

most of these are diurnal in flight, and more than rival the majority of butterflies in their gorgeous hues; while whole families (e. g. the *Glaucopidæ*) glitter with metallic hues vying with those of humming-birds. I am at the same time disposed to indorse the judgment of Dr. Boisduval, M. Guenée, and Mr. Murray, that the preeminence for surpassing beauty of right belongs to *Urania Rhipheus*.

Looking, however, to Mr. Murray's argument of the evidence of a Brazilian element in the fauna of Madagascar afforded by the presence of *Urania*, it is well to bear in mind that such considerable differences (chiefly shown in the stages of larva and pupa) exist between *U. Rhipheus* and the allied *Uranides* in South America and the West Indies, that the eminent lepidopterist M. Guenée has not only separated it from them generically, but as the representative of the distinct family *Uranidæ* (Sp. Gen. Lep. t. ix. p. 10). Nor should it be lost sight of that, if the independent testimony of Drury* and Cramer is of any value, either *U. Rhipheus* or some very close ally inhabits South-eastern Asia. These statements of Indian and Chinese localities for the insect, considered in connexion with the well-known eastern stations of the allied genera *Alcidis* and *Nyctalemon* (of both which the earlier states are as yet unknown), seem to afford considerable ground for the opinion that the presence of *Urania* in Madagascar may eventually be proved to indicate an Asiatic rather than an American element in the island fauna.

Cape Town, Feb. 14, 1871.

* It is not necessary here to enter upon the moot question whether Drury's insect is to be regarded as a manufactured specimen, combining the head and body of *Papilio* with the wings of *U. Rhipheus*, or (as Mr. Butler suggests in Cat. Fab. D. Lep. B. M. p. 288) as a butterfly mimicker of the *Urania*, because in either case the presence of *Urania* in China or India, according to the ostensible *habitat*, has to be assumed.

Additional Note to p. 280.—Mr. J. C. Melliss, who has been a resident at St. Helena for some years, informs me that Honey-Bees (*Apis*, sp.) and *Acherontia Atropos* were both common in that island for two or three years after his first arrival, but have since disappeared almost simultaneously. The same gentleman has shown me specimens of a *Quadrifid Noctua*, *Ophiodes Hottentota*, Guen., reared from larvæ in St. Helena: this moth is widely distributed in Southern Africa, and is nearly allied to the South-European *O. Tirrhæa*, Cram.—R. T., 5th September, 1871.

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A Catalogue of the Aculeate Hymenoptera and Ichneumonidæ of India and the Eastern Archipelago. By F. SMITH, with Introductory Remarks by A. R. WALLACE. (Communicated by W. W. SAUNDERS, Esq.)

[Read December 16, 1869.]

1. *Introduction.* By A. R. WALLACE.

As almost all the insects in this catalogue which inhabit the Malayan archipelago were collected by me, I have been requested to make a few observations on them. In doing so I would wish to state that, though I collected all orders of insects, my time was too much occupied with those branches of natural history in which I was more especially interested, to pay much attention to the habits or economy of the Hymenoptera. All, therefore, I can hope to do, is to give a few superficial observations on their habits and distribution, and on the nature of the localities in which they most abound. As the present is the first of a series of works on the eastern Insects collected by me, it may be well to say a few words on the different places in which I made my collections.

I reached Singapore at the end of April 1854, and spent six months between that island and the district of Malacca. In Singapore I chiefly collected at a spot about the centre of the island, where the low hills are crowned with patches of the lofty virgin forest that a few years before extended over the whole island. I also spent a week on the small island of Pulo-ubim, in the strait to the north of Singapore. The richness of these localities may be estimated from the fact that in nine weeks I collected about 700 species of Coleoptera, of which 130 were Longicornes. Other orders were equally abundant; but the novelty and beauty of the beetles and butterflies attracted my attention chiefly, and I only obtained about 70 species of Hymenoptera, though I have little doubt that an assiduous collector might have doubled that number. The peninsula of Malacca is equally rich; but it is necessary to discover good localities in the neighbourhood of virgin forests. Some of the Malay villages near Mount Ophir would repay a collector for a long visit. The total number of Aculeate Hymenoptera collected by me at Malacca and Singapore was 136 species.

I next visited Borneo, and spent fifteen months in the territory of Sarawak. From October till February was the wet season,

and I obtained comparatively few insects. In March, however, when the dry weather commenced, I went to Si-Munjon, on a river to the east of Sarawak, where some coal-mines were being opened, and found that I had hit upon an excellent spot for insect-collecting. I spent eight months there, living in a little house which I had built for me in a small clearing surrounded by forest, and obtained in that locality almost all the insects which I collected in Borneo. About 2000 Coleoptera, of which near 300 were Longicornes, and 216 species of Aculeate Hymenoptera, will give some idea of my collections in this spot.

