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NOTES ON *BRACONIDAE* OF JAPAN

IV. *APANTELES* (FIRST SUPPLEMENT)

By

CHIHISA WATANABE

(With 1 Textfigure)

After I had published my paper on the genus "*Apanteles*" (1932)⁽¹⁾, one new species was described by MUESEBECK (1933)⁽²⁾, and some species were sent to me for examination from Messers. T. ISHII, K. KAMIYA and A. KAWADA, and several species were reared from some larvae of *Lepidoptera* in our college insectarium. According to my present study 10 more species ought to be added to the fauna of our country. Further in the course of my study I have been convinced that the species identified by SONAN and the present author as *Apanteles lacteicolor* VIERECK, a parasite of *Euproctis pseudoconspersa* STRAND, is truly *Apanteles conspersae* FISKE, and that *Apanteles igae* WATANABE is a synonym of *Apanteles carpatus* (SAY).

All the type-specimens described newly in this paper are deposited in the Entomological Museum of the Hokkaido Imperial University.

I desire here to express my sincere thanks to Prof. S. MATSUMURA for his kind advice, and to those entomologists who have presented to me the valuable specimens my hearty gratitude. My gratitude is also due to Dr. C. F. W. MUESEBECK, Senior Entomologist, Bureau of Entomology, United States Department of Agriculture, for his kindness in sending some material and for his cordial suggestion.

Genus *Apanteles* FÖRSTER

1. *Apanteles vallatae* nov. sp.

♀. Black to dark brown; legs reddish yellow, all the coxae and the hind upper trochanters black; wings hyaline, the stigma and the veins yellowish brown, the tegulae being brown; palpi and the tibial spurs pale.

Head smooth and shining; occiput with a median longitudinal carina running from the front-ocellus; face slightly punctate, with a median longitudinal ridge; antennae stout, as long as the body; mesonotum shallowly punctate; mesopleurae and the disc of the scutellum smooth and shining, only the former

1) Ins. Mats., VII, pp. 74-102 (1932)

2) Proc. Ent. Soc. Wash., Vol. 35, p. 51 (1933)

[Ins. Mats., Vol. VIII, No. 3, March, 1934]

medially striate-rugose at the apex. First abscissa of the radius and the intercubitus evenly rounded, both of which are just shorter than the breadth of the stigma; recurrent nervure nearly equal in length to the pigmented portion of the 2nd abscissa of the cubitus, both of which are rather shorter than the upper portion of the 1st abscissa of the cubitus. Hind coxae shining, with punctures basally above; hind tibial spurs subequal, just shorter than a half of the metatarsus. First tergite roundly broadened medially, $1\frac{1}{2}$ times as long as broad at the base, excavated in the basal half where it is smooth, the apical half decidedly rugose; 2nd tergite a little shorter than the 3rd, with broad, parallel, discal sulci, enclosing a small median area, being smooth save the sulci; 3rd and the following tergites smooth and shining; ovipositor short; hypopygium truncate.

Length 2 mm.

♂. Unknown.

Host—*Hipparchus vallata* BUTLER

I have received 5 female specimens bred from the larva of *Hipparchus vallata* BUTLER by A. KAWADA, on the 4th of June, 1931, at Tokio.

Cocoon—Pure white, gregarious, cemented together, and attached to the twig of the food-plant.

Habitat—Honshu (Tokio).

J. N.: *Kimae-aoshaku-samuraikomayu*.

This species belongs to MARSHALL'S Section III⁽¹⁾ or WILKINSON'S *mlanje* Subgroup,⁽²⁾ but differs from those species in having the occiput with a longitudinal carina in the middle.

2. *Apanteles neptisis* nov. sp.

♀. Black; antennae brown; legs reddish yellow, the 4 anterior coxae fuscous, the hind coxae entirely and their femora apically black, and the hind tarsi fuscous. Wings hyaline, the stigma and veins brown, and the tegulae black; 1st tergite on the lateral margins narrowly yellow.

