FURTHER STUDIES ON THE FOSSORIAL HYMENOPTERA FROM MANCHURIA*

By Katsuji TSUNEKI
(Biological Laboratory, Fukui University)

The material upon which the present study was based was collected by W. Alin in Harbin during the years 1943–50 and now belongs to the collection of Mr. P. M. F. Verhoeff, Den Dolder, the Netherlands. Succeeding to his first sending** Mr. Verhoeff kindly sent me the specimens for further study. They involved seven new species and one new subspecies, and most of the other species were new to the fauna, since northern Manchuria is one of the not well investigated areas of the Palaearctic Region. The species dealt with in this paper are as follows:

1. *Ammophila* (*Ammophila*) *sabulosa infesta* Smith, 1873, forma B.
2. *Hoplisoides distinguendus* (Yasumatsu, 1939).
3. *Dienoplus laevis* (Latreille, 1792).
4. *Gorytes* (s. str.) *verhoeffi* sp. nov.
5. *Gorytes* (s. str.) *harbinensis* sp. nov.
6. *Alysson harbinensis* sp. nov.
7. *Alysson verhoeffi* sp. nov.
8. *Cerceris lacinia* Tsuneki, 1961.
9. *Psen* (*Psen*) *ater* (Fabricius, 1794).
10. *Psen* (*Mimumesa*) *littoralis* Bondroit, 1933.
11. *Pemphredon* (*Pemphredon*) *lugubris pacificus* Gussadovskij, 1932.
12. *Pemphredon* (*Cemonus*) *lethifer* (Shuckard, 1837).
13. *Pemphredon* (*Cemonus*) *shuckardi* (A. Morawitz, 1864).
14. *Passaloecus monilicornis* Dahlbom, 1842.
15. *Crabro* (*Agnosicrabro*) *fratellus* (Kohl, 1915),
16. *Crabro* (*Crabro*) *werestschagini* (Gussakovskij, 1932).
17. *Ectemnius* (*Clytochrysus*) *lapidarius* (Panzer, 1799).
18. *Ectemnius* (*Hypocrabro*) *schlettereri* (Kohl, 1888).
19. *Crossocerus* (*Hoplocrabro*) *asiaticus* sp. nov.
20. *Crossocerus* (*Coelocrabro*) *pubescens* (Shuckard, 1837).
21. *Crossocerus* (*Coelocrabro*) *ambiguus hokkaidoensis* Tsuneki, 1954.
22. *Crossocerus* (*Coelocrabro*) *verhoeffi* sp. nov.
23. *Crossocerus* (*Crossocerus*) *wesmaeli* (Van der Linden, 1829).
24. *Crossocerus* (*Crossocerus*) *exiguus* (Van der Linden, 1829).
25. *Lindenius* (*Lindenius*) *albilabris manchurianus* subsp. nov.
26. *Lindenius* (*Trachelosimus*) *harbinensis* sp. nov.
27. *Entomognathus* (*Entomognathus*) *brevis* (Van der Linden, 1892).
28. *Rhopalum* (*Latrorhopalum*) *laticorne* (Tsuneki, 1947).

On the other hand, the species of fossorial wasps hitherto recorded from Manchuria are as follows (S, South Manchuria; N, North Manchuria):

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** Tsuneki, K. 1961. *Cerceris* in Manchuria in the collection of Mr. P. M. F. Verhoeff (Holland), in 'Studies on *Cerceris* of north eastern Asia'. Mem. Fac. Lib. Arts, Fukui Univ., II, 11 (1): 54-63.

** Tsuneki, K. 1965. Some fossorial wasps from Manchuria Akitu (Kyoto), 12 (3-4): 35-38.

1. *Ammophila* (*Ammophila*) *gracillima* Taschenberg (Jehol).
2. *Ammophila* (*Ammophila*) *sabulosa infesta* Smith, (Forma A ?) (Jehol).
3. *Ammophila* (*Ammophila*) *clavus* (Fabricius) (Jehol).
4. *Sphex* (*Harpactopus*) *subfuscatus* Dahlbom (Jehol).
5. *Sphex* (*Sphex*) *inusitatus* Yasumatsu (Jehol).
6. *Philanthus lingyuanensis* Yasumatsu (Jehol).
7. *Cerceris sabulosa subgibbosa* Yasumatsu (Jehol).
8. *Cerceris sabulosa nupta* Shestakov (N).
9. *Cerceris pekingensis alini* Tsuneki (N).
10. *Cerceris harbinensis* Tsuneki (N).
11. *Cerceris rubida* (Jurine) (N).
12. *Cerceris verhoeffi* Tsuneki (N).
13. *Cerceris bicincta* Klug (N).
14. *Cerceris albofasciata* Rossi (S. and N.)
15. *Cerceris adelpha* Kohl. (N).
16. *Cerceris quadricolor* F. Morawitz (N).
17. *Cerceris arenaria* (Linnè) (S.)
18. *Cerceris quinquefasciata seoulensis* Tsuneki (N).
19. *Cerceris sungari* Tsuneki (N).
20. *Cerceris quadrifasciata* (Panzer) (N).
21. *Cerceris pedetes* Kohl (N).
22. *Cerceris lacinia* Tsuneki (N).
23. *Cerceris sibirica* F. Morawitz (N).
24. *Cerceris manchuriana* Tsuneki (N).
25. *Cerceris rufipes evecta* Shestakov. (N).
? 26. *Tachytes obsoletus* Rossi (S).
27. *Tachytes europaeus orientis* Pulawski (N).
28. *Hoplisoides distinguendus* (Yasumatsu) (S).
29. *Bembix niponica picticollis* Morawitz (S).
30. *Bembix formosana* Bischop (S).
31. *Bembecinus hungaricus* Frivaldzky (S).
32. *Bembecinus hungaricus verhoeffi* Tsuneki (N).
33. *Mellinus sabulosa* (Fabricius) (N).
34. *Psen* (*Psen*) *ater* (Fabricius) (S).
35. *Crabro* (*Crabro*) ussuriensis (Gussakovskij) (N).
36. *Lestica* (*Lestica*) *alata basalis* (Smith) (S).
? 37. *Ectemnius* (*Hypocrabro*) *laevigatus* (De Stefani) (S).
38. *Crossocerus* (*Crossocerus*) *pseudopalmarius* (Gussakovskij) (N).
39. *Crossocerus* (*Stenocrabro*) *onoi* (Yasumatsu) (S).
40. *Entomognathus* (*Entomognathus*) *brevis* (Van der Linden) (S).

Before entering the subject I express my deepest thanks to Mr. P. M. F. Verhoeff.

RECORDS AND DESCRIPTIONS OF THE SPECIES

1. *Ammophila* (*Ammophila*) *sabulosa infesta* Smith, forma B.

Ammophila (*Ammophila*) *sabulosa infesta* Smith, forma B, Tsuneki, Etizenia, 24 (in press).

Specimens examined: 2 ♀♀ 2 ♂♂, Charbin (1 ♀, 15. VI. 1943; 1 ♀, 12. VIII. 1945; 1 ♂, 29. VII. 1946; 1 ♂, 1. IX. 1949.)

2. *Hoplisoides distinguendus* (Yasumatsu, 1939)

Gorytes (Harpactus) distinguendus Yasumatsu, Trans. Kansai Ent. Soc., 9 (2); 12, 1939 (♀, S. Manchuria).
Gorytes (Harpactus) distinguendus: Yasumatsu, Mushi, 14 (2): 110, 1942 (♀, N. China).
Gorytes (Harpactus) distinguendus: Yasumatsu, Note Ent. Chin., 10 (1): 18, 1943 (N. China and Inner Mongolia).
Hoplisoides distinguendus: Tsuneki, Etizenia, 1: 10, 1963 (♀♂, Korea and N. China).

Specimen examined: 1 ♂, Charbin, 25. VI. 1950, W. Alin leg.

3. *Dienoplus laevis* (Latreille, 1792)

Gorytes laevis: Handlirsch, Sitz. Akad. Wiss. Wien, 97 (1): 430, 1888.
Gorytes (Harpactus) laevis: Yasumatsu, Mushi, 14: 110, 1942 (N. China, Inner Mongolia).
Dienoplus laevis: Tsuneki, Etizenia, 1: 9, 1963.

