

J. Proc. Linn. Soc. Zool.

RECORDED
IN ANTBIB

iv

4 suppl

Page

SMITH, FREDERICK, Esq.

Descriptions of New Species of Hymenopterous Insects collected by Mr. A. R. Wallace at Celebes	57
Descriptions of Hymenopterous Insects collected by Mr. A. R. Wallace in the Islands of Batchian, Kaisaa, Amboyna, Gilolo, and at Dory, in New Guinea. (With a Plate.)	93

WALKER, FRANCIS, F.L.S.

Catalogue of the Dipterous Insects collected in Amboyna by Mr. A. R. Wallace, with Descriptions of New Species	144
Catalogue of the Dipterous Insects collected at Dory, New Guinea, by Mr. A. R. Wallace, with Descriptions of New Species	229
Catalogue of the Dipterous Insects collected at Manado in Celebes, and in Tond, by Mr. A. R. Wallace, with Descriptions of New Species	258
Catalogue of the Dipterous Insects collected in Batchian, Kaisaa and Makian, and at Tidon in Celebes, by Mr. A. R. Wallace, with Descriptions of New Species	270

INDEX	313
-------------	-----

Publ. dztc: Sept. 19, 1859
rec. to Donisthorpe, H. 1932. Ann. Muz.
Nat. Hist (10) 10: 456

The interleaved note below appeared in J. Proc. Linn. Soc. Zool.
Vol. 5 no. 19 (1861)



The Binder is requested to observe that the extra Number of the *Journal*, published in July last, and which was described by mistake on the cover as "supplemental to Vol. 4," should be bound up with Vol. 5, between the *Zoological* portions of Numbers 17 and 18, with which it will be found to be continuously paged.

(1860)

Descriptions of New Species of Hymenopterous Insects collected by Mr. A. R. Wallace at Celebes. By FREDERICK SMITH, Esq., Assistant in the Zoological Department of the British Museum. Communicated by W. W. SAUNDERS, Esq., F.R.S., V.P.L.S.

[Read November 3, 1859.]

THE present paper contains descriptions of upwards of 100 species of Hymenoptera new to science, which form part of the second collection made by Mr. Wallace at Celebes. Perhaps the most interesting species described belongs to the genus *Dolichurus*, a genus which previously contained only a single species, and that indigenous to Europe; the discovery of a second may be regarded as one of the most valuable additions which Mr. Wallace has made to this order of insects. The addition of a new species to the genus *Methoca* is also extremely interesting; of the previously known species, one is European, a second from Cuba, a third from Canada, and a fourth from Northern India, showing the extensive geographical range of this rare genus of solitary Heterogyna.

The two collections of Hymenoptera from Celebes contain no less than 164 new species, a number far exceeding that which I have found in any similar collection, made in any part of the New World.

Fam. AULACIDÆ, *Shuck.*

1. TRYGNALYS PICTIFRONS. *T. nitidus, niger, distincte punctatus*; capite pedibusque albo maculatis; alis hyalinis, apice fuscis.

Female. Length 5 lines. Black; head and thorax with coarse, shallow, confluent punctures; the mesothorax with two oblique longitudinal impressed lines, which enclose, in the middle, one-third of the disk, the lateral portions being irregularly striated longitudinally; the scutellum with a central depression, the metathorax rounded. The face with an ovate spot outside the insertion of the antennæ, two at the base of the clypeus, and an oblong one at the inner margin of the mandibles, white; the head a little wider than the thorax. Thorax: the tubercles, the anterior tibiæ in front, and the intermediate and posterior pairs at their base, white; wings hyaline and iridescent, with a dark fuscous cloud at the apex, commencing at the stigma. Abdomen shining, more finely punctured than the head and thorax, the base with a central longitudinal depression; beneath, more delicately and not quite so closely punctured.

Male. Length $3\frac{2}{3}$ lines. Closely resembles the female, but rather more finely punctured; the extreme base of the femora and apex of the trochanters are pale, there is also a pale spot on each side of the scutellum and of the postscutellum; the second segment of the abdomen

acutely angular in the middle, but produced into a distinct acute tooth.

