longer and mostly inserted near the base of the second; the last segment inflexed, long and narrow. Labella small. Scutum rather uniformly hairy or bristly, without distinct acrostichal and dorsocentral stripes or bare intercalary areas. Posterior part of the pronotum distinctly separated from the anterior one, bare, or (*Paramanota*) with a few bristly hairs, or (*Manota*) more or less fused with the anterior pronotum; prothoracic epimeron narrow, its tip meeting the mesothoracic katapisternum at the anterior upper corner of this sclerite, close to the anepisternal suture, which is horizontal or a little inclined downwards ante-

riorly; katepisternum more or less fused with the mesepimeron; mesanepisternum and pleurotergites hairy or bare; the latter moderately bulging; mediotergite bare, inflexed in its lower part; insertion of abdomen narrow. Wing membrane with fine, erect or reflexed macrotrichia, or without any macrotrichia; microtrichia not arranged in definite longitudinal rows. Costa much produced beyond the tip of r_5 ; humeral cross-vein short, not very oblique; subcosta very short; base of rs short and transverse, or absent; r_4 absent; $r-m$ long and horizontal, in line with r_5 ; pedicel of the medial fork and base of m_1 faint or quite obliterated; m_1 ending at or even above wing tip; cubital fork sessile, its branches arising separately at the wing base, or (*Manota*) the branches united at base to form a short secondary pedicel. Coxae long and stout; hind coxae bare at the base; tibiae rather short; the tibial setulae arranged in rows; tibial bristles short and inconspicuous; front tibial tip with a semicircular brush area on the anterior surface, or (*Paramanota*) this area reduced; tibial spurs moderately long; tarsi slender; claws with a fine tooth at the base beneath; empodium small. Male abdomen with seven visible pregenital segments, the seventh shorter than the preceding ones, the eighth small and retracted; ventrites evenly chitinized, without weaker fold lines.

Key to the genera of *Manotinae*.

- 1 (4) Subcosta ending in r ; base of rs distinct; medial fork complete; cubital fork sessile. Wing membrane with erect or reflexed macrotrichia at least along the posterior border of wing. No eye-bridge. Hair vestiture of scutum somewhat shaggy, prothoracic parts with rather numerous hairs and bristles; pleurotergites hairy 2
- 2 (3) Face narrow. Last segment of palpi hardly longer than the preceding. Most of the wing membrane covered with fine erect or somewhat reflexed macrotrichia. Mesanepisternum hairy and bristly *Promanota* n.
- 3 (2) Face broad, parallel-sided. Last segment of palpi whip-like, several times as long as the two preceding ones together. Erect macrotrichia present along whole posterior border of wing. Mesanepisternum bare *Eumanota* Edw.
- 4 (1) Subcosta ending free or in costa; base of rs short, weak, or absent; stem of medial fork and base of m_1 wholly obliterated; wing membrane without macrotrichia. Setulosity of scutum closely decumbent. Face broad, almost quadrate 5
- 5 (6) Upper front corners of eyes meeting in front of the ocelli to form a complete eye-bridge. Posterior part of pronotum with some bristly hairs, distinctly separated from the anterior one; the other prothoracic parts with projecting hairs and bristles. Subcosta ending in costa; branches of cubital fork arising separately from wing base *Paramanota* n.
- 6 (5) No eye-bridge. Anterior and posterior pronotum more or less fused; prothoracic parts broad, shield-like, clothed with closely decumbent setulosity. Subcosta very short, ending free; branches of cubital fork usually connected at base to form a short secondary stem *Manota* Will.

Promanota gen. n.

