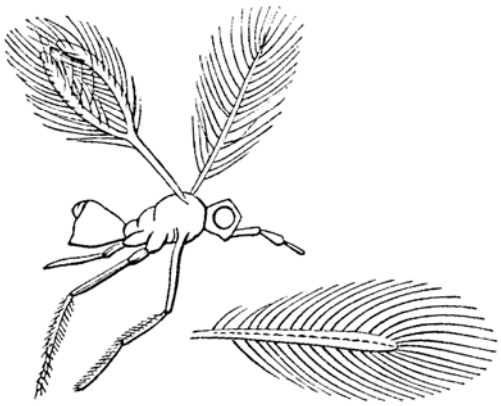
Mr. Stevens for the use of a series of varieties, which must be of great interest to every subscriber. The series is now complete.—*Edward Newman.*

Notes on the Mymaridæ. By FRANCIS WALKER, Esq.

ANAPHES PUNCTUM.



PTERATOMUS PUTNAMI.

THE Mymaridæ are more atom-like than all the other Hymenoptera, and thus, in comparison with them, are nearest on the surface of creation to spaceless infinity.

Ichneumon atomus, *Linn.*, is probably one of the Mymaridæ, but the mention of it as such is sufficient, the description not being suitable for the limits of a species. Nees ab Esenbeck established two genera—Gonatocerus and Eutriche—in this family, which he considered as Chalcidiæ. Haliday separated them as a family, with a systematic arrangement of the genera into which he divided them. Foerster afterwards elaborated them, and his Synopsis is here translated as follows:—

A. Tarsi 5-jointed.
a. Abdomen distinctly petiolated.
* Antennæ of the male 10-jointed, of the female 9-jointed. - - - - CAMPTOPTERA.
** Antennæ of the male 13-jointed, of the female 11-jointed. - - - - - OOCTONUS.
b. Abdomen sessile, or nearly sessile.

Male.

* Marginal branch extending to the middle of the costa. - - - - - LIMACIS.
** Marginal branch not extending to the middle of the costa.
† Antennæ 13-jointed. - - - GONATOCERUS.
†† Antennæ 10-jointed. - - - - ALAPTUS.

Female.

* Antennæ 11-jointed. - - - GONATOCERUS.
** Antennæ 9-jointed. - - - - LITUS.
*** Antennæ 8-jointed.
† Marginal branch extending to the middle of the costa. - - - - - LIMACIS.
†† Marginal branch not extending to the middle of the costa. - - - - - ALAPTUS.
B. Tarsi 4-jointed.
a. Club of the antennæ with two joints.
* Marginal branch very long. Tarsi of the four hinder legs shorter than the tibiæ. - - EUSTOCHUS.
** Marginal branch very short. Tarsi of the four hinder legs longer than the tibiæ. - - DORICLYTUS.
b. Club of the antennæ not jointed.
* Abdomen distinctly petiolated.
† Fore wings only widened at the tips. - - MYMAR.
†† Fore wings widened throughout.

‡ Marginal branch punctiform. - - - COSMOCOMA.
‡‡ Marginal branch elongated.
§ Metathorax with two keels. Antennæ of the female 9-jointed. - - - CARAPHRACTUS.
§§ Metathorax not keeled. Antennæ of the male 10-jointed, of the female 9-jointed. - - STICHOTHRIX.
** Abdomen sessile or nearly sessile.
† Antennæ of the male 12-jointed, of the female 9-jointed. Marginal branch elongated, somewhat thickened near the tip. - - - ANAPHES.
†† Antennæ of the male 13-jointed, of the female 9-jointed. Marginal branch linear, not thickened near the tip. - - - - ANAGRUS.

They have been illustrated by five figures, two of which accompany these notes. The first is Anaphes punctum (Ichneumon punctum), *Shaw*, Trans. Linn. Soc. vol. iv.; the second is Pteratomus Putnami, *Packard*, Proc. Essex Institute, iv. 137, pl. 3, f. 8, and is copied by permission of Dr. Packard, and this American species is supposed to be the smallest of all insects, and is especially remarkable on account of the peculiar structure of the fore wings. The structure of the wing-veins is more rudimentary than that of any other tribe of Hymenoptera, and they have most affinity with the two large tribes of Chalcidiæ and Oxyura, which come next to them in simplicity of structure. However, as A. H. Haliday first observed, they are much more allied to the Chalcidiæ than to the Oxyura, and there appear to be intermediate genera, such as Thysanus and Prestwichia.

