

Chrysididae of Korea (Hymenoptera)¹⁾

KATSUJI TSUNEKI

Zoological Institute, Hokkaido University

During my residence on the peninsula from 1941 to 1944, I had a good chance of collecting a considerable series of examples of ruby tailed wasps. The present paper was chiefly based upon the examples of that collection. However, it contains also the records of specimens which are preserved in the collections of the Entomological Institute of the Hokkaido University, the Entomological Laboratory of the Kyushu University, and in the private collections of Messrs Nobuyoshi Tosawa, Kichizo Takeuchi and Syoziro Asahina. To those gentlemen having charge with, or possessing the above mentioned collections I desire to acknowledge my indebtedness for the loan of the material. I express also my hearty thanks to Professor Tohru Uchida for giving me the most generous facilities and valuable criticism for my work.

1. *Ellampus horváthi* Mocsáry, 1889

Ellampus Horváthi Mocsáry, Monogr. Chrysid., p. 82, 1889.

1 ♀, Keijō (Séoul), 5. VII. 1941. (K. Tsuneki leg.).

Habitat: Europe and Korea. This is the first record of the species from Asia.

2. *Ellampus auratus* (Linné, 1761)

1 ♀, Suigen, VI. 1924; 1 ♀, Keijō, 6. VI. 1934.

Habitat: Europe, Caucasus, West Asia, Siberia, Mongolia, Korea and Japan (Hokkaido).

3. *Ellampus corensis* (Uchida, 1927)

2 ♀ ♀ 5 ♂ ♂, Middle and North Korea (Keijō and Kainei), 18. V.-1. VIII., 1919-1942.

Habitat: North China, Manchuria and Korea.

Remarks. A male example collected at Keijō represents an aberrant form in which the abdomen is almost decolorized, glistening fuscous, only with a faint bluish lustre on the marginal portions. It is a very small specimen, measuring only 3 mm in length and its postscutellum is less developed, nearly semispherical, approaching in feature somewhat to that of *punctatus*.

1) Contribution No. 228, from the Zoological Institute, Faculty of Science, Hokkaido University, Sapporo, Japan.

4. *Chrysellampus duplipunctatus* Tsuneki, 1948**A. Nominata form**

1 ♀, Kainei, 1. VIII. 1935. (K. Takeuchi leg.).

Habitat: North China, Manchuria and Korea.

Remarks. The example is somewhat close to *C. harmandi* Buysson in the characters of the apical teeth of the abdomen, but not so in punctuation.

B. f. *variegatus* Tsuneki

2 ♀♀ 1 ♂, Keijō, 13. VI., 9. IX. 1934, 15. VI. 1942.

Habitat: Manchuria and Korea.

5. *Hedychridium roseum* (Rossi, 1790)

24 ♀♀ 14 ♂♂, Shōyōzan (north of Keijō), 30. V.-17. IX. 1943. (K. Tsuneki leg.).

Habitat: Europe, North Africa, West Asia, Turkestan, Manchuria and Korea. Korea is the easternmost record of the species.

Remarks. In Korea this species seems to be parasitic on the nests of *Astata boops* Schrank, a hunting wasp that preys upon various species of bugs.

6. *Hedychrum nobile* (Scopoli, 1763)

1 ♀, Shōyōzan, 31. VII. 1943. (K. Tsuneki leg.).

Habitat: Europe, North Africa, West Asia, Siberia, Mongolia, North China, Manchuria and Korea. Korea comes the easternmost record of the distribution of the species.

7. *Hedychrum japonicum* Cameron, 1887

79 ♀♀ 16 ♂♂, Middle Korea (Shōyōzan and Kōdaisan), 10. VI.-10. IX., 1942-43. (K. Tsuneki leg.).

Habitat: North China, Korea and Japan.

Remarks. Colour variations:—Anterior body: Bright green-bluish green-greenish blue-blue-purplish blue (=f. *marianum* Mocsáry). Abdomen: Golden red-brownish red (often with a fuscous macula on the disc). In general the male is much more greenish in colour than in the female. This species is parasitic on the nests of *Cerceris* spp.

8. *Hedychrum simile* Mocsáry, 1889

18 ♀♀ 13 ♂♂, Middle and North Korea (Kazan, Chōjuzan, Myōkōzan, Shōyōzan, Keijō and Kōdaisan), 20. VI-4. VIII., 1928-43.

Habitat: Manchuria, Korea and Japan.

Remarks. Colour variations: Greenish blue-dark blue-purplish blue-purplish dark blue-bronzy-lustreless dirty black with a slight coppery tinge in certain light. The last form is named as below:

f. *pullatum* f. nov.