After a considerable delay in Singapore, waiting for a vessel, I visited the island of Lombock, which, being highly cultivated and possessing little forest vegetation, produced a very scanty harvest of insects—especially as my two months' stay there was chiefly occupied in obtaining the birds of the island, which were very numerous and interesting. At length, in September 1856, I reached Macassar, in Celebes, which it had long been my anxious desire to visit, as I believed that island to be almost unknown, and likely to yield a rich harvest of novelties. The first appearance of the country, however, was by no means assuring. As far as the eye could reach extended a perfect level of dusty stubble, on which rice had been grown in the wet season. On the horizon, in many directions, was what appeared to be forest, but turned out on examination to be only villages embowered in clumps of fruit-trees. I had many weary excursions over these dusty plains, exposed to a fierce sun, which was never clouded between his rising and setting, before I could discover a spot which seemed at all suitable for collecting in. This was at a village about twelve miles off, and beyond the limits of the Dutch territory, so that I had to obtain permission from the Sultan of Goa before I could reside in it. I spent two months there, suffering greatly from fever, but obtaining very fine collections in all departments of natural history, among which was the collection of Hymenoptera described by Mr. Smith in the 'Proceedings of the Linnean Society' (April 1858), and containing upwards of 100 species. After returning from the Aru Islands, eight months later, I collected in another locality, about twenty miles north of Macassar, near a range of limestone mountains, and in three months (August, September, and October, 1857) added largely to my collection of insects. I obtained here about 120 species of Hymenoptera, of

which no less than 100 were previously undescribed. My best collecting-grounds were the half-dried beds of mountain-streams and the paths in the forest. I owe much of my success here to having had a house built in a patch of forest on the slope of a hill, where I could utilize every spare hour, and often obtained rare insects at odd moments which would otherwise have been wasted. I have shot apes, hornbills, and squirrels without going outside of my veranda, and obtained a considerable proportion of the ants which I collected here within twenty yards of my dwelling. It was two years later that I again visited Celebes, spending four months in the northern part of the island in 1859. I visited three localities in the district of Minahassa, which is perhaps, without exception, the most pleasant and interesting part of the archipelago, and one of the richest and most peculiar in its natural history. The climate is moist, like that of Borneo and Malacca, the soil is rich from the volcanic detritus, and the forests are very luxuriant. The insects I obtained comprised about 85 species of Hymenoptera, most of which were new species. Owing, perhaps, to my having made three separate collections in different localities, Celebes furnished me with more species of Hymenoptera than any other island I visited. I believe myself, however, that it is really richer in this order, because I did not obtain a correspondingly large number of species in the other orders of insects.

The various islands of the Moluccas—Bouru, Amboyna, Ceram, Batchian, and Gilolo—are very similar in general character. They have all a moist climate and a very luxuriant forest vegetation, and are probably all nearly equally productive in insects. The small island of Batchian was the one in which I stayed longest (six months), found the best collecting-ground, and enjoyed the best health, which sufficiently accounts for my having made the best collections there. The new paradise-bird (*Semioptera Wallacei*), the grand butterfly (*Ornithoptera Cræsus*), the fine Coleoptera (*Glenea picta* and *Tmesisternus (Sphingnotus) Dunningi*), and the remarkable *Megachile Pluto* among Hymenoptera are a few of the treasures the capture of which sweetened my residence in this little-known island. The Aru Islands were the first portion of the great Papuan region which I visited; the fauna was entirely new to me, and excessively interesting, and I collected with great assiduity. In my visits at a later period to Dorey in New Guinea, and to Waigiou, I suffered much from

ill health, and had lost the excitement of novelty which had spurred me on during my stay at Aru. My collections therefore must not be taken to represent the comparative richness of these localities, which I believe to be all equally prolific in insect life. At the Aru Islands I collected for six months (January to June 1857), at Dorey three months (April to June 1858), and in Waigiou eleven weeks (July to September 1860). At Mysol, my assistant, Mr. Allen, collected for more than six months in 1860. The large island of Timor yielded me very few insects, although at different times I spent about five months there, visiting both the eastern and western districts. The climate is very arid, and the vegetation scanty, consisting chiefly of *Eucalypti* and *Acacias*; and it much resembles Australia in its physical features. It does not present, however, any of the fine Australian forms of insects, while many of those characteristic of the other islands of the archipelago seem absent. Ill health during my residence there prevented me from making any thing like a complete collection; and it is probable that in Hymenoptera, at all events, much remains to be done in this island. Mr. Allen spent some months in Flores, which he found very similar in character to Timor and equally unproductive of insects. My stay in the large islands of Java and Sumatra was much too short to enable me to make any collections that would give a fair idea of their entomology. They are, however, both excessively rich, and teem with insect life; yet how little they have yet been explored by entomologists may be estimated from the fact that in 1863 Mr. Smith could only find 45 species of Aculeate Hymenoptera which were known to inhabit Java! I believe that an active collector could, in two or three years, collect fully ten times that number in Java alone; and Sumatra is, no doubt, equally rich.

Even the best collections I have been able to make can only be looked upon as samples of the productions of these luxuriant regions. A traveller can do no more than test the productiveness of a country; and we shall never know all the riches of the eastern forests till some assiduous entomologist has devoted several years to a single island. It is greatly to be regretted that, among the numerous Europeans residing in the most fertile parts of the tropics, there are few or none who have devoted themselves in earnest to the exhaustive study of the entomology of their district.

