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Crabronidae-Fauna of Korea  
(Hymenoptera)

By

Katsuji Tsuneki

(With one Textfigure)

There has been no report on the Crabronidae from Korea, which represents an interesting group of Aculeate Hymenoptera because of abundance of forms and of varieties of the habits. I had a chance to study on them these three years during my residence on the peninsula. The species given in this paper are based mainly upon the materials gathered by myself, though those published fragmentarily in the previous literature are also included. The habits of these species will be reported in another paper.

The material here dealt with indicates some representatives of the group in Korea, because they were collected in the restricted place and the limited time. Notwithstanding the scanty of the materials they show some interesting facts with regard to the distribution of the group; they will serve, to some extent, to fill the blank page left untouched and to connect the Fauna of Japan proper to that of the continent.

My hearty thanks are due to Prof. Tohru Uchida for his kind helps rendered in the course of the present study and for reading through the manuscript. My cordial thanks must be also extended to Assistant Prof. Keizo Yasumatsu of the Kyushu Imperial University who kindly explained me his view on the classification of the Genus *Crabro* s. l. I am greatly indebted to Mr. Munemoto Yano in Tokyo and Prof. Tōichi Uchida, Assistant Prof. Chihisa Watanabe and Mr. Shōzō Fukushima of the Department of Agriculture of the Hokkaido Imperial University for giving me opportunities for

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consulting the literature.

The references of each species are confined mostly to those relating to Korea.

In the following list, \* shows the species new to the Fauna of Korea, \*\* new to Japan and † those already recorded.

1. *Crabro (Crabro) konowii* Kohl (1905).

*Crabro konowii* Iwata, Ins. Mats., Vol. XII, No. 2 & 3, p. 81, 1938 (Corea).

*Crabro (Crabro) konowii* Tsuneki, Tôkô (Report of the scientific Expedition to Mt. Hakutô, undertaken by the Government General of Chosen), p. 156, 1943.

13 ♂ ♂ 2 ♀ ♀, 3. VIII. 1942 (Hakutô-san, Kankyôhokudô); 7 ♂ ♂ 2 ♀ ♀, 19. VII. 1943 (Nansetsu-rei, Kankyohokudô); 2 ♂ ♂ 1 ♀, 20. VII. 1943 (Daitaku, Kankyôhokudô).

This species has hitherto been known from East Siberia (Transbaikal and the Ussuri region), Manchuria, Korea and Japan (Saghalien, Kuriles, Hokkaidô and Honshu).

2. *Crabro (Crabro) spinipes* A. Morawitz (1866).

*Crabro (Crabro) spinipes* Tsuneki, Tôkô, p. 156, 1943.

6 ♂ ♂ 1 ♀, 3. VIII. 1942 (Hakutô-san); 1 ♀, 23. VII. 1943 (Nansetsu-rei); 1 ♀, 4. VIII. 1943 (Shôyô-zan, Keikidô).

This species is widely distributed over Europe, Siberia (including Amur) and Japan (Saghalien, Hakkaidô and Honshu).

3. *Crabro (Crabro) martjanowii* F. Morawitz (1892).

*Crabro (Crabro) martjanowii* Tsuneki, Tôkô, p. 156, 1943.

29 ♂ ♂ 17 ♀ ♀, 27. VII. 1942 (Hakuto-san); 42 ♂ ♂ 4 ♀ ♀, 19-24. VII. 1943 (Nansetsu-rei); 2 ♀ ♀, 21. VII. 1943 (Daitaku).

This species has hitherto been found from Siberia (Minusinsk), Korea and Japan (Saghalien, Hohshu).

†4. *Crabro (Crabro) iridifrons* Pérez (1905).

*Crabro iridifrons* Iwata, Trans. Kansai Entom. Soc., IV, p. 8, 1934 (Kongô-san, Kogendô).

This species has hitherto been known from Korea and Japan (Hokkaidô, Honshu, Kyushu).

- †5. *Crabro (Crabro) chrysites* Kohl (1892).  
*Crabro chrysites* Iwata, Trans. Kansai Entom. Soc., IV, p. 8,  
 1934 (Oosenji.....? Hosenji, Kôryô, Keikidô).

This species has hitherto been known from Formosa, the Riukiu-Islands, Korea and the Ussuri region.