Gen. HOLOPYGA, *Dahlb.*

1. HOLOPYGA PURPUREA. *H. purpurea*, nitens, violaceo variegata; metathorace crasse punctatissimo; abdominis margine apicali arcuato, integerrimo; alis subhyalinis.

Length $3\frac{3}{4}$ lines. Dark blue, with tints of bright purple and green; the head, pro-, and mesothorax finely punctured, the prothorax with large coarse punctures at the sides; the metathorax with large deep fossulets at the sides; wings light brown, with their base hyaline. Abdomen delicately punctured, smooth and shining; the body brilliant green beneath.

Hab. Makassar.

Gen. FORMICA, *Linn.*

1. Formica smaragdina, *Fabr. Spec. Ins.* p. 488 ♀.

Hab. Celebes; Borneo; Malacca; Sumatra; Philippine Islands.

2. Formica pallida, *Smith, Proc. Linn. Soc.* vol. ii. p. 57 (*worker major*).

The insect described in a former paper was the worker (*major*). The small worker, and also the female, have been received from Celebes. The female is of a blackish brown, with the flagellum, prothorax, scutellum, scale of the peduncle, legs, and sides of the thorax pale ferruginous; the wings hyaline, with the nervures pale testaceous; the apical margins of the segments of the abdomen pale; the scale of the peduncle rounded above. The *worker minor* is pale ferruginous, with the head a little darker and the abdomen blackish brown; the head a little wider than the thorax; the thorax compressed, and very narrow behind.

Hab. Celebes; Sarawak.

3. Formica gracilipes, *Smith, Proc. Linn. Soc.* vol. ii. p. 55. ♂.

Hab. Celebes; Singapore.

4. FORMICA FAMILIARIS. *F. rufo-flava*, lævis, nitida; alis subhyalinis, nervuris pallide testaceis; abdomine cinereo micante vestito.

Female. Length $4\frac{1}{4}$ lines. Entirely of a pale reddish-yellow. Head: the sides behind the eyes straight; the posterior angles rounded, the hinder margin of the vertex slightly emarginate; the ocelli large and prominent; the clypeus and mandibles very smooth and shining, the latter with a row of black teeth on their inner margin. Thorax ovate, smooth and shining; wings subhyaline, the nervures pale testaceous, the discoidal cells obsolete. Abdomen wider than the thorax, covered with a thin, changeable, sericeous pile; the peduncle minute, obliquely inclined and fitting into a cavity at the base of the abdomen.

Hab. Makassar.

This insect bears a strong resemblance to *F. flava* of Europe.

Gen. TAPINOMA, *Foerster*.

1. TAPINOMA THORACICA. *T. nigra*, subnitida; capite abdomineque glabris; thorace rugoso; antennis pedibusque ferrugineis.

Worker. Length 2 lines. Black and slightly shining; the antennæ and legs obscure ferruginous. Thorax rugose above, deeply strangulated between the meso- and metathorax, the latter abruptly concave truncate; the peduncle of the abdomen inclining forwards, rounded in front; flat and oblique behind; abdomen ovate, produced anteriorly, and overhanging the peduncle.

Hab. Makassar.

2. TAPINOMA NITIDA. *T. nigra*, lævis, nitida; alis hyalinis, nervuris pallide testaceis.

Female. Length 4½ lines. Shining black; the antennæ and the head, before their insertion, ferruginous. Thorax oblong-ovate; the legs dark ferruginous, the tarsi palest; the wings hyaline, the nervures pale testaceous; the discoidal cell triangular. The scale of the peduncle inclining forwards and overhung by the base of the abdomen; the latter oblong-ovate, very smooth and shining.

Hab. Makassar.

Gen. POLYRHACHIS, *Smith*.

1. POLYRHACHIS PHYLLOPHILUS. *P. opacus*, niger; thorace spinis duabus acutis antice et postice armato; abdominis squamula spinis duabus arcuatis armata.

