

Thus in unsprayed timber we have the various insect enemies, the "wilt" or whatever the disease is, the birds devouring imagoes and the egg parasite. I look for a distinct betterment in the outlook for 1923.

SOME PARASITIC HYMENOPTERA FROM NEW ZEALAND.¹

BY CHARLES T. BRUES.

Dr. R. J. Tillyard, Chief of the Biological Department of the Cawthron Institute for Scientific Research in Nelson, New Zealand, recently sent me a small shipment of parasitic Hymenoptera for identification. Although the collection consists of only a few specimens, these are of considerable interest on account of our almost complete ignorance of the insect fauna of New Zealand belonging to these families, and I have therefore taken this occasion to report upon them, although Dr. Tillyard has promised more extensive material in the future.

All the species mentioned below are apterous or nearly so, distributed in three families, the Ichneumonidæ, Braconidæ and Belytidæ. The types are in the collections of the Cawthron Institute.

FAMILY BRACONIDÆ.

Metaspathius gen. nov.

♀ Apterous. Head globular; antennæ inserted on a frontal prominence, 17-jointed, scape short and thick, pedicel moniliform; first three flagellar joints much elongated; eyes very small, round; ocelli obsolete; head margined behind; clypeus excavated, leaving a rounded mouth opening; palpi simple; slender. Prothorax elongate; mesonotum without furrows; scutellum small, narrow, shield-shaped; propodeum coarsely reticulated. Legs with the

¹Contribution from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 214.

femora much thickened; tibial spurs very small. Abdomen petiolate, the petiole three times as long as broad at apex which is twice as wide as the base, spiracles at the basal fourth, projecting laterally as tubercles; sides of petiole not continuous with the sides of the gaster. Ovipositor slightly longer than the abdomen.

Type. *M. apterus* sp. nov.

This genus differs from all other Spathiinae known to me in the form of the antennae which have only 17 joints, the basal flagellar joints elongated and the antennae are not attenuate toward the tips. Otherwise its characters are so typically those of this group that it could not be placed elsewhere. Kieffer¹ has described a genus, *Folchinia*, from the mediterranean region which may be related, but unfortunately he gives no characters which allow of its being placed in any subfamily.

I have a second species which is probably congeneric, but the antennae are broken off near the base. It was sent me some years ago by Dr. Hans Brauns, collected at Bothaville, Cape Colony.

Metaspathius apterus sp. nov.

♀. Length 2mm. Fusco-ferruginous, the gaster and tips of antennae piceous. Head above smooth and shining, highly convex and broadly rounded on the sides, with the eyes placed very far forward; above the eyes on the front are a few horizontal striae and the very small ocellar space is indicated by minute hyaline points. Frontal projection like that of Belytid, as broad as the width of the eye. Face shagreened, clypeus shining; palpi yellowish white, slender. Eyes very small, nearly circular, bare, no wider than the thickness of the antennal scape. Scape two and one half times as long, as thick, pedicel small, globular; first flagellar joint as long as the width of the head; more than six times as long as thick; second and third each three fourths as long as the preceeding, following growing shorter, but each more than twice as long as thick; tip of flagellum as thick as the base. Prothorax above as long as the mesonotum, reticulate. Mesonotum areolate, but without parapsidal furrows.

¹Ann. Soc. Sci. Bruxelles, vol. 30, pt. 2, p. 11 (1905)

Propodeum convex above, reticulate or irregularly areolate; perpendicularly delcivous behind. Pleuræ shagreened, the underside of the thorax clothed with long whitish hair. Petiole of abdomen coarsely shagreened and with four longitudinal carinæ, two above and one on each side at the level of the spiracle. Gaster smooth and highly polished, ovate, the second segment occupying more than one-half of the surface, before the tip with a transverse line of widely separated white hairs; following segments each with a similar line of hairs.

Type from Nelson, New Zealand, December 8, 1921 (A. Philpott).

At first glance this insect looks very much like a species of *Pezomachus*.

FAMILY ICHNEUMONIDÆ.

Pezomachus (Gelis) philpottii sp. nov.

