

## PREFACE TO BULLETIN.

---

In the course of rather more than three years' work with the parasites and natural enemies of the gipsy moth and brown-tail moth, nearly all imported from Europe or Japan, it has been necessary to work with a number of species new to science and to make the most careful life-history observations upon all the species concerned in order to ascertain points of possible importance in the practical handling of the material. It is proposed in this Technical Series No. 19 to include a series of short papers giving some of the systematic and biological results of this work, the practical deductions for the most part being reserved for consideration in bulletins of the general series.

The present paper, therefore, forms the first of such a series. It describes several new egg-parasites and gives some consideration to others already described. It also includes a brief consideration of other forms supposed to have been reared from gipsy moth eggs.

Technical Series No. 12, Part VI, entitled "A Record of Results from Rearings and Dissections of Tachinidæ," by Charles H. T. Townsend, published September 18, 1908, really should have started this Technical Series No. 19, since it directly concerns itself with results of work at the gipsy moth parasite laboratory.

The laboratory in question, it should be stated, is now stationed at Melrose Highlands, Mass. (No. 17 East Highland avenue). It is conducted under the joint cooperation of the State of Massachusetts and the U. S. Department of Agriculture. The rental of the building, all construction work, nonexpert assistance, and the expendable supplies, together with the compensation of foreign agents, are charged to the State of Massachusetts. The Bureau of Entomology of the Department of Agriculture is charged with the salaries and expenses of all expert assistants and with all nonexpendable supplies and apparatus.

L. O. H.

## CONTENTS.

---

	Page.
Introductory.....	1
Family Encyrtidæ.....	2
Subfamily Encyrtinæ.....	2
Tribe Mirini.....	2
Genus Schedius.....	2
Genus Tyndarichus.....	5
Subfamily Eupelminæ.....	7
Tribe Eupelmini.....	7
Genus Anastatus.....	7
Family Pteromalidæ.....	8
Subfamily Sphegigasterinæ.....	8
Tribe Pachyneurini.....	8
Genus Pachyneuron.....	8
Family Eulophidæ.....	9
Subfamily Elachertinæ.....	9
Tribe Elachertini.....	9
Genus Atoposomoidea.....	9
Subfamily Aphelininæ.....	11
Tribe Aphelinini.....	11
Genus Perissopterus.....	11
Family Proctotrypidæ.....	12
Subfamily Scelioninæ.....	12
Tribe Telenomini.....	12
Genus Telenomus.....	12

## ILLUSTRATIONS.

---

	Page.
FIG. 1. <i>Schedius kuanæ</i> : Female.....	4
2. <i>Schedius kuanæ</i> : Antennæ of male and female.....	5
3. <i>Schedius kuanæ</i> : Fore and hind wings of female.....	5
4. <i>Tyndarichus navæ</i> : Antennæ of male and female.....	6
5. <i>Tyndarichus navæ</i> : Fore and hind wings of female.....	6
6. <i>Anastatus bifasciatus</i> : Female.....	7
7. <i>Atoposomoidea ogimæ</i> : Female and details.....	9

## TECHNICAL RESULTS FROM THE GIPSY MOTH PARASITE LABORATORY.

## On Some Parasites Reared or Supposed to have been Reared from the Eggs of the Gipsy Moth.

By L. O. HOWARD, Ph. D.

## INTRODUCTORY.

No native American egg-parasites have ever been reared from the eggs of the gipsy moth (*Porthetria dispar* L.) since its introduction into this country in the late sixties. This seems strange, since native Lepidopterous eggs are very frequently attacked by egg-parasites of several genera, notably by *Trichogramma* and *Telenomus*, as well as occasionally by *Anastatus* and *Ooencyrtus*. Nonparasitism of *dispar* by native species is probably due to the character of its egg-mass, which is so compact and so thoroughly protected by the scales of the parent as possibly to disguise its character from species unacquainted with it for many generations, while actual experiments with *Trichogramma* seem to show that it is unable to pierce the shell of the gipsy moth egg.