From the number of specimens that I have observed I believe that the Mymaridæ are considerably more numerous than what have been recorded. Their exquisite elegance would appear to advantage in highly-magnified figures of each kind, and one of the "coming race" of entomologists will do well to investigate their successive epochs of life, and to publish his discoveries with illustrations as above mentioned.

The early life of this family has been observed by Loew, who witnessed a Polymena and a Rachistus from larvæ of Gymnætron villosulum in galls of Veronica anagallis; the Polymena allied to P. longula, and the Rachistus to R. littoralis. He also mentions an Anaphes from larvæ of Cecidomyia

Urticæ, *Perris*, in galls of Urtica dioica. It seems (Ent. Mag. i. 342) that A. H. Haliday often saw the oviposition of Mymaridæ in eggs of Lepidoptera, and he mentions that many are often transformed in a single butterfly's egg, and that Polymena Ovulorum is abundant in summer, destroying the eggs of Pieris Brassicæ. Thus they attack both eggs and larvæ; and such is also the case with Trichogramma evanescens, one of the most minute of the Chalcidiæ. The Telenomi are, perhaps, more exclusively ovivorous, and some descriptions of Ichneumon Ovulorum may have reference to them; and Haliday remarks that Linneus and Schrank have each described two species under this name.

Foerster mentions that he reared from the capsules of Papaver Rhœas and P. dubium, where there were galls of Aulax Rhœadis, Camptoptera Papaveris, *Foerst.*, Pteromalus Papaveris, *Foerst.*, Cecidomyia Papaveris, *Winn*, Pezomachus Papaveris, *Foerst.*, Lochites Papaveris, *Foerst.*, and a small Ichneumon. In a postcript he alters the name Camptoptera to Pteroclisis.

Sir J. Lubbock has described two species (Polynema natans and Prestwichia aquatica, Linn. Trans. xxiv. 138—140, pl. 23) that live occasionally under water, and are able to swim:—Polynema natans, according to Haliday, = Caraphractus cinctus, Hab. ——

As before mentioned with regard to the Chalcidiæ, Foerster's works will be useful to anyone who may write the history of the British Proctotrupii, with which that author includes the Mymaridæ. The characters which he assigns for this arrangement are as follows:—

Chalcidiæ.

Male.—Antennæ always bent, or with one or more small joints between the scapus and the flagellum, the basal joint of the antennæ being like a handle, and the apical part like a whip, or in frequent vibration.

Female.—Oviduct emerging before the tip of the abdomen.

Proctotrupii.

Male.—Antennæ bent or not bent, with no small joints; rarely not bent, and with one small joint.

Female.—Oviduct proceeding from the tip of the abdomen.

The following shows the position which he assigns to the Mymaridæ ayst the Proctotrupii or Oxyura.

A. Hind wings wiflap-like appendage, or the wingless fenwith raptorial legs. - DRYINOIDÆ.
B. Hind wings witflap-like appendage.
a. Fore tibiæ with pines. - - CERAPHRONOIDÆ.
b. Fore tibiæ with pine.
* Mandibles not de. - - - PROCTOTRUPOIDÆ.
** Mandibles denta
† Sides of the aen with a rim beneath. Antennæ se on the border of the mouth.
‡ Wings with a mal branch, and sometimes with a stigmbranch. No ocelli when wingless. - - - - - SCELIONOIDÆ.
‡‡ Wings with no mal nor stigmatic branch. Ocelli always pt. - - PLATYGASTEROIDÆ.
†† Sides of the abdowith no rim. Antennæ seated much athe mouth.
‡ Hind wings with rce of a middle vein.
§ Hind wings very s almost linear. - - MYMAROIDÆ.
§§ Hind wings broadet linear. - - DIAPRIOIDÆ.
‡‡ Hind wings with alle vein.
§ Fore wings either wt or with a regular basal vein. Flagelluth no small joints. - BELYTOIDÆ.
§§ Fore wings with an ular curved basal vein, which does not d to the hind border-veins. Flagelluth one small joint. - HELOROIDÆ.

FRANCIS WALKER.

On Aphides and Hydew.—The observation, "On the extreme twigs," &c., q l in the 'Entomologist' for August (Entom. vi. 463), does nem to be conclusive that the honeydew is not caused by Aps. It does not follow, because there were no leaves directlyve those on which the honeydew was seen, that it was caused by Aphides, for a slight movement of the air w carry the honeydew in falling out of a perpendicular lind if the trees mentioned are high there are abundance ofes from which it might fall on the lower leaves. The Aphithe lime may be seen in May, and