Head somewhat conical behind, with some stronger hairs behind the eye-margin; frons between the ocelli and antennal insertion rather coarsely hairy;

face narrow, a little wider below, hairy; clypeus short, hairy. Eyes slightly emarginate above the antennae. Lateral ocelli large, close to the eyes (distance smaller than the ocellar diameter). Scape and pedicel of antennae short, of about equal length; flagellar segments short and rather broad, a little expanded ventrally, about twice as broad as the short necks, densely and shortly pilose. Palpi rather long; the second (antepenultimate) segment short, flat and expanded; the third much longer, many times longer than thick, inserted near the base of the second, with short erect setulae; the last segment somewhat longer than the preceding. Scutum irregularly setose; lateral bristles not very strong. Scutellum short and broad, hairy, with rather numerous marginal bristles. Posterior pronotum ridged and bare, sharply separated from the anterior one by a groove. Other prothoracic parts with rather numerous projecting bristly hairs; mesanepisternum and pleurotergites hairy and bristly. Both surfaces of the wing membrane with fine, straight, somewhat reflexed macrotrichia; the macrotrichia of the veins longer, stronger and more decumbent. Subcosta short, ending in r in an acute angle to form a small, closed, wedge-shaped cell; base of rs situated distinctly beyond the middle of the wing; r_1 short, a little shorter than r-m, which is long and horizontal, not much shorter than the portion of m before it; r_5 moderately curved, running rather far from the costa and subparallel with m_1 ; medial fork narrow, its stem weak, about half as long as r-m, m_1 fainter at the base, ending at the wing tip; branches of cubital fork arising separately at the wing base, distinct and setose (only the very base of cu_{1a} weaker and bare), subparallel in the basal half, then widely divergent; anal vein absent; cu_2 running close to cu_{1b} . Front coxae not very large; the hind ones with a sparse row of bristly hairs along the outer hind margin, not reaching the base of the coxa. Front tibia a little shorter than the femur, with a semioval «brush» area on the anterior surface at tip. Tibial setulae in fairly distinct rows throughout. Abdomen rather short; male ninth tergite and cerci long, together as long as the long coxites; styli small, inserted at the dorsal margin of the coxites.

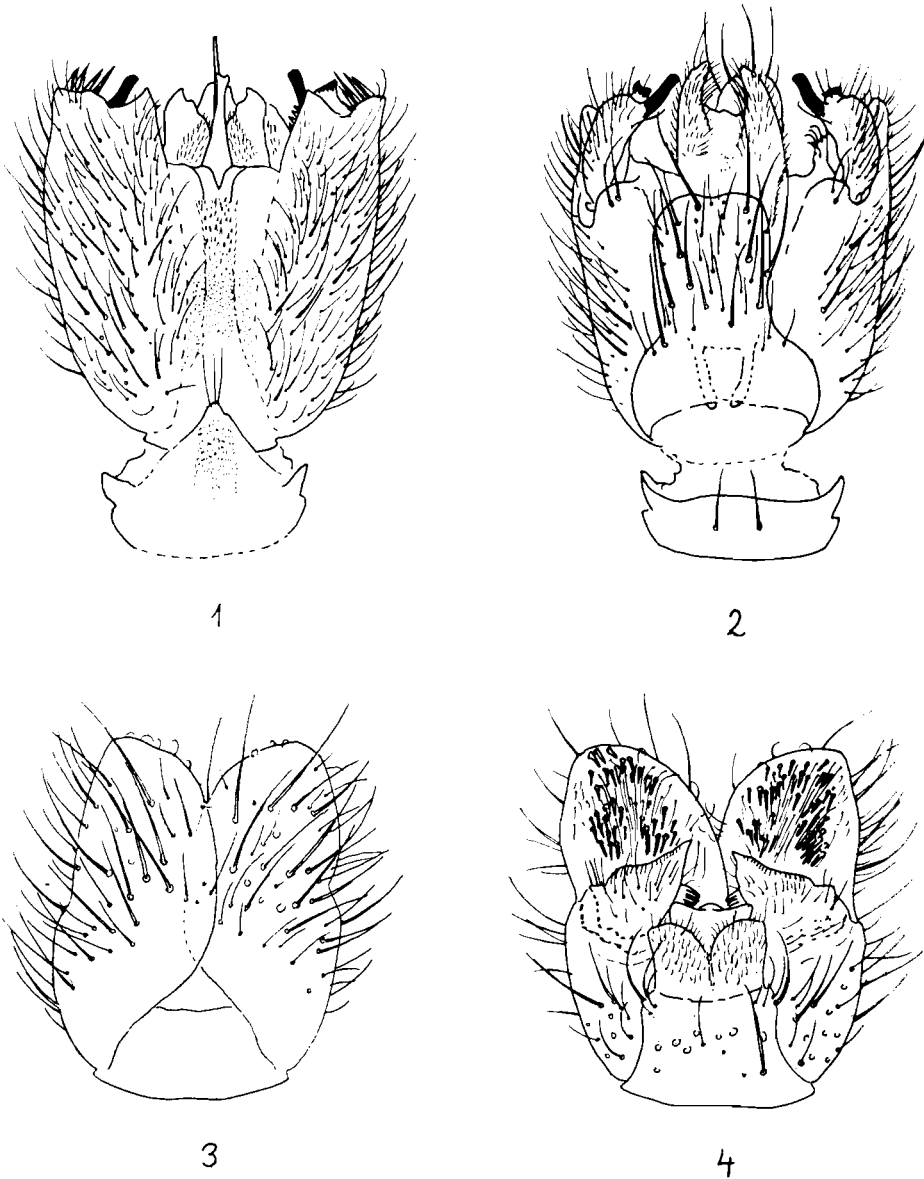
Type-species: *Promanota malaisci* m. (Northern Burma).