In the course of the extensive importations of parasites of this species from Europe and Japan, however, carried on cooperatively by the State of Massachusetts and the Bureau of Entomology of the U. S. Department of Agriculture, several primary and secondary parasites have been reared from these eggs at the Gipsy Moth Parasite Laboratory at Melrose Highlands, Mass., where they have been studied in greater or less numbers by Mr. W. F. Fiske, of the Bureau of Entomology, in charge of the laboratory, and by the corps of assistants working under his direction, and have in some cases been colonized in the open. In the following pages descriptions are given of the new forms, together with brief notes concerning their habits, the notes being the result of the observations of Mr. Fiske and assistants. Only two of the species, namely, *Anastatus bifasciatus* Fonsc. and *Schedius kuvanæ* How., appear to be of primary importance, but it is obvious that once acclimatized these two species will perform a very considerable part in the reduction in numbers of the gipsy moth in the United States.

The parasites so far reared have all come from Japan, southern Russia, and Hungary. The *Anastatus* has a wider range, occurring

in many parts of Europe, but has other hosts. Shipments of *dispar* eggs received at the Parasite Laboratory from Switzerland and northern Germany have given out no parasites whatever. Silvestri states that he has never been able to secure parasites from the eggs of *dispar* in Italy, but there is a reasonable chance that he did not keep his material long enough to have secured the summer-issuing forms had they been present. There is no evidence as yet that gipsy moth egg-parasites occur in western Europe—that is, France or Spain.

Other insects are occasionally sent to this country accidentally with these egg-masses, one of them, a small Dermestid beetle, really feeding upon the eggs. This insect was found in considerable numbers in a large shipment of *dispar* eggs, sent by Prof. Trevor Kincaid from Japan, which were collected after the caterpillars had emerged. This species has been examined by Mr. E. A. Schwarz, who states that it is probably an undescribed species and genus of the group Attageni. The larvæ of *Anthrenus verbasci* L. are constantly found in the old cocoon masses of the white-marked tussock moth (*Hemerocampa leucostigma* S. & A.) in this country and under the batches of eggs already hatched, where they are engaged in feeding upon the dry remains of pupæ and eggs. The writer<sup>a</sup> has pointed out that these larvæ also eat the healthy eggs, and that *Trogoderma tarsale* Melsh., another Dermestid, has the same habit. This has since been seen to be the case with the white-marked tussock moth in Massachusetts, and one of these species has several times been reported as destroying the eggs of the gipsy moth in Massachusetts.

The cocoons of *Glyptapanteles* have also been sent in on bits of bark attached to the egg-masses; and other small miscellaneous insects, including several species of small moths which had sought the protection of the egg-masses for pupation, have come in, indicating not only the great possibility of error in rearing insects from large masses of material, but also the necessity for great care to avoid the introduction of new insect pests.

#### Family ENCYRTIDÆ Walker.

##### Subfamily ENCYRTINÆ Howard.

##### Tribe MIRINI Ashmead.

##### Genus SCHEDIUS, new genus.

*Female*.—Mandibles broad at apex, very obscurely tridentate; outer tooth rather short, acute; middle tooth rounded, inner tooth flat and with a straight edge. Antennæ inserted just above border of the mouth; facial depression well marked; clypeus well rounded and elevated; vertex rather narrow, head well produced in front;

<sup>a</sup> Technical Series No. 5, Bur. Ent., U. S. Dept. Agr., p. 46, 1897.

ocelli at angles of slightly acute-angled triangle, lateral ocelli nearer eye-border than to each other; occipital margin somewhat rounded; eyes large, well rounded, rigid (keeping their shape after death), very faintly hairy. Antennal scape slender, subcylindrical; pedicel nearly three times as long as broad; funicle subcylindrical, joint 1 short, about one-half length of pedicel, remaining joints increasing slightly in length and width to club, except that joint 6 is slightly shorter than 5; club ovate, flattened, nearly as long as last three funicle joints together, basal joint longest. Body stout; mesonotal axillæ well separated at tips; mesoscutellum well rounded; abdomen shorter than thorax, short-ovate. Wings long and broad; marginal vein punctiform; stigmal rather long, slender, slightly enlarged at tip, extending into the wing-disc at an angle of about 35 degrees with the costa; postmarginal evident, but not so long as stigmal; wing-disc with an oblique hairless streak extending from stigmal vein toward the base of the wing; hind wings rather narrow, but densely and uniformly ciliate.

*Male*.—Differs from female principally in the shorter abdomen and in the antennæ. Antennæ with scape slightly widened below; pedicel obconical, very slightly longer than width at tip; first funicle joint slightly longer than pedicel; funicle joints 1 to 5 subequal in length and width, 6 somewhat shorter; all funicle joints somewhat convex on outer side, nearly straight on inner side; club ovate, rather broadly flattened, somewhat longer than funicle joints 5 and 6 together; all of flagellum beyond pedicel rather closely furnished with hairs averaging about two-thirds the length of the respective sclerites that bear them.