Specimen examined: 1 ♀, Charbin, 10. VII. 1949, W. Alin leg.

Remarks. In the specimen the thorax except the prothorax, anterior portion of mesothorax and the underside of the remaining portions wholly ferruginous red. Outer orbits above middle faintly reddish. White of the clypeus broadly interrupted by a browish black macula in the middle; labrum nearly wholly brownish black.

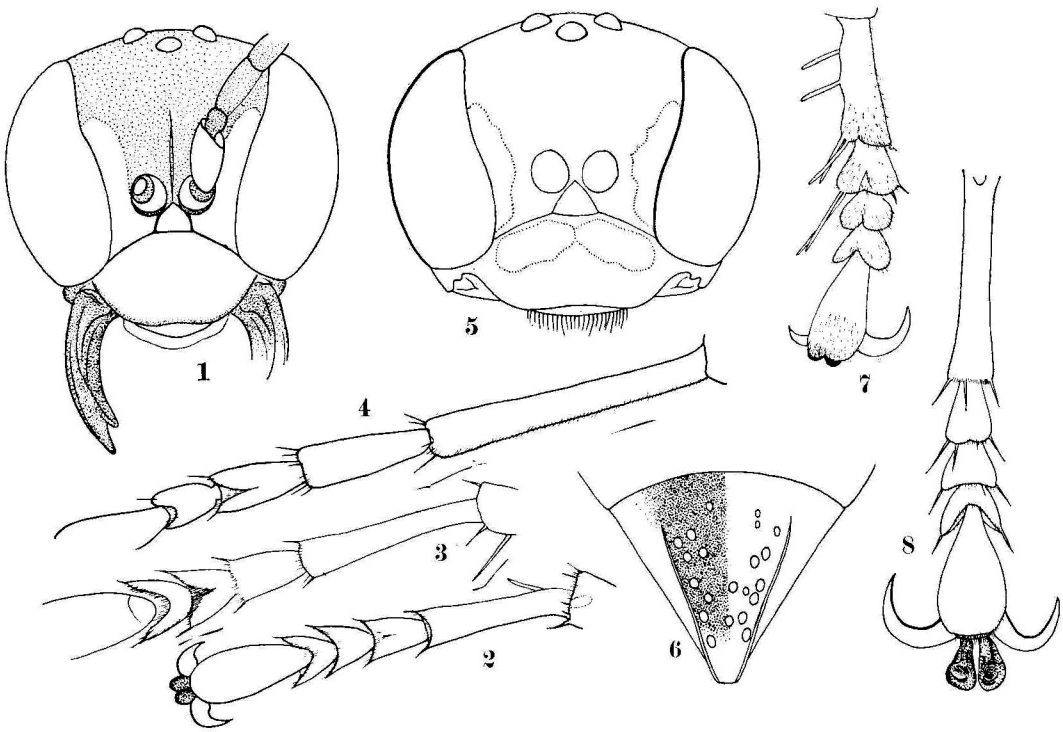
4. *Gorytes (Gorytes) verhoeffi* sp. nov.

According to the key of Handlirsch (1888) the female of this species goes to *Gorytes fallax*, while the male to *sulcifrons*. Both differ, however, from the species dealt with here either in coloration or in sculpture or in both, in the case of *sulcifrons* even in structure (relation of the interantennal space). In the de Beaumont's key (1953) it runs to *4-fasciatus* in ♀ (with a more or less query) and to *sulcifrons* in ♂. While in my own key (1963) the female comes to a dead lock before reaching *4-fasciatus* by the length relation of the antennal joints and the male to *aino* with a more or less difference. But the male differs from *aino* distinctly in the relative length of the oculo-antennal space. According to the direct comparison of the specimens with those of the related species it was confirmed that the species is closest to *Gorytes quadrifasciatus* (Fabricius). But it differs from it chiefly in the following points:

1. Antennal joints relatively shorter (♀♂), with tyloidea different in distribution (♂).
2. Striae on upper portion of the metapleuron very much weaker (♀♂).
3. Antennal flagella nearly wholly black (♀) and legs largely ferruginous, variegated with black and yellow (♂).

♂. Length 8.3 mm (to about 9.0 mm). Black; with the following portions yellow: Clypeus, labrum, supra-clypeual area, lower inner orbits broadly, extending below up to supra-clypeal area (bordering lines of these sclerites black), antennal joints 1 and 2 in front, a band on pronotum, a spot on humeral angles (sometimes lacking), a band on posterior half of scutellum, a macula on subalar epimeral area of mesopleuron, a medianly narrowed band on each apical margin of abdominal tergites 1–4, similar but narrower band on sternite 2 (sometimes lacking, sometimes in two lateral spots), a spot on each sides of sternite 3 (sometimes lacking), all tibiae narrowly in front and greater part of front and mid tarsi. Ferruginous to reddish ferruginous are palpi, apical margin of clypeus, tegulae of wings, all femora at base and apically (extention markedly varied), remaining area of tibiae (inside in fore and mid legs brown to brownish black), and hind tarsi. Mandibles at apex semitransparent reddish. Antennae slightly brownish black. Wings hyaline, slightly darkened yellow, stigma ferruginous and veins dark brown.

Head from above OOD÷POD, head in front (Fig. 1) with inner margins of eyes distinctly



Figs. 1–8. *Gorytes verhoeffi* sp. nov. 1–4, ♂; 5–8, ♀.
1 and 5, Head in front. 2 and 7, Front leg. 3 and 8, Mid leg. 4, Hind leg. 6, Pygidial area.

convergent toward clypeus, but oculo-antennal space comparatively broad, only slightly narrower than the width of antennal socket (ratio approximately 5 : 7), clypeus gently convex, the highest place located about 3/5 from base; head in profile temple narrower than eye, attenuating below from above middle, occipital carina not strong, gradually terminating at apex. Antennal joint 1 broadly horrowed at apex, joint 2 loosely inserted in it, joints 3 and 4 slightly longer than each succeeding joint, from joint 5 apically each joint subequal; joint 3 slightly less than twice as long as wide at apex, joint 10 about 1.6 times as long as wide, tyloidea on joints 3–6, with more or less width and ferruginous in colour. Structure of thorax similar to *4-fasciatus*, only with the pronotal collar slightly more raised and area dorsalis on propodeum slightly shorter and wider (with lateral lines of the triangle straight), Abdominal tergite 1 about as long as wide, with only two usual carinae at base, sternite 2 not compressed medianly at base. Length relation of tarsal joints markedly differs from that of *4-fasciatus*, in all legs tarsus 2 longer than wide at apex (Figs. 2, 3 and 4). Wing venation similar to that of *sulcifrons*, but the distance between two recurrent veins on cubital nervure in cubital cell 2 fairly markedly differs with individuals.

Upper frons finely closely, vertex, mesonotum and mesopleuron much more finely (mere pile pits) and more sparsely punctured, with slightly larger points scattered, the surface except upper frons fairly strongly shining, metapleuron with surface irregularly weakly uneven, not smooth, mixing weak, shallow but larger punctures, on upper portion longitudinally, very weakly striate, not so distinct as in *4-fasciatus*. Scutellum coarsely crenate in front, its post-marginal suture slightly more finely crenate, postscutellum longitudinally strongly striate on its posterior half. Area dorsalis longitudinally very strongly coarsely striate, the striae on lateral portions of the area somewhat oblique, extending over the lateral carinae to outsides of the area; posterior in-

clination and sides of the segment behind the stigmatal furrow longitudinally, coarsely and markedly rugosely striate, partly sometimes wholly rugoso-reticulate, area before the stigmatal furrow polished, with sparse punctures. Abdominal tergite 1 without longitudinal striae beside the two normal ones, the segments in general very finely and closely punctured with hair points, intervals more minutely coriaceous, the sculpture visible under 30× enlargement, the punctures closer posteriorly and progressively less shining.

♀. Length 9–9.5 mm. Similar to ♂. Coloration: Clypeus with only basal half yellow, in two others changed into two small spots, varying in size. Labrum always black, supra-clypeal area and its sides black, muculae along lower half of inner orbits yellow, maculae on thorax and abdomen as in ♂. Legs with apical half of femora, tibiae and tarsi wholly reddish ferruginous; front tibiae in front sometimes slightly yellowish. Wings as in ♂.

