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TENTATIVE KEY TO THE SPECIES OF
POLEMISTUS OF THE ORIENTAL REGION
 (HYMENOPTERA: PEMPHREDONIDAE)

By

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During the course of the studies of the Philippine and the Indonesian representatives of the genus dealt with here the author was deeply impressed that far more species than ever known must be left untouched and it came into his mind that to make easy the further investigation a key to the known species is preferable. Regret, however, most of the descriptions hitherto made are quite brief and without illustration and based upon these no definitive and desirable key can be expected. However, the present situation of the author does not allow him to reexamine all the type specimens of the known species and as to the old ones he must have relied upon their descriptions only. The key presented below, therefore, will frequently give only a clue to the identification of the specimens newly obtained. In preparing this key the author made some effort to include all the known species, even those which were quite insufficiently described, as it may be of use to identify the specimens from the same locality, and to show as far as possible the systematic relationships amongst the species.

- 1 Head above smooth, without longitudinal carina in front of fore ocellus (scapal basin without bordering carina at its upper margin, pronotum depressed much below level of scutum, scutum smooth, without foveate furrows or coarse punctures, clypeus as a rule densely clothed with appressed silvery hairs in both sexes
 Division I (Polemistus s. str.) .. 2
- Head above in front of fore ocellus with longitudinal (and oblique) carinae (scapal basin above completely or incompletely margined with a carina or carinae, scutum always with some longitudinal furrows foveated, mesopleuron constantly with hypersternaulus)
 Division II (Asiatomistus nov.) .. 12
- 2 Length 8 mm or over, dorsum of propodeum transversely, coarsely striate, apical declivity smooth and shining, with a median longitudinal furrow from base to apex (clypeus broad subtriangular, body dark obscure green, base of mandible, A1, 3-5, all trochanters, base and apex of fore and mid femora and all tibiae and tarsi yellow), Tenasserim, ♂ unknown levipes (Bingham, 1897), ♀
- Less than 7 mm, dorsum of propodeum at least partly reticulate 3
- 3 Clypeus subtriangular, with apical margin rounded (mandible blunt at apex, propodeum finely reticulate, labrum triangular, L of A1=A2-5; A1, humeral tubercle, apex of femora, tibiae largely and tarsi entirely yellowish; A2-3 brownish yellow, rest dark), 5 mm, India: Kangra Valley, Punjab, about 1400 m, ♂ unknown dudgeoni (Nurse, 1903), ♀
- Clypeus with apical margin not simply subtriangular 4
- 4 Apical margin of clypeus medianly broadly subtruncate, with a short tooth produced on each side (labrum subtriangular, head and thorax with distinct greenish sheen)
 Section I (sumatrensis group) 5
- Apical margin of clypeus laterally strongly (♀), or weakly (♂) roundly and lobularly produced, with median emargination often incised or produced in middle (labrum rectangular, with apical margin truncate or medianly minutely incised, head and thorax without greenish sheen)
 Section II (abnormis group) 10
- 5 Mesopleuron with narrow, smooth scrobal- and broad, foveate episternal- furrows only (without hypersternaulus, apical margin of clypeus with lateral incision of medial lobe none or very shallow, basal depression separated into four cells by three carinulae, dorsum of propodeum coarsely reticulate) 6
- Mesopleuron with scrobal (fine, smooth), episternal and hypersternal (broad and foveate) furrows, forming C-shaped (left side) furrow-group (clypeus with deep incisions between medial lobe and lateral teeth; basal hollow of scutellum divided into two cells by a median carinule; dorsum of propodeum coarsely reticulate, but at baso-lateral areas broadly obliquely striate; flagellum with apical