Worker. Length 4 lines. Opaque black, with the abdomen of an obscure rusty red; the palpi elongate and pale testaceous; eyes prominent; the two carinæ on the front, at the sides of which the antennæ are inserted, very much elevated and acute. Thorax: the spines on the prothorax long, acute, and diverging outwards; the metathorax compressed, the upper surface slightly concave, with the lateral margins raised, the carinæ continued into two long parallel spines which project over the peduncle of the abdomen; the legs slightly shining, destitute of spines and hairs, the calcaria pale. Abdomen obscurely red and slightly pilose; the peduncle armed above with two long acute curved spines, which project over the base of the abdomen.

Hab. Makassar.

2. POLYRHACHIS COMPRESSICORNIS. *P. niger* et vestitus pube cinerea; thorace spinis duabus acutis antice armato; abdominis squamula spinis duabus brevibus armata; pedibus ferrugineis.

Female. Length 5½ lines. Black and densely clothed with cinereous pile, which has a silvery brightness in certain lights; the mandibles shining black, and longitudinally striated; the antennæ inserted at the sides of two prominent carinæ; the scape compressed, much broader than usual, with the apex widest and thinly covered with short pale glittering pubescence. Thorax: the spines at the lateral angles of

the prothorax short, stout, and acute; the mesothorax very convex, with an abbreviated shining carina in the middle anteriorly; the metathorax transverse, abruptly truncated, slightly concave in the middle above; the legs ferruginous, with their articulations and tarsi fuscous. Abdomen ovate; the peduncle subtriangular, a stout, short, acute spine at the lateral angles.

Worker. Length $4\frac{1}{4}$ lines. Only differs in having the thorax flattened above, with the lateral margins slightly raised; the scape of the antennæ compressed, as in the female.

3. *POLYRHACHIS RUGIFRONS.* *P.* capite thoraceque subopacis; abdomine sericeo vestito; thorace spinis duabus longis acutis antice et postice armato, squamis bispinosis.

Female. Length 7 lines. Black; the head oblong, rugose, and narrowed behind the eyes; the palpi pale testaceous. Thorax: the prothorax armed on each side with a short, stout, acute spine, directed outwards; the mesothorax with a short abbreviated carina in the middle anteriorly, where it is rugose; the metathorax less rugose and with a fine cinereous pile, at each lateral angle is a short, stout, acute spine, pointed outwards; the legs slightly pilose. Abdomen covered with a fine, shining, changeable silky pile, which has a faint golden lustre; the peduncle armed above on each side with a stout, acute, slightly curved spine which is directed outwards.

Hab. Makassar.

This species is of the same size as, and closely resembles, *P. sex-spinosus*, but differs in not having the head armed posteriorly with spines, and also in the length and direction of the spines on the thorax and peduncle; it is also much more strongly sculptured. The worker only differs in having the thorax narrower, the sides being more parallel, but rather wider anteriorly; the sculpture is the same, as well as the pilosity.

4. *POLYRHACHIS SCULPTURATUS.* *P.* capite, thorace abdomineque delicatule aciculatis; thorace spinis duabus elongatis acutis antice armato; abdominis squamula spinis duabus longis acutis, utraque ad basin minute unispinulosa.

Female. Length $4\frac{1}{2}$ lines. Black, and very finely striated longitudinally; the eyes as well as the front of the head prominent; the mandibles shining and longitudinally striated. Thorax short and very convex above, armed in front with two stout acute spines; the wings fusco-hyaline, the nervures rufo-testaceous, the stigma black. The peduncle of the abdomen with two stout, upright, acute spines; at the base of each, outside, is a short minute spine. The entire insect thinly covered with erect black pubescence, which is most dense on the abdomen; the abdomen has also a thin covering of shorter pale pubescence.

Worker. Length 4 lines. Closely resembling the female, but with

the thorax flat above, the lateral margins being slightly notched at the divisions between the pro-, meso- and metathorax; otherwise like the female.

Hab. Makassar.