Structure: OOD÷POD. Head in front: Fig. 5, oculo-antennal distance as wide as socket of antenna or slightly larger; supra-antennal area nearly triangular, shorter than in ♂; clypeus wider than in ♂, more highly raised, in lateral view evenly rounded. Flagellar joints of antennae progressively shorter and thicker up to penultimate joint, joint 3 slightly (5/4 times) longer than joint 4 and approximately thrice as long as wide at apex. Head in profile with temple nearly as wide as eye, with occipital carina as in ♂. Structure and sculpture of thorax-complex as in ♂, abdomen also similar, pygidial area: Fig. 6, apex broadly rounded or subtruncate and the surface sparsely punctured with moderate-sized punctures. Legs with front and mid tarsal joints distinctly shorter than in ♂ (Figs. 7 and 8), in hind legs also somewhat shorter. Wing venation generally as in ♂. Punctuation on head and abdomen also similar, but on sternites 3–5 further scattered with somewhat larger punctures all over.

Holotype: ♂, Charbin, 25. VI. 1950. W. Alin leg.

Paratypes: 3 ♀♀ 3 ♂♂. (1 ♀ 1 ♂, 9. VII. 1944; 1 ♀, 9. VII. 1949; 1 ♂, 30. V. 1950; 1 ♀ 1 ♂, 25. VI. 1950.).

Remarks. This species can be inserted in my keys of the species of Japan and Korea as follows:

♀. 8, – Inner orbits of eyes only slightly convergent towards clypeus, antenno-ocular space nearly as wide as antennal socket ..... 8′

8′ Antennal joint 3 only thrice as long as wide at apex, joint 10 nearly as long as wide (striae on upper portion of metaplemron very weak, sometimes indistinct)
Gorytes verhoeffi Tsuneki sp. nov.

– Antennal joint 3 distinctly more than thrice as long as wide at apex, joint 10 also distinctly longer than wide (striae on upper portion of metapleuron distinct, even when not strong) 9

♂. 12, – Antennal joints 3–6 with tyloidea 13

13 Antennal joint 10 distinctly longer than wide, oculo-antennal distance about half as wide as antennal socket, thorax wholly black *Gorytes aino* Tsuneki, 1963

– Antennal joint 10 nearly as long as wide, oculo-antennal distance about 4/5 the width of socket, thorax yellow maculated *Gorytes verhoeffi* Tsuneki, sp. nov.

5. *Gorytes* (*Gorytes*) *harbinensis* sp. nov.

This species (♂), in the key of Handlirsch (1888) runs to *sulcifrons*, but actually it differs from *sulcifrons* (♂) in the maculation of the body and in the colour of the antennae. According to de Beaumont (1953) it stops soon at 3. In my own key (1963) it reaches *koreanus* Handlirsch, differing, however, from it in the colour of antennae, the sculpsure of propodeum, the punctuation on the head and mesonotum etc. Among the other species hitherto described from the Palaearctic Region none does concide in characters with the present species. It is characterized

by the largely ferruginous antennae, the strongly convergent inner orbits, sparsely punctured mesonotum, polished mesopleurons, incompletely striated metapleurons, partly obsolete striation of area dorsalis, striated first tergite, black and yellow maculated legs etc.

♂. Length 9.0 mm. Black; yellow are clypeus except brownish apex, a spot on outer margin at base of mandibles, palpi, lower inner orbits, antennal joint 1 except dorsal brownish macula, joint 2 in front, pronotum, humeral angles, a spot on subalar epimeral area, a spot on wing tegulae, a band on apical portion of scutellum, narrow bands on tergites 1–5, latero-apical transverse maculae on sternites 2 and 3, a spot of hind trochanters, a spot at base of hind femora, apex of front and mid femora, all tibiae in front and front and mid tarsi. Ferruginous: Antennae except above on basal half (dark brown to brown), apex of hind femora, and hind tarsi largely. Inside of front and mid tibiae, and hind tarsi above toward base dark brown. Labrum yellowish dark. Tegulae of wings ambur yellow. Wings hyaline, distinctly yellowish, stigma ferruginous, veins dark brown.

OOD : POD=9 : 11, head in front: Fig. 9, oculo-antennal space approximately half as wide as antennal socket, interocular distance at base of clypeus as long as antennal joints 5 and 6 combined. Antennal joints from 3 apically progressively shorter, apical 5 joints except the ultimate one subequal, joint 3 very slightly more than twice as long as wide at apex, joint 10 only very slightly longer than wide, tyloidea on joints 3–8. Structure of thorax-complex as in *4-fasciatus*, but area dorsalis with lateral margins in the impressed lines, gently roundly curved. Abdominal segment 1 slightly longer than wide at apex, sternite 2 not compressed at base in middle. Front tarsal joint 2 somewhat longer in middle than wide at apex, joint 3 shorter than wide, mid tarsal joints 2 and 3 longer than wide. In fore wing recurrent vein 1 received by cubital cell 2 at about middle (in both specimens, but this may vary more or less).

Upper frons and ocellar area very minutely closely punctured, subcoriaceous, with medium-sized punctures sparsely superimposed, vertex with similar punctures, but very much more sparsely scattered, occiput and temples practically impunctate, only with very fine hair points; mesonotum and scutellum also duplipunctate with similar kinds of punctures, but the minute ones much sparser than on upper frons, with surface more shining, scutellum in front coarsely crenate, mesopleuron impunctate (in paratype scattered with a few fine punctures), metapleuron finely punctured, on upper portion longitudinally striate, the striae not strong, usually not reaching anterior margin, on lower portion punctures indistinct, but the surface not smooth. Postscutellum with anterior suture finely crenulate, surface longitudinally weakly striate (in paratype only the posterior margin crenate); area dorsalis longitudinally coarsely striate, the striae not reaching posterior angulate portion, leaving the area smooth (but not polished) except for the medial furrow, remaining dorsal aspect and posterior inclination longitudinally coarsely rugoso-striate, intervals between the striae finely uneven, sides of the segment before stigmatal furrow smooth and polished, behind the furrow anterinrly weakly uneven, polished, posteriorly gradually strongly rugoso-striate and continued to the sculpture of the posterior inclination of the segment. Abdominal tergite 1 with, beside the two longitudinal striae, similar but shorter striae between them; abdominal tergites and sternites sparsely scattered with fine punctures, with interspaces very minutely coriaceous.

♀, unknown.

Holotype: ♂, Charbin, 1. VIII. 1943, W. Alin leg.

Paratype: 1 ♂, Charbin, 12. VIII. 1950, W. Alin leg.

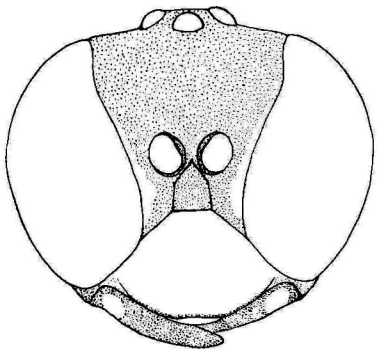
Remarks. The holotype lacks the left antenna and the paratype has the legs fairly strongly changed in colour.

This species can be inserted in my key to the species of Gorytini of Japan and Korea as follows:

♂. 7, – Mesonotum sparsely scattered with medium-sized punctures ..... 7′

7′ Antennal flagellum black, with tyloidea on joints 3–10, joint 3 distinctly more than twice as long as broad at apex, area cordata very strongly coarsely rugoso-reticulate (other characters as given in the key) *Gorytes koreanus* Handilirsch

– Antennal flagellum largely ferruginous, with tyloidea on joints 3–8, joint 3 nearly twice as long as wide at apex, area cordata on basal half longitudinally striate, on apical portion smooth but not polished *Gorytes harbinensis* sp. nov.