*Type*.—The following species:

**SCHEDIUS KUVANÆ**, new species.

(Figs. 1-3.)

*Female*.—Length, 0.99<sup>mm</sup>; expanse, 2.39<sup>mm</sup>; greatest width of fore wing, 0.43<sup>mm</sup>. Vertex and cheeks very faintly shagreened; mesoscutum nearly smooth, shining, with minute, rather sparse punctures; mesoscutellum densely and rather coarsely shagreened, well rounded at tip; propleura very faintly shagreened, somewhat shining. General color black; mesoscutellum with a bronzy luster; trochanters, tips of femora, apical half or a little more of front and middle and hind tibiæ yellowish; all tarsi lighter; antennæ dark brown; dark parts of the legs more brown than black. Wings hyaline.

*Male*.—Length, 0.9<sup>mm</sup>; expanse, 2.28<sup>mm</sup>; greatest width of fore wing, 0.43<sup>mm</sup>. Resembles female, except that the flagellum of the antenna is light brown, and except for the structural characters mentioned in the generic diagnosis.

Described from numerous male and female specimens reared September, 1908, at the Gipsy Moth Parasite Laboratory of the State of

Massachusetts and the Bureau of Entomology, at Melrose Highlands, Mass., from the eggs of *Porthetria dispar* received from Tokyo, Japan, from Prof. S. I. Kuwana, Entomologist of the Imperial Agricultural Experiment Station at Nishigahara, Tokyo, after whom the species is named in partial recognition of his great services to the United States in sending parasites from Japan.

*Type*.—No. 12158, U. S. National Museum; Gipsy Moth Laboratory No. 1698.

This species appears to be an important parasite of the gipsy moth. It has been imported in very large numbers through the courtesy of Professor Kuwana. The great majority of the specimens have been dead upon arrival, but small numbers have emerged living at the Gipsy Moth Parasite Laboratory at Melrose Highlands. The species appears to be more common in the vicinity of Tokyo than

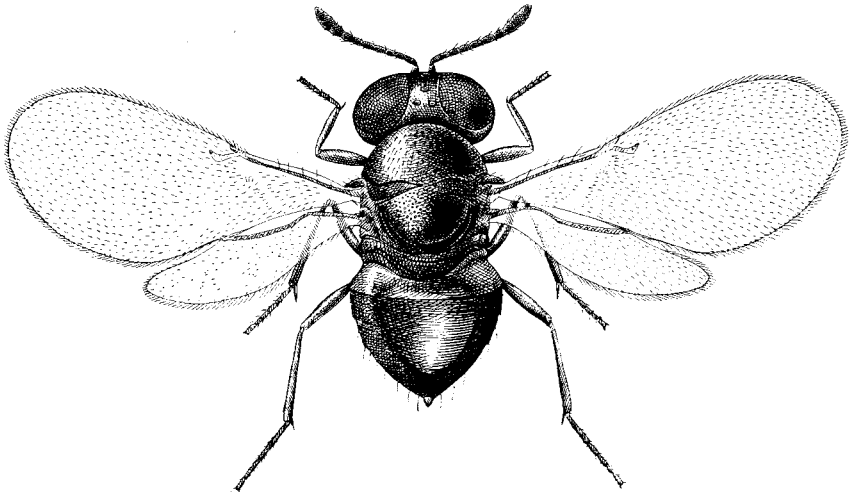


FIG. 1.—*Schedius kuvanae*: Female. Highly magnified. (Original.)

in other parts of Japan. This parasite in the field issues from *dispar* eggs in the autumn after they have been deposited. For some reason it has not been reared freely from Japanese eggs collected and forwarded during the winter. The possible inference that it does not hibernate in the eggs of this host in Japan is not in accord with its behavior in America. There is ample time for two and possibly three generations in the same autumn after the gipsy moth has laid its eggs. The species is easily controlled in the laboratory, as determined by Mr. Fiske, and more than twenty thousand have been reared and liberated from a total importation of about twenty living individuals. The early stages have been worked out at the laboratory by Messrs. Fiske and H. F. Smith, and are very remarkable. It attacks the eggs of its host when freshly deposited and with equal

freedom those which contain the fully developed caterpillar all ready to hatch.