I will now collect together the few observations I made on the habits of the various species of Hymenoptera.

The ants are among the most abundant and omnipresent of tropical insects; and it is impossible for the traveller to avoid noticing them, since he is sure to suffer from their attacks. Those which constitute the family of the FORMICIDÆ do not sting; but their great numbers and activity render them very annoying, and some of them bite very painfully. The *Formica quadriceps* was very abundant on trunks and foliage in the Aru Islands. It carries its abdomen raised up at right angles to the body, and when disturbed appears much enraged, biting with all its force for a long time, but without giving much pain. *F. flavitarsis*, from the same islands, erects both abdomen and head in a threatening manner when disturbed, so as somewhat to resemble the attitude of a *Mantis*. *F. occulta* is a solitary species; and it moves along in a jerking manner, very different from most of its congeners. *F. longipes* was found in very small numbers, wandering among dead leaves in the forest. *Formica lactaria* and *F. circumspecta* were observed in company with Aphides, and feeding on their sweet secretion. These ants were very abundant, swarming on fruit-trees in gardens, and on grass; they also swarm in houses, but are not very destructive. *F. lactaria* makes a nest of leaves joined together with a loose mass of soft papery material. *F. badia* makes a small fragile nest under palm leaves; and in it I observed the larvæ of a small Homopterous insect (a species of Cercopidæ?), the perfect insects being found on the same plant. *F. cruda* and *F. coxalis* were found under bark; *F. pallida* had its nest under stones on the mountains of Celebes. The large *Formica gigas* is common in the forests of Singapore and Borneo among dead leaves and rotten timber. *F. dorycus*, an almost equally large species, was only taken at night, visiting my sugar-basin in New Guinea. Most of the other species of *Formica* were found on foliage or bark in the forests. These ants appear to make up for want of a sting or of great strength by the power of numbers; for I once observed the small workers of *F. subtilis* in Batchian carrying away a large and heavy living beetle (*Geonemus*, sp.), the legs and antennæ being crowded with a double row of the ants so as to render the resistance and struggles of the beetle quite hopeless. The very minute and semitransparent *F. familiaris* inhabits houses in Batchian; it is very active, and annoying

from the impossibility of escaping its attacks, though it is not very destructive.

The genus *Tapinoma* is scarce in the East. The only species which I found in abundance was the *T. glabrata*, which is a house-ant in Malacca, and is called by the Malays "Sumut gila" (the mad ant) from the extraordinary manner in which it rushes about hither and thither apparently without any object. It is not, however, very destructive.

The curious spiny ants forming the genus *Polyrhachis* are very abundant in the whole archipelago, though they never swarm like so many others of the family, and rarely inhabit houses. They seem to be truly arboreal species, and are mostly of a rather large size. Many of them are beautifully sculptured or curiously furrowed; and the fantastically shaped spines with which they are almost all furnished render them very interesting objects for examination. The large *P. bihamatus*, with its curious dorsal hooks, is common in the forests of most of the islands, running slowly upon timber and the trunks of trees. *P. levigatus* and *P. chalybeus* were found on rocks on Mount Ophir, at an elevation of nearly 4000 feet. *P. scutulatus* was found abundantly at sugar-cane refuse in the Aru Islands. *P. fervens* makes a brown papery nest on branches in Amboyna. That of *P. rugifrons*, found in Ceram, was about two feet long, attached to the vertical trunk of a tree. When disturbed the ants rush out, and, turning the abdomen under the body, strike it against the firm papery nest, producing a loud rattling noise. This nest consisted internally of large irregular cells; and the inmates were not very numerous. It was the largest nest I observed of any species of this genus. *P. sexspinosus* forms a somewhat similar nest, but smaller, and attached to the surface of a large leaf. That of *P. textor* is of an open fibrous material, and only an inch in diameter. *P. Acasta* rolls up a leaf and forms within the cylinder a coarse papery nest. *P. Eudora*, of Batchian, was found under bark, with a nest consisting of a very few, small, imperfect, fragile cells, comprising in all only half a dozen individuals and about as many larvæ. *P. bihamatus*, and some other species, have their nest of a few exposed cells on the trunks of trees, and seem to exist only in very small communities. The other nests of ants of this genus observed by me were:—*P. rugifrons*, a soft papery nest on a smooth tree, about 12 inches long, with several