This genus is close to and perhaps not very distinct from *Eumanota* Edw. from North Borneo, but differs in having less marked bristles round the orbits, a much narrower face, shorter last palpal segment, almost bristly mesanepisternum, shorter front coxae, and in the presence of macrotrichia over the whole wing membrane, and details of venation.

Promanota malaisei sp. n.

Male only. Head brown above; face ochreous brown. Antennae ochreous at base, darker towards apex; flagellar segments about as long as broad. Palpi ochreous. Thorax brownish ochreous; posterior pronotum, paratergite and kat-episternum pale; anepisternum and pleurotergites brown. Scutellum with about a dozen rather short bristly marginal hairs. Wings (fig. 5) a little fumigated.

All veins (including sc, r-m, and the section of m before r-m) with dorsal macrotrichia; ventral macrotrichia present on the veins r (only in the most apical part just before rs), r₁, r₅, r-m, and m before r-m. Legs pale, or hind coxae somewhat darkened; basal half of hind femora darkened beneath, a similar but more in-



Figs. 1-4. - 1. *Promanota malaisei*, male terminalia and eighth segment, ventral aspect. - 2. D.o, dorsal aspect. - 3. *Pavamanota orientalis*, male terminalia, ventral aspect. - 4. D.o, dorsal aspect. - Orig.

distinct mark on the middle femora. Front tibia with a pale brush area at tip; middle tibia with some few tiny anterior and posterior bristles; hind tibia with a complete row of short anterior bristles, the dorsal bristles irregularly biseriate, the posterior ones small, present only in the apical half. The longer hind tibial spur about half as long as the basitarsus. Claws with a rather long basal tooth. Abdomen slightly shining, dark brown; 1st – 4th ventrites pale; terminalia (figs. 1,2) ochreous; cerci and anal segment pale or whitish. First ventrite almost bare, longer than the corresponding tergite, with protruding tip. Seventh ventrite longer than the tergite, semioval; ninth tergite long. Coxites long, notched at tip and with a patch of short dark spinulae on the inner surface of the ventral corner. Dististyli small, with a rod-like black appendage. Wing length 3.7 mm.