Head smooth and shining; antennae a little shorter than the body; mesonotum shallowly punctate; disc of the scutellum and the mesopleurae smooth and shining, scattering punctures beneath the tegulae; propodeum shining, finely irregularly striate, with a median longitudinal carina. Breadth of the stigma, the 1st abscissa of the radius and the intercubitus nearly equal in length; recurrent nervure a little longer than the pigmented portion of the 2nd abscissa of the cubitus, which is as long as the upper portion of the 1st abscissa of the cubitus. Hind coxae smooth and shining; hind tibial spurs subequal, as long

1) Trans. Ent. Soc. London, p. 157 (1885)

2) Trans. Ent. Soc. London, p. 333 (1932)

as a half of the metatarsus. Abdomen slender; 1st tergite $1\frac{1}{2}$ times as long as broad at the apex, parallel-sided, smooth and shining, rugose on the apical fourth; 2nd tergite a little shorter than the 3rd, with two lateral oblique sulci, somewhat rugose at the sulci and the hind margin; 3rd and the following tergites smooth and shining; ovipositor very short; hypopygium truncate.

Length 2.5 mm.

♂. Similar to the female, but the antennae slenderer, nearly as long as the body.

Host—*Neptis coenobita* STOLL

This species was bred from the larva of *Neptis coenobita* STOLL, on the 9th of July, 1933, at Sapporo.

Cocoon—Pure white, gregarious, clustered together, indiscriminately surrounded by some loose silk, and attached to the twig of the food-plant.

Habitat—Hokkaido (Sapporo).

J. N.: *Futasuji-samuraikomayu*.

This species closely allied to *Apanteles glomeratus* L., but differs from it in having the propodeum and the two basal tergites smoother, the abdomen slenderer, and the cocoon pure white.

3. *Apanteles kamiyai* nov. sp.

♀. Black; legs and belly at the base yellowish red; fore coxae fuscous, the middle and hind coxae black; wings hyaline, the stigma and veins brown, the tegulae fuscous; palpi and the tibial spurs pale.

Head smooth and shining, with some scattered punctures; antennae as long as the body; mesonotum with definite, more or less separated, shallow punctures; disc of the scutellum shining, with scattered punctures; mesopleurae punctate, with a smooth area in the middle; propodeum rugosely reticulate, with no median longitudinal carina; 1st abscissa of the radius nearly as long as the intercubitus, both of which are just shorter than the breadth of the stigma; recurrent nervure nearly equal in length to the pigmented portion of the 2nd abscissa of the cubitus. Hind coxae shining, basally above punctate strongly, the longer hind tibial spur about as long as $\frac{2}{3}$, the shorter spur as long as a half of the metatarsus; basal two tergites rugosely reticulate as in the propodeum; 1st tergite as long as broad at the apex, gradually broadened towards the apex, medially excavated in the basal half, with a smooth median knob at the apex; 2nd tergite shorter than the 3rd, with oblique lateral sulci and a smooth median knob at the base; 3rd and the following tergites smooth and shining; ovipositor short, the hypopygium acute.

Length 2.5 mm.

♂. Closely allied to the female, but the antennae slenderer.

Host—*Diacrisia punctaria* STOLL

I have received 6 female and 2 male specimens bred from the larva of *Diacrisia punctaria* STOLL by K. KAMIYA at Tokio.

Cocoon—Unknown.

Habitat—Honshu (Tokio).

J. N.: *Hitori-samuraikomayu*.

This species also resembles *Apanteles glomeratus* L., but can easily be distinguished from the latter by the acute hypopygium and the propodeum with no median longitudinal carina.

4. *Apanteles amphipyrae* nov. sp.

♀. Black; scapus at the base, legs and abdomen reddish yellow; all the coxae and the hind femora apically black; hind tarsi fuscous; 1st and 2nd tergites black, with the lateral margins broadly reddish yellow; 3rd tergite with a large fuscous marking at the middle; wings subhyaline; stigma, veins and tegulae brown; palpi and the hind tibial spurs pale.

Head finely punctate; antennae normal, as long as the body; mesonotum punctate, the punctures very shallow and virtually coalescent; disc of the scutellum smooth and shining, with few scattered punctures; mesopleurae smooth and shining, scattering some punctures beneath the tegulae; propodeum rugose, with a median longitudinal carina; 1st abscissa of the radius as long as the breadth of the stigma, both of which are just longer than the intercubitus; recurrent nervure longer than the pigmented portion of the 2nd abscissa of the cubitus. Hind coxae punctate, shining; hind tibial spurs subequal, about as long as a half of the metatarsus; 1st tergite longer than its breadth by one and half, at the sides parallel, punctate-rugose on the apical half; 2nd tergite a little shorter than the 3rd, moderately rugose, with two lateral oblique sulci and a smooth, obtuse median ridge, the following tergites smooth and shining; ovipositor very short; hypopygium truncate.

