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THE CHALCIDOID FAMILY *TRICHOGRAMMATIDÆ*.

I. TABLES OF THE SUBFAMILIES AND GENERA AND REVISED

CATALOGUE.

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I. INTRODUCTORY.

The family *Trichogrammatidæ* was first recognized as such by Arnold Foerster in 1856. Since that time it has held its identity. A half century later, Ashmead (1904a) recognized two subfamilies, founded upon the two groups of genera first outlined by Haliday in 1851. The family seems to be worthy of the rank attributed to it, although it is certainly a derivative of insects like the *Aphelininæ* of the *Eulophidæ* or some Aphelinine-like Eulophid. Certain of the genera bear a number of encyrtine characters but the assemblage of characters more nearly resembles those of the *Eulophidæ*. Indeed, are not the members of this family merely Eudophids which have lost one tarsal joint and which have other characters and habits giving them group distinctness?

The family seems to be of comparatively recent origin, more youthful than the Eulophids; no fossil species have been discovered; the species of such genera as are well known appear to be highly variable and still in process of formation, a criterion which I believe denotes comparative youthfulness; otherwise we should expect to find gaps between them. Moreover, minuteness is a characteristic of the group. The genera are also in many cases indistinct, bearing this out more conclusively. In a word, we appear to have here a natural group evolved from an Aphelinine-like ancestor and which is still evolving, not having as yet reached comparative stability*. Whether we call this group a family or subfamily matters not.

For the sake of clearness and convenience the family *Trichogrammatidae* was divided by Ashmead (1904a) into two group-

* On the other hand, the group has been in existence long enough to develop parthenogenesis and both color and sexual dimorphism. There are no other Chalcidids known to have two structurally distinct male forms and this phenomenon is rare, if not absent, in all other Hymenopterous groups, excepting ants. It is therefore a special development. Parthenogenesis may be a persistence here. It is true, too, that great variability indicates old age but with this group it is not excessive.

ings of genera based on the discal ciliation of the fore wing. A glance at his arrangement shows such marked parallelism that the thought at once arises that these groups are not natural, since parallelism in a small group of this kind would scarcely have arisen. Divergence would fulfill the expectations, and, moreover, since discal ciliation of the fore wing is more variable (therefore less fundamental) than venation of the fore wing, I have concluded that a division based upon the latter would give us a more natural arrangement. Consequently, Ashmead's subdivisions have been rejected and others made which I believe more nearly attain the truth.

In August, 1910, I gave a summary of the number of valid genera and species of this family, then admitting fourteen genera and thirty-two species. Now, I reject two of these genera as synonyms—namely, *Pentharthron* Riley and *Westwoodella* Ashmead; but have described fifteen new genera and twenty new species. Perkins has added three more species and I have about three new genera and two dozen more new species described in manuscript*.

Thus the family now (December, 1911) consists of thirty genera and approximately seventy-five species and two varieties, fifty-six species described to date and admitted as valid and recognizable**.

II. REVISED TABLE OF THE TRICHOGRAMMATIDAE, BASED ON
FEMALES.

Family *Trichogrammatidae* Foerster.

Submarginal vein of fore wing reaching the costal wing margin at the point where it joins the marginal vein, the latter straight or nearly so, the stigmal vein forming more or less of an acute angle with it. Venation of fore wing straight.

* All Australian species. One genus belongs to the tribe *Trichogrammatini*; the species are not catalogued here. The genus mentioned is based on *Paratrichogramma cinderella* new genus and species and is characterized by bearing but a single funicle joint; the antennæ 5-jointed and otherwise as in *Trichogramma*; the venation is weak, the curved marginal vein shorter than the stigmal. The species *cinderella* is dusky yellowish, the antennæ and legs dusky or greyish black (proximal two tarsal joints, trochanters, knees and distal third of tibiae white); caudal wings colorless; fore wings sooty out to riddle of the marginal vein, then clear, its venation colorless excepting the brownish stigmal vein and distal, clavate end of the submarginal. The genus and special will be fully described later, in a more proper place. The male is not known.

** One new name is proposed in this paper because of preoccupation.

Subfamily I. *Chætostrichinæ* Girault.

Submarginal vein of fore wing not reaching the costal wing margin but joining directly with the incurved proximal end of the marginal vein, the latter curved, the distal end of the submarginal, the marginal and stigmal veins forming a regular sigma or arch whose apex is at about the middle of the marginal vein, where it reaches the costa; or the veins forming a regular bow at the marginal vein. Venation of fore wing curved.

This subfamily includes the following genera: *Chætostricha* Haliday, *Brachista* Haliday, *Oligosita* Haliday, *Centrobia* Foerster, *Lathromeris* Forester, *Ophioneurus* Ratzeburg, *Prestwichia* Lubbock, *Pterygogramma* Perkins, *Aphelinoidea* Girault, *Tumidiclava* Girault, *Abbella* Girault, *Zaga* Girault, *Uscana* Girault, *Ufens* Girault, *Ittys* Girault, *Japania* Girault, *Tumidifemur* Girault, *Uscanella* Girault, *Uscanoidea* Girault and *Brachistella* Girault. In order to facilitate recognition of the genera I have established the following tribes, none of which, however, appear to be natural groups. But I have reduced the value of the kind of discal ciliation to a generic basis.

Antennal funicle present—Tribe I. *Chætostrichini*.

Genera: *Brochista*, *Oligosita*, *Prestwichia*, *Chætostricha*, *Centrobia*. *Ittys*, *Abbella*, *Japania* and *Brachistella*.

Antennal funicle absent—Tribe II. *Lathromerini*

Genera: *Lathromeris*, *Ophioneurus*, *Pterygogramma*, *Aphelinoidea*, *Tumidiclava*, *Zaga*, *Uscana*, *Uscanoidea*, *Uscanella* and *Tumidifemur*.