6. *Crabro (Clytochrysus) cavifrons* Thomson (1870).  
*Crabro (Clytochrysus) cavifrons* Tsuneki, Tôkô, p. 156, 1943.  
 1♂, 3. VIII. 1942 (Hakutô-san); 18♂♂, 9. V. 1943 (Kôdai-san,  
 Kôgendô); 4♂♂, 23. VII. 1943 (Nansetsu-rei).

This species is widely distributed over Europe, Siberia, Korea and Japan (Saghalien, Kuriles, Hokkaidô, Honshu and Sikoku).

- \*7. *Crabro (Clytochrysus) planifrons* Thomson (1870).  
 1♂, 25. VII. 1942 (Hakutô-san); 2♂♂, 3. VIII. 1942 (Daihyô-ri,  
 Kankyonandô); 3♂♂, 20. VII. 1943 (Daitaku); 20♂♂1♀, 23, 24.  
 VII. 1943 (Nansetsu-rei).

This species is also widely distributed over Europe, Siberia and Japan (Saghalien, Hokkaidô and Honshu).

- \*8. *Crabro (Clytochrysus) nigritarsus* Herrich-Schaeffer (1841).  
 1♂, 7. VI. 1942 (Shôyô-zan).

This species has hitherto been known from Europe, Siberia (Altai, Ussuri) and Japan (Saghalien, Hokkaidô, Honshu), but the species is rather rare.

The example captured at Shôyô-zan shows the following coloration. Black. Anterior face of the scape of antennae, an elongate lateral spot on the tergites 2-4, a band on 5 and 6 of abdomen and a large macula on the outer face of the hind tibiae yellow. Front tibiae and the subsequent 4 segments of tarsi brown.

- \*9. *Crabro (Clytochrysus) furuichii* Iwata (1934).  
 1♀, 25. VI. 1943 (Shôyô-zan).

This rare species has been recorded only from Japan proper.

10. *Crabro (Solenius) continuus* (Fabricius, 1805).  
*Solenius vagus* Iwata, Trans. Kansai Entom. Soc., IV, p. 11,  
 1933 (Chosen).

*Crabro (Solenius) vagus* Tsuneki, Tôkô, p. 156, 1943.

4♂♂1♀, 27. VII. 1942 (Hakutô-san); 5♂♂5♀♀, 20. VII. 1943 (Daitaku); 5♂♂4♀♀, 23, 24. VII. 1943 (Nansetsu-rei).

This species is very common throughout the Palaearctic region.

\*11. *Crabro (Solenius) schlettereri* Kohl (1888).

5♂♂32♀♀ (Shôyô-zan); 2♂♂8♀♀ (Temma-san); 2♂♂3♀♀ (Keijô); 2♂♂ (Kôdai-san, Kôgendô).

This is one of the commonest species of the Genus in Korea.

One female example captured at Temma-san, near Keijô, shows the following aberration in the sculpture:

The longitudinal keel that separates the posterior slope of the median segment from its side (one of the important character of this species) ill-defined, almost disappears; and the punctuation on the dorsal segments of abdomen is very fine, especially on the 2nd, 3rd and 4th where it is as delicate as in *continuus* Fabricius. But the 1st tergite is distinctly punctured and the other characters all agree well with those of *schlettereri*.

Such aberrant form is more frequently found in the male, especially among the examples from Keijô district and in which we can find almost every grade of variety in the punctuation on the abdomen.

†12. *Crabro (Solenius) laevigatus* (Destefani, 1884).

*Crabro (Solenius) laevigatus* Yasumatsu, Mushi, Vol. XIV, No. 2, p. 88, 1942. (Onsei-ri, Kôka-islet, Keikidô).

This species is distributed over the wide range of the Palaearctic region and a part of the Oriental region. In the Japanese Empire it has hitherto been found from the Riukiu Islands and Korea.

13. *Crabro (Solenius) nielseni* Kohl (1915).

*Solenius nielseni* Iwata, Trans. Kansai Entom. Soc., IV, p. 10, 1934 (Seiryô-ri).

1♂1♀, 27. VIII. 1943; 1♂4♀♀, 17 IX. 1943 (Shôyô-zan).

This species has been recorded from North China (Harning and Tsingtau) and Korea.