5. *POLYRHACHIS NUDATUS*. *P. capite thoraceque opacis; abdomine nitido, lævissimo; thorace spinis duabus longis acutis antice et postice armato; squama spinis duabus longis curvatis.*

Worker. Length 4 lines. Black; the head finely rugose; the mandibles stout and shining; the palpi fuscous. Thorax oblong, with two very stout conical spines in front, which curve obliquely outwards; the metathorax has also two similar spines, but rather longer, which diverge and are bent slightly downwards; the thorax rounded above; the legs shining black. The peduncle of the abdomen incrassate, quadrate, and armed above with two stout, long, curved, acute spines, which are directed backwards, and curve to the shape of the base of the abdomen.

Hab. Makassar.

6. *POLYRHACHIS PEREGRINUS*. *P. niger, pallide aureo-sericeo vestitus; thorace spinis acutis antice et postice armato; abdominis squamula spinis duabus longis acutis ad basin minute unispinulosis instructa.*

Female. Length 4 lines. Black, and clothed with pale golden silky pubescence; anterior margin of the clypeus rounded; mandibles shining black; the palpi pale testaceous. Thorax: the prothorax with two acute spines in front, which are directed outwards; the metathorax has two longer spines, also pointing obliquely outwards. Abdomen ovate; the peduncle armed with two long, stout, slightly curved spines, which have at their base, within, a minute acute spine.

Hab. Makassar.

This species is easily distinguished by the minute spines within the long lateral ones.

7. *POLYRHACHIS VESTITUS*. *P. niger, aureo-sericeo vestitus; thorace spinis duabus acutis antice armato; squama integra.*

Worker. Length 6 lines. Black, and clothed with a pale golden sericeous pile; the legs naked; the mandibles stout, finely striated, the striae interspersed with punctures; the front of the head very prominent. Thorax flattened above, the margins acute and slightly raised; the pro-, meso- and metathorax separated by strongly marked sutures; the prothorax armed at its anterior angles with a stout acute spine, which is compressed and broad at its base. Abdomen: the peduncle unarmed, its margin rounded.

Hab. Makassar.

This species is nearly three times the size of *P. inermis*, which it resembles in form, but is covered with silvery pile.

8. *POLYRHACHIS SÆVISSIMUS*. *P. niger, tibiis ferrugineis; thorace spinis duabus acutis antice et postice armato; squama subquadrata, spinis duabus longis curvatis; abdomine lævigato, nitido.*

Worker. Length 3 lines. Black, with the abdomen smooth and shining; the head and thorax subopaque, and thinly covered with cinereous pile; mandibles shining black; the palpi pale testaceous. Thorax armed in front with two stout acute spines, the metathorax with two, more slender and longer diverging spines; the peduncle has two long spines which curve round the base of the abdomen; the tibiæ ferruginous, but more or less obscure at their base.

Hab. Makassar.

Gen. PSEUDOMYRMA, Guér.

1. *Pseudomyrma læviceps*, *Smith, Proc. Linn. Soc.* 1859, iii. p. 145.

Hab. Celebes; Aru.

The specimens from Makassar are smaller than those from Aru, but I can detect no specific difference.

Fam. PONERIDÆ.

Gen. ODONTOMACHUS, Latr.

1. *Odontomachus simillimus*, *Smith, Cat. Hym. Ins. Form.* p. 80, pl. 5. figs. 8, 9.

This species closely resembles *O. hæmatodes*, but may be known by the following differences: the mandibles are distinctly serrated throughout the entire length on the inner margin; the head narrower and the antennæ shorter in the worker; in the female the neuration of the wings is different.

Hab. Celebes (Makassar); Fidjee Islands; Ceylon.

Gen. PONERA, Latr.

1. *Ponera geometrica*, *Smith, Proc. Linn. Soc.* ii. p. 67.

Hab. Celebes (Makassar). Singapore.

2. *Ponera læviceps*, *Smith, Proc. Linn. Soc.* ii. p. 69.

Hab. Celebes (Makassar); Borneo (Sarawak).