Length 3 mm.

♂. Closely resembles the female, but differs from it in having the antennae longer than the body, and the abdomen fuscous above.

Length 2.5 mm.

Host—*Amphipyra pyramidea* LINNÉ

It was reared from the larva of *Amphipyra pyramidea* LINNÉ by A. KAWADA, on the 6th of June, 1933, at Tokio.

Cocoon—Sulphur-yellow, resembles that of *Apanteles zygaenarum* MARSHALL, clustered irregularly, surrounded by some loose silk.

Habitat—Honshu (Tokio).

J. N.: *Shimagarasu-samuraikomayu*.

This species closely allied to *Apanteles glomeratus* L., but differs from it in having the abdomen reddish yellow, and the propodeum with a strong median longitudinal carina.

5. *Apanteles kawadai* nov. sp.

♀. Black; legs except the coxae, belly at the base, the lateral margins of the 1st and 2nd tergites reddish yellow; hind tibiae apically and their tarsi fuscous; wings hyaline, the stigma and veins brown, and the tegulae black; palpi and the tibial spurs pale.

Head smooth and shining; antennae a little longer than the body; mesonotum with well separated, possibly rather shallow, strong punctures; disc of the scutellum smooth and shining, scattering a few fine punctures; mesopleurae smooth and shining, with punctures beneath the tegulae; propodeum reticulate-rugose, with a weak median longitudinal carina; 1st abscissa of the radius, the intercubitus, and the breadth of the stigma, all equal in length; recurrent nervure longer than the pigmented portion of the 2nd abscissa of the cubitus. Hind coxae shining, basally above with punctures; the longer hind tibial spur about as long as $\frac{3}{8}$, and the shorter as long as $\frac{2}{5}$ of the metatarsus; 1st tergite slightly broadened towards the apex, $1\frac{1}{2}$ times as long as broad at the base, being irregularly striate-rugose, with a small smooth median knob at the base; 2nd tergite as rugose as in the 1st, with a weak smooth median longitudinal ridge, the lateral sulci very fine; 3rd tergite longer than the 2nd, rugose at the base, the rest smooth and shining; ovipositor short; hypopygium truncate.

Length 2.5 mm.

♂. Unknown.

Host—*Xylina fumosa* BUTLER

This species was reared from the larva of *Xylina fumosa* BUTLER by A. KAWADA, on the 12th of June, 1933, at Tokio.

Cocoon—Yellowish white, gregarious.

Habitat—Honshu (Tokio).

J. N.: *Ayamokume-samuraikomayu*.

This species closely allied to *Apanteles gastropachae* BOUCHÉ, but differs from the latter in having the 2nd tergite with lateral sulci.

On account of the lateral sulci of the 2nd tergite and the reddish yellow trochanters, the preceding 4 new species, *neptisis*, *kamiyai*, *amphipyrae* and *kawadai* run to *glomeratus* L. in my revised key, from which I have separated them as follows:—

- A. Propodeum and the two basal tergites nearly smooth and shining. (Cocoon white) *neptisis* nov. sp.
 -. Propodeum and the two basal tergites rugose. B
 B. Propodeum with no longitudinal carina; hypopygium acute.
 *kamiyai* nov. sp.
 -. Propodeum at least with a weak longitudinal carina; hypopygium truncate.
 C
 C. Propodeum with a strong longitudinal carina; abdomen yellowish red, with black markings on the basal 3 tergites. (Cocoon sulphur-yellow).
 *amphipyrae* nov. sp.
 -. Propodeum with a weak longitudinal carina; abdomen black, the lateral margins of the two basal tergites yellow. D
 D. Third tergite at the base rugose; 2nd tergite with the lateral sulci very weakly impressed. (Cocoon white) *karwadae* nov. sp.
 -. Third tergite smooth and shining; 2nd tergite with the lateral sulci strongly impressed. (Cocoon sulphur-yellow). *glomeratus* L.