- 3joints dark brown to black, rest yellow to pale brown at least beneath) 7
- Lateral teeth of apical margin of clypeus directly produced from sides of medial lobe, not separated by an incision, medial lobe broad, nearly truncate at apex (yellow are A1, humeral tubercle, apex of fore and mid femora, outer side of fore and mid tibiae, base of hind tibia and tegula; brown are apex of mandible, palpi, A2 beneath, apex of fore and mid trochanters, base of fore and mid femora, hind trochanter, rest of fore and mid tibiae and fore and mid tarsi), 5-7 mm, Sumatra, Taiwan (?), ♂ unknown sumatrensis (Maidl, 1925) ♀
- Lateral teeth of apical margin of clypeus are separated from median lobe by a shallow incision, shorter, not reaching apical level of the median lobe which is distinctly rounded out, scapal basin above laterally feebly, obliquely striate towards fore ocellus (in sumatrensis scapal basin above completely without carina) (pale yellow are humeral tubercle, apex of fore and mid femora, base on outer side of hind tibia; pale brown are apex of mandible, A1-5, 6-8 beneath, tegula, apex of coxae, trochanters, base of fore and mid femora, apex of hind femur, tibiae and tarsi of fore and mid legs, hind tibiae on inner and outer sides and hind T1; hind T2-5 dark brown), 5.5-5.8 mm, Laos, ♀ unknown
-
- yoshikawai (Tsuneki, 1961; status nov.) ♂
- 7 Except A1 beneath no yellowish or whitish area present, even legs with basal articulations only narrowly pale brown, clypeus very sparsely covered with short fine, whitish pubescence, with surface well shining (clypeus: Fig. 37 of the 1st paper of this No., antenna: Fig. 38, 39 do., basal impression of scutellum divided into two cells by a median carinule, propodeum: Fig. 40 do.), 4.5 mm, Luzon, ♂ unknown niger Tsuneki, 1992, ♀
- Besides A1, humeral tubercle and parts of legs whitish or yellowish, the latter broadly pale brown; clypeus densely densely clothed with appressed silvery pubescence 8
- 8# Antenna: Figs. 43, 44 (♂), 47-49 (♀) of the first paper of this No., at A4 not abruptly incrassate (flagellum above pale to dark brown in ♂, black in ♀; pale brownish yellow or yellow: palpi, trochanters, base and apex of femora, fore and mid tibiae, apex or outer side of hind tibia, all spurs, fore and mid T1-4, hind T1-2), ♂ 3.5-4.0, ♀ 4-5 mm, Luzon, Mindanao, Palawan .. fukuitor Tsuneki, 1992
- Antenna in ♂ at A4 abruptly incrassate to MxW 9
- 9 Flagellomeres in ♂ from A4 till 13 same in width, each except A13 wider than long, 13 slightly longer than width, with apex broadly rounded (further yellow: apices of femora, outer side of hind tibia; somewhat translucent pale brown: tegula, trochanters, bases of femora, fore and mid tibiae and all tarsi; mandible at apex and flagellomeres above dark brown, but apical three entirely black), ♂ ♀ about 5 mm, Thailand siamensis (Cockerell, 1931)*
- A4-6 keeping MxW, thence gradually reducing in width, A3-8 wider than long, A9 as wide as long, thence apically longer than wide: Figs. 54, 55 of the first paper of this No., A3-8 each with a small rounded translucent swelling - ? tyloidea - beneath at apex (in colour similar to fukuitor, but orange on legs more or less translucent, especially on trochanters), 3.5-4.0 mm, Is. Cebu, ♀ unknown cebuensis Tsuneki, 1992 ♂
- 10 (inner orbits very strongly convergent below, IOD at base of antennae less than half VW; head from above with anterior emargination remarkably deep, orbital groove fine, less marked; of four apical waves of clypeus in ♂ lateral slightly larger and higher than medial, in ♀ apical margin of median lobe usually medianly minutely produced, labrum in ♂ black or dark brown, in ♀ translucent yellow, tubercle in ♂ black or whitish at posterior margin only, in ♀ yellowish white. Europe, Korea and Japan, 3.8-4.8 mm abnormis (Kohl, 1888)
- Inner orbits not so strongly convergent below 11
- 11 Antennal flagellomeres annulated, each segment at base darkened and apically pale, VW:MiIOD at base of antennae =12:7, inner orbital crenate groove fairly broad and marked (head from above with anterior emargination only moderately

* In the original description of this species (♀) no mention is made about the structure of mesopleuron. Judging from the similar coloration it may be a synonym of sumatrensis Maidl. But I once observed a male specimen of Polemistus from Thailand which fairly well agreed in characters, as far as described, with siamensis and which had on mesopleuron the -shaped furrow group, and described it in detail (1961) as the male of this species. Here I followed this description.