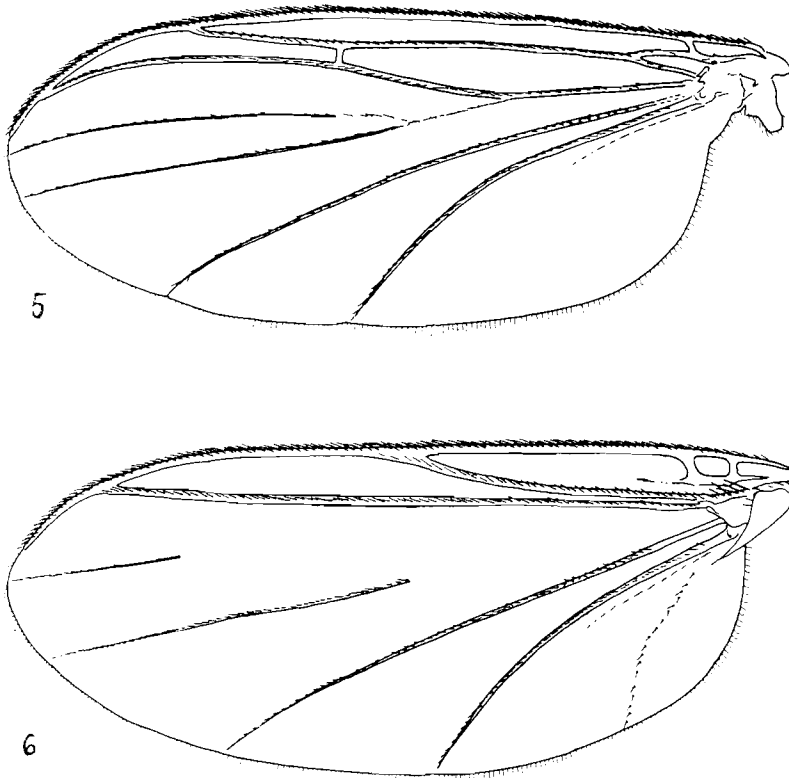
5 ♂, NE Burma, Kambaiti, May 11 and June 4, 1934, R. MALAISE.

One of the specimens is much darker, with dark brown thorax (only postpronotum and a narrow strip of scutum behind it pale), and the antennae, head, palpi, and terminalia brownish black. The male terminalia, however, are identical in structure.

Paramanota gen. n.

Head flat behind; vertex short, but horizontal, longer than in *Manota*. Eyes deeply emarginate around the bases of the antennae, their upper corners meeting before the ocelli to form a complete eye-bridge. Some strong erect and somewhat recurved bristles along the orbits; a pair of similar but proclinate ones between the lateral ocelli; two pairs of very strong and long bristles in front of the eye-bridge between the bases of the antennae. Antennae upcurved, placed above the middle of the head, but not as high up as in *Manota*; basal segment (scape) cylindrical, about twice as long as the second (pedicel), both with bristles longer on the dorsal surface (remainder missing in the single specimen). Face broad, parallel-sided, almost quadrate, with sparse bristles and bristly hairs which are upcurved in the upper part and downwardly directed below. Clypeus inflexed, almost horizontal, short and bare. The antepenultimate segment of palpi short and expanded; the next longer, attached near the tip of the preceding, both with rather numerous bristles on the outer surface; last segment inflexed, long and narrow. Scutum flat, for the most part covered with closely decumbent, uniformly distributed setae of almost equal size; the lateral margins, including the postalar callus, with strong bristles. Scutellum short and broad, with rather numerous marginal bristles. Posterior pronotum distinctly separated from the anterior one by a groove, somewhat ridged, with some bristly hairs on the anterior (median) part. The other prothoracic parts rather narrow (not broad and shield-like as in *Manota*), with some longer bristles and bristly hairs. Rest of the pleurae, pleurotergites and mediotergite bare. Wings fairly broad at the base, with dorsal macrotrichia on all veins, except sc and the very base of cu_{1a} ; membrane without macrotrichia.

Subcosta very short, straight at the base, then abruptly curved forwards to meet the costa, forming a small closed cell outside the humeral cross-vein. The cell between *c* and *r* for the most part broad, several times as broad as the next cell, but r_1 apically approaching the costa and merging into it a little beyond the middle of the wing length. Base of *rs* absent; r_5 forming with *r-m* and a part of *m* a straight vein originating from wing base and in its basal third running closely parallel with *r*. Stem of the medial fork obliterated; basal two-thirds of m_1 completely absent, the visible apical part about half as long as m_2 ; m_1 ending a trifle above the wing tip. Branches of cubital fork arising separately at the wing base, basally subparallel, then widely diverging; cu_{1a} hardly fainter at the base; anal vein diverging from cu_{1b} , and indicated by a row of dorsal macrotrichia. Legs rather short. Coxae long; the front ones reaching a little beyond the middle of the intermediate ones, which are longer than the height of the pleurae. Front tibia shorter than the femur. Tibial setulae arranged in definite longitudinal rows in the apical half or two-thirds of the tibiae, quite irregular in the basal part. Spiny bristles of tibiae short and inconspicuous. Front tibia with a small,