Table of the Genera of the *Chætostrichini*.

- A. Ovipositor not exserted nor prominent, nor is its valves.
- B. Antennæ 8-jointed.
 - C. Antennæ bearing two ring-joints, one funicle joint and a 3-jointed club. Fore wings broad, distad with long marginal cilia. **Brachista** Haliday (Type: *Brachystira pungens* Mayr).
 - CC. Antennæ bearing one ring joint, two funicle joints and a 3-jointed club.
 - D. Fore wings with the discal ciliation normal.
Fore wings moderate in width, the marginal cilia at apex moderately short; abdomen conic-ovate; pedicel of antennæ larger than funicle; stigmal vein nearly neckless.

Brachistella Girault (Type: *Trichogramma acuminatum* Ashmead).

- DD. Fore wings with the discal ciliation arranged, more or less, in longitudinal lines.
- E. Stigmal vein sessile or neckless; no oblique line of discal ciliation leading back from stigmal vein.
Discal ciliation of fore wing sparse, the marginal cilia long. Fore wings as in *Oligosita*; antennæ with the funicle joints wider than long. **Abella** Girault (Type: *A. subflava* Girault).
- EE. Stigmal vein with a short but distinct neck; an oblique line of discal cilia leading back from that vein.
- F. Marginal vein of fore wing long, over twice the length of the comparatively long stigmal vein.
Antennæ long, distinctly segmented; ciliation of fore wings comparatively coarse; dense discally, those of the margin short; body large, robust, the abdomen conic-ovate. Fore wings regularly rounded at apex. Funicle joints of antennæ longer than wide. **Itys** Girault (Type: *Trichogramma ceresarum* Ashmead).
- FF. Marginal vein of fore wings short, only slightly longer than the stigmal vein.
- G. Antennæ with the funicle apparently twisted and indistinctly divided obliquely, much larger than the pedicel; male antennæ with one more joint, differing in shape, cylindrical and clothed with long hairs; abdomen short, stout, obliquely truncate at apex. Fore wings short and broad, obliquely rounded at apex, the discal ciliation bearing some peculiarly distinct lines; marginal ciliation of the fore wing very short; neck of stigmal vein not slender. **Ufens** Girault (Type: *Trichogramma nigrum* Ashmead).
- GG. Antennæ with the funicle normal and shorter than the pedicel; male antennæ not differing in shape; abdomen longer than the thorax, conic-ovate; acute at apex; fore wings slender, without some of the lines of discal ciliation peculiarly distinct; convexly rounded at apex, the marginal ciliation moderately short neck of stigmal vein slender. **Japania** Girault (Type: *J. ori* Girault).

- BB. Antennæ 7-jointed; discal ciliation of the fore wing sparse and more normal than otherwise.
Fore wings slender, with long marginal cilia, the marginal vein long; antennæ with one funicle joint and one ring joint, slender, distinctly segmented; stigmal vein subsessile; abdomen long, conic-ovate. **Oligosita** Haliday (Type: *O. collina* Haliday).
- BBB. Antennæ 6-jointed; discal ciliation of the fore wing dense and arranged in regular longitudinal lines.
Fore wings noticeably broad, with short, close-set marginal and discal ciliation. Abdomen conical, larger than the thorax. Antennæ without a ring-joint, the club 3-jointed, not especially stout or enlarged, the funicle one-jointed, stout. **Chætosricha** Haliday (Type: *C. dimidiata* Haliday).
- AA. Either the ovipositor or its valves is distinctly exserted or else long and prominent.
 - B. Antennæ 7-jointed, Ovipositor long, enclosed to its tips within the long and tubular terminal segment of the abdomen which is nearly a third of the latter's length; legs long and slender; abdomen long and jointed. Antennæ bearing a minute, ovate ring-joint, one funicle joint and a 3-jointed club; wings moderately narrow, with long marginal cilia. **Prestwichia** Lubbock (Type: *P. aquatica* Lubbock).
 - BB. Antennæ 6-jointed. Ovipositor nakedly exserted and long; antennæ without a ring-joint, the club 3-jointed, not enlarged, the funicle 1-jointed. **Centrobia** Foerster (Type: *Trichogramma walkeri* Foerster).

The males of *Abbella*, *Ittys*, *Japania*, *Oligosita*, *Chætosricha*, *Centrobia* and *Prestwichia* are essentially the same as the females; but in *Ufens*, the male antennæ are cylindrical and 9-jointed, the club terminating in a small fourth joint; the males of *Brachista* and *Brachistella* are unknown.

Table of the Genera of the *Lathromerini*.

- A. Antennal club more than 2-jointed.
 - B. Ovipositor or the valves exserted, not always to a great length, but distinctly so.
 - C. Antennæ 9-jointed, without a ring-joint, the club 7-jointed, stout. Fore wings moderately broad, the marginal vein moderate in length, apparently curved; stigmal vein curved, distinct, with a neck. Ovipositor much exserted. **Ophioneurus** Ratzeburg (Type: *O. signatus* Ratzeburg).