♀ Length 2 mm. Mesonotum, legs, second and third abdominal segments, except sides, pale brownish yellow; head and pleuræ black; antennæ, except extreme base, petiole, and the sides and apex of abdomen piceous. Head twice as broad as thick, deeply excavated behind with the temples very strongly oblique; eyes very large; seen from above, extending nearly to the hind margin and highly convex; malar space as long as the width of the mandible, with a distinct furrow; face delicately shagreened, clypeus small, protuberant. Antennæ 23-jointed, slightly longer than the body, slender, especially at the base. Ocelli in a small triangle, the posterior ones equidistant from one another and the eye. Thorax rather strongly bilobed, the scutellum faintly indicated but not distinctly separated. Propodeum shining, with a faint tooth at the upper hind angle. Pleuræ smooth and polished. Petiole gradually and evenly widened behind, the sides straight with no indication of spiracular teeth; apex twice as wide as base; upper surface, seen from the side evenly convex, not angled near tip. Second and following segments smooth, sub-shining. Ovipositor projecting a distance equalling the length of the

petiole. Legs unusually long and slender, the middle and hind coxæ large and swollen.

Type from Aniseed V., New Zealand, March 23, 1922 (A. Philpott).

This species resembles closely certain palæarctic and nearctic species of this highly polymorphic and no doubt also polyphyletic genus. It will be readily recognized by the black head and pleuræ and the very pale legs and mesonotum.

FAMILY SCELIONIDÆ

Hoplogryon novæ-zealandiæ sp. nov.

♀. Length 1.0. mm. Head, abdomen and antennæ, except extreme base of scape black; legs, including coxæ, pale fuscous or yellowish brown, the tips of the tarsi blackened; thorax above, and on the pleuræ below, dark fuscous or piceous, the pleuræ yellowish brown above; mandibles, except tips, and extreme base of antennal scape yellowish. Entire body clothed with conspicuous pale hairs. Head, seen from above, twice as wide as thick, the ocelli in a rather low triangle, the lateral ones as far from the eye margin as from one another. Front smooth and polished above, with median line from the ocellus to the base of the antennæ; vertically striate below to the base of the mandible; cheeks, temples and occiput shagreened, vertex more strongly so. Antennal scape, funicle and club each of about equal length, the latter 6-jointed; scape slender; pedicel two-thirds as long as the first flagellar joint which is one-half longer than wide; second the same size as the first; third and fourth very small, moniliform; first club-joint quadrate, the following, except the last, each distinctly transverse. Mesonotum reticulately rugulose; parapsidal furrows indicated behind, but very indistinct anteriorly; scutellum more finely sculptured, nearly smooth behind; post-cutellar spine short, acute. Lateral teeth of propodeum large, blunt at tips. Propleura with a large impression, areolate by very coarse raised lines; mesopleura deeply impressed below, irregularly horizontally wrinkled above. Wings short, extending to the tip of the second abdominal segment. Abdomen one-half wider than the thorax, almost globose; first segment as long

as the width at base, apex twice as wide, coarsely longitudinally striate above; second segment twice as long as the first; coarsely striate, except at apex, which is smooth and shining; third segment very convex, delicately shagreened, as long as wide, broadest behind the middle, almost twice as long as the first and second together; fourth and fifth very short, sixth minute, occupying a median emargination of the fifth.

Type from Mt. Arthur (4000 ft.) New Zealand (A. Philpott).

This is the first member of this widely distributed genus to be found in New Zealand. It is similar to the European *H. pleuralis* Kieffer said to be probably from England, but differs by the longer striæ on the second abdominal segment and by the presence of the median frontal line. Among the species known from Australia, several of which have the thorax somewhat similarly colored, it may be known by the smooth third abdominal segment and different conformation of the antennal joints.

Paragryon castaneus sp. nov.

♀. Apterous; length 2 mm. Reddish brown, the antennæ and legs, including coxæ, more nearly fulvous; pleuræ piceous. Abdomen, especially beyond the second segment, thinly clothed with sparse, appressed, golden yellow hairs. The hairs, due to differences in direction, form more or less curved or sinuous patches which reflect light differently in relation to the source of illumination and give a peculiar mottled appearance. Head one-third broader than the thorax; twice as wide as long; temples rounded; occiput broadly emarginate and strongly margined; ocelli widely separated, the lateral ones separated by only their own diameter from the eye-margin; eyes pubescent, ovate; malar space as long as the width of the eye; head more or less irregularly longitudinally striate above; front smooth medially above the antennæ and vertically striate-punctate at the sides; cheeks with striæ converging toward the base of the mandibles, head behind coarsely and rather closely punctate. Antennæ 12-jointed; club 6-jointed; funicle and club of equal length, scape a little longer, reaching the vertex; scape slender; pedicel twice as long as thick; first flagellar joint longer than the pedicel, three times as long as