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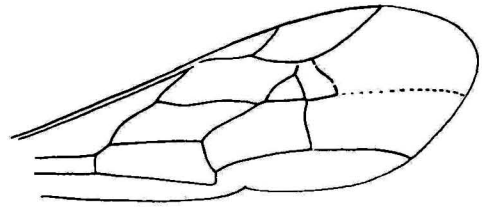

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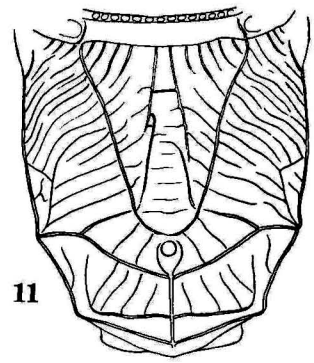

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Figs. 9–11. 9, *Gorytes harbinensis* sp. nov., ♂, head in front.
10 and 11, *Alysson harbinensis* sp. nov., ♂. 10, Wing venation. 11, Propodeum.

6. *Alysson harbinensis* sp. nov.

The present species, as far as the female is concerned, is very close to *Alysson pertheesi* Gorski, differing from it only in having the metapleuron and whole the areas of the propodeum ferruginous and the yellowish white maculae on the head and thorax slightly more developed.

Clypeus without blackish maculae, mandibles broadly yellow with apex narrowly red; supra-clypeal area, inner-orbital maculae which are broadened below, reaching bases of antennae as well as supra-clypeal area, antennal joint 1 largely, 2 and 3 in front, two large spots on pronotum, posterior margin of humeral angles (anteriorly brownish), a band on ambur-yellow tegulae and a broad band on scutellum (medianly slightly incised from behind), yellowish white.

Other coloration as in the compared species: Abdominal segment 1 and base of 2, rest of antennae and legs largely, ferruginous, mid and hind coxae wholly ferruginous, without basal black.

Antennal joint 3 approximately 2.3 times as long as wide at apex. Wing venation: Fig. 10. Sculpture of propodeum: Fig. 11.

Basing upon such a close resemblance we are tempted to deal with the specimen as representing a geographical race of *Alysson pertheesi*. But the distribution pattern of this species seems to make such a treatment difficult. This species has long been known from Europe only, but recently it was discovered to occur also in Japan (Tsuneki, Life Study, 9 (1–2): 25, 1965). The facts seem to indicate that the species must occur also in the intermediate regions including

Manchuria. Therefore, if this species is considered a subspecies of *pertheesi*, it becomes to accept the sympatric occurrence of two subspecies of a single species within the same locality. Certainly it is not always impossible to meet with such a case according to the environmental conditions of the area, even in such insects having well developed moving means as Sphecidae. But it seems safer to take the insects concerned as distinct respectively, without leaving the possibility of hybridization between them. Otherwise, they must be considered to show variations within the same species. But the coloration of the propodeum in *A. pertheesi* is quite constant and such a variation can not easily be assumpted.

Upon such a consideration the species rank was given to the specimen.

♂, unknown.

Holotype: ♀, Charbin, 25. VI. 1950. W, Alin leg.

7. *Alysson verhoeffi* sp. nov.

This species is characterized by the wholly black thorax (except the white macula on scutellum) and abdomen (except the two white maculae on tergite 2) and the apically rounded area dorsalis on the propodeum. Hence it is closely related to the Japanese *Alysson cameroni* that has the similar characters. But it differs from it in the form of the teeth on the anterior margin of the clypeus, in the relative length of the antennal joints, in the colour of the legs and in the much smaller body.

♀. Length 6.5 mm. Black, with the following portions ivory white or yellowish white: Clypeus, mandibles except apex, supra-clypeal area, insides above the antennal sockets, broad stripe along lower inner orbits, extending inwards below antennal bases up to supra-clypeal area, antennal joint 1 except a short narrow brown stripe above, a transverse macula on scutellum, two large rounded maculae on tergite 2, front and mid coxae, front and mid trochanters in front, tibiae in front of the same legs and basal half of hind tibiae (except the extreme base). Palpi, posterior margin of humeral angles, tegulae of wings and the greater part of the remaining portions of legs ferruginous. Apex of abdomen, base of front coxae, front and mid tibiae externally, coxae largely, femora at apex, remaining parts of tibiae and whole the tarsi of hind legs brown to dark brown. Antennae slightly brownish. Wings hyaline, irridescent, slightly yellowish, having a fuscous vaguely outlined macula covering basal half of radial cell, cubital cells 2 and 3 and apical portion of discoidal cell 2. pilosity as in *pertheesi*.

Head from above inner margins of eyes parallel, OOD : POD =7 : 4 (ocellus relatively 3); head in front inner orbits slightly convergent toward clypeus, oculo-antennal space subequal to interantennal space, much broader than antennal socket (ratio approximately 5 : 5 : 3); clypeus with disc slightly raised in middle, with anterior margin tridentate (Fig. 12), the medial tooth much broader and shorter than in *cameroni*. Antennal joint 3 slightly more than thrice as long as wide at apex. Head in profile in form as in *cameroni* or *pettheesi*, with occipital carina abruptly ends, but not toothed at apex. Structure of thorax as in the compared species, but postscutellum not so raised as in these. Area dorsalis comparatively broad and short, only slightly longer than wide at base, with apex rounded (Fig. 13). Abdomen and legs normal, as in *pertheesi* in structure and punctuation. Wing venation: Fig. 14, 2nd recurrent vein received by the 2nd cubital cell or interstitial to the 2nd trausverse cubital vein (in holotype), or received by the 3rd cubital cell near the base (in paratype).

Punctures on frons slightly larger than in *pertheesi* and seem somewhat sparser, but the intervals narrower than the width of punctures, the punctures posteriorly sparser and on vertex very sparsely scattered, far sparser than in *pertheesi*. Pro-, mesonotum, scutellum with punctures

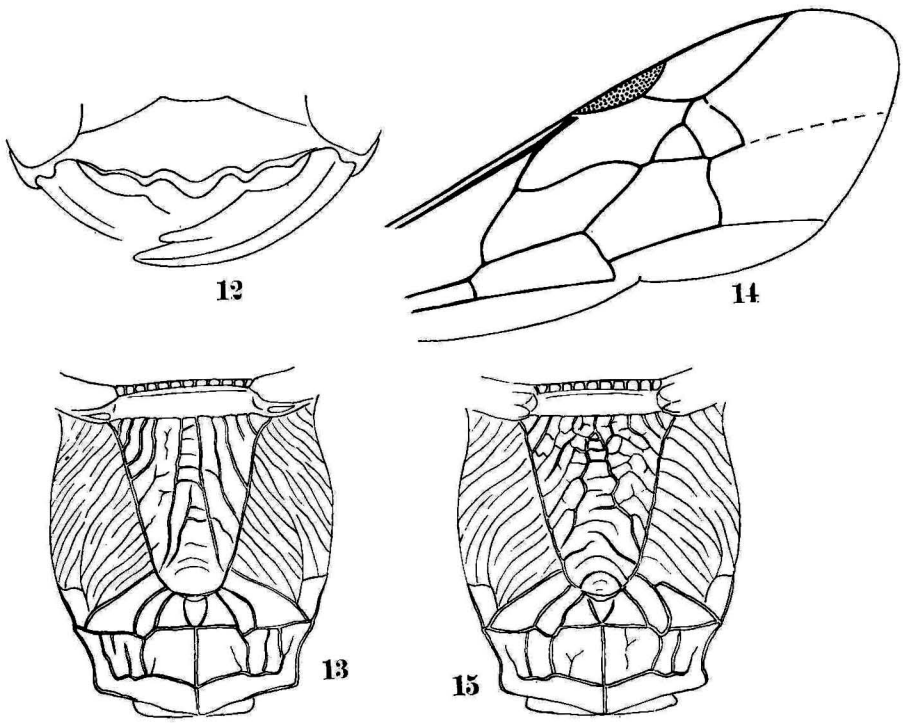
also somewhat sparser than in ***pertheesi***, mesopleuron practically impunctate, greater part of episternum not well visible owing to the close pubescence. Sculpture of propodeum: Fig. 13 (holotype) and Fig. 15 (paratype). Pygidial area as in ***pertheesi***.

♂, unknown.

Holotype: ♀, Charbin, 16. VIII. 1945. W, Alin leg.

Paratype: 1 ♀, Charbin, 25. VI. 1950, W. Alinleg.

Remarks. From the holotype the right hind legs from the tibia apically is missing. In paratype the colour of the mandibles, clypeus and legs suffers the after change.