- CC. Antennæ 6-jointed, bearing a single, hidden, minute ring-joint and a conic-ovate 3-jointed club; marginal vein of fore wing long, straight, subequal to the submarginal vein, the stigmal vein subsessile; ciliation sparse, regular, the marginal cilia very short. Valves of ovipositor plainly but shortly exserted. Normal. **Pterygogramma** Perkins (Type: *P. acuminata* Perkins).
- BB. Ovipositor not exserted.
- C. Antennæ 7-jointed.
- D. Antennæ bearing *one* minute ring-joint; the club 4-jointed, slightly enlarged. Fore wings with the marginal vein moderately long, the marginal ciliation short, the discal ciliation rather dense and in more or less regular lines. **Lathromeris** Foerster (Type: *L. scutellaris* Foerster).
- DD. Antennæ bearing *two* minute ring-joints, the club 3-jointed, conspicuously enlarged, the antennæ capitate. Discal ciliation of fore wing not so dense and more or less irregular or normal. **Tumidiclava** Girault (Type: *T. pulchrinotum* Girault).
- CC. Antennæ 6-jointed.
- D. Discal ciliation of the fore wing dense, but arranged in regular lines; no oblique hairless line.
- E. Antennæ *with* a ring-joint, the club 3-jointed; body short and stout, the abdomen blunt, not any longer than the thorax and head taken together; marginal vein of fore wing not clavate. **Uscana** Girault (Type: *U. semifumipennis* Girault).
- EE. Antennæ *without* a ring-joint, the club 4-jointed; body long and slender, the abdomen pointed, conic-ovate, longer than the head and thorax together; marginal vein of the fore wing clavate. **Zaga** Girault (Type: *Z. latipennis* Girault).
- DD. Discal ciliation of fore wing dense and normal, not arranged in regular lines. An oblique hairless line as in **Aphelinus** Dalman. Antennæ with *one* ring-joint, the club 3-jointed; abdomen short obtusely conical; marginal vein of fore wing long. **Tumidifemur** Girault (Type: *T. pulchrum* Girault).

- AA. Antennal club 2-jointed.
 - B. Discal ciliation of the fore wing arranged in regular lines.
 - C. Antennæ 6-jointed, bearing two ring-joints; marginal cilia of fore wings moderately long; discal ciliation sparse, the oblique line absent; abdomen short, blunt. ***Uscanella*** Girault (Type: *U. bicolor* Girault).
 - CC. Antennæ 4-jointed, without ring-joints; marginal cilia of fore wings moderately short; the oblique line of discal ciliation present; abdomen conic-ovate, as long as the head and thorax combined. ***Uscanoides*** Girault Type: *U. nigriventris* Girault.
 - BB. Discal ciliation of fore wing normal and dense.
- Antennæ 5-jointed, bearing a single ring-joint, the club cylindrical; stigmal vein very short. ***Aphelinoidea*** Girault (Type: *A. semifumipennis* Girault).

The males of *Ophioneurus*, *Aphelinoidea*, *Tumidiclava*, *Tumidifemur*, *Uscanella* and *Zaga* are unknown; those of *Lathromeris*, *Uscana* and *Uscanoides* are practically like the females; likewise the male of *Pteryogramma* which differs from the female noticeably only in the shape of the abdomen.

Subfamily II. *Trichogrammatinae* Girault.

This subfamily includes the following: *Trichogramma* Westwood, *Calleptiles* Haliday, *Poropaea* Foerster, *Asynacta* Foerster, *Neotrichogramma* Girault, *Trichogrammatoidea* Girault and *Trichogrammatella* Girault. For convenience it may be subdivided into the following tribes, the division based on what appears to be natural evolution of the venation.

Arch formed by the venation of the fore wing (Marginal vein mostly is bow or crescent shaped, a gradual convexity, less pronounced—Tribe I. *Trichogrammatini*. Genera: *Trichogramma* Westwood, *Calleptiles* Westwood, *Trichogrammatoidea* Girault, *Trichogrammatella* Girault and *Neotrichogramma* Girault.

Arch formed by the venation of the fore wing (marginal vein mostly) is () shaped or sigmoid, pronounced, the marginal vein touching the costa only at its extreme apex.—Tribe II. *Poropaeini*. Genera: *Poropaea* Foerster and *Asynacta* Foerster.

Table of the Genera of *Trichogrammatini*.

- A. Antennal club solid, comprising but a single joint; antennæ 6-jointed, the funicle 2-jointed*.
 - B. Ovipositor not exserted, merely attaining to the end of the abdomen, the latter blunt.
 - C. Fore wings relatively broader, the discal and marginal ciliation short; antennal funicle without minute bladder-like appendages; male antennæ not distinctly segmented, apparently 4-jointed, the distal joint long, a funicle-club, and nodular. *Trichogramma* Westwood (Type: *T. evanescens* Westwood).
 - CC. Fore wings relatively narrower, the marginal ciliation distad moderately long; antennal funicle with minute bladder-like appendages; male antennæ distinctly 8-jointed. *Trichogrammatoides* Girault (Type: *Chetostricha nana* Zehntner).
 - BB. Ovipositor plainly exserted, but not for a great length; abdomen more or less acutely pointed. Like *Trichogramma* Westwood. *Neotrichogramma* Girault (Type: *Trichogramma japonicum* Ashmead).
- AA. Antennal club 3 to 5-jointed; antennæ 8-jointed; the funicle sometimes absent.
 - B. Antennal club 3-jointed, the funicle 2-jointed; abdomen subcylindrical, thorax long. (Male) *Calleptiles* Haliday (Type: *C. latipennis* Haliday).
 - BB. Antennal club 5-jointed, the funicle absent; abdomen with parallel sides and blunt apex; intermediate tibial spurs long and slender; posterior wings short. *Trichogrammatella* Girault (Type: *T. tristis* Girault).

The males of *Trichogramma* and *Neotrichogramma* differ from the females in antennal structure, the funicle not being differentiated from the club; the males of *Trichogrammatoides* bear 8-jointed antennæ; those of *Trichogrammatella* are practically identical with the females.

Table of the Genera of the *Poropæini*.

- A. Ovipositor exserted, long.
 - Antennæ 7-jointed, clavate, without a ring-joint, the funicle 2-jointed, the club 3-jointed. Fore wings moderately broad, their marginal cilia moderately short. Submarginal veins much longer than the stigmal or marginal veins. Pedicel of antennæ shorter

* Funicle 1-jointed—*Paratrichogramma cinderella*; see introductory.

than the first funicle joint. Discal ciliation of the fore wing arranged in regular lines. *Porepaea* Foerster Type: (*P. stollerckii* Foerster).