\*14. *Crabro (Ectemnius) nigrinus* Herrich-Schaeffer (1841).

6♂♂2♀♀, 19, 24. VII. 1943 (Nansetsu-rei); 1♂1♀, 20. VII. 1943 (Daitaku); 1♂, 22. VII. 1943 (Kusshō, Kankyōhokudō).

The coloration of the species is variable. Most of the Korean examples bear the following yellow marks: Basal half of mandibles, scape of antennae except the proximal two-thirds on the posterior margin, humeral angles, an elongate lateral spot on the abdominal tergites 2-5 which becoming smaller posteriorly, anterior face of front- and mid-, and a greater parts of the hind-tibiae.

This species is widely distributed over Europe, Siberia, Saghalien and Kurile Islands, but rather rare. This is the first record of the species from Korea.

\*15. *Crabro (Ectemnius) dives* (Lepelletier et Brullé, 1834).

2♂♂1♀, 20-24. VII. 1943 (Nansetsu-rei).

This species is also widely distributed throughout the northern parts of the Palaearctic region. In the Far East it has hitherto been known from Amur, Ussuri, Saghalien, Hokkaido, Honshu, and is new to the fauna of Korea.

16. *Crabro (Clypeocrabro) camelus* Eversmann (1849).

*Crabro (Thyreus) camelus* Tsuneki, Tōkō, p. 156, 1943.

3♂♂1♀, 4. VIII. 1942 (Hakutō-san); 1♂, 19. VII. 1943 (Nansetsu-rei).

This species has been found from Turkey (Angora), Siberia (Ural, Transbaikalia), Korea, Saghalien and Hokkaidō.

\*17. *Crabro (Clypeocrabro) reiteri* Kohl subsp. *kuramensis* Iwata (1938).

1♀, 4. VIII. 1942 (Jimmujō, Hakutō-san).

Following Kohl (1915), the clypeus of this species: "am Ende mit einem schmalen Ausschnitte, Seitenzähne kann ich keine wahrnehmen." On a careful examination, I found a lateral tooth near the base, hidden under the pile which is rather small in size and pointed at the apex.

*Crabro reiteri* Kohl has hitherto been found only from Japan (Hohshu and Hokkaidō). This is the first record of the species from the continent.

18. *Crabro (Ceratocolus) alatus* Panzer (1938).

*Ceratocolus alatus* Iwata, Trans. Kansai Entom. Soc., IV, p. 12, 1933 (Kainei).

*Crabro* (*Ceratocolus*) *alatus* subsp. *basalis* Iwata, Ins. Mats., Vol. XII, no. 2 & 3, p. 84, 1938.

*Crabro* (*Ceratocolus*) *alatus* Tsuneki, Trans. Kansai Entom. Soc., Vol. XII, Pt. 1, p. 54, 1942.

*Crabro* (*Ceratocolus*) *alatus* Tsuneki, Tôkô, p. 156, 1943.

10 ♂♂ 1 ♀, 14. VI, 5 ♂♂ 11 ♀♀, 20. VI. 1941 (Keijô); 1 ♀, 25. VII. 1942 (Daihyô-ri, Hakutô-san), 3 ♀♀, 10. VI. 1943 (Shôyô-san); 2 ♂♂, 27. VI. 1943 (Kôdai-san).

Following Dr. K. Iwata, the example from Korea which he examined is reddish brown on the basal abdominal segment and should be referred to subsp. *basalis* Smith. But this is not the case in the specimens of my collection. They show more or less tendency for changing from black to brown on the segment. This, with other characters, agrees with the interpretation of var. *japonicus* Schulz.

This species is very common and widely distributed over Europe, Siberia, North China (subsp. *basalis* Smith), Manchuria (subsp. *basalis* Smith), Korea and Hokkaido (subsp. *japonicus* Schulz).

†19. *Crabro* (*Ceratocolus*) *heros* Kohl (1915).

*Crabro* (*Ceratocolus*) *heros* Kohl, Ann. k. k. naturh. Hofm., XXIX, p. 120, 1915.

This species has been known only from Korea and Hokkaido.

\*\*20. *Crabro* (*Thyreopus*) *cribrarius* (Linné, 1758).