openings below; *P. Busiris*, a very similar nest to the last, but about half the size; *P. Dolomedes*, a small, oval, papery nest on a leaf; and *P. paromalus*, whose nest, on a tree, consisted of only two small cells of papery matter about an inch in diameter, each cell with a separate opening. These four nests were found in the island of Ceram. A very large number of the species which I collected were found wandering about foliage or trunks and on the ground; and very often single specimens only were obtained. The general characteristics of these ants appear to be, that they live in small communities in exposed situations, and are not very active; while, being of generally large size, they must be very much exposed to the attacks of insectivorous birds and other animals. They have neither sting nor powerful jaws to defend themselves, and, from their limited powers of increase, would seem to be peculiarly liable to extermination, without some special protection. It seems probable that this is the purpose of the curious hooks, spines, and points with which they are armed, and which must no doubt render them unpalatable morsels, very liable to stick in the throats of their captors. The great number of species of ants, and the curious modifications found among them, indicate that they have much inherent tendency to variation; and we may well imagine how, in the severe struggle for existence which is for ever going on where life is so abundant and varied as in the tropics, the most widely distinct modifications have been seized upon by "natural selection" as a means of safety and perpetuation. The power of rapid increase, the habit of making subterranean abodes, or of seeking food only at night, the poisonous sting, the powerful jaws, minuteness of size, or the being armed with spiny processes, are all advantages to their possessors; and the first rudimentary appearance of any of these, in however slight a degree, would inevitably lead to their persistence and perpetuation, and to the further development of such peculiarities by the preservation of all favourable and the destruction of all unfavourable variations.

The new genus, *Echinopla*, consists of a few species somewhat resembling *Polyrhachis*, but wanting the spines, and generally covered with deep striæ or bristles. They are very scarce, being almost all found solitary on leaves in the damp and gloomy forest; and I never observed their nests or obtained any other clue to their habits. They are very sluggish as compared with the activity of most ants.

The *Ecophylla smaragdina* is one of the most widely distributed ants in the archipelago, and is abundant in most forests. When alive the abdomen is of a bright olive-green colour. It makes a nest by gluing together the edges of leaves, often those of Zingiberaceous plants; and when disturbed it rushes out apparently in a great rage, and makes a loud rattling noise by tapping against the leaves. This perhaps serves to frighten away some of its enemies; and it also possesses a rudimentary power of stinging, which gives very little pain. It is an exceedingly active and intelligent-looking species.

The ODONTOMACHIDÆ, comprising the single genus *Odontomachus*, are long and slender ants with enormous hooked jaws. I found them generally wandering about on the ground in the forests. They both bite and sting, the latter being the most painful, as they seem to want muscular power to do more than hold on tight with their jaws. I found a nest of *O. tyrannus* in the Aru Islands, composed of coarse papery fibre, in the fork of a small tree. *O. rixosus* was observed at Ternate coming out of holes eaten into the pith of the sticks of a fence, formed, I believe, of some Bombaceous shrub. Neither species nor individuals of this genus were abundant.

The PONERIDÆ are generally large-sized ants, which are not abundant, but sting very severely. *P. leviceps* was found under rotten bark. *P. maligna* was observed upon rocks in N. Celebes, carrying away Termites. *Amblyopone castanea* was found in abundance under rotten bark and fern-roots. The new genus, *Mesoxena*, was taken at night, visiting my sugar-jar.

We now come to the MYRMECIDÆ, the destroying ants "par excellence," and the most abundant in individuals of the whole group. The genus *Myrmica* consists chiefly of small red or yellow species, many of which are preeminently house-ants, and are a constant nuisance to the resident in the tropics. *M. ruficeps* and *M. pedestris* were found under rotten bark, almost solitary, and each with a few eggs. *M. pellucida* and *M. agilis* are small house-ants, and not very destructive. *M. vexator* and *M. vastator* well deserve their names. They swarm in houses almost everywhere, and, to the naturalist especially, are a constant source of trouble. Nothing but isolation by water, or, better still, by oil, will preserve any animal or vegetable substance from their attacks. They also sting most acutely, and

are constantly wandering over one's body and giving unexpected punishment in tender places.

The species of *Podomyrma* are forest insects, and were found chiefly in dry and elevated districts. They run rapidly on branches of trees ; but nothing more is known of their habits.

The genus *Pseudomyrma* consists of long and slender short-legged ants, found crawling on foliage and timber, and generally solitary or in small numbers.

The genus *Orematogaster* consists of small-sized ants, which are sometimes very abundant, and sting severely. The *C. inflatus* has a remarkable swollen thorax of an ochre-yellow colour. It was found running rapidly about dead branches. Another species, *C. irritabilis*, was found in New Guinea, abounding in the forests, where it makes large nests of black crusty cells in the trunks and branches of lofty trees. Soon after I had built my house at Dorey this species took possession of it, building large nests in the roof, and making covered ways down the posts and across the floor. They also filled up the grooves of my setting-boards with their cells, and stored them with spiders. For three months I was subject to the constant attacks of these little pests, which coursed about over my table, in my bed, and all over my body. This was all very well, and could have been borne without any complaint ; but every now and then, meeting with some obstruction in their path, they would give a sting so severe as to produce a spasmodic start, and necessitate an instant search after the enemy, who was generally to be found holding on tight by his jaws, and thrusting in his sting with all the vigour he was possessed of.

The *Myrmicariæ* are active ants, resembling at first sight the smaller species of *Polyrhachis*. They were found generally on foliage. *M. rugosa* was observed in Batchian running on fallen timber, carrying the abdomen turned in under the thorax.