1 ♂, Shōyōzan, 17. VI. 1934 (E. Eguchi leg., Coll. N. Tosawa); 1 ♀, Keijō, 29. VI. 1941 (K. Tsuneki leg.).

9. *Stilbum cyanurum cyanurum* (Forster, 1771), nominate form.

Stilbum cyanurum cyanurum Zimmermann, Arch. Naturg., Zool. B, VI, 4, p. 652, 1937.

2 ♀ ♀ 2 ♂ ♂, Keijō, 30. V-16. VIII, 1941-43; 1 ♀ 1 ♂, Shōyōzan, 27. VIII, 3. IX. 1942.

Habitat: South Europe, Asia Minor, Caucasus, Central Asia, Turkestan, Mongolia, North China, Manchuria and Korea.

Remarks. The specimens collected in Middle Korea indicate an interesting intermediate state between subspecies *cyanurum* and *splendidum*, but seem rather standing nearer to *cyanurum*. Their punctuation on the lateral lobes of the mesonotum is much feebler than in *splendidum* occurring in Japan, but at the same time somewhat stronger than in the typical *cyanurum* secured on the Continent. Their bodily colour is greenish blue or purplish blue, only the 3rd segment of the abdomen being purple. Moreover, in certain examples, the sides of the abdomen are more or less metallic golden and the punctuation on the thorax is much the same as in *cyanurum*.

10. *Parnopes popovi* Eversmann, 1857

1 example, North Korea.

Habitat: North China, Manchuria, Siberia and Korea.

Remarks. At the moment of writing no example is available to me. But I once ascertained the presence of an example of this interesting species in the collection of Mr. T. Osono which was collected probably in North Korea.

11. *Chrysis (Holo-chrysis) davidi* Buysson, 1897

1 ♀, Shōyōzan, 22. IV. 1953; 2 ♀ ♀, Kōdaisan, 2. V. 1943 (K. Tsuneki leg.); 1 ♀, Shōyōzan, 3. V. 1930 (H. Doi leg., Coll. Keijō Nat. Hist. Mus.).

Habitat: North China (Johol and Shansi), Korea and Japan.

12. *Chrysis (Holo-chrysis) koma* Tsuneki, 1950

3 ♀ ♀ 11 ♂ ♂, Kōdaisan, 19. IV.-6. V. 1943; 1 ♀ 1 ♂, Shōyōzan, 3, 13. V. 1942-43.

Habitat: Korea.

13. *Chrysis (Gono-chrysis) japonica* Cameron, 1887

Chrysis japonicus (!) Cameron, Proc. Manchester Lit. Phil. Soc., XXVI, p. 9, 1887.

Chrysis (Holo-chrysis) japonica Mocsáry, Monogr. Chrysid., p. 198, 1889; Bischoff, Gen. Ins. CLI, Hymen. Chrysid., p. 39, 1913.

Chrysis (Tetrachrysis) astuta Mocsáry, Ann. Mus. Nat. Hung., X, p. 562, 1912; Bischoff, Gen. Ins., p. 47, 1913.

7 ♀ ♀, Middle Korea (Keijō, Suigen and Shōyōzan), 10. IV.-30. V. 1923, 1943.

Habitat: Korea and Japan.

Remarks. The Korean specimens differ somewhat from the typical form in their punctuation, especially so on the abdomen. Punctures are generally finer and closer, and on the disc of the basal tergite of the abdomen, minute subcoriaceous ground points are mixed with large rounded punctures, while in the typical form they are fine and nearly uniform on all the area.

14. *Chrysis (Trichrysis) cyanea* Linné, 1761

53 ♀♀ 18 ♂♂, Middle North Korea (Keijō, Shōyōzan, Kōdaisan, Genzan, Nansetsu-rei, Futenpo and Hakutōzan), 12. V.-17. IX. 1919, 42, 43.

Habitat: Europe, Asia Minor, Caucasus, Turkestan, Siberia, North China, Manchuria, Korea and Japan.

Remarks. The examples from Korea together with those from Manchuria seem to form a geographical race of the species. They differ distinctly from the nominate form in the characters of the 3rd abdominal segment. The disc of the segment on each side of the median carina is much more strongly depressed than in the typical case. The detailed discussion as to their taxonomical relationship will be given in another paper.

15. *Chrysis (Trichrysis) pellucida* Buysson, 1887

Chrysis pellucida Buysson, Rev. Entom. Caen, VI, p. 183, 1887.

Chrysis (Monochrysis) coreana Uchida, Ins. Mats., I, 3, p. 153, 1927.

71 ♀♀, Middle and North Korea (Suigen, Keijō, Shōyōzan, Kayasan, Angaku, Chōjuzan, Heijō, Sanwei and Mozan), 6. VI.-5. IX. 1926, 35, 40, 42, 43.