Genus TYNDARICHUS, new genus.

*Female*.—Mandibles like those of *Schedius*. Antennæ short; scape rather short, with a rather broad leaflike extension below; pedicel long, obconical, two and one-half times as long as width at tip and half as long as funicle; first funicle joint narrower than tip of pedicel and rather shorter than broad; funicle joints 2, 3, and 4 each about as long as 1, but gradually widening; 5 and 6 somewhat longer and considerably wider, thus making the width increase from 1 to 6; club very broad, somewhat flattened, having three segments subequal in length, but with the dividing sutures slightly oblique, tip obliquely truncate from a point immediately before the last suture; flagellum with sparse hairs, and scape and pedicel with a few bristles. Body short, stout, resembling *Schedius* in general appearance. Antennæ inserted slightly above mouth border; facial depression and clypeus resembling *Schedius*; vertex narrower than with *Schedius*, but ocelli placed in the same manner; occipital margin acute; eyes naked, not rigid (falling in after death). Axillæ of mesonotum barely meeting at tip; abdomen flattened above, triangular, nearly as long as thorax. Fore wings broad; disc closely ciliate though not so densely as with *Schedius*, oblique hairless line below stigma faintly indicated, but the entire disc below submarginal vein only

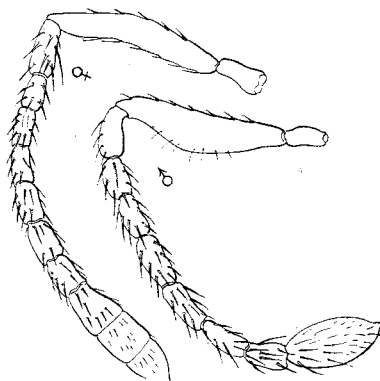


FIG. 2.—*Schedius kuvanae*: ♂, Antenna of male; ♀, antenna of female. Highly magnified. (Original.)

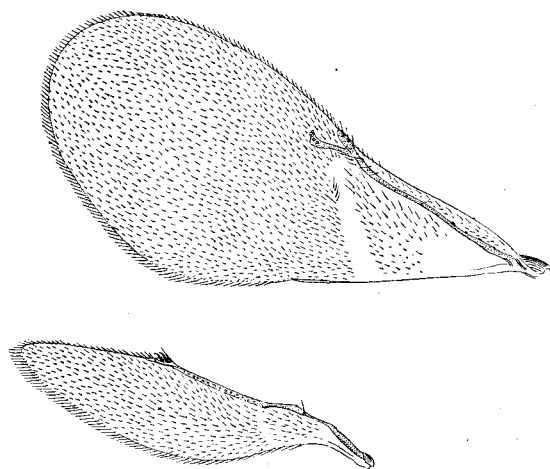


FIG. 3.—*Schedius kuvanae*: Fore and hind wings of female. Highly magnified. (Original.)

sparingly ciliate; marginal vein punctiform, stigmal much as with *Schedius*; submarginal vein with a pronounced and curious break beyond middle as illustrated in figure 5; hind wings broader than with *Schedius*.

*Male*.—Body short, stout; mesonotum highly arched; abdomen flat, broadly ovate. Antennæ long, submoniliform, ventral outline

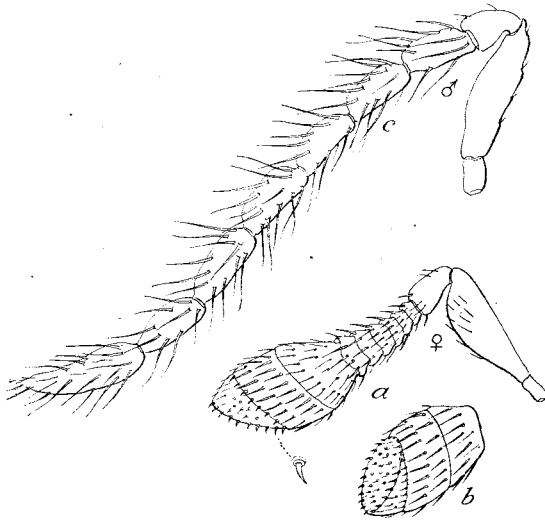


FIG. 4.—*Tyndarichus navæ*: a, Antenna of female; b, club of same, from below; c, antenna of male. Highly magnified. (Original.)

of funicle joints nearly straight, dorsal outlines somewhat rounded; scape short, subcylindrical, very slightly widened ventrally; pedicel shorter than first funicle joint; all funicle joints subequal in length and width, the sixth rather shorter; club slightly flattened, long-ovate, pointed at tip, one and one-half times longer than sixth funicle joint; the whole flagellum beyond pedicel rather abundantly furnished with long,

slightly curving bristles, having no marked tendency to form definite whorls, each bristle about as long as its sclerite.