The genus *Pheidole* comprises those remarkable ants which possess workers of several forms, and often differing greatly in size and structure. Some of them live under rotten bark, others in the ground ; and they all seem to be very active and voracious, and to have a very severe sting. In the island of Batchian I found five species of *Pheidole*, which were more abundant there than in any other locality. In *P. rubra*, found abundantly under rotten bark, the two sorts of workers do not differ much in form, but the larger ones are at least ten times the bulk of the smaller.

P. megacephala has two distinct sets of workers, which differ structurally; and each of these presents remarkable differences of size, the small workers having a larger and a smaller form, while the large ones exist of four distinct sizes; so that in this one species we have a series of individuals of six distinct sizes, which differ so greatly that I am sure I am under the mark when I say that it would take one hundred of the smallest to equal in bulk one of the largest. This species was taken under bark, and was also found in Celebes travelling across a roadway in the forest; and here the large and small individuals were obtained together.

In the last-named species, though the head is rather disproportionately increased, it is the whole body of the insect which presents such a striking difference of bulk. In *P. notabilis*, however, while the body and abdomen of the large worker are only slightly increased, the head is most enormously developed, as shown by Mr. Smith's figure (Journ. Linn. Soc. Zool. vol. v. pl. 1. f. 3). This species was also taken crossing a pathway in the forest. *P. pabulator* combines these differences, the larger worker having an excessively large head as well as a much larger body. The large head of these insects renders them sluggish and incapable of keeping up with the more active small workers; and I observed that half a dozen of the latter often surrounded those of the largest size and dragged them along, as if they were fatigued or wounded soldiers. This fact of the helplessness of these giant ants, and their very often having smooth toothless jaws, renders Mr. Bates's explanation of their probable function in the colony highly probable, viz. that they serve as mere baits to ant-eating animals, being naturally attacked and often carried off first, and thus allowing the working portion of the community to escape destruction. Another species, *P. plagiaria*, is small, but very active and voracious, and the large worker is only about twice as large as the small one. I observed them once plundering a white-ant's nest in a rotten tree, down which they were proceeding in a continual stream, carrying away the soft and helpless *Termites*. On another occasion they had discovered a large Coleopterous larva (*Passalus*, sp.), and hundreds were engaged in dragging him out of his abode in a rotten stump.

The genus *Solenopsis* very much resembles the last, but the species are generally red instead of brown or black. *S. cephalotes* is one of the most abundant ants in the Moluccas, and is the most terrible pest. It forms its colonies under ground, en-

tering houses from under the floors, and devouring every thing eatable. Its sting also is excessively painful, so that it bears the name of the "fire ant." When once a house is infested with them, there is nothing to be done but to support all boxes, tables, &c. on blocks of wood or stone placed in dishes of water, as even the perspiration on clothes is sufficiently attractive to them; and woe to the poor fellow who puts on garments in which a dozen of these are lodged! It required the most watchful care to keep my collections from the attacks of this insect, as they would devour all the soft parts about the beaks and eyes of bird-skins, and were so particularly fond of fresh Lepidoptera that I have often lost the results of a day's good work by leaving my collecting-box unprotected for half an hour after my return home. *S. pungens* and several other species also frequent houses, and are very destructive, so that in the islands from Celebes eastwards it is hardly possible to preserve collections of natural history without being incessantly on the alert and taking especial precautions against the attack of these ants. *S. laboriosa*, found in Batchian, presents an almost complete series of workers, nine in number, taken from one nest, the largest of which have immense heads and large abdomens, and are four times the length, and probably at least a hundred times the bulk and weight, of the smallest.

The last family of ants, the CRYPTOCERIDÆ, are represented in the Eastern archipelago by the three genera *Meranoplus*, *Cataulacus* and *Cephaloxys*. They are scarce both in individuals and species, and are generally found on foliage or timber, solitary and often motionless.

On the remaining families of Hymenoptera I have few observations. The MUTILLIDÆ were rather abundant, the apterous females running about the ground in sandy places or pathways in the hottest sunshine; the males fly actively about shrubs and foliage, and were often seen carrying off the females. The sexes often differ extraordinarily both in size and coloration; and I took every opportunity of capturing them together, so as accurately to determine their sexual relations.

The SCOLIADÆ were generally captured at flowers, especially of cinchonaceous shrubs. The smaller species, however, were often found on sandy pathways. The larger species, such as *Scolia procera*, *S. speciosa*, &c., are among the most striking of tropical insects.

Different forms of the POMPILIDÆ are everywhere abundant in the eastern tropics. The species of *Pompilus*, *Macromerys*, and *Mygnumia* were generally taken in the thick forest, often flying along near the ground and among herbage, carrying some captured insect. The *Ogenias* are often seen dragging along spiders. The *Ammophilas* frequent weedy herbage in hot sunshine. *Pelopæus bengalensis* and other small species were taken in similar situations. *Pelopæus javanus* enters houses, where it makes small earthen cells, which it stores with spiders rendered torpid. On opening one of these, a small larva was found, with its food. In another instance a cell in my room, after being stopped up, was completely plastered over with mud in an irregular manner, so as to hide its shape. After a fortnight I opened it and found within it a delicate brown cocoon $\frac{7}{10}$ inch long, containing a white grub $\frac{2}{3}$ the length of the cocoon. The clay cell was very hard and solid; and it seems extraordinary how the insect could have escaped from it. *P. intrudens* is the species which takes its place in Celebes, where I have observed it to bring both caterpillars and spiders to its cell. *Sphex* is a very abundant and characteristic genus, abounding in open sandy places, where they fly about in great numbers, and with enormous velocity and vigour. *S. argentata* and *S. gratiosa* were common in the sandy street of Dobbo in the Aru Islands. *S. argentata* was found also at flowering shrubs in Celebes; other species were found in forest-paths, and on the sandy banks of drying-up streams.