AA. Ovipositor not exserted.

Antennae 9-jointed, with 2 ring-joints, the club 3-jointed; fore wings broad with short marginal cilia. Discal ciliation of the fore wing dense, normal. *Asynacta* Foerster (Type: *Eulophus exiquus* Nels).

The male antennae of *Porepaea* are slenderer than those of the female but otherwise similar; the male of *Asynacta* is not known.

SYNONYMIC AND REVISED CATALOGUE OF THE *Trichogrammatidae*.

The following catalogue does not include every citation for genus and species, but just the principal nomenclatorial facts for each genus and species and for the family.

FAMILY *Trichogrammatidae* FOERSTER.

Eulophidae (position uncertain) Haliday, 1833.

Eulophidae (partim) Nées ab Esenbeck, 1834.

Encyrtidae (partim) Westwood, 1840.

Unnamed tribe Haliday, 1843.

Eulophidae (partim) Walker, 1846.

Trichogrammini (tribus) Haliday, in Walker, 1851.

Trichogrammatoidæ (family) Foerster, 1856.

Trichogramminen, Reinhard, 1858; Kirchner, 1867; Walker, 1851; Dours, 1874.

Trichogrammina (tribus) Thomson, 1878.

Trichogramminæ (subfamily) Howard, 1885a; 1886; Cresson, 1887.

Trichogrammidæ (family) Ashmead, 1896.

Trichogrammatinæ Aurivillius, 1897; De Dalla Torre, 1898; Howard, 1898a.

Trichogrammidæ Ashmead, 1904a; Perkins, 1906b.

Trichogramminæ Schmiedeknecht, 1907; 1909.

Trichogrammatidæ Girault, 1911a.

The subfamilies proposed by Ashmead (1904a), after much consideration, have been rejected as being less natural than the following arrangement.

SUBFAMILY I. *Chætostrichina* GIRAULT.

Tribe I. *Chætostrichina* Girault.

Genus *Brachista* Haliday, 1851.

Brachista Walker—Foerster, 1856.

Brachysticha Foerster, 1856.

Brachysticha Foerster—Ashmead, 1894.

Brachista Haliday—Aurivillius, 1897.

Brachista Haliday—Ashmead, 1904a.

Brachystira Foerster—Mayr, 1904. (Nomen lapsus for *Brachysticha*).

Brachista Walker—Schmiedeknecht, 1909.

Really no synomyns. Genus without a species until 1904.

1. **Brachista pungens** (Mayr).

Brachystira pungens Mayr, 1904, pp. 590-592.

Genus **Brachistella** Girault, 1911.

1. **Brachystella acuminata** (Ashmead).

Trichogramma acuminatum Ashmead, 1888, p. 107.

? *Brachysticha acuminata* (Ashmead), 1894-1895, p. 172.

Brachista acuminata (Ashmead)—Schmiedeknecht 1909, p. 482.

Abbella acuminata (Ashmead)—Girault, 1911b, pp. 77-82.

Genus **Abbella** Girault, 1911.

1. **Abbella subflava** Girault.

Abbella subflava Girault, 1911a, pp. 11-13; pl. I, figs. 4-5.

2. **Abbella nympha** Girault.

Abbella nympha Girault, 1911e, pp. 197-198.

Genus **Ittys** Girault.

1. **Ittys ceresarum** (Ashmead).

Trichogramma ceresarum Ashmead, 1888, p. 107.

Ittys ceresarum (Ashmead)—Girault, 1911a, pp. 25-30; pl. I, figs. 8 and 9.

Genus **Ufens** Girault, 1911.

1. **Ufens niger** (Ashmead).

Trichogramma nigrum Ashmead, 1888, p. 107.

Ufens niger (Ashmead)—Girault, 1911a, pp. 32-38, pl. I, fig. 10.

2. **Ufens luna** Girault.

Ufens luna Girault, 1911e, pp. 198-199.

Genus **Japania** Girault, 1911.

1. **Japania ovi** Girault.

Japania ovi Girault, 1911b, pp. 44-45.

Genus **Oligosita** Haliday, 1851.

Westwoodella Ashmead, 1904a.

1. **Oligosita collina** Haliday.

Oligosita collina Haliday, 1851, p. 212.

2. **Oligosita subfasciata** Westwood.

Oligosita subfasciata Westwood, 1879, pp. 591, 593; pl. 73, figs. 14-19.

Westwoodella subfasciata (Westwood)—Ashmead, 1904a, p. 359.

3. **Oligosita staniforthii** Westwood.

Oligosita staniforthii Westwood, 1879, p. 591; pl. 73, figs. 20, 21.

4. ? **Oligosita nodicornis** Westwood.
Oligosita ? nodicornis Westwood, 1879; p. 592; pl. 73, fig. 22.
5. **Oligosita americana** Ashmead (Girault).
Oligosita americana Ashmead—Girault, 1909, pp. 106-110.
6. **Oligosita hilaris** (Perkins).
Westwoodella hilaris Perkins, 1911, pp. 658-659, text fig.
7. **Oligosita sanguinea** (Girault).
Oligosita sanguinea Girault, 1911b, pp. 58-63, fig. 1.
Westwoodella clarimaculosa Girault, ib., p. 67.
- 7a. **Westwoodella sanguinea clarimaculosa** Girault, 1911g, p. 126.
8. **Oligosita subfasciatipennis** (Girault).
Westwoodella subfasciatipennis Girault, 1911b, pp. 63-66.
9. **Oligosita comosipennis** (Girault).
Westwoodella comosipennis Girault, 1911b, pp. 66-67

Genus **Chætostricha** Haliday.