*Type*.—The following species:

**TYNDARICHUS NAVÆ, new species.**

(Figs. 4, 5.)

*Female*.—Length, 1.08<sup>mm</sup>; expanse, 2.19<sup>mm</sup>; greatest width of fore wing, 0.39<sup>mm</sup>. Entire body black, shining; head and mesonotum very faintly shagreened; vertex and cheeks with steel-blue reflections; mesoscutellum with coppery reflections; antennæ dark brown, with light brown pile; all legs dark brown, nearly black except at tips of tibiæ and all tarsi.

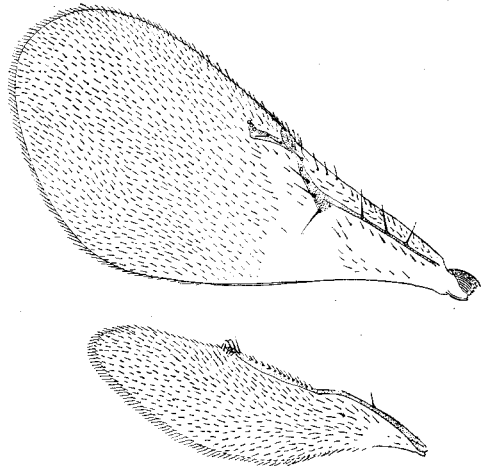


FIG. 5.—*Tyndarichus navæ*: Fore and hind wings of female. Highly magnified. (Original.)

*Male*.—Length, 0.93<sup>mm</sup>; expanse, 2.19<sup>mm</sup>; greatest width of fore wing, 0.44<sup>mm</sup>. Differs from female, aside from characters mentioned in generic description, very slightly. Antennæ brownish, with black



hairs. General appearance of body more opaque than with the female and metallic reflections less distinct; leg coloration identical.

Described from seven female and four male specimens reared from the eggs of *Porthetria dispar*, June, July, and August, received from U. Nawa, Gifu, Japan, after whom the species is named.

*Type*.—No. 12159, U. S. National Museum; Gipsy Moth Laboratory Nos. 1625, 1020, and 1039.

This parasite has also been imported from Japan in eggs collected by Professor Kuwana, and seems to follow *Schedius* in distribution in Japan. It is very much less common, but varies in abundance in different lots of eggs. Unlike *Schedius*, it has been reared freely from the eggs collected and forwarded during the winter, emerging at various times in the spring and summer. So far as indicated by a considerable number of dissections made by Messrs. Fiske and

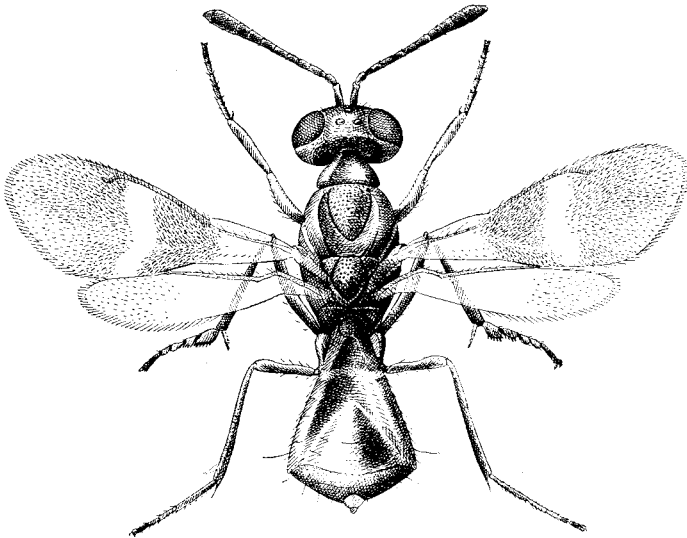


FIG. 6.—*Anastatus bifasciatus*: Female. Highly magnified. (Original.)

Smith, it is invariably secondary. Its host is usually *Schedius*, occasionally *Pachyneuron*, and possibly *Anastatus*.