The BEMBICIDÆ were found burrowing in loose sand, *Bembex melancholica* being common in such situations all over the archipelago.

The EUMENIDÆ are the most abundant, beautiful, and characteristic Hymenoptera of the East. They are found everywhere, in gardens, on roadsides, on the margins of streams, and in the forests. They are very difficult to capture safely, having great power of elongating the abdomen, so that they will twist it round and sting in every direction within a sphere of at least two inches diameter round the thorax. *E. quadrispinosus* and *E. blanchardi* build pendent cones of soft papery texture on the thatch of houses, as a covering to three or four small, open, earthy cells, in each of which they deposit an egg.

Rhynchium and *Odynerus* are very abundant in species and individuals, and frequent similar situations.

The VESPIDÆ are chiefly represented by the genera *Icaria* and

Polistes. These are smaller and much less powerful and vigorous than the Eumenidæ. They build small stalked nests of eight or ten hexagonal papery cells, with a few outer imperfect ones. These are generally attached to the underside of leaves, or to a dry twig, and they seem to remain always open and exposed. *Icaria impetuosa*, *Polistes sagittarius*, and *P. multipictus* were observed to have nests of this character. The large species *Polistes Picteti* has a nest consisting of a much larger number of cells; and in the island of Goram I observed the natives eating the pupæ as a great luxury. *Vespa doryloides* is a curious species, of weak structure and nocturnal habits, since I only took it when attracted to the lamp at night.

Among the Eastern APIDÆ the most abundant and characteristic genus is *Megachile*. These are bees of a black colour, with a flattish body and a very large head. They have a very acute sting, and often enter houses. They seem to vary in their habits. *M. scabrosa* bores holes in posts of houses. *M. lachesis* makes a small round hole in hard clayey ground. *M. tuberculata*? makes cells of very sticky black wax. In Borneo it annoyed me much by getting in among my books and forming its cells on the edges, in the groove formed by the projecting covers. Others filled up the grooves in my setting-boards, and day after day persevered in rebuilding what I had cleared away. They fly very quickly and buzz loudly. *M. fulvifrons* and *M. terminalis* were taken about houses in Macassar. The giant *Megachile Pluto* was only seen once, in the island of Batchian. It was obtained during an excursion to a tract of mountainous forests, and was watched flying round and round with a loud humming noise like that produced by a *Geotrupes*, till at last it was fortunately captured on the wing.

Ceratina viridis was taken at low herbage near Macassar. The *Xylocopas* are abundant everywhere in the forests, and especially about cultivated grounds. The smaller species bore holes in posts of houses. *X. latipes* makes long round holes in dead trees. The beautiful *X. cærulea* is common about the town of Singapore.

True honey-bees are found in the western half of the archipelago, and in the south-east as far as Timor, where, however, it is possible they may have been introduced. *A. dorsata* and *A. testacea* both construct large combs suspended from the underside of the branches of lofty forest-trees. They sting very severely;

yet the natives ascend the trees, and with nearly naked bodies take away the combs, protected only by a smouldering torch, the smoke from which in some degree keeps off the insects. The Dyaks of Borneo ascend the trees by driving strong pegs of bamboo into the trunk, which they connect with an upright bamboo, and thus form a good ladder. The people of Timor literally walk up the trees, by means of a long piece of creeper put round them, and the extremities held in the hand. It is a wonderful sight to see a man ascend thus ~~a vertical trunk~~ 100 feet high, and then creep out upon a horizontal branch and coolly brush away the myriads of bees from a comb a yard in diameter, and become immediately enveloped in a cloud of angry insects, while he cuts off the comb and lets it down to his companions below by a slender cord. In this manner many tons of wax are annually collected, the immature bees and honey supplying a luxurious feast to the bee-hunters.

The genus *Trigona* consists of small stingless bees, which make their nests in holes of trees, consisting of oval irregular cells of black wax. They occur over the whole archipelago; for though they are not in my lists from the Moluccas, that is merely because I neglected to collect them, owing to their being so very common.