6. ***Apanteles liparidis*** BOUCHÉ (1848)

This species has been known as a parasite of *Lymantria dispar* L., *Dendrolimus spectabilis* BUTLER and *Orgyia postica* WALKER, and now the following two more species ought to be added to our host-list.

Host—*Dasychira pseudabietis* BUTLER, *Malacosoma neustria* L.

I have received two female and one male specimens bred from the larva of *Dasychira pseudabietis* BUTLER by T. ISHII, on the 3rd of August, 1926, at Tokio. According to I. HAYASHI⁽¹⁾ this species was identified under the name of *Apanteles japonicus* ASHMEAD as a parasite of *Malacosoma neustria* L.

7. ***Apanteles bistonis*** nov. sp.

♀. Black; legs with the coxae, belly broadly and the lateral margins of the 1st tergite reddish yellow; hind tibiae at the apices and their tarsi fuscous; wings hayline, the stigma and veins brown, the tegulae yellow; palpi and the tibial spurs pale.

Head smooth and shining; antennae as long as the body; mesonotum shallowly and separately punctate; disc of the scutellum shining, with fine punctures; propodeum smooth and shining, with no longitudinal carina; 1st abscissa of the radius just shorter than the breadth of the stigma, and a little longer than the intercubitus, with a stump at the junction of these two nervures; recurrent nervure nearly equal in length to the pigmented portion of the 2nd abscissa of the cubitus;

(1 Botany & Zoology, pp. 1289-1296 (1933))

apical portion of the 1st abscissa of the cubitus very short, being $\frac{1}{3}$ of the recurrent nervure. Hind coxae on the outer surface strongly punctate; the longer hind tibial spur $\frac{3}{4}$ and the shorter spur $\frac{1}{2}$ of the metatarsus. Abdomen smooth and shining; 1st tergite more than twice longer than broad at the base, slightly rugose at the apical third, parallel-sided from the base to the apical third, thence to the apex converging; 2nd tergite as long as the 3rd, with oblique lateral sulci; 2nd and 3rd tergites with a smooth, median obtuse ridge respectively; ovipositor very short; hypopygium bluntly acute.

Length 3 mm.

♂. Closely allied to the female, but the antennae slenderer.

Host—*Biston robustum* BUTLER

I have received 2 female and 3 male specimens bred from the larva of *Biston robustum* BUTLER by A. KAWADA at Tokio.

Cocoon—Greyish brown, not woolly, gregarious, clustered together, and attached to the host-body.

Habitat—Honshu (Tokio).

J. N.: *Edashaku-samuraikomayu*.

This new species is closely allied to *Apanteles bicolor* NEES, but it may be separated from the latter as follows:—

Ovipositor short, the sheath shorter than the hind tibial spurs; tergites 2-3 each with a smooth longitudinal obtuse ridge in the middle; hypopygium bluntly acute. (Cocoon greyish brown, not woolly). *bistonis* nov. sp.

Ovipositor long, the sheath as long as the hind femora; tergites 2-3 smooth, with no median ridge; hypopygium sharply acute. (Cocoon pure white). ...
..... *bicolor* NEES

8. *Apanteles aphae* nov. sp.

♀. Black; antennae dark brown; legs yellowish red, all the coxae black, the hind femora and tibiae somewhat tinged with brown; wings hyaline, the stigma, the veins and tegulae brown; 1st and 2nd tergites on the lateral margins yellow.

Head smooth and shining; face with some scattered punctures; antennae normal, as long as the body. Mesonotum closely punctate; propodeum rugose, with a short median longitudinal carina at the apex. First abscissa of the radius just shorter than the breadth of the stigma, both of which are a little longer than the intercubitus; recurrent nervure a little longer than the pigmented portion of the 2nd abscissa of the cubitus. Hind coxae smooth and shining; the longer hind tibial spur rather longer than a half, the shorter about a half of the metatarsus; basal two tergites rugose; 1st tergite parallel-sided, the 2nd tergite

transverse, much shorter than the 3rd, with lateral oblique sulci, the following tergites smooth and shining; ovipositor exerted, the sheath as long as the shorter hind tibial spur; hypopygium acute.