- Chætostricha* Walker—Foerster, 1856, pp. 86, 89.
Chætostrinx Foerster, ib., p. 89.
Lathromeris Foerster—Aurivillius, 1897.
Paracentrobia Howard, 1896, p. 178.
 Only one true synonym.
1. **Chætostricha dimidiata** Haliday.
Chætostricha dimidiata Haliday, 1851, pp. 211-212.
 2. **Chætostricha punctata** (Howard).
Paracentrobia punctata Howard, 1896, p. 178.
 3. **Chætostricha flavipes** (Girault).
Paracentrobia flavipes Girault, 1905, pp. 287-288.
Chætostricha flavipes (Girault), 1911b, pp. 75-77, figs. 2-3.

Genus **Prestwichia** Lubbock, 1864.

1. **Prestwichia aquatica** Lubbock.
Prestwichia aquatica Lubbock, 1864, pp. 140-141.
Prestwichia aquatica Lubbock—Girault, 1911d, pp. 209-210.

Genus **Centrobia** Foerster.

Trichogramma Westwood—Foerster, 1851, pp. 26-28.

Calleptiles Haliday—Foerster, 1856, p. 89.

Really no synonyms.

1. **Centrobia walkeri** (Foerster).
Trichogramma walkeri, Foerster, 1851, pp. 26-28 and footnote
to p. 27; tab. I, fig. 9, a, b, c.
Calleptiles walkeri (Foerster), 1856, p. 89.
Centrobia walkeri (Foerster), ib., p. 87.

2. **Centrobia odonatae** Ashmead.

Centrobia odonatae Ashmead, 1900a, pp. 616-617.

Centrobia odonatae Ashmead—Girault, 1911b, pp. 74-75.

Tribe II. *Lathromerini*.

Genus **Ophioneurus** Ratzeburg.

Poropaea Foerster, 1856.

Chætostricha Haliday—Reinhard, 1858, pp. 16-17.

Chætostricha Walker—Kirchner, 1867, p. 187.

Really no synonyms.

1. **Ophioneurus signatus** Ratzeburg.

Ophioneurus signatus Ratzeburg, 1852, p. 192, text figs.

Poropaea signata (Ratzeburg)—Foerster, 1856, p. 88.

Chætostricha signata (Ratzeburg)—Reinhard, 1858, pp. 16-17.

Genus **Pterygogramma** Perkins, 1906.

1. **Pterygogramma acuminatum** Perkins.

Pterygogramma acuminata Perkins, 1906b, p. 265.

Genus **Lathromeris** Foerster, 1856.

Ophioneurus Ratzeburg—Reinhard, 1858, p. 323.

Chætostricha Walker—Kirchner, 1867, p. 187.

Chætostricha Haliday—Aurivillius, 1897.

Brachysticha Foerster—Ashmead, 1894-1895, pp. 171-172.

Really no synonyms.

1. **Lathromeris scutellaris** Foerster.

Lathromeris scutellaris Foerster, 1856, p. 89.

Chætostricha scutellaris Foerster—De Dalla Torre, 1898, p. 4.

2. **Lathromeris fidiae** (Ashmead).

Brachysticha fidiae Ashmead, 1894-1895, pp. 171-172.

Brachysticha fidiae (Ashmead)—Girault, 1907d, p. 29.

Lathromeris fidiae (Ashmead)—Johnson and Hammer, 1910, pp. 51, 56-57, fig. 27.

Lathromeris fidiae (Ashmead)—Girault, 1911b, pp. 62-71.

3. **Lathromeris cicadæ** Howard.

Lathromeris cicadæ Howard, 1898b, pp. 102-103.

Lathromeris cicadæ Howard—Girault, 1911b, pp. 71-74.

Genus **Tumidiclava** Girault, 1911.

1. **Tumidiclava pulchrinotum** Girault.

Tumidiclava pulchrinotum Girault, 1911a, pp. 8-9; pl. I, fig. 3.

Genus **Uscana** Girault, 1911.

1. **Uscana semifumipennis** Girault.

Uscana semifumipennis Girault, 1911a, pp. 23-25.

Genus **Zaga** Girault, 1911.

1. **Zaga latipennis** Girault.

Zaga latipennis Girault, 1911a, pp. 31-32.

Genus **Tumidifemur** Girault, 1911.

1. **Tumidifemur pulchrum** Girault.

Tumidifemur pulchrum Girault, 1911g, p. 125.

Genus **Uscanella** Girault, 1911.

1. **Uscanella bicolor** Girault.

Uscanella bicolor Girault, 1911g, p. 129.

Genus **Uscanoidea** Girault, 1911.

1. **Uscanoidea nigiventris** Girault.

Uscanoidea nigiventris Girault, 1911g, pp. 130-131.

Genus **Aphelinoidea** Girault, 1911.

1. **Aphelinoidea semifuscipennis** Girault.

Aphelinoidea semifuscipennis Girault, 1911a, pp. D-F; pl. I,
figs. 1-2.

SUBFAMILY II. *Trichogrammatinae* GIBAULT (NEO ASHMEAD).

Tribe I. *Trichogrammatini**.

Genus **Trichogramma** Westwood.

Calleptiles Haliday—Westwood, 1840, Synopsis, p. 73.

Trichogramma (Aprobosca) Westwood, 1879, pp. 592-593; pl. 73,
figs. 24, 25.

Aprobosca Westwood—Ashmead, 1904a, pp. 360, 361 and 366.

Pentarthron Riley—Packard, 1872, p. 8; Riley, 1881, pp. 68-69.

Pentarthron Riley (nec Wollaston), 1879, pp. 161-162.

Oophthora Aurivillius, 1897.

Xanthoatomus Ashmead, 1904a, pp. xi, 360 (Nomen nudum).

Real synonyms: *Pentarthron* Riley, *Oophthora* Aurivillius.

1. **Trichogramma evanescens** Westwood.