Habitat: Asia Minor, North China (Jehol) and Korea.

16. *Chrysis (Tetrachrysis) syrinx* Tsuneki, 1950

1 ♀, Heiko, 6. X. 1935. (T. Osono leg.).

Habitat: Korea.

17. *Chrysis (Tetrachrysis) shoyozana* Tsuneki, 1950

10 ♀♀ 2 ♂♂, Shōyōzan, 13. VI.-2. VII. 1943. (K. Tsuneki leg.).

Habitat: Korea.

18. *Chrysis (Tetrachrysis) chosenensis* Tsuneki, 1950

Chrysis (Tetrachrysis) carnifex Uchida (nec Mocsáry), Ins. Mats., I, 3, p. 151, 1927.

Chrysis (Tetrachrysis) chrysochlora Mocs., a subsp., Tsuneki, Matsumushi, III, 2, p. 48, 1948.

Chrysis (Tetrachrysis) nitidula chosenensis Tsuneki, Mushi, XXI, 8, p. 71, 1950.

Holotype: ♀. Keijō, 7. VI. 1943. Allotype: ♂. Keijō, 22. V. 1943. Other specimens: 225 ♀♀ 143 ♂♂, Keijō and Shōyōzan, 10. IV.-4. VII. 1942, 43.

Habitat: Korea.

Remarks. In my previous paper this species was considered to be a subspecies of *nitidula* Fabricius. But the recent reexamination of the examples has convinced me that they exemplify a valid species. They are much slenderer in bodily structure than in *nitidula*, and moreover, differ from it in the bright banded pattern on the apical or antepical margin of each abdominal segment. The form of the basal segment of the abdomen is especially characteristic of the species. Seen from above, it is distinctly convergent anteriorly. This species can also be readily distinguished from either of *chrysochlora* and *carnifex*, if they form separable species, by the difference

of the structure of the apical abdominal segment, or of the relative length of the antennal joints.

f. *clariventris* f. nov.

This form seems to represent one of the extremities of the colour variation of the species. The fiery golden lustre is spread over the head and thorax, except on the violaceous fuscous areas, although the inside of punctures retains the original coloration. The reddish tinge is especially well developed on the face, clypeus and legs excepting tarsi. On the abdomen, the apical or anteapical greenish bands as well as the sides of each segment turn broadly into fiery golden. Apical margin is brazen. The deep violaceous maculae on the 2nd and 3rd segments are faded into blue. Besides the coloration, punctuation on the apical two segments becomes sparser and weaker, increasing the brilliancy of the surface.

Specimens: 2 ♀ ♀ 1 ♂, Keijō, 20, 22, 29. V. 1934.

Habitat: Korea.

Remarks. One of the specimens listed above may be an aberrant form, or a mutant. Its abdomen is slightly broader, with a finer and sparser punctuation. The apical teeth are broader and obtuser, the segment being somewhat shorter. Moreover, out of the 3 furrows at the base of the abdomen, two lateral ones extend obliquely across the segment and reach the lateral margins, separating the antero-lateral portions distinctly.

19. *Chrysis (Tetrachrysis) fuscipennis murasaki* Uchida, 1927

35 ♀ ♀ 1 ♂, Middle and North Korea (Suigen, Kazan, Keijō, Shōyōzan, Futenpo and Mozan), 1. VI.-10. IX. 1922, 25, 26, 40-43.

Habitat: North China, Manchuria, the Amur region, Korea and Japan.

Remarks. Judging from the geographical distribution of the form *murasaki*, it seems better to consider it as a subspecies. The nominate race occurs in the southern parts of Asia as far northward as the Loochoo Islands and North China and is replaced by the present race in the northern regions listed above. In the Korean examples the purplish colour, one of the chief characters ascribed to the race *murasaki*, is somewhat less developed than in the Japanese specimens.

20. *Chrysis (Tetrachrysis) splendidula* Rossi, 1790

6 ♀ ♀, Keijō and Shōyōzan, 24. V.-5. VIII. 1928, 43.

Habitat: Europe, North Africa, Asia Minor, Turkestan, Manchuria, Korea and Japan.

Remarks. An account as to the characteristics of the specimens from East Asia has been given in my previous paper.

21. *Chrysis (Tetrachrysis) ignita* Linné, 1761

118 ♀ ♀ 121 ♂ ♂, Middle and North Korea (Suigen, Keijō, Shōyōzan, Kōdaisan, Jōnai, Gōsui,

Nansetsu-rei, Daitaku, Futenpo, Taihyōo, Hakutōsan and Heijō), 10. IV.-12. IX. 1919-43.

Habitat: Throughout the Palaearctic region.