♂. Unknown.

Length 2.5 mm.

Host—*Apha tychoona* BUTLER

I have received 15 female specimens bred from the larva of *Apha tychoona* BUTLER on the 16th of June, 1930, by T. ISHII, at Tokio.

Cocoon—Sulphur-yellow, not woolly.

Habitat—Honshu (Tokio).

J. N.: *Obiga-samuraikomayu*.

This species comes near to *Apanteles sasakii* WATANABE, but it is separated from the latter as follows:—

Propodeum with only a short median longitudinal carina at the apex; hind tibial spurs as long as or longer than a half of the metatarsus. (Cocoon sulphur-yellow, not woolly) *aphae* nov. sp.

Propodeum with a median longitudinal carina; hind tibial spurs as long as $\frac{1}{3}$ of the metatarsus. (Cocoon white, enveloped in a cottony ball). *sasakii* WATANABE

9. *Apanteles conopiae* nov. sp.

♀. Black; antennae dark red; palpi and the tibial spurs pale; legs yellowish red, all the coxae black, the hind tarsi being fuscous; wings subhyaline, with a brownish tinge; stigma and veins brown, tegulae yellow.

Head finely punctate; antennae stout, a little shorter than the body; mesonotum more or less separately finely punctate; scutellum flattened, with some scattered punctures; propodeum smooth on the basal half, with some scattered punctures; apically striate at the middle; 1st abscissa of the radius slightly curved outwardly in the middle, just longer than the breadth of the stigma or the intercubitus; recurrent nervure just shorter than the pigmented portion of the 2nd abscissa of the cubitus; the longer hind tibial spur nearly as long as a half, the shorter as long as $\frac{1}{3}$ of the metatarsus; hind coxae large, as long as the basal two tergites and finely punctate; 1st tergite slender, $2\frac{1}{2}$ times as long as broad at the base, converging to the apex, finely striate-rugose on the apical half; 2nd tergite transverse, much shorter than the 3rd, with strong lateral sulci; 2nd and the following tergites smooth and shining; ovipositor long, the sheath a little shorter than the hind tibia and tarsus taken together; hypopygium membranous, acute, much surpassing the anus.

Length 3.5 mm.

♂. Much resembles the female, but the antennae longer and slenderer.

Length 3 mm.

Cocoon—Unknown.

Host—*Conopia hector* BUTLER

Six female and two male specimens were received from T. ISHII, which were bred from the larva of *Conopia hector* BUTLER, on the 5th of September, 1927, at Tokio.

Habitat—Honshu (Tokio).

J. N.: *Sakura-sukashi-samuraikomayu*.

This species is allied to *Apanteles falcatus* NEES, but differs from it in having the ovipositor-sheath longer, and the 1st tergite converging towards the apex.

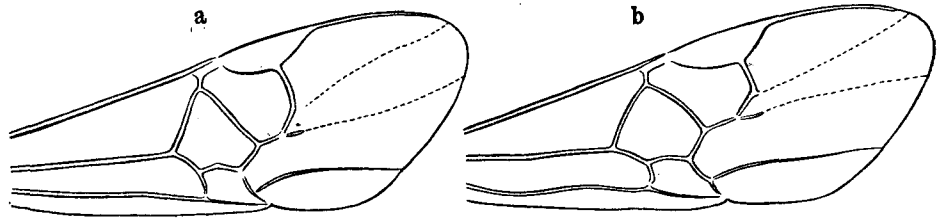


Fig. 1:

a. Fore wing of *Apanteles conopiae* nov. sp. (♀)

b. Fore wing of *Apanteles uchidai* nov. sp. (♀)

10. *Apanteles uchidai* nov. sp.

♀. Black; mandibles and the four anterior legs reddish yellow, except their coxae which are fuscous at the bases; hind legs black, their lower trochanters, femora and the basal fourth of the tibiae tinged with yellowish brown; wings hyaline, the stigma and veins brown, and the tegulae black; belly at the base and the 1st tergite on the lateral margins yellow.