The specimen from Celebes has a few indistinct traces of sculpture on the crown of the head and prothorax, but so closely agrees in all other respects, that I cannot see a good specific difference.

3. *PONERA TRUNCATA*. *P. nigra*; antennis, mandibulis, pedibus, abdominisque apice ferrugineis.

Female. Length $2\frac{1}{2}$ lines. Black; the clypeus, antennæ, mandibles, legs, the apex of the metathorax and of the abdomen ferruginous; the eyes placed forward at the sides of the head, near the base of the mandibles; the head, thorax, and abdomen thinly covered with a fine, short, downy pile, which renders the body sub-opaque; the truncated portion of the metathorax very smooth and shining; the mesothorax with an obscure rufous tinge. The apical margins of the two basal

segments of the abdomen rufo-testaceous, the following segments entirely so.

Hab. Makassar.

4. *PONERA UNICOLOR*. *P.* ochracea; antennis subfuscis, alis hyalinis; tibiis tarsisque fuscis.

Male. Length 4 lines. Entirely ochraceous, with the antennæ and legs slightly fuscous; the mesothorax with two oblique impressed lines meeting in the middle of its disk; the wings hyaline and iridescent, the nervures and stigma rufo-fuscous. The node of the peduncle subglobose; a deep constriction between the first and second segments of the abdomen, and a slighter one between the second and third; the node of the peduncle with a tooth at its base beneath.

Hab. Makassar.

5. *PONERA PALLIDICORNIS*. *P.* obscure rufo-fusca; antennis pedibusque pallide testaceis; alis hyalinis.

Male. Length 3 lines. Shining rufo-fuscous; the head impunctate; the antennæ, mandibles, and palpi pale rufo-testaceous. The thorax delicately punctured; the scutellum prominent, smooth, and shining; the wings hyaline and iridescent, with the nervures colourless; the stigma pale testaceous; the legs rufo-fuscous, with the articulations and tarsi pale. Abdomen: the segments slightly constricted; the node of the peduncle conical, and with a tooth at its base beneath.

Hab. Makassar.

6. *PONERA PALLIDIPENNIS*. *P.* nigra opaca; abdomine lævigato, nitido, chalybeo-iridescente; antennis pedibusque obscure ferrugineis.

Male. Length 3 lines. Black; the head and thorax finely rugose and opaque, the metathorax coarsely rugose; the scape and basal joint of the flagellum bright ferruginous, the following joints obscurely so. Wings colourless, with the nervures pale testaceous, the stigma pale brown; the legs fusco-ferruginous, with the articulations and the tarsi pale rufo-testaceous. Abdomen smooth and shining, with a blue iridescence, the tip pale testaceous.

Hab. Makassar.

Gen. MYRMICA, Latr.

1. *Myrmica molesta*, Say, *Bost. Journ. Nat. Hist.* i. 293. 6.

I have carefully examined several individuals of the worker of this species from Makassar, and compared them with specimens obtained from North America, Brazil, and from houses in London, and can detect no specific difference; the examples from Celebes are paler at the apex of the abdomen; beyond this, I see no difference. I consider *M. molesta* a cosmopolitan species, which has been carried in merchandize to all parts of the world.

2. *MYRMICA GRACILESCENS*. *M. rufo-ferruginea, gracilescens; lævissima et politissima.*

Worker. Length 1 line. Rufo-ferruginous, smooth and shining; the tarsi and the basal joints of the flagellum pale rufo-testaceous; the club of the antennæ 3-jointed; the antennæ nearly as long as the body. The metathorax with two short acute spines. Abdomen ovate; the basal node of the peduncle petiolated, and elevated above the second node, which is ovate-conical, the first being conical.

Hab. Makassar.

This elegant little ant closely resembles the *Myrmica lippula* of Europe.