*Vespa cribraria* Linné, Syst. nat., Ed. 10, I, p. 573, No. 6, 1758.

*Crabro* (*Thyreopus*) *cribrarius* Kohl, Ann. k. k. nat. Hofm., Wien, XXIX, p. 82, 1915.

4 ♂♂, 23, 24. VII., 2 ♀♀, 19, 24. VII. 1943 (Nansetsu-rei).

Among 4 males captured at Nansetsu-rei, 3 bear no yellow marking on the thorax and agree with the description of subsp. *inornatus* Mocsáry, whereas 1 bears two yellow spots on the scutellum. 2 female examples collected at the same place have a band (interrupted in the middle) on the pronotum and a large marking on the scutellum. This state indicates that the character which separates *inornatus* Mocsáry from the typical form is of little significance.

*Crabro cribrarius* Linné is said rather common in Europe. It has also been known from Caucasus, South Siberia and North Mongolia. Korea comes the easternmost record of the distribution of the species.

21. *Crabro (Thyreopus) koreanus* sp. nov.

This new species closely resembles *C. (Thyreopus) peltarius* Schreber, but differs from the latter in the punctuation on the front and relative length of the 3rd joint of antennae. The species also nearly related to *C. (Thyreopus) okabei* Yasumatsu,\* but can be distinguished by the relative length to width of the 3rd and 4th joints of antennae, by the sculpture on the median segment, by the punctuation of the abdominal tergites and by the coloration on the head and thorax.

♂. Black. Outer face of the mandibles near the base faintly, two spots on the clypeus, anterior face of the scape of antennae, two small spots on the pronotum, humeral angles, an elongate lateral marking on the tergites 1-5 of abdomen, of which those on the 2nd are the largest, those on the 4th are almost confluent with each other and those on the 5th very small and obsolete, front- and mid-tibiae except the inner face, outer face of hind tibiae, all metatarsi and the 2nd segment of mid tarsi yellow. One example without yellow marks on the mandibles, clypeus and pronotum. Tegulae, veins of wing and remaining segments of tarsi ferruginous brown. Pubescence on the front and clypeus silvery, on the pygidium golden.

Mandibles bluntly bidentate at the apex, bearing no tooth on the inner margin, merely with a gentle swelling near the base. Clypeus broadly porrect, with the lateral margin convergent anteriorly; apical margin gently rounded with a small and feeble emargination near the side, with the lateral angles obtused. The length of the clypeus in the middle is about half as long as the scape of antennae. Eyes below almost reach the base of mandibles and inwardly the socket of antennae; the distance between them at the base of antennae much more than half the length of antennal

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\* Yasumatsu, K. A new species of *Crabro* from North China. (*Dôjinkai Igaku Zasshi*, Vol. XVIII, No. 9, p. 1, 1944). (In Japanese)

scape. Antennae rather stout, with the scape slightly swollen beyond the middle; the 3rd joint nearly 2.3 times as long as broad at the apex, 1.7 times as long as the 4th. The latter 1.3 times as long as broad at the apex. Ocelli in an isosceles triangle, much widest at the base. Oculocellar space (s. the distance between the eye and one of the postocelli, the diameter of ocellus not being taken into account), postocellar space (s. the distance between the inner margins of postocelli) and ocelloccipital space nearly equal with one another. Occipital carina distinct, not ending into a tooth on the underside of the head. Pronotum well developed, with the anterolateral angles very minutely prominent and with a narrow longitudinal groove in the middle. Mesonotum medio-anteriorly slightly depressed, with a longitudinal groove at the bottom. Mesopleuron with the episternal furrow deep and distinct and coarsely crenate, with the outer margin of the epicnemium acutely carinated, and without an enclosed area just in front of the mid coxa. Median segment dorsally with a wide longitudinal furrow in the middle, which extends to the posterior slope of the segment and deepend; area cordata indistinct, not enclosed by the furrow, but barely definable by the difference of the sculpture. Tibiae of all legs bear a few spines apically on the outer margin; front basitarsi also with 5 or 6 spines outwardly.