- deep, OOD=POD, four apical waves of clypeus in ♂ nearly even), 4.0 mm, *kyukyus* ♀ unknown *annulicornis* (Tsuneki, 1966) ♂
- # Antennal flagellomeres dark brown, basal third beneath yellowish, VW:Mi10D=3:2, inner orbital groove less marked (head from above with anterior emargination fairly deep, OOD:POD=4:3, labrum with apical margin minutely produced in middle), 4.0 mm, Taiwan, ♂ unknown *formosus* (Tsuneki, 1967) ♀
- 12 Pronotum depressed much below level of scutum, scutum till there perpendicularly inclined, forming anterior aspect, but its dorsum at anterior margin with a sinuate carina, behind which three pair of large rounded impressions present, starting points of admedian, notaulal and parapsidal furrows (sexual dimorphism marked: in ♂ antenna remarkably modified: Fig. 60 of the 1st paper of this No., in ♀: Fig. 69 do., simple; on other characters of ♂ ref. Figs. 58-66 and of ♀ Figs. 67-72, do.), 4.5-5.0 mm, Luzon and Mindanao *antennatus* Tsuneki, 1992
- Pronotum only slightly depressed, separated from scutum by a shallow constriction, scutum with 3 or 4 pair of foveolated grooves (scapal basin distinctly margined above by a transverse arcuate carina, whence three carinae run towards fore ocellus) 13
- 13 ♂ (antenna 13-segmented, visible gastral segments 7, but GS7 with apex slender extended like ovipositor threath of ♀, but never with spine-like ovipositor; mandible acutely bidentate at apex, but inner tooth subapical) 14
- ♀ (antenna 12-segmented, visible gastral segments 6, spine-like ovipositor frequently long produced from its theath; mandible acutely toothed at lower apex, but upper subapical tooth simply rounded, often medianly minutely incised) 22
- 14 Clypeus densely covered with decumbent silvery hairs and tridentate at apex 15
- Clypeus not densely covered with silvery hairs 17
- 15 Scutum at furrow-interspace of posterior half, scutellum and metanotum without coarse puncture (medial tooth of clypeus subquadrate, truncate at apex, lateral teeth elongate triangular, pointed at apex and reflected, reaching close to the level of anterior margin of medial tooth), 4.0-5.0 mm, Indonesia (Is. Bali) *baliensis* Tsuneki, 1992
- Furrow interspace of scutum, scutellum and metanotum coarsely punctured ... 16
- 16 Medial tooth of clypeus wider than long, with apex rounded, lateral teeth equilateral triangular, markedly reflected, located close to the medial, with interspace only gently inclined towards the lateral), 3.5-4.0mm, Mindanao and Cebu *mindanaonis* Tsuneki, 1992
- Medial tooth of clypeus far longer than wide, with apex rounded, lateral teeth slender, also longer than wide, not pointed, not reflected, fairly remotely separated from the medial, with interspace strongly inclined towards the lateral), ca. 4 mm, Indonesia (North Sumatra: Prapat) *nambui* Tsuneki, 1992
- 17 Lateral teeth of apical margin of clypeus small, remotely separated from the medial by inclination and each splitted into two, thus apical margin becomes quinquedentate (scutum quadrisulcate, transverse ridge above scapal basin minutely, roundly raised in frontal view whence median carina runs towards fore ocellus; humeral tubercle whitish, pale brown to brown are apex of mandible, Al wholly, rest of antenna broadly beneath, fore and mid trochanters, base and apex of fore and mid femora, all tibiae except broadly darkened medial area of hind tibia; all tarsi paler brown, almost yellowish; dorsum of propodeum strongly reticulate), 5.0-5.5 mm, India (Bandra) *bandraensis* (Giner Mari, 1945)
- Lateral teeth of apical margin of clypeus simple 18
- 18 Medial tooth of clypeus broad, at apex in middle triangularly incised, thus apical margin becomes qudridentate (lateral teeth comparatively long, ridged behind and reflected at apex; upper frons and vertex impunctate, colored as in allied species, variable in brightness; ref. Figs. 90-94 of the first paper of this No.), 3.5-3.7 mm, Palawan, ♀ unknown *quadridentatus* Tsuneki, 1992
- Medial tooth of apical margin of clypeus simple, if incised the incision very minute and apex not bidentate, thus apical margin tridentate 19
- 19 Lateral teeth of apical margin of clypeus acutely ridged behind, with inner side of the ridge deeply roundly excavated (each lateral tooth long, with its apex considerably approaching the top level of medial tooth, blunt ridge behind medial tooth continued to its apex, reflection of the teeth comparatively weak, surface state of upper frons and form of frontal triangle vari-