thick; second, third and fourth decreasing in length, the fourth quadrate; club-joints about equal in length except, for the longer apical joint, the second to fifth about twice as broad as long. Thorax above rugose-striate, irregularly so on the mesonotum and longitudinally so on the scutellum; tegulae present, but wings entirely absent. Propodeum deeply emarginate medially to receive the elevated base of the first abdominal segment, faintly toothed at the sides of the emargination and at the posterior angles. Pleurae shining; striate below, in front and along the sutures; smooth elsewhere. Abdomen above shining; first segment rugose, second and third rugose-striate, the lines more or less longitudinal; fourth segment closely punctate; fifth confluent so; first segment as broad as long; second twice as long as the first, the width at apex greater than the length; third as long as the first and second together; distinctly broader than long; fourth to sixth decreasing in length, the fourth half as long as the third and equaling the apical ones together. Legs quite stout; tibial spurs very weak; tarsal claws simple.

Type from Mt. Arthur, New Zealand (A. Philpott) December 26, 1921, taken at an altitude of 4000 ft.

This species resembles *P. gracilipennis* Dodd, from Australia, in the elongated first flagellar joint, but differs in the configuration of the other antennal joints, and is wingless.

FAMILY BELYTIDÆ

In 1889, Cameron described from Greymouth, New Zealand, the genus *Betyla*, and in 1892 Marshall proposed the genus *Tanyzonus* for a Belytid reared from the larvæ of the remarkable New Zealand glow-worm, *Bolitophila*. Later in the same year, however, Marshall regarded *Tanyzonus* as synonymous with *Betyla*, believing the type species of both genera to be identical. In the material sent by Dr. Tillyard there are a number of specimens of *Betyla*-like insects representing three distinct genera; one of these is evidently Cameron's *Betyla*, while the second and third are undescribed. In view of the fact that there are several closely related genera and species present in New

Zealand, it must remain for the present somewhat doubtful whether *Tanyzonus bolitophilæ* Marshall and *Betyla fulva* Cameron are identical. Concerning this point, I cannot satisfy myself from Marshall's description.

The three genera may be distinguished by the following key, which includes also the related *Neobetyla* Dodd of which I have a specimen kindly sent me by Mr. Dodd.

Females.

1. Petiole of abdomen bearing a large tooth below; scutellum absent. *Betyla* Cameron
- Petiole of abdomen simple below; scutellum present. . . 2.
2. Antennæ 13-jointed; wings present, much abbreviated, attaining the tip of the propodeum. *Probetyla* gen. nov.
- Antennæ 15-jointed; wings entirely wanting. 3.
3. Propodeum with three spines, one at the middle above and one at each side behind the middle; pronotum along the median line, as long as the mesonotum. *Parabetyla* gen. nov.
- Propodeum without spines; pronotum visible from above only at the sides. *Neobetyla* Dodd.

There are two specimens which are probably Cameron's *B. fulva*, taken by Mr. Philpott on Dun Mt. , March 15, 1921 at an altitude of 2000 feet.

Probetyla gen. nov.

Antennæ 13-jointed, the club slender, not clearly differentiated, although the last six joints of the flagellum are thicker and moniliform; first flagellar joint longer than the pedicel, simple. Head seen from above quadrate, the temples broad. Eyes small, round, hairy. Maxillary palpi 5-jointed; labial palpi 3-jointed; left mandible with two long teeth; right one broader and probably with three teeth. Ocelli small, hyaline, in a small triangle. Thorax two-thirds as wide as the head, not constricted behind the mesothorax. Pronotum scarcely visible from above

medially; parapsidal furrows present; scutellum with two foveæ at the base. Propodeum densely hairy, without spines; wings reaching to the base of the abdomen, strap-shaped. Petiole one-half longer than thick; second segment occupying most of the abdomen, following very short, the last not elongated nor compressed. Legs very slender, femora and tibiæ clavate. Body thinly clothed with erect, long, glistening pale hairs as well as with more dense pile on the prothorax and abdominal petiole.

Type: *P. subaptera* sp. nov.

Probetyla subaptera sp. nov.