Front covered closely with moderate-sized punctures, with the intervals microscopically finely sculptured and slightly opaque. Punctuation on the ocellar area minute and dense, on the vertex posteriorly sparser but distinct, on the temples above compact and irregular, below minute and very sparse. Frontal impressions (superorbital foveae) large, but ill-defined, represented merely by the smoothed area. Punctures on the pronotum very feeble and indistinct, on the mesonotum moderately large and close, but sparser posteriorly; on the scutellum sparse. Furrows between mesonotum and scutellum and between this and metanotum deep and crenate. Mesopleuron much sparsely but distinctly punctured; the area above the transpleural suture transversely (vertically) and feebly striate, epicnemium on the upper portion coarsely and longitudinally striate. Metapleuron sparsely punctured. Area cordata on the median segment very coarsely and irregularly reticulated at the base, with a few strong carinae running obliquely posteriorly; rest of the dorsal

area irregularly, minutely and feebly reticulate; posterior slope of the segment, separated clearly by the transverse carina from the dorsal area, feebly and transversely striated, with some strong carinae below near the abdomen. Abdominal tergites 1-3 without puncture, 4 minutely and closely, 5 slightly largely and much more closely punctured, 6 (pygidium) rather coarsely and irregularly reticulate except the marginal portions. Sternites of abdomen almost impunctate, with a few very large punctures scattered near the apex of each segment. Length, 10.5-12 mm.

♂. Unknown.

Holotype: ♀, Paratype: 1 ♀, 7. VI. 1943 (Shôyô-zan)

\*22. *Crabro (Blepharipus) vagabundus* Panzer f. *quadricinctus* Dahlbom (1845).

3 ♀ ♀, 7, 14, 16. VII. 1943 (Keijô).

The examples from Korea belong to the bright coloured form. The yellow marks are: mandibles, scape of antennae, pronotum, humeral angles, a small spot on the antero-lateral portion of the mesonotum, episternum of mesopleuron, basal half of the scutellum and antero-lateral spot on it, two large rounded markings on the area cordata, a small spot on each side of the 1st abdominal tergite (often without), the transverse band on the tergites 2-5 of which those on the first two are medially narrowly interrupted, apices of coxae, trochanters and femurs of legs, tibiae except the brown macula apically on the inner margin and all tarsi.

This species is widely distributed over the wide range of the Palaearctic region. In the Far East it has been known from Amur, Ussuri, Saghalien, Hokkaido and Honshu and is new\* to the fauna of Korea.

\*23. *Crabro (Cuphopterus) dimidiatus* Fabricius (1781).

1 ♂, 29. IV, 1 ♂ 1 ♀, 9. V. 1943 (Kôdai-san); 1 ♂, 7. VI. 1943 (Keijô); 1 ♂, 24, 1 ♀, 19. VII. 1943 (Nansetsu-rei).

Coloration of the examples from Korea variable, usually not bright. In the darkest-coloured examples the yellow marks are as follows: front face of the antennal scape, a lateral spot on the tergites 3 (large) and 4 (small) of the abdomen, anterior face of front-, outer face of mid-, and a spot on the distal portion of the outer face of hind-tibiae.

This species is common in Europe, but in Asia it has hitherto been known only from Japan proper, Hokkaido and Kurile Islands, and is new to the fauna of Korea.

\*24. *Crabro (Coelocrabro) cinxius* Dahlbom (1838).

1 ♀, 23. VII. 1943 (Nansetsu-rei).

This species occurs commonly in Europe, but in Asia it has been found only from Japan proper and Hokkaido.

\*\*25. *Crabro (Coelocrabro) podagricus* v. d. Linden (1829).

*Crabro podagricus* v. d. Linden, Nouv. Mém. acad. sc. Bruxelles, V, p. 60, No. 23, 1829.

*Crabro (Coelocrabro) podagricus* Kohl, Ann. k. k. Naturh. Hofm., Wien, XXIX, p. 240, 1915.

1 ♀, 23. VII. 1943 (Nansetsu-rei).

This species has been known only from Europe, this is the first record of the species from Asia.

\*26. *Crabro (Crossocerus) pacificus* Gussakovskij (1933).

*Crabro (Crossocerus) pacificus* Gussakovskij, Arkiv för Zoolog., 24 A, No. 10, p. 25, 1933.

4 ♂♂ 3 ♀♀, 27. IX. 1942; 2 ♂♂, 20, 1 ♂, 22. V. 1943; 2 ♀♀, 1. X, 3 ♀♀, 11. X. 1943 (Keijō).