Gen. CREMATOGASTER, *Lund.*

1. *CREMATOGASTER LÆVISSIMUS*. *C. pallide castaneo-rufus, lævis nitidusque; alis hyalinis iridescentibus.*

Female. Length 3 lines. Pale rufo-castaneous, highly polished, smooth, and impunctate. The antennæ and legs very pubescent; the head anteriorly and the mandibles slightly pubescent. Thorax oblong-ovate; the wings colourless and brilliantly iridescent, the nervures scarcely distinguishable. Abdomen oblong-ovate, the first node of the peduncle petiolate, the second subglobose.

Hab. Makassar.

Fam. ATTIDÆ, *Smith.*

Gen. SOLENOPSIS, *Westw.*

1. *SOLENOPSIS TRANSVERSALIS*. *S. ferruginea, capite oblongo-ovato longitudinaliter striato, postice transverse striato; abdomine nitido.*

Worker major. Length 2 lines. Ferruginous, with the head and abdomen darkest, the latter palest at the base, and smooth and shining. Head: oblong, subquadrate, the sides slightly rounded, longitudinally striated, and with a central longitudinal smooth impressed line; the vertex transversely striated and slightly emarginate. Thorax: deeply strangled between the meso- and metathorax, the latter armed with two minute spines; the first node of the peduncle petiolated, conical, and elevated above the second node, which is globose.

Hab. Makassar.

Gen. PHEIDOLE, *Westw.*

1. *PHEIDOLE MILITARIS*. *P. ferruginea; capite maximo, antice fusco.*

Worker major. Length 3 lines. Ferruginous, smooth and shining; the head oblong-quadrate, more than twice the width of the abdomen deeply emarginate behind, and with a central longitudinal impressed line; the head transversely wrinkled posteriorly, and with a few longitudinal short striæ at the anterior angles at the base of the mandibles; the angles, as well as the mandibles, dark fusco-ferruginous;

the mandibles with a single notch at their apex, not toothed; eyes very minute. The thorax, legs, and abdomen, paler than the head; the thorax much narrowed behind; the metathorax armed with two short acute spines; the intermediate and posterior tibiæ not spined at their apex.

Worker minor. Differs only in the form of the head, which is more rounded at the sides, and the mandibles are armed with two stout teeth at the apex, and with several smaller ones behind.

Hab. Makassar.

Fam. CRYPTO CERIDÆ, *Smith.*

Gen. ECHINOPLA, *Smith.*

1. *Echinopla striata*, *Smith, Proc. Linn. Soc. ii. 80. 2 ♀.*

Hab. Celebes; Malacca.

Fam. MUTILLIDÆ.

Gen. MUTILLA, *Linn.*

1. *Mutilla unimaculata*, *Smith, Cat. Hym. pt. iii. p. 138 ♀.*

The male has the head and abdomen black and shining; the thorax blood-red; the inner margin of the eyes notched; the vertex strongly punctate-striate. The thorax strongly punctured; the metathorax with larger and more distant punctures; the tegulæ red; the wings fusco-hyaline. Abdomen rather distantly punctured; the apical margin of the second and third segments thickly fringed with white pubescence; the following segments fringed with black.

Hab. Makassar.

The sexes of this species were taken *in coitu.*

2. *Mutilla Sibylla*, *Smith, Cat. Hym. Borneo, Proc. Linn. Soc. ii. p. 86. 11 ♀.*

Mutilla suspiciosa, *Smith, Cat. Hym. Borneo, Proc. Linn. Soc. ii. p. 84. 5 ♂.*

The sexes of this species were taken *in coitu.*

3. *MUTILLA MAURA.* *M. nigra pubescens; alis fuscis; abdominis segmentis pube alba fasciatis.*

Male. Length $5\frac{3}{4}$ lines. Entirely black and shining; the head and thorax with large scattered punctures; the face and cheeks with a loose silvery pubescence; that on the vertex, and on the disk of the thorax, fuscous; the metathorax covered with large shallow punctures, and covered with short cinereous pubescence, having at the base, in the centre, a smooth, shallow, longitudinal channel extending half its length; the wings fuscous. Abdomen: campanulate, smooth, shining, and distantly punctured, with a scattered cinereous pubescence on the three basal segments, and with black on the four apical