Subfamily EUPELMINÆ Howard.

Tribe EUPELMINI Ashmead.

Genus ANASTATUS Motschulsky.

ANASTATUS BIFASCIATUS (Fonscolombe).

(Fig. 6.)

*Cynips bifasciata* Fonscolombe.

*Eupelmus bifasciatus* Förster, 1860.

*Eupelmus bifasciatus* Wachtl, 1882 (from eggs of *Ocneria dispar*).

This very widespread parasite is an important enemy of the gipsy moth. It has been reared at the Parasite Laboratory at Melrose

Highlands by Mr. Fiske and assistants from egg-masses received from all parts of Japan, but more commonly from those collected in Fukuoka, these egg-masses having been sent in by several of the energetic Japanese correspondents of the Bureau, but principally by Mr. U. Nawa and Prof. S. I. Kuwana. It has also been reared from eggs sent from the Crimea by Prof. S. Mokshetsky, and in especial abundance from eggs sent from Hungary by Prof. J. Jablonowski. The species appears to be much more common in European countries, but is apparently local in its European distribution. Dalla Torre records it from France and from lower Austria. Many thousands of specimens of this species have been reared at the Parasite Laboratory. It attacks the egg of *dispar* very shortly after the latter is deposited, and requires a full year for a generation—a fact which, while it would seem to reduce its possible value as an effective parasite of the gipsy moth, really enhances it as an introduced species, since it is independent of other insects for alternate hosts at seasons when eggs of the gipsy moth are not available. The accompanying figure was drawn from a museum specimen. In life the abdomen is not sunken dorsally.

Family PTEROMALIDÆ Ashmead.

Subfamily SPHEGIGASTERINÆ Ashmead.

Tribe PACHYNEURINI Ashmead.

Genus PACHYNEURON Walker.

PACHYNEURON GIFUENSIS Ashmead.

*Pachyneuron gifuensis* Ashmead, Journ. N. Y. Ent. Soc., XII, No. 3, p. 158, September, 1904.

This species, described by Ashmead as above, was part of a collection referred to the U. S. National Museum some years ago by Professor Mitsukuri, of Tokyo. It has recently been imported from Japan in eggs of *dispar* collected by Prof. S. I. Kuwana, and is apparently common in the vicinity of Tokyo. In habits it is like *Tyndarichus navæ*, as determined by Messrs. Fiske and Smith at the Parasite Laboratory, but it is a little less common and issues in the spring. It is a hyperparasite, and attacks *Schedius kuvanæ* and *Tyndarichus navæ* as well; in the first instance being secondary and in the other instance tertiary. In one instance at the laboratory it was reared from an egg which originally contained *Anastatus bifasciatus*. The type and two other specimens were reared by Mr. Y. Nawa from an aphid at Gifu, Japan, undoubtedly parasitic on some primary parasite of the Aphidid.

## Family EULOPHIDÆ Ashmead.

Subfamily ELACHERTINÆ Ashmead.

Tribe ELACHERTINI Ashmead.

Genus ATOPOSOMOIDEA, new genus.

*Female*.—Apparently this genus comes near *Atoposoma* Masi, as the proposed name suggests, and is distinguished chiefly by the solid thorax, naked eyes, somewhat less elevated vertex, slightly different dentation of the mandibles, low insertion of the antennæ, different proportions of the antennal sclerites, and greater length of post-marginal vein—all of which are indicated in the accompanying illustration (fig. 7). *Atoposoma* is closely related to *Zagrammosoma* Ashmead, also parasitic on a Lepidopterous larva.