The female of this species has hitherto been unknown.

♀. Black. Outer face of the scape of antennae yellow. Palpi apically, outer margin of front-, a basal spot of mid-, and the basal ring of hind-tibiae and tibial spurs of all legs dirty white. Tegulae brown; tarsi light brown, basally paler.

Mandibles bidentate at the apex, carrying no tooth on the inner margin. Clypeus broadly produced, with the lateral margin convergent apically, with the anterior border broadly rounded as in ♂. Frontal longitudinal line evident but not deep. Frontal impressions not well-defined. Ocelli in an equilateral triangle. Oculocellar space slightly broader than postocellar space (nearly 6:5). The 3rd joint of antennae about 1.7 times as long as broad at the apex, and a little shorter than the subsequent joint. Pronotum anteriorly with transverse edge, with the antero-lateral angles rounded. On the mesopleuron episternal furrow distinct, coarsely crenate. The mesopleural tooth just anterior to the mid coxae ill-defined, only faintly

angulated. Mesosternum not so deeply hollowed as in ♂, nor covered with silvery pubescence. The sculpture on the area cordata of the median segment as in the typical case in ♂, viz. enclosed distinctly by the crenate furrow and at the base coarsely notched, and on the remaining portions finely and obliquely striated. Pygidial area triangular, with about 15 large punctures. Ventral plate of the 5th abdominal segment apically without any special emargination.

Punctuation similar to ♂. Length, 6-8 mm.

Following Gussakovskij, the sculpture on the area cordata of this species ♂ is quite peculiar, and chiefly by that character the species is separated from *emarginatus* Kohl ♂ from North Mongolia, to which it is very similar in other characters. Following him, the surface of the area in *pacificus* is not "ziemlich glatt" as in *emarginatus* ♂, but "—ad basin impressa et rugis crassis longitudinalibus nonnullis notata, parte reliqua subtiliter striato rugosa, sulco mediano sat lato et profundo, infundo transverse rugoso."

On a careful examination of the examples of ♂ from Korea, I found that the sculpture on the area dorsalis is fairly variable. Although the basal coarse crenate notching is always present, it is variable in number as well as in size. The fine oblique striae on the remaining portions are much more variable. Sometimes it is finely and closely rugulose and the surface becomes opaque, sometimes it is very fine and few in number and the surface becomes "ziemlich glatt." The sides of the segment are, following Gussakovskij, "levis", whereas all the examples I examined are finely, closely and longitudinally striated; in some specimen, however, the striae becoming more or less obscure in the middle part and shining. The other special character in *pacificus*, viz. a yellow macula beneath the mouth, near the base of mandible is always found in all the Korean examples, but it seems that the maculae are apt to be overlooked.

From the observations mentioned above, it is desirable to re-examine the type of *emarginatus* Kohl.

*C. pacificus* is known from Ussuri, Saghalien (Kaiba Island) and Riukiu (Yakushima), and is new to the fauna of Korea.

†27. *Crabro* (*Crossocerus*) *denticrus* (Herrich-Schaeffer 1841).

*Crabro* (*Crossocerus*) *denticrus* Yasumatsu, Mushi, Vol. XIV, No.

2, p. 90, 1942 (Mozan).

This species was known from Algeria, Europe, North Manchuria, Korea and Japan proper.

28. *Crabro (Rhopalum) laticornis* sp. nov.

*Crabro (Rhopalum) latronum* Gussakovskij (nec Kohl), Ark. f. Zool. Bd. 24A, No. 10, pp. 27-28, Fig. 9, 10, 11 et 12, 1933.

♂. Body densely covered with very short, velvety white pubescence. Pubescence on the clypeus and frons much denser and silvery. Posterior margin of each sternite of abdomen with long hoary white hairs. Mandibles outwardly with long brownish hairs sparsely. Anterior margin of labrum with short, stiff brown hairs.

Black. Scape of antennae except a large macula on the inner margin, humeral angles, basal ring of all tibiae, a stripe on the outer face of front tibiae and often apex of all tibiae cream-yellow. Antennal flagella excepting the basal and apical portions above orange-yellow. Front and mid tarsi except the terminal segment and base of hind metatarsi pale yellow. Mandibles, tegrae of wings, inner face of front tibiae and distal segment of front tarsi ferruginous. Wing-veins and hind tarsi dark brown, often the base of each hind tarsal segment paler. Wings brownish, with the base much paler and with the radial cell anteriorly much darker.