Trichogramma evanescens Westwood, 1833, p. 444, figs. 8 and 9
(p. 443).

2. **Trichogramma minutum** Riley.

Encyrtus sp., Peck, 1799. /m

Trichogramma ? minuta Riley, 1871, pp. 157-158, fig. 72.

Pentarthron minutum (Riley)—Packard, 1872, p. 8.

Pentarthron minuta (Riley), 1879, pp. 161-162.

Trichogramma pretiosa Riley, ib.

Trichogramma minutissimum Packard, 1883, pp. 37-38.

Trichogramma odontotae Howard, 1885b, p. 117.

Trichogramma intermedium Howard, 1889a, pp. 1894-1895;
pl. 89, fig. 8.

* Including *Paratrichogramma cinderella* Girault. See antea.

Oophthora minutum (Riley)—Aurivillius, 1897.

Xanthoatomus albipes Ashmead, 1904a, pp. xi, 360 (Nomen nud).

Pentarthron minutum (Riley)—Girault, 1910, p. 275.

2a. **Trichogramma minutum nigrum** Girault.

Trichogramma pretiosa nigra Girault, 1906a, p. 82.

3. **Trichogramma erosicorne** Westwood.

Trichogramma (Aprobosca) erosicornis Westwood, 187—, pp. 592-593; pl. 73, figs. 24-25.

Aprobosca erosicornis (Westwood)—Ashmead, 1904a, pp. 361, 366.

As stated elsewhere the position of this species is not known and it is placed here provisionally.

4. **Trichogramma semblidis** (Aurivillius).

Oophthora semblidis Aurivillius, 1897, pp. 253-254; tafel 5, figs. 1-3, 3a and 4-10.

Pentarthron carpocapsae Ashmead—Schreiner, 1907, pp. 218 220, text-fig.

Pentarthron semblidis Aurivillius—Girault, 1911b, pp. 48-50.

Pentarthron carpocapsae Schreiner—Masi, 1909.

5. **Trichogramma brasiliense** (Ashmead).

Pentarthron brasiliensis Ashmead, 1904a, p. 521.

Pentarthron brasiliense Ashmead—Girault, 1911b, p. 52.

6. **Trichogramma helocharæ** Perkins.

Trichogramma helocharæ Perkins, 1907.

7. **Trichogramma semifumatum** (Perkins).

Pentarthron semifumatum Perkins, 1910, p. 659, text-fig.

Pentarthron semifumatum Perkins—Girault, 1911b, pp. 50-51.

8. **Trichogramma perkinsi** Girault.

Pentarthron flavum Perkins, 1910, p. 660, text-fig.

Trichogramma perkinsi Girault (nomen novum—præocc. by "Trichogramma flavus" Ashmead).

9. **Trichogramma euproctidis** (Girault).

Pentarthron euproctidis Girault, 1911b, pp. 46-48.

10. **Trichogramma retorridum** (Girault).

Pentarthron retorridum Girault, 1911b, pp. 52-55.

Genus **Trichogrammatoidea** Girault, 1911.

1. **Trichogrammatoidea nana** (Zehntner).

Chætostricha nana Zehntner, 1896, pp. 14-16; pl. I, figs. 9-11.

Trichogrammatoidea nana (Zehntner)—Girault, 1911a, pp. 15-19; pl. I, figs. 6-7.

2. **Trichogrammatoidea lutea** Girault.*Trichogrammatoidea lutea* Girault, 1911a, pp. 19-22.Genus **Neotrichogramma** Girault, 1911.1. **Neotrichogramma japonicum** (Ashmead).*Trichogramma japonicum* Ashmead, 1904b, 165.*Neotrichogramma acutiventre* Girault, 1911a, pp. 38-41; pl. I,
figs. 11-13.*Neotrichogramma japonicum* (Ashmead) — Girault, 1911c,
pp. 192-194.Genus **Calleptiles** Haliday.*Microma* Curtis, (partim), 1831, No. 595.*Pteroptrix* Westwood—Walker, 1839a; 1846.*Trichogramma* Wetswood—Editor, 1833.—Walker, 1839a.—
Haliday, 1842.—Foerster, 1856.—Schmiedeknecht, 1907,
p. 490.

Really no synonymns.

1. **Calleptiles latipennis** Haliday.*Microma latipennis* Curtis, 1831, No. 595. (nom. nud.).*Calleptiles latipennis* Haliday, 1833, p. 341.*Trichogramma evanescens* Westwood—Editor, 1833, p. 341.—
Haliday, 1843, pl. k, figs. 4, 4a—4d.—Walker, 1846.—New-
man, 1871, pp. 357-358.—Walker, 1872.—Id., 1873.*Pteroptrix evanescens* (Westwood)—Walker, 1849a.*Calleptiles latipennis* Haliday—Westwood, 1879.2. **Calleptiles carina** (Walker).*Trichogramma carina* Walker, 1843, p. 104.*Trichogramma carina* Walker—De Dalla Torre, 1898, p. 2.3. **Calleptiles vitripennis** (Walker).*Trichogramma vitripennis* Walker, 1851, p. 212.*Trichogramma vitripennis* Walker—Westwood, 1879, p. 589.*Trichogramma vitripenne*—De Dalla Torre, 1898, p. 3.Genus **Trichogrammatella** Girault, 1911.1. **Trichogrammatella tristis** Girault.*Trichogrammatella tristis* Girault, 1911g, pp. 126-128.Tribe II. *Poropæini*.Genus **Poropœa** Foerster.*Ophioneurus* Ratzeburg (partim), 1852, pp. 196-197, fig; p. 248.*Ophioneurus* Thomson—Aurivillius, 1897, p. 251, footnote.*Trichogramma* Westwood—Reinhard, 1858, p. 16.

Really no synonyms.

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1. **Poropaea stollwerckii** Foerster.