Head finely punctate; antennae a little shorter than the body; mesonotum finely but closely punctate; disc of the scutellum smooth and shining, with some scattered punctures; propodeum smooth and shining, medially striate-rugose at the apex. First abscissa of the radius nearly equal in length to the intercubitus, with a stump at their junction, both of which are a little shorter than the breadth of the stigma; recurrent nervure shorter than the pigmented portion of the 2nd abscissa of the cubitus. Hind coxae punctate; hind tibial spurs subequal, about as long as a half of the metatarsus. Abdomen smooth and shining; 1st tergite slender, $2\frac{1}{2}$ times as long as broad at the base, finely longitudinally striate on the apical third, with a smooth median knob at the apex; 2nd tergite transverse, shorter than a half length of the 3rd, with some scattered punctures; ovipositor

exserted, the sheath as long as the hind femur; hypopygium acute.

Length 3 mm.

♂. Unknown.

Host—*Epinotia dimiana* GUENÉE

Two female were reared from the larva of *Epinotia dimiana* GUENÉE by T. UCHIDA, on the 14th of July, 1927, at Sapporo.

Cocoon—Unknown.

Habitat—Hokkaido (Sapporo).

J. N.: *Amime-hamaki-samuraiikomayu*.

This species closely allied to *Apanteles exilis* HALIDAY, but differs from the latter in having the four anterior legs reddish yellow, and the wings hyaline.

The preceding two species, *conopiae* and *uchidai*, apparently differ from the other species of Japan in having the 1st tergite slender, broader at the base than at the apex, and the 2nd tergite much shorter than the 3rd. These two species may be separated by the following characters:—

Wings fuscous; tegulae yellow; ovipositor longer, the sheath a little shorter than the hind tibia and tarsi taken together; 1st tergite evidently converging towards the apex. *conopiae* nov. sp.

Wings hyaline; tegulae black; ovipositor shorter, the sheath as long as the hind femur; 1st tergite slightly converging towards the apex. ... *uchidai* nov. sp.

II. *Apanteles conspersae* FISKE

Apanteles conspersae FISKE, Bureau of Ent., no. 91, U. S. Dept. Agr., Wash., p. 285 (1911).

Apanteles lacteicolor SONAN, Rep. Agr. Exp. St., Formosa, no. 29, p. 46, ♀ ♂, Fig. 2 (1927); WATANABE, Ins. Mats., viii, p. 96 (1932); id., Insect World, Vol. 37, p. 195 (1933).

FISKE has separated this species from *Apanteles lacteicolor* VIERECK by the biological standpoint, but SONAN and the present author have treated it as the same species. After comparing the specimen of *lacteicolor*, which I have received from Dr. MUESEBECK, with the specimen which I have reared from *Euproctis pseudoconspersa* STRAND, I have been convinced that the latter is quite separable from the former by the following points:

1) Disc of the scutellum, as well as the mesonotum, much more strongly punctate than that of *lacteicolor*.

2) Areola of the propodeum v-shaped at the apex and more or less closed at the base by carinae.

3) In the case of the male the stigma brown as in the female.

4) First tergite with a smooth median knob at the apex, but with no median fovea on its apical half.

5) Second tergite much less coarsely sculptured than that of *lacteicolor*, and not so rugose as in the 1st.

6) This species is a gregarious parasite, while *lacticolor* always solitary.

Host—*Euproctis pseudoconspersa* STRAND (= *E. conspersa* BUTLER), *Euproctis flava* BREMER.

I have received many specimens bred from the larva of *Euproctis pseudoconspersa* STRAND by T. ISHII, which were caught in September, 1931, at Tokio, and from the larva of *Euproctis flava* BREMER, on the 29th of July, 1928. I have reared many specimens from the young larva of *Euproctis flava* BREMER, the larva being collected by Dr. S. MATSUMURA in June, 1933, at Tokio.

Cocoon—Pure white, commonly gregarious, attached to the leaf of the food-plant.

Habitat—Honshu, Formosa.

12. *Apanteles molestae* MUESEBECK

Apanteles molestae MUESEBECK, Proc. Ent. Soc. Wash., vol. 35, p. 51, ♀ ♂ (1933).

Host—*Grapholitha molesta* BUSCK

According to MUESEBECK this is a parasite of *Grapholitha molesta* BUSCK in Japan and Korea.

Cocoon—Unknown.

Habitat—Honshu (Niigata, Okayama), Shikoku (Ehime, Kagawa), Korea (Suigen).