Remarks. As to the results of the systematic studies upon the geographical variations of the species occurring in the East-Asiatic regions, a detailed account will be published in another paper.

22. *Chrysis (Tetrachrysis) sarafschana sickmanni* Mocsáry, 1893

Chrysis (Tetrachrysis) sickmanni Mocsáry, Term. Fützet., XV, p. 228, 1893.

Chrysis sarafschana (♀) Buysson, André Spec. Hymen. Europ., VI, Chrysid., p. 742, 1896.

Chrysis sarafschana Bischoff, Gen. Ins. CLI, Hymen. Chrysid., p. 58, 1913.

1 ♀, Taihyōo (North Korea), 7. VIII. 1934 (S. Asahina leg.); 4 ♀♀ 10 ♂♂, Kōdaisan (Middle Korea), 29. IV.-27. VI. 1943 (K. Tsuneki leg.). (Several examples from Shōyōzan and Kongōzan were once examined by me in the collections of Messrs. H. Doi and T. Osono).

Habitat: East Siberia (Amur) and Korea.

Remarks. As listed above, Buysson regarded *sickmanni* as a synonym of *sarafschana* Mocs., known from Turkestan. But according to my view, both forms must exemplify at least a different subspecies or a geographical race respectively. Because the colour pattern of *sickmanni* is never the characteristic of the male example only, as supposed by Buysson, but of both sexes. Moreover, the colour pattern of *sarafschana* s. str. never appears in *sickmanni*, and beside, they occur in a quite different region respectively.

23. *Chrysis (Tetrachrysis) cavaleriei* Buysson, 1908

Chrysis cavaleriei Buysson, Rev. Entom. Caen, XXVII, p. 211, 1908.

6 ♀♀ 2 ♂♂, Shōyōzan, 30. V.-2. VII. 1943; 4 ♂♂, Keijō, 1 ♂, Kōdaisan, 9. V.-10. 1943. (K. Tsuneki leg.).

Habitat: Middle China (Kouy-Yang) and Korea. This is the second record of the distribution of the species.

Remarks. The following accounts should be added to the original description:—
♀: Facial cavity deeply and roundly hollowed, with the surface smooth and polished.
♂: Facial cavity mostly punctured-coriaceous; the 3rd abdominal segment convex and comparatively shorter, apical teeth similar in arrangement to ♀, but the median pair less strongly advanced posteriorly; tarsi of legs orange yellow or bright testaceous, apically gradually darker.

24. *Chrysis (Tetrachrysis) fulgida* Linné, 1761

1 ♀, Tonai, 23. VII. 1935. (K. Takeuchi leg.).

Habitat: Europe, Turkestan and Korea. This is the first record of the species from the Far East.

25. *Chrysis (Tetrachrysis) fulgidaria* Tsuneki,

Chrysis (Tetrachrysis) fulgidaria Tsuneki, Ins. Mats.,

1 ♀, Mt. Kaya, IX. 1926. (Y. Hasegawa leg., Coll. Takeuchi Entom. Lab.).
Habitat: Korea.

26. *Chrysis (Pentachrysis) lusca* Fabricius, 1804

4 ♀ ♀, Shôyôzan, 21. VII. 1937.

Habitat: India, Java, the Philippines, Celebes, Formosa, the Loochoo Islands, Japan and Korea. This is the first record of the species from Korea.

27. *Chrysis (Hexachrysis) principalis* Smith, 1874

31 ♀ ♀ 1 ♂, Middle and North Korea (Kazan, Suigen, Keijô, Shôyôzan, Kôdaisan and Samei), 5. VI-15. IX. 1920, 35, 40-43.

Habitat: India, Ceylon, Sumatra, Java, Celebes, Siam, eastern coast of China, the Aru Islands, Formosa and Korea.

Remarks. In the Korean examples the semicircular ridge enclosing the frontal flattened area before the unpaired ocellus is not developed. Only in a few specimens the trace of the carina is definable near the frontal transverse ridge.

28. *Chrysis (Hexachrysis) fasciata zetterstedti* Dahlbom, 1845

33 ♀ ♀ 7 ♂ ♂, Middle and North Korea (Keijô, Shôyôzan, Kôdaisan, Komeizan, Tonai), 12. V.-27. IX. 1919, 36, 42, 43.

Habitat: North and East Europe, Siberia, North China, Korea and Japan.

P. S.

Chrysis (Tetrachrysis) sarafschana rubripyga Tsuneki (= *C. rubripyga* Tsuneki, 1950 = *C. galloisi* Uchida, 1927, nec Buysson) was once recorded from Korea (Keijô) by Nakatomi under the heading of *C. galloisi* (Ent. World, III, 13, p. 102, 1934). But this subspecies has been omitted from the present list, because I feel doubtful about his identification.