In the Tables of the geographical distribution of the species and genera I have arranged the localities in a certain order, and divided them into groups and regions which I believe to be natural. This arrangement is founded chiefly upon the facts presented by the Mammalia and Birds, groups which are in many respects the best adapted to exhibit clearly the phenomena of geographical distribution, since they are not subject to many disturbing influences which powerfully affect the distribution of insects. These come chiefly under two heads—accidental or involuntary transmission, and direct dependence on vegetation and climate. It is evident that Mammalia have scarcely any means of voluntarily passing from island to island over straits of the sea from twenty to fifty miles wide, or even for a much less distance; and they are scarcely likely to be accidentally carried to sea in large numbers, so as to give a chance of a few swimming over to adjacent islands and there establishing themselves. Accordingly we find that the mammalia inhabiting islands, even when very close to another island or continent, indicate very accurately either the recent separation of the two, in which case (as in Great

Britain) every species in the smaller will be found also in the larger tract of land, or a very long disconnexion, in which case (as in that of Madagascar) every species and many genera, and even families, will be peculiar to the smaller island. It would hardly be expected, though it is undoubtedly the fact, that land-birds (with few exceptions) exhibit the same phenomenon in almost an equal degree with mammals, showing that their migrations are comparatively rare and involuntary, except in the case of some preeminently wandering orders and families. These principles can be applied with great facility in the Malay archipelago, which can thus be divided into groups of islands having well-marked mutual relations.

First, we have a great division into two regions, each of which is well characterized by many distinct families of mammals and birds, for some details of which see "Zoological Geography of the Malay Archipelago," in 'Proceedings of Linnean Society,' Zool. vol. iv. p. 172, and 'The Malay Archipelago' (Macmillan and Co., 1869). We thus find that one half of the archipelago belongs to the Indian, the other to the Australian region. In the Indian portion of the archipelago, which may be termed the Indo-Malayan subregion, we find that the islands of Java, Sumatra, and Borneo, together with the Malay peninsula, have the closest resemblance in their natural productions—numbers of species being identical in all, and the same groups, for the most part, occurring throughout; they form therefore one subdivision, which may be called the Indo-Malay islands proper. The Philippine Islands have certain relations to these, but have several distinctive characteristics. They are deficient in several groups which run through all the other islands, and they contain several genera which show a connexion with Celebes in the Australian region, as well as others which indicate a relationship with Chinese Asia.

In the Australian region, New Guinea is the most important and characteristic island, possessing numerous genera of its own; but immediately surrounding it are several islands (Aru, Mysol, Waigiou, &c.) which so closely agree in all important points as to indicate that they form a single district, which may be termed that of the "Papuan Islands." The large group of islands generally known as the Moluccas has a great resemblance to the Papuan group; but several important genera are absent, and the islands possess several common characters: they will form the "Moluccan group." The large island of Celebes is very peculiar,

having, as already pointed out, a decided relationship with the Philippines, and also an apparent direct connexion with New Guinea. It also possesses genera quite peculiar to itself, and has an unusual number of endemic species. The Sula Islands closely agree with it, and are distinctly marked off from the Moluccas, and must therefore form part of the "Celebes group." The islands of Lomboek, Sumbawa, Flores, and Timor, with others adjacent, differ much in physical character from the rest of the archipelago, and possess genera and species which indicate a closer connexion with Australia. Their proximity to Java has also led to their being partly populated with species from that island; and they altogether possess a distinctive character which requires them to be considered apart. They form the "Timor group."

Although these groups and regions are exceedingly well marked in Birds and Mammals, and must therefore be taken as the foundation of any scheme of division of the islands according to the distribution of their animal and vegetable productions, yet it is undoubtedly the fact that in the great group of insects these divisions are by no means so clearly marked. Insects have a much more uniform distribution in these countries, as in fact we might expect from the fact that they are much more liable to be accidentally carried from island to island—in their egg- and larva-states by floating trees, trunks, and fruits—in their perfect condition by strong winds and hurricanes; and as the climate and general conditions of the surface vary very little from island to island, such immigrants would, in many cases, survive and lay the foundation of new races. In a paper "On some Anomalies of Zoological and Botanical Geography" (Nat. Hist. Review, Jan. 1864), I have explained my views on this subject at some length.

In the summary of the distribution of the genera of the Aculeate Hymenoptera catalogued by Mr. Smith, I have separated the Apterous Ants from the rest of the order, to see if they would present any difference with regard to their distribution in the two great regions. Out of 39 genera of ants 13, or exactly *one-third*, are common to the two regions. Of the 123 genera of winged Aculeate Hymenoptera, 69 genera, or more than *half*, are common to the two regions. We may reasonably conclude, therefore, that it is the power of flight that has led to this average wider extension of the winged groups. If, instead of comparing the *genera* of the two halves of the archipelago, we compare the

species of adjacent islands, we find similar results. For example, of 109 ants found in Borneo and the Malay peninsula, only 12 are common to both, or 11 per cent.; while of the rest of the Hymenoptera, 198 in number, 33 are common, or near 17 per cent. This fact is important, because we learn from it that *genera* and *species* are distributed in the same manner, the want of the power of flight leading to a more restricted range of both. In the case of *species* this is very intelligible, on the simple principle that the present distribution of animals is the result of natural causes; but when we find the same law hold for *genera*, it altogether ceases to be intelligible, unless we suppose *species* to undergo modification, so that the *individuals* of a *species* become in time the *species* of a *genus*, in which case their distribution will of course be regulated in a similar manner. The fact therefore that the power of flight affects the distribution of *genera* in the same manner as *species*, is a direct argument in favour of the formation of the one from the other by a natural process of modification.