Poropaea stollwerckii Foerster, 1851, pp. 29-30; tab. I, figs. 10, a-e.

Ophioneurus simplex Ratzeburg, 1852, p. 197, text-fig. p. 248.

Trichogramma simplex (Ratzeburg)—Reinhard, 1858, p. 16.

Poropaea stollwerckii Foerster—Ashmead, 1904a, pp. 360, 361.

2. **Poropaea grandis** (Thomson).

Ophioneurus grandis Thomson, 1878, p. 299.

Poropaea grandis (Thomson)—Aurivillius, 1897, p. 251, footnote.

Chaetostricha grandis (Thomson)—De Dalla Torre, 1898, p. 4.

3. **Poropaea attelaborum** Girault.

Poropaea attelaborum Girault, 1911b, pp. 68-69.

Genus **Asynacta** Foerster.

1. **Asynacta exiqua** (Nees).

Eulophus exiguus Nees ab Esenbeck, 1834, pp. 183-184.

Asynacta exiqua (Nees)—Mayr, 1904, pp. 589-590.

IV. LIST OF THE SPECIES DESCRIBED TO NAMES AS NEW AND REFERRED TO THE FAMILY *Trichogrammatidae*.

The following list is arranged chronologically:

1. *Micromia latipennis* Curtis, 1831.—*Nomen nudum*, intended for *Calleptiles*.
2. *Trichogramma eranescens* Westwood, 1833.
3. *Calleptiles latipennis* Haliday, 1833.
4. *Trichogramma carina* Walker, 1843. (= *Calleptiles* Haliday).
5. *Trichogramma vitripennis* Walker, 1851. (= *Calleptiles* Haliday).
6. *Chatostricha dimidiata* Haliday, 1851.
7. *Oligosita collina* Haliday, 1851.
8. *Trichogramma walkeri* Foerster, 1851. (Type of *Centrobia* Foerster).
9. *Poropaea stollwerckii* Foerster, 1851.
10. *Ophioneurus simplex* Ratzeburg, 1852. (= *Poropaea stollwerckii* Foerster).
11. *Ophioneurus signata* Ratzeburg, 1852.
12. *Lathromeris scutellaris* Foerster, 1856.
13. *Trichogramma fraterna* Fitch, 1856. (Belongs to the *Eulophidae*).
14. *Trichogramma orgyiae* Fitch, 1856. (Belongs to the *Eulophidae*).
15. *Prestwichia aquatica* Lubbock, 1864.
16. *Trichogramma minuta* Riley, 1871.
17. *Ophioneurus grandis* Thomson, 1878. (= *Poropaea* Foerster).
18. *Trichogramma pretiosa* Riley. (= *T. minutum* Riley).
19. *Oligosita subfasciata* Westwood, 1879.

20. *Oligosita nodicornis* Westwood, 1879.
21. *Oligosita staniforthii* Westwood, 1879.
22. *Trichogramma (Aprobosca) erosicornis* Westwood, 1879. (= *Trichogramma* Westwood).
23. *Trichogramma flavus* Ashmead, 1881. (An unknown *Aphelinine*).
24. *Trichogramma minutissimum* Packard, 1883. (= *T. minutum* Riley).
25. *Trichogramma odontotae* Howard, 1885. (? = *T. minutum* Riley).
26. *Trichogramma intermedium* Howard, 1889. (= *T. minutum* Riley).
27. *Trichogramma nigrum* Ashmead, 1889. (Type of *Ufens* Girault).
28. *Trichogramma acuminatum* Ashmead, 1889. (Type of *Brachistella* Girault).
29. *Trichogramma ceresarum* Ashmead, 1889. (Type of *Ittys* Girault).
30. *Brachysticha fidia* Ashmead, 1894-1895. (= *Lathromeris*).
31. *Oophthora semblidis* Aurivillius, 1897. (= *Trichogramma* Westwood).
32. *Lathromeris cicadae* Howard, 1898.
33. *Paracentrobia punctata* Howard, 1898. (= *Chaetostricha* Haliday).
34. *Chaetostricha nana* Zehntner, 1898. (Type of *Trichogrammatoidea* Girault).
35. *Centrobia odonata* Ashmead, 1900.
36. *Brachista pallida* Ashmead, 1900. (= *Brachistella acuminata* Ashmead).
37. *Kanthoatomus albipes* Ashmead, 1904, (Nomen nudum, intended for *Trichogramma minutum* Riley).
38. *Synacta exiqua* (Nees) Mayr, 1904. (= *Eulophus exiguus* Nees).
39. *Brachystira pungens* Mayr, 1904. (Type of *Brachista* Haliday).
40. *Trichogramma japonicus* Ashmead, 1904. (Type of *Neotrichogramma* Girault).
41. *Pentarthon brasiliensis* Ashmead, 1904. (*Trichogramma* Westwood).
42. *Paracentrobia flavipes* Girault, 1905. (= *Chaetostricha* Haliday).
43. *Pterygogramma acuminata* Perkins, 1906.
44. *Trichogramma helocharae* Perkins, 1907.
45. *Pentarthon carpocapsae* Ashmead—Schreiner, 1907. (= *Trichogramma semblidis* Aurivillius).
46. *Oligosita americana* Ashmead—Girault, 1909.
47. *Pentarthon semifumatum* Perkins, 1910. (= *Trichogramma* Westwood).
48. *Pentarthon flavum* Perkins, 1910. (= *Trichogramma* Westwood; *Perkinsi* Girault, new name).
49. *Westwoodella hilaris* Perkins, 1910. (= *Oligosita* Haliday).