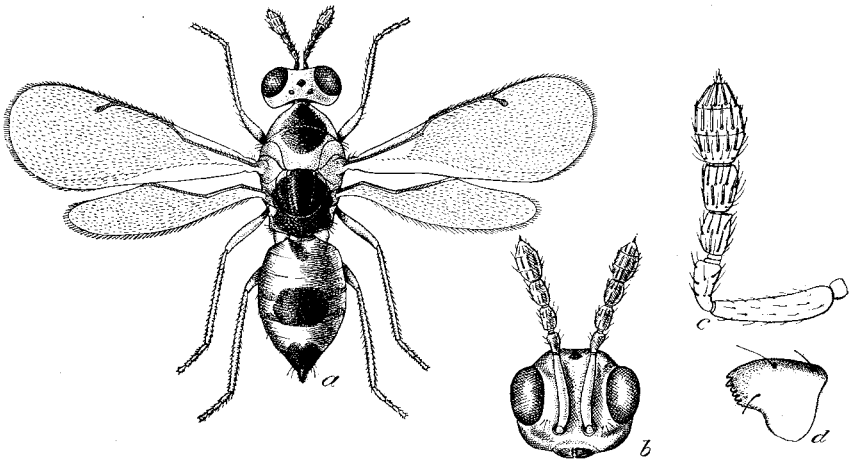


FIG. 7.—*Atoposomoidea ogimæ*: a, Female; b, head of same, anterior aspect; c, antenna of same; d, mandible of same. a, Very much enlarged; b-d, highly magnified. (Original.)

*Male*.—Differs from female in its shorter antennæ, which are furnished with rather dense pile which is shorter than with female. It also has a shorter abdomen.

*Type*.—The following species:

**ATOPOSOMOIDEA OGIMÆ, new species.**

(Fig. 7.)

*Female*.—Length, 1.65<sup>mm</sup>; expanse, 2.66<sup>mm</sup>; greatest width of fore wing, 0.5<sup>mm</sup>. Pronotum and entire mesonotum finely shagreened. Mesopleura also finely shagreened. General color lemon-yellow. Head with a large, black occipital spot; a large, nearly circular, black spot on pronotum and mesonotum, divided in about its middle by the pronotal suture; central portion of mesoscutellum black, and

the sides as well, below middle; metanotum black; abdomen with a black, rounded spot dorsally just below middle, abdomen also black at tip; antennæ brownish, with a whitish pile; all legs light yellow.

In the markings the species is extremely variable. A frequent variation from what we may call the typical markings as shown in the illustration, is the absence of the black spot on mesoscutellum, although sometimes it is represented by a minute central dot; the occipital black spot is frequently lacking; the pronotal and mesoscutal spots frequently become greatly reduced in size. On the other hand, in many specimens the black spots become greatly enlarged so as to make black almost the predominant color of the insect.

*Male*.—Length, 1.26<sup>mm</sup>; expanse, 2.43<sup>mm</sup>; greatest width of fore wing, 0.43<sup>mm</sup>. Antennæ yellowish, with abundant, long, white pile. Color as with female, except that entire apical half of dorsum of abdomen is black, and entire pronotum is black. There is almost the same range of variation in size of black spots as with the female.

Described from 43 female and 8 male specimens reared from cocoons of *Glyptapanteles japonicus* Ashmead, received from Trevor Kincaid during the summer of 1908 from various localities in Japan, and from other cocoons of the same species received from S. I. Kuwana during the summer of 1909 from different localities in Japan. Named after Prof. G. Ogima, Assistant Entomologist, Kyushiu Experiment Station, Kumamoto, Japan, in recognition of his valuable services.

*Type*.—No. 12681, U. S. National Museum; Gipsy Moth Laboratory Nos. 1623 and 1074.

There is a single female of this species, labeled "Kumamoto, Japan, reared 10th of May, 1907, by G. Ogima, egg-parasite of *P. dispar*." This specimen was not sent to the writer by Professor Ogima himself directly, but either through Professor Kuwana or Mr. Kincaid, and it is the receipt of this specimen which justifies the description of this new genus and species in a paper on the egg-parasites of the gipsy moth. Very large numbers of this parasite, however, have been reared at the Parasite Laboratory at Melrose Highlands, by Mr. Fiske, from the cocoons of the *Glyptapanteles*, and it is very possible that a mistake has arisen in Japan through the rearing of this species apparently from an egg-mass of *dispar* which had been laid over a mass of *Glyptapanteles* cocoons. Similar instances have occurred before, notably in the case of Ashmead's *Ablerus clisiocampæ*, which apparently came from an egg-mass of *Clisiocampa* but in reality from *Chionaspis furfura* on the bark of the twig under the egg-mass of the Lepidopterous insect. Similarly the writer's *Iso-dromus iceryæ* was apparently reared by Mr. D. W. Coquillett from egg-masses of *Icerya purchasi* but in reality came from a *Chrysopa*

cocoon hidden among the egg-masses and so covered with wax as probably to be indistinguishable.