See ADDENDA, p. 57.

- able, scutellum and metanotum without coarse punctures or striae; as to general characters ref. Figs. 95-106 of the first paper of this No.), 4.3-4.5 mm, Luzon, Negros, Mindanao, Palawan luzonensis Rohwer, 1919
- Lateral teeth of the apical margin of clypeus not so acutely ridged behind, with excavation on inner side of the ridge not so deep (lateral teeth shorter, far behind the top level of medial tooth, the blunt ridge behind the latter not continued to the tooth, each tooth more strongly reflected) 20
- 20 Clypeus sparsely covered with slightly stiff silvery hairs (frontal median carina with a small triangle at apex, scutellum posteriorly and metanotum longitudinally, coarsely striate; ref. Figs. 82-89 of the first paper of this No.), 4.5 mm, Mindanao tridentatus Tsuneki, 1992
- Clypeus at most laterally with silky pubescence only, practically glabrous (punctures on scutum within furrows or on interspace, if present, much larger and stronger than in luzonensis) 21
- 21 Medial tooth of apical margin of clypeus comparatively broad, subtruncate at apex, often minutely incised in middle (scutellum and metanotum usually without puncture or striae, rarely the former at posterior portion weakly striate), 3.7-4.5 mm, Luzon, Mindanao, Palawan philippinensis Tsuneki, 1992
- Medial tooth of apical margin of clypeus pointed or minutely rounded at apex (scutellum and metanotum with coarse striae and some punctures), 3.5-3.8 mm, Palawan and Mindanao palawanensis Tsuneki, 1992
- 22 Convergence of inner orbits (not accompanied carinae) towards antennal base comparatively weak and the orbits not markedly bowed out 23
- Convergence of inner orbits towards antennal base stronger and the orbits noticeably bowed out at middle 24
- 23 Body strongly greenish black, clypeus densely clothed with silky white pubescence (Al slightly, not widely, brownish beneath, scutum shagreened, with admedian furrows medianly interrupted, their posterior parts foveolate, notauli fine, complete, parapsidal furrows lacking, propodeum coppery greenish, with dorsum reticulate, posterior declivity above occupied by a large transverse pentagonal enclosure which is medianly furrowed, below with surface roughened; all trochanters, femora at base, all tibiae and tarsi brown), 5 mm, India (Barrackpore) reticulatus (Cameron, 1889)
- Body black, without strong greenish sheen, clypeus glabrous (antenna black, only Al at base and apex beneath, A2-5 beneath brown to dark brown; on scutum, in addition to admedian furrows and notauli, parapsidal furrows present, variable in development; propodeum not coppery, but dorsum similarly reticulate; trochanters at apex, femora at base and apex, fore and mid tibiae wholly, hind tibia at apex and all tarsi pale brown to brown; small triangle at apex of frontal median carina sometimes present, but usually lacking, scutal surface posteriorly and scutellum without coarse punctures or striae), 4-6 mm, Luzon, Negros, Mindanao and Palawan (see also couplet 28) luzonensis Rohwer, 1919
- 24 Apical margin of clypeus: Fig. 81 of the first paper of this No., p. 23 (median carina of upper frons with a small triangle at apex, scutum with eight punctured furrows, two pair of which not reaching apical margin, their interspace and scutellum coarsely punctured, $POD > OOB$, $Al = (A2-12) \times 4/9$, A2 pedicellate, narrow at base, swollen apically, thence gradually longer towards apex), 4.5-5.5 mm, Malaya, ♂ unknown barabbas (Pagden, 1933) ♀
- Tridentate state of apical margin of clypeus different (sides of medial tooth more markedly and smoothly inclined towards lateral teeth, each tooth more or less reflected, scutum with three pair of foveolated furrows: admedian, notauli and parapsidal, but if added parategular, they become four pair, the first always close together, often medianly interrupted, the second narrow and complete, while the third variable, whether furrow-interspace and scutellum are coarsely punctured or not is usually specific 25
- 25 Scutellum and metanotum coarsely punctured (clypeus: Figs. 75-77 of the first paper of this No., broad ridge behind medial tooth not strong, anteriorly almost flatly connected with those of lateral teeth, disc except median ridge very sparsely, silverily haired), 3.5-5.0 mm, Mindanao and Cebu mindanaonis Tsuneki, 1992
- Scutellum and metanotum not noticeably punctured 26
- 26 Medial tooth of apical margin of clypeus very broad, subrectangular, wider than long, with apex emarginate, lateral teeth small, far separated from medial by fairly steep inclination: Fig. 3 of the preceding paper. 4.0-4.5 mm, Indonesia: Is. Bali baliensis Tsuneki, 1992
- Medial tooth of clypeus not so broad 27