♀. Length 2.2 mm. Uniform yellowish brown, the legs paler than the body. Head, seen from above, but little wider than thick, the eyes set at the anterior corners, about two-thirds as long as the temples which are suddenly narrowed behind; occiput margined; seen from the side, the head is high as long, the frontal projection rather small; face nearly horizontal, the eyes more than their own length from the base of the mandibles; surface of entire head smooth. Antennæ but slightly thickened apically; scape as long as three following joints taken together; thicker near the middle, not spinose at apex; pedicel twice as long as thick; first flagellar joint longer and more slender, three times as long as thick; second to sixth gradually shorter and thicker, four following moniliform, each about one-half wider than the first flagellar joint. Pronotum short medially, but distinctly visible from the above; mesonotum as long as broad, with a deep groove next its anterior margin extending from tegula to tegula; parapsidal furrows complete, nearly parallel. Scutellum with two large, narrowly separated foveæ at base. Upper surface of propodeum nearly horizontal, convex. Pro- and mesopleuræ smooth and shining; metapleura finely rugose and densely pubescent. Petiole finely longitudinally aciculate; two-fifths as wide as the propodeum; gaster one-half wider than the thorax and as wide as the head.

Type from Nelson, New Zealand, December 8, 1921 (A. Philpott).

Parabetyla gen. nov.

♀ Entirely wingless. Head, thorax and petiole narrow; gaster broad. Head with a very prominent frontal projection, longer than wide; eyes small, with a few long hairs; ocelli absent. Antennæ 15-jointed, with a stout 6-jointed club. Maxillary palpi 5-jointed; basal joint minute; apical one much longer than the others. Thorax much elongated; pronotum medially half as long as at the sides; mesonotum small; scutellum without basal impressions, half as long as the mesonotum; propodeum separated by a constriction basally above; apically with three long thorn-like spines, one median and another at each side. Petiole twice as long as thick, without tooth below. Gaster large, elongate oval, composed almost entirely of the second segment. Legs stout, the femora very strongly clavate, but the tibiae not noticeably so. Body clothed with nearly erect sparse pale hairs..

Type: *Parabetyla spinosa* sp. nov.

Parabetyla spinosa sp. nov.

♀. Length 3.3 mm. Entirely rufo-ferruginous, the abdomen and antennæ slightly paler. Head, seen from above, one-third longer than wide, including the frontal projection; widest at the eyes which are near the middle, obliquely narrowed anteriorly to the base of the antennal projection, rounded behind, the occipital margin strongly and conspicuously carinate. Head seen from the side sub-triangular, the face long, straight; front above highly convex; eyes their own diameter from the frontal projection and three times as far from the mandibles; entire surface smooth and shining. Antennal scape as long as the head, thickest basally, as long as the seven following joints together; pedicel twice as long as thick, slightly longer and stouter than the first flagellar joint; three following of equal length, becoming moniliform; fifth, sixth and seventh larger; beyond this the joints become large, forming a very gradual but stout club, of which the joints except the last are barely wider than long. Pronotum slightly projecting at its humeral angles, twice as long as the mesonotum at the sides; the mesonotum separated by a deep grooved line, no longer than the portion of

the pronotum visible medially; scutellum large, as broad as the mesonotum, the basal suture not impressed nor foveate. Propodeum very short, twice as high as long, its spines curve backwards, with the median one set somewhat forward of the lateral ones. Pro- and mesopleuræ smooth and polished; metapleura and sides of propodeum rugose, with several more or less regular oblique carinæ extending downwards and backwards. Petiole finely longitudinally rugose-striate, narrower at base and apex. Gaster about three times as broad as the head or thorax. The hairs on the body are denser on the petiole, propodeum and base of abdomen, and entirely absent on the pro- and mesopleuræ. Tarsal claws stout, simple; tibial spurs minute; hairs on femora very sparse, those of the tibiæ conspicuous.

Type from Dun Mountain, New Zealand, at an altitude of 2000 feet, March 15, 1921 (A. Philpott).

THE EUROPEAN HOUSE CRICKET; HEARTH CRICKET.

By A. P. MORSE, Peabody Museum of Salem.

This cricket, in the winter of 1920, became a nuisance in a dwelling at Swampscott, Mass., damaging clothing in the basement laundry and annoying by its persistent chirping (recorded in my manual of N. E. Orth., p. 393), but shortly after disappeared and is not now found there.

On Oct. 16, 1922, I captured an adult male in an open pasture at Marblehead, Mass., several miles away. No others were seen. Curiously enough, in connection with the fireside association of the species, tho probably without definite significance, this specimen was found hiding under a fragment of partly burned board lying on the charcoal of an old bon-fire site.