Several species of Elachertines of this general type, including at least one undescribed genus in addition to *Atoposoma* and *Zagrammosoma*, have been reared from Microlepidopterous larvæ. The first one that the writer ever saw was reared from *Lithocolletis fitchella* in Washington in 1879. Others were reared from leaf-miners from Florida, but none of these striking forms was described until Ashmead<sup>a</sup> described the genus *Hippocephalus* for a species, *multilineatus*, reared by Mr. C. L. Marlatt from *Lithocolletis ornatella*. On account of the preoccupation of the name *Hippocephalus*, Ashmead, in his monograph of the Chalcidoidea, changed the name to *Zagrammosoma*. Masi's type of *Atoposoma* (*A. variegatum*) fed in the larval state exteriorly on a larva of the Lepidopter, *Æcophyllembius neglectus*. The present genus, *Atoposomoidea*, appears to be the first Chalcidid of this markedly beautiful and peculiar facies to have been reared from a Braconid cocoon, and we must assume from the great numbers in which these rearings have been made that the habit is normal for this species.

Subfamily APHELININÆ Howard.

Tribe APHELININI Ashmead.

Genus PERISSOPTERUS Howard.

PERISSOPTERUS JAVENSIS Howard.

*Perissopterus javensis* Howard, New Genera and Species of Aphelininae, Tech. Ser. 12, Pt. IV, Bur. Ent., U. S. Dept. Agr., Washington, p. 88, July 12, 1907.

The type series of this beautiful little parasite was reared in February, 1900, by A. Koebele from a scale insect of the genus *Tachardia* on an ornamental plant at Singapore, Straits Settlements. All of the other species of the genus have been reared invariably from scale insects and nothing else. A record of the issuance of *P. javensis* from gipsy moth eggs is therefore open to doubt, and one's first impression is that it must have come from some scale insect over which a *dispar* egg-mass had been laid. Nevertheless, according to Mr. Fiske, the single female submitted to the writer for determination came from a *dispar* egg received from Professor Kuwana from near Tokyo. The apparent great discrepancy between this statement and the previous records renders it desirable to give an explicit statement of the facts as observed by Mr. Fiske. From his original notes it is found that December 9, 1908, a lot of 250 egg-masses of *dispar*, collected in Tokyo November 5, 1908, by Professor Kuwana, was received. One of these egg-masses was thin, with the hairy covering badly weathered, and many of the eggs exposed. Critical examina-

<sup>a</sup>Bulletin 3, Kans. St. Exp. Sta., 1888.

tion of this mass indicated that 181 of the eggs were apparently healthy. Parasites had emerged from 108, while the dead or doubtful eggs numbered 35. Mr. Fiske thinks that the parasites that had emerged were probably *Schedius*. On December 14 the 35 eggs of the third category were assorted into those which appeared to contain parasites and those which were dead. They were emptied into a watch glass, and a single, small, living parasite (the *Perissopterus* under consideration) was found. Careful examination of the eggs showed two which had very small round holes in the side, from either of which the parasite might have come. These holes were smaller than those usually made by any of the other known parasites. These eggs were separated from the others, and on March 4 one of them was boiled in caustic potash (KOH) and its contents examined. Fragments of the pupal exuvium of a small Chalcidid different from that of any other parasite studied was found and mounted. There was no other indication of any other parasite in the egg, and the one which emerged appeared to have fed upon the caterpillars primarily. No parasite remains were found in the other pierced egg. The parasite found on December 14 was placed in a small vial with a variety of eggs, including some of *dispar* that contained larvæ of *Anastatus*, others that contained healthy *dispar* caterpillars, and some of the tussock moth. The *Perissopterus* (which was a female) lived for some days, but showed no interest in any of the eggs.

Family PROCTOTRYPIDÆ Ashmead.

Subfamily SCELIONINÆ Howard.

Tribe TELENOMINI Ashmead.

Genus TELENOMUS Haliday.

TELENOMUS, new species.

In the autumn of 1897 there was received from Prof. S. Mokshetsky, of Simferopol, Russia, a single specimen of a new species of *Telenomus*, which he reared during September, 1906, from the eggs of the gipsy moth. As probably Professor Mokshetsky will describe this species himself, it is given no name at this time. Curiously enough, it belongs to the same group of the genus to which *Telenomus cultratus* Mayr belongs much more closely than to any of the species reared from Lepidopterous eggs. *T. cultratus* lives both as larva and pupa in the eggs of the Pentatomidæ, from which it has been reared by Rogenhofer and Hofmann. This new species does not appear to be an important parasite of *dispar* eggs, since this is the only rearing known to us, and none has been recorded.