Figs. 12–15. *Alysson verhoeffi* sp. nov., ♀.
12, Clypeus and mandible. 13 (holotype) and 15 (paratype), Sculpture of pygidial area. 14, Wing venation.

8. *Cerceris lacinia* Tsuneki, 1961

Cerceris lacinia Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 11 (1): 58, 1961.

Specimen examined: 1 ♂, Charbin, 5. VII. 1949, W. Alin leg.

Remarks. The specimen differs from the typical one in that the clypeus with the apical margin of the median lobe bluntly tridentate, the antennal flagella above without brownish colouring and the scutellum with a small lateral spot only on one side. The 2nd and 3rd points seem unimportant, but the first points leaves some doubt about the identification. At the moment of writing I can not compare the specimen with the type and as other characters well agrees with the description of the type I allocate it within the range of *lacinia*.

9. *Psen* (*Psen*) *ater* (Fabricius, 1794)

Psen ater: Yasumatsu et Narisada, Mushi, 8 (2): 73, 1935 (S. Manchuria).
Psen (*Psen*) *ater*: Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 9: 62, 1959 (Japan and korea).

Specimen examined: 1 ♀, Charbin, 5. VI. 1949, W. Alin leg.

Remarks. This species is widely distributed over the palaearctic Region, including Europe, Siberia (incl. the Ussuri region), Mongolia, Korea and Japan.

10. *Psen* (*Mimumesa*) *littoralis* Bondroit, 1933

Psen (*Mimesa*) *fulvitarsis* Gussakovskij, Trav. Inst. Zool. Acad. Sci. URSS, 4 (3-4): 663, 1937.
Psen (*Mimumesa*) *littoralis*: Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 9: 59, 1959 (with synonymy).

Specimen examined: 1 ♀, Charbin, 25. VI. 1950, W. Alin leg.

Remarks. This species is fairly common in Japan (except Hokkaido).

11. *Pemphredon* (*Pemphredon*) *lugubris pacificus* Gussakovskij, 1932

Pemphredon pacificus Gussakovskij, Ark. Zool., 24 A (10): 8, 1932 (Ussuri and kamtschatka).
Pemphrdon (*Pemphredon*) *pacificus*: Tsuneki, Jour. Fac. Sci. Hokkaido Univ., VI, 10 (2): 179, 1952 (Japan — Hokkaido —, Korea and Saghalien).
Pemphredon (*pemphredon*) *lugubris pacificus:* Tsuneki, Life Study (Fukui), 8 (2): 28, 29, 1964 (Japan — Hokkaido and Honshu —).

Specimen examined: 1 ♀, 27. VIII. 1950, W. Alin leg.

Remarks. This subspecies is characterized by the sculpture on the head and thorax being generally finer than in the typical form. The original author further pointed out that the petiole of the abdomen is shorter. But in this respect the character varies considerably and can not be applied as a subspecific distinction.

12. *Pemphredou* (*Cemonus*) *lethifer* (Shuckard, 1837)

Pemphredon (*Dineurus*) *lethifer fabricii*: Tsuneki, Jour. Fac. Sci. Hokkaido Univ., VI. 10 (2): 198, 1951 (Japan — Hokkaido and Honshu —, Korea and Saghalien).
Pemphredon (*Cemonus*) *lethifer*: Tsuneki, Life Study (Fukui), 8 (2): 28, 29, 1964.

Specimens examined: 8 ♀♀ 4 ♂♂, Charbin (1 ♂, 11. VI. 1944; 1 ♀ 1 ♂, 9. VII. 1944; 1 ♀, 10. VI. 1945; 2 ♀♀, 20. IX. 1946; 1 ♀, 30. V. 1950; 3 ♀♀ 2 ♂♂, 25. VI. 1950), leg. W. Alin.

13. *Pemphredon* (*Cemonus*) *shuckardi* (A. Morawitz, 1864)

Pemphredon (*Diphrebus*) *shuckardi*: Gussakovskij, Ark. Zool., 24 A (10): 9, 1932 (Kamtschatka).
Pemphredon (*Dineurus*) *shuckardi*: Tsuneki, Jour. Fac. Sci. Hokkaido Univ., VI, 10 (2): 190, 1951 (Hokkaido, Manchuria, Korea, Saghalien).
Pemphredon (*Cemonus*) *shuckardi*: Tsuneki, Life Study (Fukui), 8 (2): 28, 29, 1964 (Japan — Hokkaido and Honshu-).

Specimens examined: 2 ♀♀ 3 ♂♂, Charbin (1 ♂, 9. VII. 1944; 1 ♂, 5. VI. 1949; 1 ♀ 1 ♂, 25. VI. 1950; 1 ♀, 27. VII. 1950), W. Alin leg.

14. *Passaloecus monilicornis* Dahlbom, 1842

Passaloecus shuckardi Yasumatsu, Mushi, 7 (1): 36, 1936 (Korea and Japan — Honshu-).
Passaloecus monilicornis: Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 5 (1): 6, 1955 (Korea, Iapan — Hokkaido and Honshu).

Specimen examined: 1 ♀, Charbin, 30. V. 1950, W. Alin leg.

Remarks. In Japan the occurrence of this species in Kyushu (Mt. Hiko) was confirmed by the present author.

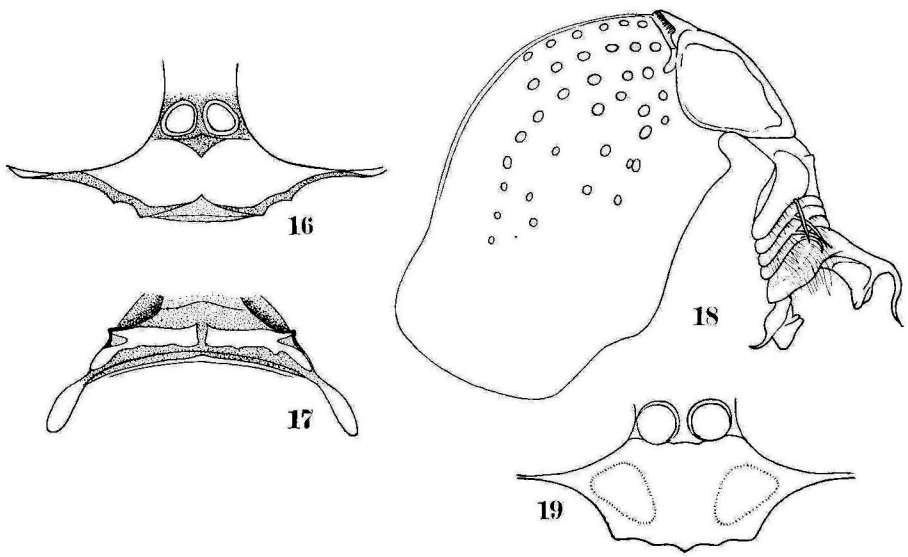
15. *Crabro* (*Agnosicrabro*) *fratellus* (Kohl, 1915)

Crabro (*Thyreopus Agnosicrabro*) *fratellus* Kohl, Ann. k. k. Naturh. Hofmus. Wien, 29: 191, 1915

(Mongolia).

Specimen examined: 1 ♀, Charbin, 10. VII. 1949, W. Alin leg.

Remarks. This species was described with one female specimen from Mongolia (Tsche-li, J. de Joanne leg.) and, to my knowledge, no further record has been made from any locality. The present record is, therefore, a valuable addition to our knowledge of the species. The specimen differs from the original description in that the anterior margin of the medial lobe of the clypeus is not simply truncated, but with a broad rounded protuberance. The disc is provided anteriorly with an inclined triangular area (Fig. 16) and broadly yellow. Pronotum: Fig. 17. Propodeum on dorsal aspect longitudinally very coarsely striate, the striae turn oblique apically, mixing fine striae, between those bordering the medial shallow groove a few transverse branches present, medio-apical area very coarsely reticulate. In coloration postscutellum without maculae, lateral maculae on tergite 1 very small, on 2 large, on 3 narrow and transversely long, band on 4 medially interrupted, on 5 entire, medially broad and laterally narrowed. Pygidial area elongate triangular, with apex broadly rounded and apical half covered closely with golden hairs.