J. N.: *Nashi-shinkui-samuraikomayu*.

This species is very closely related to *Apanteles conspersae* FISKE and *Apanteles lacticolor* VIERECK, but they may be separated by the following key:

- A. Stigma of the male brown as in the female; 1st tergite with a small smooth knob at the apex. (Japan & Formosa) *conspersae* FISKE
- Stigma of the male hyaline and narrowly margined with pigmentation; 1st tergite with a median fovea on its apical half. B
- B. Stigma of the female brown with a paler spot at the base; middle femora entirely black. (Japan & Korea) *molestae* MUESEBECK
- Stigma of the female uniformly brown with no paler spot; middle femora on the apical fourth reddish yellow. (Europe & U. S. A.)
- *lacticolor* VIERECK

13. *Apanteles carpatus* (SAY)

Microgaster carpata SAY, Boston Journ. Nat. Hist., Vol. 1, p. 263 (1836); LECONTE, Writ. of Th. Say, Entom., vol. 2, p. 714 (1859).

Apanteles carpatus CHITTENDEN, U. S. Div. Ent. Bull., 3, p. 42 (1897); VIERECK, Bull. 22, Conn. State Geol. and Nat. Hist. Survey, pp. 191, 200 (1916); MUESEBECK, Proc. U. S. Nat. Mus., vol. 58, p. 515 (1920).

Apanteles igae WATANABE, Ins. Mats., vii, p. 97, ♀, Fig. 6 (1932) (syn. nov.).

Dr. MUESEBECK suggested to me that *igae* is a synonym of *carpatus*. I have received three female specimens of *Apanteles carpatus*, two of them being labelled "ex Tapestry moth infesting owl pellets, Monrovia, Calif. Rec'd from Wm. Moor" and another one "ex *Tineola biselliella*, Yonkers N. Y. Feb. 12. 1930, Wm. Moore". Comparing these with the type of *igae*, a parasite of *Tinea pellionella* L. in Japan, I can not find any specific difference between them.

Host—*Tinea pellionella* LINNÉ, *Trichophaga tapetiella* LINNÉ.

According to MUESEBECK this species is a common parasite of clothes-moths, *Tinea pellionella* L. and *Trichophaga tapetiella* L. in the United States of America. The host of *igae* is given as *Tinea pellionella* L., with the type-locality Tokio, Japan.

Habitat—U. S. A., Japan (Tokio).

J. N.: *Iga-samuraikomayu*.

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Host List

Nymphalidae	Page
<i>Neptis coenobitis</i> STOLL <i>Apanteles neptisis</i> nov. sp.	133
Geometridae	
<i>Biston robustum</i> BUTLER <i>A. bistonis</i> nov. sp.	137
<i>Hipparchus vallata</i> BUTLER <i>A. vallatae</i> nov. sp.	132
Lasiocampidae	
<i>Malacosoma neustria</i> LINNÉ <i>A. liparidis</i> BOUCHÉ	137
Lymantridae	
<i>Euproctis flava</i> BREMER <i>A. conspersae</i> FISKE	141
<i>Euproctis pseudoconspersa</i> STRAND " "	141
<i>Dasychira pseudabietis</i> BUTLER <i>A. liparidis</i> BOUCHÉ	137
Noctuidae	
<i>Amphipyra pyramidea</i> LINNÉ <i>A. amphipyrae</i> nov. sp.	135
<i>Xylina fumosa</i> BUTLER <i>A. kawadai</i> nov. sp.	136
Arctiidae	
<i>Diacrisia punctaria</i> STOLL <i>A. kamiyai</i> nov. sp.	134
Eupterotidae	
<i>Apha tychoona</i> BUTLER <i>A. aphae</i> nov. sp.	138
Aegeriidae	
<i>Conopia hector</i> BUTLER <i>A. conopiae</i> nov. sp.	139
Tortricidae	
<i>Epinotia dimiana</i> GUENÉE <i>A. uchidai</i> nov. sp.	140
<i>Graphoütha molesta</i> BUSCK <i>A. molesta</i> MUESEBECK	142
Tineidae	
<i>Tinea pellionella</i> LINNÉ <i>A. carpatus</i> SAY	142