- 27 Medial tooth of apical margin of clypeus with apex narrowly truncate, often medianly minutely or weakly incised (frontal median carina without apical triangle, directly connected with anterior transverse carina, scutellum at posterior part and metanotum longitudinally striate), 3.7-4.3 mm, Luzon, Mindanao, Palawan philippinensis Tsuneki, 1992
- Medial tooth of apical margin of clypeus pointed or minutely rounded at apex 28
- 28 Scutellum and metanotum microreticulate, half mat, without puncture or striae (clypeus: Fig. 121 of the first paper of this No., each tooth plainly reflected, with a ridge behind, but excavation between ridges not so deep as in ♂, apical triangle of frontal median carina either present or lacking), 4-6 mm, Luzon, Negros, Mindanao, Palawan (see also couplet 23)
- Scutellum at posterior portion and metanotum longitudinally striate (clypeus similar to that of luzonensis, but medial blunt ridge of the disc anteriorly behind the tooth connected with those of the lateral teeth and flattened there, not separated as in this species), 4.0-4.5 mm, Palawan luzonensis Høhwer, 1919
- palawanensis Tsuneki, 1992

ADDENDA:

- 8 Antenna etc. (flagellum etc.) A
- A On scutum notauli completely lacking; head from above rather transverse (lateral teeth of apical margin of clypeus comparatively thick and short), ♂ 3.5-4.0, ♀ 4-5 mm, Luzon, Mindanao, Palawan fukuitor Tsuneki, 1992
- On scutum notauli present: Fig. 51 of the first paper of this No.; head from above thicker, subquadrate (lateral teeth of apical margin of clypeus narrower and longer), 3.5 mm, Mindanao, ♀ unknown bidentatus Tsuneki, 1992
- 11 Antennal flagellum annulated etc. annulicornis (Tsuneki, 1966)
- Antennal flagellum dark brown, basal third yellowish beneath B
- B Upper frons, seen from behind, on each side of median are markedly roundly raised (punctures on upper frons medianly fine, but laterally large; dorsum of propodeum anteriorly reticulate, posteriorly transversely striate; except GfI all GTs on each apical half finely, but distinctly punctured), 3.5 mm, Taiwan, ♂ unknown alishana (Tsuneki, 1971)
- Upper frons on each side of medial area not so strongly raised (punctures on upper frons fine, uniform all over; dorsum of propodeum medianly reticulate and laterally obliquely striate; all GTs practically impunctate), 4.0-5.0 mm Taiwan, ♂ unknown formosus (Tsuneki, 1967)

L I T E R A T U R E

Amongst the references listed on p. 38 and 39 the following:

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