Figs. 16–19. 16–17, *Crabro* (*Agnosicrabro*) *fratellus* (Kohl), ♀.
18–19, *Crabro* (*Crabro*) *werestschagini* (Gussakovskij), ♂.
16 and 19, Clypeus. 17, Pronotum. 18, Front leg.

16. *Crabro* (*Crabro*) *werestschagini* (Gussakovskij, 1932)

Crabro (*Thyreopus*) *werestschagini* Gussakovskij, Ark. Zool., 24 A (10): 19, 1932.

Specimens examined: 1 ♂, Charbin, 15. VII. 1943, W. Alin leg.; 1 ♂, Charbin, 10. VII. 1949, W. Alin leg.

Remarks. The original description was based upon 1 ♀ 2 ♂♂ collected in the Amur region (Blago-westschensk) in July and August, 1928. The specimens examined here well agree in characters with it. But the front tibia and tarsus shown in the figure of the original author are slightly narrower than the examples. They were given in Fig. 18. Clypeus: Fig. 19. In colour the clypeus always bears two yellow maculae and the scutellum and postscutellum also carries respectively two small yellow spots.

17. *Ectemnius* (*Clytochrysus*) *lapidarius* (Panzer, 1799)

Crabro (*Clytochrysus*) *chrysostomus*: Gussakovskij, Ark. Zool., 24 A (10): 15, 1932 (Ussuri).
Crabro (*Clytochrysus*) *chrysostomus*: Tsuneki, Jour. Fac. Sci. Hokkaido Univ., VI, 9 (4): 400, 1947.
Ectemnius (*Clytochrysus*) *lapidarius*: Tsuneki, Life Study (Fukui), 2 (3): 18, 1958.

Specimen examined: 1 ♂, Charbin, 25. VI. 1950, W. Alin leg.

18. *Ectemnius* (*Hypocrabro*) *schlettereri* (Kohl, 1888)

Crabro (*Crabro Solenius*) *schlettereri*: Kohl, Ann. k. k. Naturh. Hofmus. Wien, 29: 72, 1915.
Crabro (*Solenius*) *schlettereri*: Gussakovskij, Ark. Zool. 24 A (10): 16, 1932.
Ectemnius (*Hypocrabro*) *schlettereri*: Leclercq, Monogr. Crabro., p. 270, 1954.
Ectemnius (*Hypocrabro*) *schlettertri*: Tsuneki, Life Study (Fukui), No. 7: 17, 1958.

Specimens examined: 3 ♀♀, Charbin, 9. VII. 1944; 10. V. 1949, 24. IX. 1950, W. Alin leg.

Remarks. This species is common and abundant in Japan and Korea. But it is rather rare in Hokkaido.

19. *Crossocerus* (*Hoplocrabro*) *asiaticus* sp. nov.

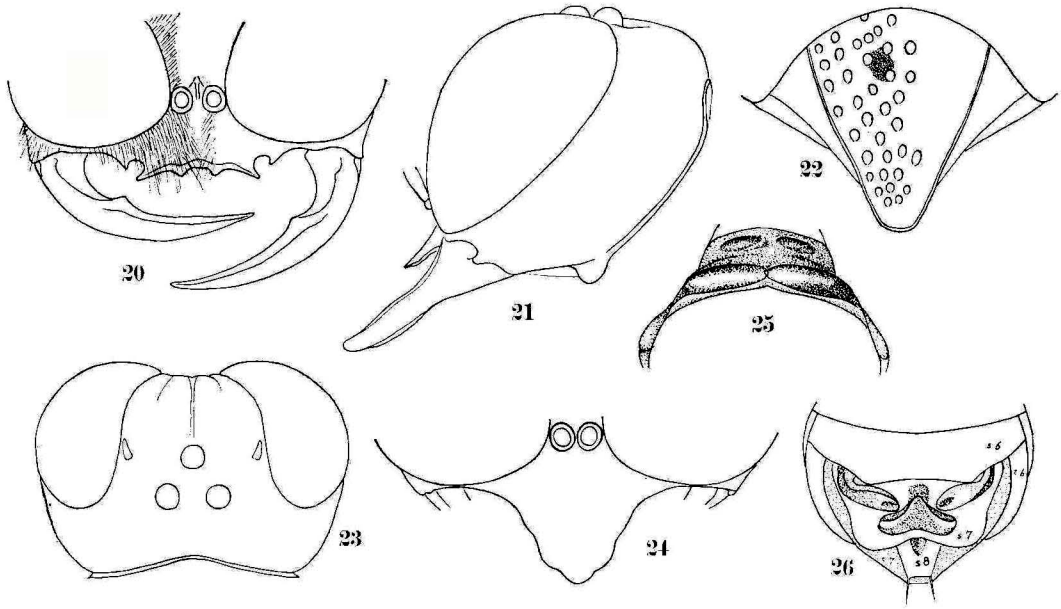
Since the subgenus *Hoplocrabro* was compiled by C. G. Thomson in 1874 probably no other species than the single representative, *quadrimaculatus* (Fabr.) has been known from the Old World. Therefore, it is a particularly note-worthy fact that a female specimen belonging to this subgenus has been discovered among the Manchurian examples. It belongs to a new species, differing from *quadrimaculatus* chiefly in the following points:

1. Abdomen immaculated.
2. Maculae on thorax white, not yellow.
3. Pronotum differently structured.
4. Clypeus somewhat different in form and more thickly covered with silvery hairs.
5. Pygidial area broader.

♀. Length about 8.0 mm. Black. Pale yellowish white: Palpi, antennal joint 1 in front on basal half narrowly, medianly broadly interrupted band on pronotum, humeral angles, postscutellum wholly, front tibiae in front narrowly, basal rings on mid and hind tibiae. Brown to pale brown: Mandibles except apex, tegulae of wings, lateral carinae of scutellum, all tibiae except inside and all tarsi. Antennal joint 1, flagellum beneath broadly, trochanters of all legs and apical portion of caudal segment of abdomen dark brown. Wings hyaline, stigma and veins pale brownish. Lateral areas of lower frons and clypeus densely covered with silvery hairs, the hairs thick and very close so that surface sculpture completely invisible, hairs on thorax also somewhat closer and thicker than in *4-maculatus*, on mesonotum slightly brownish and on mesopleuron slivery white.

Head from above similar in outline to *4-maculatus*, with the contour also similar in pattern, but seems less strong, with occipital carina weaker, ocelli similar in disposition; OOD : POD= 10 : 6, the ocellus relatively 5. Head in front interocular distance at base of antennae approximately half as great in length as antennal joint 1 (except basal tubercle), length proportion of antennal joints 2, 3 and 4 approximately 1 : 2 : 1.5, joint 3 about 2.6 times as long as wide at apex. Clypeus and mandible: Fig. 20, mandible with a small tooth on inner margin toward middle as in *4-maculatus*, but the tooth slightly more robust, apex of mandible completely simply rounded, without the small notch beneath near apex as in *4-maculatus*. Palpi similar in structure. Head in profile thick, with temple only slightly less than as long as eye, occipital margin parallel to the outer orbit and the carina not so high as in *4-maculatus*, but stoutly raised into a rounded lamellate

projection at the end (Fig. 21). Pronotum with collar raised as in *4-maculatus*, but on both ends not so compressed into transverse lamellate carinae as in this species, only simply rounded; meso- and metathorax structured as in the compared species, but the precoxal tooth apparently more developed. General structure of propodeum also similar, with slight differences as follows: (1) Marginal crenate furrow of area dorsalis somewhat broader, deeper, more distinctly outlined and the crenation coarser than in the specimens of *4-maculatus*, with disc simply smooth, highly polished, not finely striate as in this species. (2) Median furrow on posterior inclination narrower and deeper, sharply margined. Abdominal segment 1 as long as wide at apex; Pygidial area slightly broader (Fig. 22). Wing venation and structure of legs as in *4-maculatus* (hind metatarsus somewhat incrassate and nearly as long as the rest of tarsal joints united.)



Figs. 20–26. 20–22, *Crossocerus (Hoplocrabro) asiaticus* sp. nov., ♀.
23–26, *Crossocerus (Coelocrabro) verhoeffi* sp. nov., ♂.
20 and 24, Clypeus and mandibles. 21, Head in profile. 22, Pygidial area. 23, Head from above. 25, Pronotum. 26, Seventh sternite.