Figs. 5-6. - 5. *Promanota malaisei*, venation (macrotrichia on the membrane omitted). - 6. *Pavamanota orientalis*, venation. - Orig.

almost comb-like patch of darker setulae on the anterior surface close to the tibial spur. Abdomen short, dorsiventrally flattened; tergites much broader than the ventrites; 7th tergite shorter than the others. Male terminalia rather broad; 9th tergite and cerci short; coxites greatly expanded ventrally, each forming a broad lobe; styli rather small, inserted on the dorsal border of the coxites, two-lobed. Female unknown.

Type-species: *Paramanota orientalis* m. (northern Burma).

This new genus resembles *Manota* in the decumbent hair vestiture of the scutum, the absence of macrotrichia on the wing membrane and in the basally obliterated medial fork, but is more plesiomorphic in the structure of the head, prothorax, and cubital fork. The eye-bridge and the course of the subcosta are unique in the subfamily, and the former in the whole family.

Paramanota orientalis sp. n.

Male only. Head dark brown; face ochreous above, brownish below; clypeus and palpi pale. Antennae with the two basal segments ochreous (remainder missing in the unique specimen). Scutum and scutellum castaneous, shining; postalar corners and paratergite pale; mediotergite and pleurotergites brownish; prothoracic parts pale yellow; pleurae yellow, in some parts darkened to pale brownish. Scutal bristles black; the setae on the disc dark brown, with paler sheen in certain views. Scutellum with about a dozen marginal bristles. Coxae and femora pale yellow; tibiae and tarsi darker. Setulae in the basal third of front tibiae and in the basal half of the posterior ones quite irregularly arranged, middle tibiae not quite straight, and the hind ones rather distinctly bent in the middle. Wings (fig. 6) fumigated; halteres with pale stem and dark knob. Wing length 3.8 mm. Abdomen with terminalia dark brown. Terminalia as figured (figs. 3,4); ventral parts of the coxites widely surpassing the styler insertion as two broad lobes which are densely provided with spiny bristles on their dorsal surface; the dorsal styler lobe subquadrate with a prolonged dorsal (median) corner and with a densely striate or fimbriated membranous apical border; the ventral styler lobe hidden, more elongate, with a dense comb-like row of blunt-tipped spinulae.

1 ♂, NE Burma, Kambaiti, 2000 m, March 31, 1934, R. MALAISE.

The four genera classed above with the *Manotinae* certainly belong together, as is shown, apart from other similarities, by the characteristic set of apomorphies in the shape of the head and palpi, the pleural structure, venation, and arrangement of the tibial setulae.

The structure of the postnotum (bulging pleurotergites, inflexed lower part of the mediotergite) and the narrow insertion of the abdomen, combined with the complete basalization of the cubital forking point, indicate that the *Manotinae* belong to the *Mycetophilidae* sensu MALLOCH (comprising the *Sciophilinae* and *Mycetophilinae* of WINNERTZ, EDWARDS, and other authors, but not the

Diadocidiinae included by MALLOCH). No other family of the superfamily *Mycetophiloidea* (*Ditomyiidae*, *Diadocidiidae*, *Keroplastidae*, *Bolitophilidae*, and *Sciariidae*) combines these characters.

As mentioned above, EDWARDS (1933) stated that *Eumanota* seems to connect the *Manotinae* with the *Leiinae* (*Leiini* Edw.). Such a belief was obviously based above all on the venation, which in *Eumanota* agrees with that of the *Leiinae* in some characteristic apomorphies, viz. absence of r_4 , shortness of r_1 , and the longitudinal position of r-m. In the typical *Leiinae*, as well as in the *Manotinae*, this «leiine» type of venation can perhaps be understood by assuming that the vein part called the base of r_5 is really r_4 , the true base of r_5 being obliterated (EDWARDS 1925, p. 578). Whether correct or not, this interpretation leaves open the question whether the «leiine» condition in the *Leiinae* and *Manotinae* is of common origin or merely a result of convergent evolution. Convergence is probable, in view of the rather marked difference between the two groups in other respects than venation, and also because the *Leiinae* themselves seem to be polyphyletic and based on convergence in venation.