50. *Aphelinoidea semifumipennis* Girault, 1911.
51. *Tumidiclava pulchrinotum* Girault, 1911.
52. *Abella subflava* Girault, 1911.
53. *Trichogrammatoidea lutea* Girault, 1911.
54. *Uscana semifumipennis* Girault, 1911.
55. *Zaga latipennis*, 1911.
56. *Neotrichogramma acutiventre* Girault, 1911. (= *Trichogramma japonicum* Ashmead).
57. *Japania ovi* Girault, 1911.
58. *Pentarthron euproctidis* Girault. (*Trichogramma*).
59. *Pentarthron retorridum* Girault, 1911 (= *Trichogramma*).
60. *Westwoodella sanguinea* Girault, 1911 (= *Oligosita*).
61. *Westwoodella subfasciatipennis* Girault, 1911 (= *Oligosita*).
62. *Westwoodella comosipennis* Girault, 1911 (= *Oligosita*).
63. *Westwoodella clarimaculosa* Girault, 1911 (= *Oligosita sanguinea* Girault).
64. *Poropaea attelaborum* Girault, 1911.
65. *Abella nymphe* Girault, 1911.
66. *Ufens luna* Girault, 1911.
67. *Tumidifemur pulchrum* Girault, 1911.
68. *Trichogrammatella tristis* Girault, 1911.
69. *Uscanella bicolor* Girault, 1911.
70. *Uscanoides nigriventris* Girault, 1911.

Of this list of seventy specific names, all are valid so far as known excepting fourteen: the numbers 1, 10, 13, 14, 18, 23, 24, 25, 26, 36, 37, 45, 56 and 63. These numbers are either nomina nuda (1 and 37), extralimital (13, 14, 23) or else synonyms. The number 63 is a varietal name*. Of the fifty-six names supposedly valid, the representatives of at least a dozen or more have never been recognized since their original description and consequently, through inadequate description, may be lost. These numbers are 2, 3, 4, 5, 6, 7, 11, 12, 17, 20, 21 and 22.

A new name, *Trichogramma perkinsi*, is proposed above for *Pentarthron flavum* Perkins. The numbers 44 and 48 should be compared with *Trichogramma minutum* Riley.

V. LIST OF SPECIFIC NAMES PROBABLY REFERABLE TO THE *Trichogrammatidae* BUT WHICH WERE PLACED IN OTHER GROUPS.

1. (*Myina*) *Pteromalus atomos* Fonscolombe, 1832.

VI. LIST OF THE GENERIC NAMES USED IN THE *Trichogrammatidae*.

* The variety *Trichogramma minutum nigrum* Girault is omitted in the list as is also *Paratrichogramma*.

The following list is arranged chronologically and does not include names erroneously applied to species of the family (of these *Microma*, *Eulophus*, *Encyrtus* and *Pteroptrix* are the only ones; *Myina* and *Pteromalus* may be doubtfully included).

1. *Trichogramma* Westwood, 1833.
2. *Calleptiles* Haliday, 1833.
3. *Poropaea* Foerster, 1851.
4. *Chætosricha* Haliday, 1851.
5. *Brachista* Haliday, 1851.
6. *Oligosita* Haliday, 1851.
7. *Ophioneurus* Ratzeburg, 1852.
8. *Lathromeris* Foerster, 1856.
9. *Centrobia* Foerster, 1856.
10. *Asynacta* Foerster, 1856.
11. *Chætosricha* Walker—Foerster, 1856 (intended for *Chætosricha* Haliday).
12. *Chætosrichinx* Walker—Foerster, 1856 (intended for *Chætosricha* Haliday).
13. *Brachysticha* Walker—Foerster, 1856 (intended for *Brachista* Haliday).
14. *Prestwichia* Lubbock, 1864.
15. *Pentarathron* Riley—Packard, 1872 (= *Trichogramma* Westwood).
16. *Aprobosca* Westwood, 1879 (of doubtful validity and now treated as a synonym of *Trichogramma* Westwood).
17. *Pentarthrum* Riley, 1879 (nec Wollaston) (intended for *Pentarthron* Riley).
18. *Oophthora* Aurivillius, 1897 (= *Trichogramma* Westwood).
19. *Brachysticha* Haliday—Webster, 1896 (intended for *Brachysticha* Walker).
20. *Paracentrobia* Howard, 1898 (= *Chætosricha* Haliday).
21. *Brachystira* Foerster—Mayr, 1904 (intended for *Brachisticha* Walker).
22. *Westwoodella* Ashmead, 1904 (= *Oligosita* Haliday).
23. *Xanthoatomus* Ashmead, 1904 (= *Trichogramma* Westwood; a nomen nudum).
24. *Pterygogramma* Perkins, 1906.
25. *Aphelinoidæ* Girault, 1911.
26. *Tumidiclavæ* Girault, 1911.
27. *Ab bella* Girault, 1911.
28. *Trichogrammatoidea* Girault, 1911.
29. *Uscana* Girault, 1911.
30. *Ittys* Girault, 1911.

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31. *Zaga* Girault, 1911.
32. *Ufens* Girault, 1911.
33. *Neotrichogramma* Girault, 1911.
34. *Japania* Girault, 1911.
35. *Tumidifemur* Girault, 1911.
36. *Trichogrammatella* Girault, 1911.
37. *Usanella* Girault, 1911.
38. *Uscanoidea* Girault, 1911.
39. *Brachistella* Girault, 1911.*

Of the above names, all are valid excepting the numbers 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22 and 23, leaving twenty-seven in all. The twelve nonvalidities are either synonyms (15, 19, 20, 22, 23) emendations of original names (11, 12, 13, 17, 18, 21) or of uncertain position (16). Of the valid names, only those of 2, 4 and 7 may fall because of possible non-recognition of their representatives. Of the synonymns, only 16 and 20 may prove to be distinct and valid. *Paratrichogramma* is not included in the above nor are the other two Australian genera, as yet without names.

Brisbane, Australia,
February 1, 1912.

* And see the next paragraph.