Punctuation slightly weaker in general, except on clypeus. Upper frons finely closely punctured, laterally and posteriorly (on vertex) finer and sparser, punctures on mesonotum, scutellum and mesopleuron finer and sparser, with the surface more shining than in the compared species; postscutellum polished; area dorsalis on propodeum highly polished, areas outside the enclosure transversely finely rugoso-striate, mixing fine punctures; posterior inclination finely, sparsely punctured, on apical portion irregularly rugose, sides of propodeum transversely finely striate, the striae weak, especially on central area and whole the surface nearly smooth and shining. Abdomen practically impunctate, only on sides of apical margin of each sternite more or less coarsely punctured; area Pygidialis very minutely coriaceous and scattered sparsely with medium-sized hair-bearing punctures, the punctures apically closer and slightly smaller.

♂, unknown.

Holotype: ♀, Charbin, 9. VII. 1944, W. Alin leg.

Remarks. In the specimen the left antenna and the right tibiae and tarsi of mid and hind legs are lacking.

20. *Crossocerus* (*Coelocrabro*) *pubescens* (Shuckard, 1837)

Crabro (*Crossocerus Coelocrabro*) *pubescens*: Kohl, Ann, k. k. Naturh. Hofmus. Wien, 29: 228, 1915.
Crossocerus (*Coelocrabro*) *pubescens*: Leclercq, Monogr. Crabro,, p. 234, 1954.
Crossocerus (*Coelocrabro*) *pubescens*: Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 3 (3): 63, 1954; Life Study (Fukui), 3 (4): 70, 76, 1959.

Specimen examined: 1 ♀, Charbin, 20. V. 1944, W. Alin leg.

21. *Crossocerus* (*Coelocrabro*) *ambiguus hokkaidoensis* Tsuneki, 1954

Crossocerus (*Coelocrabro*) *ambiguus hokkaidoensis* Tsuneki, Mem. Fac. Lib. Arts, Fukui Univ., II, 3 (3): 78, 1954; Life Study, 3 (4): 69, 74, 1959.

Specimens examined: 1 ♀ 1 ♂, Charbin, 30. V. 1950, W. Alin leg.

Remarks. The present subspecies (♀♂) differs from the nominate form mainly in having the occipital carina much weaker, extending closer toward the buccal carina and ending smoothly beneath head, without producing into a tooth at each end.

This subspecies has been known from Japan (Hokkaido — Jozankei — and Central Japan — Nikko and Fukui —) and Saghalien only by the female specimens and this is the first discovery from the Asiatic Continent. The male made the first record of the subspecies. Its character lies in the structure of the occipital carina as in ♀, having the clypeus and the front legs much the same as in the nominate form.

22. *Crossocerus* (*Coelocrabro*) *verhoeffi* sp. nov.

This species (♂) is closely related to *Crossocerus amurensis* Kohl (especially in the structure of the 7th sternite), differing from it, however, in the structure of the pronotum, in the shorter antennal joints, in the presence of the lateral carinae on the posterior aspect of the propodeum, in the sculpture of this aspect, in the more rodust median tubercle as well as the lateral appendages of the 7th sternits and in the longer hairs on the head and thorax.

♂. Length 6.5 mm. Black. Yellow are: Antennal joint 1 on sides, front tibiae in front, a spot at base of mid tibiae, and basal broad ring of hind tibiae. Mandibles on apical portion, palpi, tegulae of wings, apical portion of end tergite and tarsi of legs brown; hind metatarsi and tibial spurs yellowish pale brown. Wings hyaline, stigma and veins brown. Clypeal pubescence silvery, antennal flagella beneath with a fringe of short curved pubescence; hairs on upper frons, occiput, temples below, pro- mesonotum, mesopleurons long but sparse and white in colour.

Head from above (Fig. 23) similar in form to that of *C. amurensis*, ♂, but the surface not so depressed, with the ocellar region and sides of the frontal furrow rather gently roundly raised, frontal impressions similar in situation as well as in form. OOD : POD = 8 : 5, posterior ocellus as wide as POD, occipital margin distinctly carinated, smoothly ending beneath head far apart from the buccal carina. Clypeus: Fig. 24 (in *amurensis* more or less varied with individual). Head in profile similar to that of *amurensis*. with temple comparatively thick, ratio of length and width of eye and width of temple = 6 : 4 : 3. Antennal joint 1 about twice as long as interocular distance at base of clypeus, joints 3 and 4 with relative length 5 : 4, joint 3 approximately 1.6 times as long as wide at apex, joint 4 slightly longer than wide, ultimate joint normally attenuate, apically flattened and rounded at apex in the lateral view. Pronotum (Fig. 25), without notch on lateral margin, mesonotum roundly convex, without striae on apical margin, scuto-scutellar furrow coarsely crenate. Area dorsalis semicircular, large, occupying nearly whole the dorsal aspect, marginated at base with a broad deep acutely outlined crenated furrow, on apical margin with a dotted line, the dots except the medio-apical ones not large, less deep and gradually smaller

and shallower laterally, and at the latero-basal areas rather indistinct; medial longitudinal furrow deep, broad, slightly narrowed apically, clearly outlined by fine carinae and feebly crenulated on bottom; posterior inclination with a deep longitudinal furrow in middle, broader than that of dorsal aspect, sharply outlined, triangular in cross section, apically narrowed, ending after running for about 2/3 of the area, from apex of the furrow stretched a strong carina to the apical margin which is transverse and much more stoutly carinated; lateral margins bordered from the sides of the segment by distinct carinae, the carina anteriorly somewhat weaker, accompanied inside with a crenate furrow and reaches about 1/4 from base where it is nearly in touch with the lateral dotted line of the area dorsalis, far apart inward from the stigmata. Structure of mesopleuron similar to that of *amurensis*, with epicnemial carina distinct, with the precoxal tooth merely angularly produced, but the longitudinal epimeral furrow deeper, and the anterior oblique furrow broader and more coarsely foveolate. Abdominal segment 1 slightly longer than wide at apex (about 30 : 25), caudal tergite broad triangular, with apex truncate, without pygidial area; opaque areas on sternite 2 similar in from, size and situation as in *amurensis*, but much weaker, less opaque, defined only with some difficulty. Structure of sternite 7: Fig. 26. Legs also similar to those of *amurensis*; hind tibia strongly clavate, with a few spines having each basal triangular elevation externally, the following metatarsus also slightly incrassate as in this, but the front femora apparently somewhat thicker and hind tarsus relatlvely slightly longer. Wing venation similar to that of *amurensis*.

Upper frons finely, rather sparsely punctured, vertex and pronotum with much finer hair points more sparsely scattered, practically impunctate; mesonotum, scutellum, postscutellum and mesopleurons sparsely, finely, but more distinctly punctured (averged intervals 2–4 times as wide as punctures), metapleurons without puncture, highly polished. Area dorsalis with disc smooth and polished, posterior inclination with vague shallow punctures, not smooth as in *amurensis*, only on medial area more or less smooth, sides of the segment polished, upper portion only with fine punctures and weak irregular rugae, rather opaque. Abdominal tergites provided with only very fine hair-points (practically impunctate) the points posteriorly turning somewhat more distinct; sternites 1–3 smooth and shining, with very sparse minute hair-points, sternites 4–7 very finely coriaceous.

♀. Unknown.

Holotype: ♂, Charbin, 9. VII. 1949, W. Alin leg.

Remarks. In *amurensis*, ♂, the clypeus somewhat varies in form of the anterior margin with the specimens, usually with a small lateral emargination (depth varied), but sometimes without. Therefore, in this species it is uncertain whether the form given in Figure 24 is a constant feature or not.

23. *Crossocerus* (*Crossocerus*) *wesmaeli* (Van der Linden, 1829)

Crabro (*Crossocerus*: *Crossocerus*) *Wesmaeli*: Kohl, Ann. k. k. Naturh. Hofmus. Wien, 29: 258, 1915.
Crossocerus (*Crossocerus*) *wesmaeli*: Tsuneki, Mem. Fac. Lib. Arts, Kukui Univ., II, 3 (3): 65, 74, 1954.
Crossocerus (*Crossocerus*) *wesmaeli*: Leclercq, Monogr. Crabro., p. 226, 1954.
Crossocerus (*Crossocerus*) *wesmacli*: Tsuneki, Life Study (Fukui), 3 (4): 71, 74, 1959.