The *Leiinae*, as originally delimited by EDWARDS (1925, as a tribe), are a somewhat incoherent grouping. *Pnyxia*, of course, belongs to the *Sciariidae*, and the genera *Ectrepesthoneura* and *Tetragoneura* should almost certainly be excluded, as being rather close allies of *Synapha* (*Gnoristinae*). The same possibly applies to *Trichoterga* TONN. & EDW. and *Thoracotropis* FREEM., known to the present author from the literature only. The inclusion of some other genera appears not quite certain, but not much can be said of their position until the system of the *Leiinae* is thoroughly revised.

Though similar in venation, the *Manotinae* differ sufficiently from the typical *Leiinae* to make a close affinity doubtful. The manotine type of palpi with short and broad antepenultimate segment is not known in the *Leiinae*, nor is the arrangement of the tibial setulae in regular longitudinal rows. The pleural structure is also different, and no *Leiinae* possess macrotrichia on the wing membrane as does *Promanota*. In addition, the sequence of evolutionary changes appears to have been different in the two subfamilies. In the *Manotinae*, the reduction of sc and the formation of the characteristic type of the palpi, pleurae, and arrangement of the tibial setulae, has apparently preceded the reduction of the macrotrichia on the wing membrane and the detachment of the base of c_{1a} leading up to the formation of a secondary cubital stem. All this seems to indicate that the *Manotinae*, if at all closely related to the *Leiinae*, at most represent a «sister group» of the latter subfamily.

Since *Promanota* has the wing membrane covered with macrotrichia, its nearest relatives should probably be sought among the *Sciophilini* of EDWARDS, in which group EDWARDS placed those genera of his *Sciophilinae* that have hairy wings. Most genera of this group, however, are more apomorphic than *Promanota* in having a well developed secondary stem to the cubital fork and weakly chitinized longi-

tudinal fold lines in the abdominal ventrites; with very few exceptions their tibial setulae are irregularly arranged. As to the cubital fork, the only exception is the New Zealand genus *Taxicnemis* EDW. (TONNOIR & EDWARDS 1927, p. 805, figs. 48, 195 – 197) which was described as belonging to the *Sciophilini* and considered to be in some ways closely connected to *Aneura* MARSH. In *Taxicnemis* the cubital fork is long and appears to be sessile, without a secondary stalk (a short primary one may be present), and thus similar to that of *Promanota*, *Eumannota* and *Paramanota*, though the anterior branch (cu_{1a}) is incomplete at the base. It is striking that the genus also differs from most »*Sciophilini*» and agrees with the *Manotinae* in several apomorphies: there is a sparse row of strong, projecting bristles on the upper part of the head between the ocelli and behind the upper posterior eye-margin; the anepisternal suture appears to be inclined forward-anteriorly, the subcosta is very short and ends free, and the tibial setulae are arranged in definite longitudinal rows. In one specimen of *Taxicnemis* seen by the author the hind tibiae are somewhat curved in the manner of *Paramanota*. However, there are important differences between *Taxicnemis* and the most primitive *Manotinae*, *Taxicnemis* being on the whole more plesiomorphic: the palpi are more normal in shape, the upper part of the face is bare, the apical segment of the antennae is tipped with a couple of recurved sensory hairs, the scutum has distinct dorsocentral hair lines separated from each other and from the lateral hair stripes by bare areas, the vein r_1 is long, and r_2 is present and unusually plesiomorphic (strongly oblique and far removed from the base of rs).

Pending further evidence, the relationship of the *Manotinae* to *Taxicnemis* and other »*Sciophilini*» must remain uncertain. Since the affinity with the *Leiinae* is also doubtful, it seems most appropriate to retain the *Manotinae* as a separate subfamily of the *Mycetophilinae* sensu MALLOCH (1917). If the sciophiline tribes of EDWARDS, after revised delimitation, are raised to subfamily rank, the family *Mycetophilidae* would consist of the subfamilies *Sciophilinae*, *Mycomyiinae*, *Gnoristinae*, *Leiinae*, *Manotinae*, and *Mycetophilinae*.

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