Mandibles bifid at the apex. Clypeus broadly porrects, with anterior margin rather bluntly 4-dentate, the median pair of which much produced; on the upper surface bearing medially an obtused carina which becoming obsolete anteriorly. The length of the clypeus in the middle nearly as long as the distance between the eyes at the base of antennae, and slightly less than the length of antennal scape. Median frontal prominence between the base of antennae low, longitudinally rounded. Median frontal furrow broad and deep. Frontal impressions well-defined, narrow, clavate, attenuating anteriorly and connecting with the inner-orbital groove. Oculocellar area depressed. Vertex with a median groove between the paired ocelli. Ocelli in a nearly equilateral triangle, with median ocellus smaller. Oculocellar space: Postocellar space  $\doteq$  3 : 2. Occipital carina rather feeble, terminating gradually on the underside of the head. Temple, seen in profile, narrower than eye, with postero-ventral angle developed and slightly swollen. Lower margin without a keel.

Antennae very characteristic in form as shown in the Figure. The 1st joint (scape) remarkably produced beyond the middle, slightly more than the length of the 2nd and 3rd taken together, the latter two nearly equal in length with each other and about twice as long as the 4th. Joints 5-10 nearly equal in length to 4 and a little longer than 11 and 12; terminal joint as long as the preceding two joints put together. Posterior margin of flagellum very irregular. Joints 2 (pedicel) and 3 deeply emarginated at the base and strongly produced at the apex; 4 broadly produced in the middle and as broad as apex of 3 and 1.5 times as broad as long; 5 slightly broader than long and posteriorly roundly swollen; 6-12 very much dilated and produced posteriorly, with their width gradually increasing towards the apex. Distal joint nearly normal, only with the apex bluntly truncated. Pronotum medially feebly canaliculate, with the antero-lateral angles stoutly but obtusely produced laterally. Prosternal tubercles well developed, rather pointed at the apex. Mesonotum medio-anteriorly broadly and shallowly impressed, with a short longitudinal faint groove on either side; parapsidal furrows definable only in the middle; posterior margin of the segment longitudinally and distinctly crenate. Episternal furrow on the mesopleuron broad and deep and coarsely crenate. Area cordata on the median segment not enclosed by the groove, pronounceable only by the difference of the sculpture, with coarse crenation at the base and with the longitudinal canal in the middle which extends to the posterior surface and widened and deepened. Lateral carina well-defined on the posterior portion but obsolete anteriorly. The 1st segment of abdomen nearly as long as the hind trochanter and femur combined, with the medial and lateral carinae on the petiolar portion, with the hind swelling not remarkably large. The 2nd segment about two-thirds the length of the 1st, the 3rd and 4th subequal to the 2nd. Front metatarsi laterally dilated, semitransparent and inwardly curved, with a tuft of fringed hairs at the apex on the inner margin; the spur also dilated and becoming triangle in form. Mid metatarsi slightly dilated and a little curved inwardly, with an eminent triangular lamellate prominence at the apex on the inner margin. Hind tibiae clavate, without spines on the outer margin. Hind basitarsi incrassate and slightly dilated laterally; subsequent segment also dilated, with the broadest par

near the base and outwardly curved. Wing-venation as in *C. latronum*.

Body very finely and densely punctured, half-mat. Punctuation much more finer and denser on the area cordata and on the abdomen, and somewhat large and subrugulose on the rest of the median segment.

♀. Similar to ♂. Clypeus with anterior margin distinctly and strongly 4-dentate, the median pair much more produced than in ♂. Antennae incrassate, normal in form, without emargination or protuberance, not dilated. Joint 2 and 3 subequal in length with each other, the latter 1.7 times as long as broad at the apex, 4 two-thirds the length of 3 and slightly longer than broad at the apex. Frontal impressions similar in form to ♂, but much stronger and more distinct. Pygidial area rather narrow triangular, smooth and apically gutter-like, with a remarkable longitudinal carina at the base. Legs normal.

Length, ♂ ♀, 7.5–8.5 mm.