Specimen examined: 1 ♀, Charbin, 30. V. 1950, W. Alin leg.

Remarks. In this specimen the clypeus carries two large yellow maculae. Such a form rarely occurs also in Japan. Punctures on the head and thorax are finer and much sparser than in the European specimens which are in this respect in turn finer and sparser than in the Japanese representative.

24. *Crossocerus* (*Crossocerus*) *exiguus* (Van der Linden, 1829)

Crabro (*Crossocerus*: *Crossocerus*) *exiguus*: Kohl, Ann. k. k. Naturh. Hofmus. Wien, 29: 269, 1915.
Crabro (*Crossocerus*) *exiguus*: Gussakovskij, Ark. Zool., 24 A (10): 25, 1932 (3 ♂♂, Wladiwostok).
Crossocerus (*Crossocerus*) *exiguus*: Leclercq, Mongr. Crabro., p. 227, 1954.

Specimen examined: 1 ♂, Charbin, 25. VI. 1950, W. Alin leg.

Remarks. This species has not been known to occur in Korea and Japan.

25. *Lindenius* (*Lindenius*) *albilabris manchurianus* subsp. nov.

♂. Differs from the nominate form in that the flagellar joints of antennae with the tyloidea on the underside much less strong, on apical portion almost unobservable; frontal medial furrow weaker and punctures on mesonotum and mesopleurons somewhat closer.

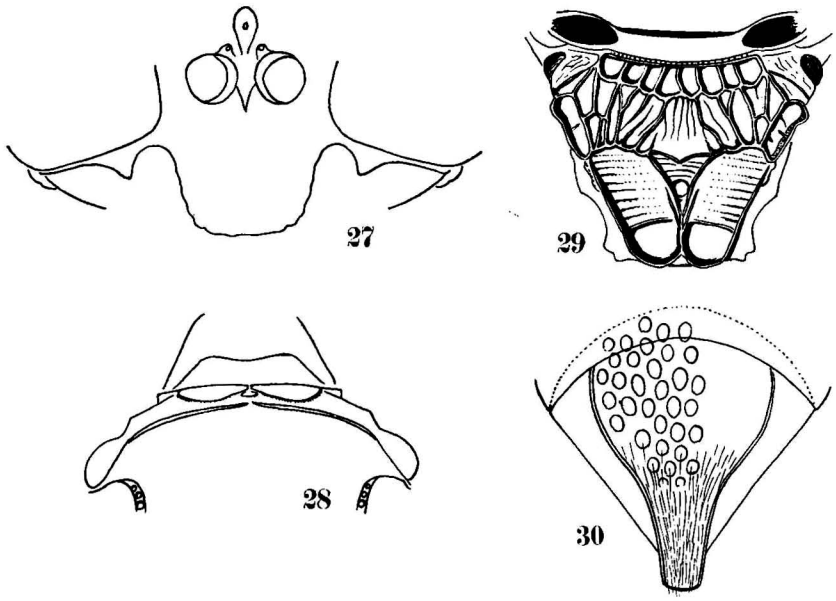
♀, unknown.

Holotype: ♂, Charbin, 15. VII. 1943, W. Alin leg.

Remarks. *Lindenius albilabris* (Fabr.) was already known from N. Kores with the single female specimen (Tsuneki: Akitu, 6: 62, 1957), but does not occur in Japan.

26. *Lindenius* (*Trachelosimus*) *harbinensis* sp. nov.

Belonging to *panzeri*-group and seems closest to *latebrosus* Kohl known from Irkutsk, differing from it, however, mainly in the form of the pygidial area (in this respect similar to *panzeri*), in the structure of pronotum (differing from *panzeri* accordingly) and more or less in the sculpture on the sides of propodeum (intermediate state between the two compared) and somewhat in colour of the thorax.



Figs. 27–30. *Lindenius* (*Trachelosimus*) *harbinensis* sp. nov., ♀.
27, Clypeus. 28, Pronotum. 29, Propodeum. 30, Pygidial area.

♀. Length about 6.0 mm. Coloration similar to that of *panzeri*, but antennal scape with pale brownish flecks on inside and without macula on scutellum.

Head from above with the form as in *panzeri*, but the broad median impresseion in front of

anterior ocellus almost disappears at the turning area of upper front; contour on vertex also apparently somewhat weaker. Interocular distance at base of antennae less than as long as antennal scape (excluding the joint tubercle) (nearly 16 : 13), oculo-antennal distance slightly larger than interantennal distance. Clypeus (Fig. 27) similar to that of *latebrosus* (Pl. 1, fig. 3 in Kohl's monogr.), with anterior margin of the median lobe more rounded and much narrower than in *panzeri*. Antennae apparently slightly slenderer; occipital carina rather abruptly terminate at the ends beneath head, but not toothed. Pronotum (Fig. 28) with the anterior raised area much narrower, its lateral carinae less strong and running down the sides of the pronotum further apart inwards from the end tubercles of the lateral depressed areas, the tubercles much weaker, merely angulate elevations, not dentate as in *panzeri*. Structure of propodeum and abdomen generally similar, but the pygidial area (Fig. 30) apically markedly narrowed, with lateral margins strongly sinuate, apparently more strongly so than in *panzeri* and on apical portion covered with silvery (not golden as in *panzeri*) hairs. Wing venation and legs as in *panzeri*.

Punctures on mesonotum slightly larger, somewhat sparser and more regular than in the compared species, in part longitudinally weakly confluent; on mesopleuron anterior oblique furrow more distinct, deeper, coarsely crenate, punctures sparser, finer, with the surface more shining, but turning gradually larger and closer below. Sculpture on propodeum (Fig. 29) generally similar to *panzeri*, but the basal crenate furrow more distinct, with striae on area cordata weaker, on its medio-apical portion the striae sparser, not reaching apex, leaving a nearly flattened and polished area there; posterior inclination transversely striate on its sides and apex, on medial region smooth and nearly polished, with a few scattered punctures; lateral carinae stronger and longer than in *panzeri*, but upwards weaker and accompanied outside with a coarsely foveolate furrow; sides of the segment smooth and polished on central area, obliquely finely striate on upper and lower areas. Pygidial area covered with close large punctures.

♂. unknown.

Holotype: ♀, Charbin, 15. VII. 1943, W. Alin leg.

Remarks. The specimen is apparently much less robust than those of *panzeri*.

27. *Entomognathus* (*Entomognathus*) *brevis* (Van der Linden, 1829)

Crabro (*Entomognathus*) *brevis*: Kohl, Ann. k. k. Naturh. Hofmus. Wien, 29: 316, 1915.
Crabro (*Entomognathus*) *brevis*: Yasumatsu, Trans. Kansai Ent. Soc., 9 (2): 14, 1939 (Central Manchuria — Changchun —).
Crabro (*Entomognathus*) *brevis*: Tsuneki, Jour. Fac. Sci. Hokkaido Univ., VI, 9 (4): 428, 1947 (Hokkaido).
Entomognathus (*Entomognathus*) *brevis*: Leclercq, Monogr. Crabro., p. 200, 1954.

Specimens examined: 3 ♀♀ 9 ♂♂, Charbin (3 ♀♀ 5 ♂♂, 15. VII. 1943; 3 ♂♂, 9. VII. 1944; 1 ♂, 1. VIII. 1945; 1 ♂, 10. VII. 1949), leg. W. Alin.

28. *Rhopalum* (*Latrorhopalum*) *laticorne* (Tsuneki, 1947)

Crabro (*Rhopalum*) *latronum*: Gussakovskij, (nec Kohl) Ark. Zool., 24 A (10): 27, 1932 (Ussuri).
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Specimens examined: 1 ♂, Charbin, 10. VII. 1949; 2 ♂♂, Charbin, 25. VI. 1950, W. Alin leg.

Remarks. The discovery of this species in Manchuria is the westernmost record of its distribution.