Holotype: ♂, Allotype: ♀, 23. VII. 1943 (Nansetsu-rei).

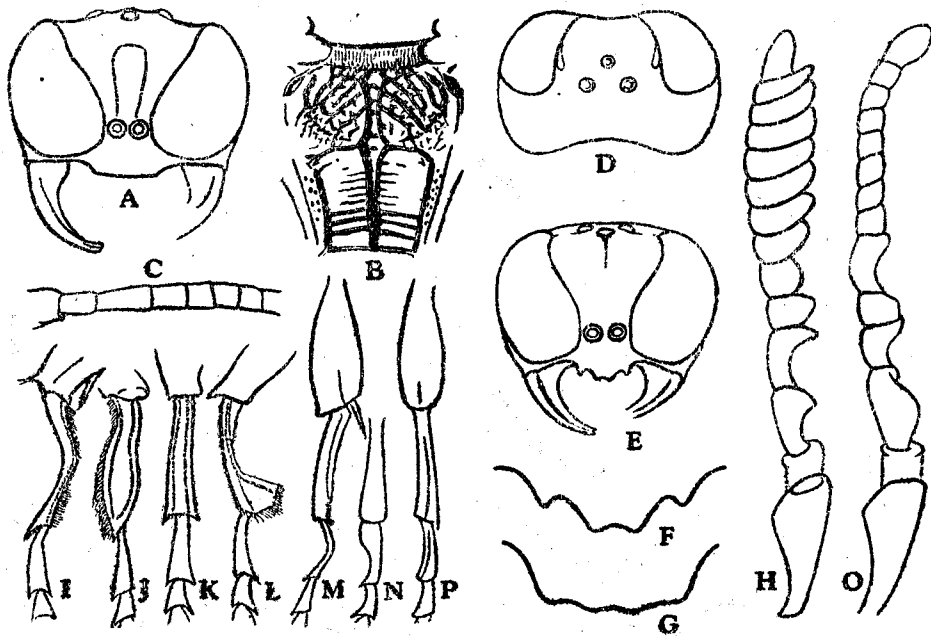
Paratypes: 1 ♀, 23. VII. 1943 (Nansetsu-rei); 2 ♂ ♂, 21. VII. 1943 (Daitaku).

The female of this species is very similar to that of *C. (Rhopalum) latronum* Kohl, but in the latter species apical margin of clypeus truncate, antennae rather slender and scape longer than clypeus in the middle, ocelli in a slightly flattened triangle, frontal impressions clearly bordered, and petiole of abdomen about 5 times as long as broad at the broadest part of the segment (in the new species 4 times as long as broad). The male of this species is more easily distinguished from that of *C. latronum* in the forms of antennae and the 2nd tarsal segment of hind legs.

In 1933 V. Gussakovskij described an example of *Crabro* from the Ussuri region and referred to the male of *C. (Rhopalum) latronum* Kohl. But Gussakovskij's specimen must be a male of the species here described. True male of *latronum* was first found by Dr. K. Iwata\* and is quite different as described above. For comparison, I have shown the antenna and hind tarsi of *C. latronum* Kohl.

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\* IWATA, K., Beitrag zur Kenntnis der Gattung *Crabro* Fabricius aus Japan, (Trans. Kansai Entom. Soc., Vol. IV, p. 14, 1933).



### Explanation of the Figure

- A. Head of *C. (Thyreopus) koreanus* sp. nov. ♀, seen in front.  
 B. Median segment of the same species, seen from above.  
 C. Basal portion of the antennal fragellum of the same species.  
 D. Head of *C. (Rhopalum) laticornis* sp. nov. ♀, seen from above.  
 E. The same seen in front.  
 F. Anterior margin of clypeus of the same species ♀.  
 G. The same of ♂.  
 H. Antenna of the same species ♂.  
 I. Front metatarsus of the same species ♂, seen from the side.  
 J. The same seen in front.  
 K. Middle mitatarsus of the same species ♂, seen from the side.  
 L. The same seen from behind.  
 M. Hind tarsi of the same species ♂, seen from behind.  
 N. The same seen from the side.  
 O. Antenna of *C. (Rhopalum) latronum* Kohl ♂.  
 P. Hind tarsi of the same species ♂.