In order to ascertain if the Hymenoptera show plainly the division of the archipelago into two great regions, I will compare the species of Borneo with those of the Malay peninsula on the one hand, and with those of Celebes on the other. On looking at the map, it will be at once seen that the facilities for passing from Borneo to Celebes are much greater than from Borneo to Malacca: yet, in the former case, out of a total of 479 Hymenoptera collected by me in the two islands, only 27 were found in both, equal to less than *six per cent*; in the latter case, out of a total of 307 species 45 were common to both, or about *fifteen per cent.*,—plainly indicating that some other cause than the present proximity and facilities for migration has determined the existing distribution, the cause being, as I believe, that Borneo has been recently connected with Malacca, but has never been united to Celebes. The distinctness of the Hymenoptera of the two regions of the archipelago, however, is much greater than is shown by the mere statement of the number of species and genera peculiar to each, since there are many other genera which have a maximum in one region and give a character to its entomology, while, because a few straggling species have passed into the other region, they do not appear as peculiar groups in either. Thus *Crematogaster*, *Atta*, *Catantopus*, *Elis*, *Ammophila*, *Ampulex*, *Tachytes*, *Halictus*, and *Ceratina* are characteristic of the Indian region,

though not confined to it; and, in like manner, *Liacos*, *Prosopis*, *Nomia*, and *Crocisa* have a greater development in the Australian region.

The great inequality of our knowledge of the different islands prevents me from going into more detail as to the facts of their distribution. It must not be supposed, when we see 7 or 10 given as the total of the Hymenoptera from one island, and 216 or 290 from another, that either of these numbers gives any approximation to the sum total of the species inhabiting that island. They merely show what one collector was able to do in each under very different circumstances; and they indicate the points at which future collectors may work with most advantage. The comparatively small number of species yet known from the countries which I have grouped under the term Chinese Asia, from Birmah to China inclusive, and the still more scanty list from the Philippines, show how much there is yet to be done in those countries, even to bring them up to the standard of our still very imperfect knowledge of the Malay archipelago. I would also point out Sumatra, Java, and Timor as islands that would yet well repay an assiduous and persevering entomologist, and which can be visited with much less privation and risk than would be encountered in penetrating to New Guinea and the unknown islands east of it. I would observe, however, that though the individual islands are very unequally known, yet the total number of species obtained from the chief groups of islands, viz. Indo-Malay islands 417, Celebes group 295, Moluccan group 280, Papuan islands 296, indicate a tolerably equal amount of research over the various portions of the archipelago, and render the few results I have deduced from them worthy of some confidence.

2. Catalogue. By F. SMITH.

Tribe I. **Heterogyna**, Latr.

Fam. FORMICIDÆ, Leach.

Gen. FORMICA, Linn.

1. FORMICA CRINITA, Smith, Cat. Hym. Ins. vi. 13. 42, ♀.

Lasius crinitus, Mayr, Myrm. Stud., Verh. der k. k. zool.-bot. Gesells. in Wien, 1862, p. 700. 1.

Hab. Northern India.

2. *F. TAPROBANÆ*, *Smith, Cat. Hym. Ins.* vi. 13. 43, ♀.
Hab. Ceylon.
3. *FORMICA COMPRESSA*, *Fabr. Syst. Piez.* p. 396. 2; *Hardw. Zool. Journ.* iv. 114; *St.-Farg. Hym.* i. 214. 17; *Smith, Journ. Proc. Linn. Soc.* ii. 53. 2.
Hab. India; China; Philippines; Borneo; Java; Sumatra; Africa.
4. *F. GIGAS*, *Latr. Hist. Nat. Fourm.* p. 105, pl. 2. f. 2, ♀; *Smith, Proc. Linn. Soc.* ii. 53. 1.
Camponotus gigas, *Mayr, Myrm. Stud.* 669. 29.
Hab. India; Malacca; Borneo; Singapore; Sumatra; Java; China.
5. *F. ASSIMILIS*, *Jerdon, Madr. Journ.* (1851), p. 123; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 107. 42.
Hab. India.
6. *F. CYLINDRICA*, *Fabr. Syst. Piez.* p. 404. 36; *Latr. Hist. Nat. Fourm.* p. 121, pl. 4. fig. 19.
Colobopsis cylindrica, *Mayr, Myrm. Stud.* p. 691.
Hab. India; Mauritius.
7. *F. ABDOMINALIS*, *Latr. Hist. Nat. Fourm.* p. 175, pl. 3. fig. 13.
Hab. India.
8. *F. ELONGATA*, *Fabr. Syst. Piez.* p. 401. 20.
Hab. Tranquebar.
9. *F. CONICA*, *Fabr. Ent. Syst. Supp.* 279. 24.
Lasius conicus, *Fabr. Syst. Piez.* p. 418. 10.
Hab. Tranquebar.
10. *F. NANA*, *Jerdon, Madr. Journ.* (1851), 125; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 108. 44.
Hab. Tranquebar; Mysore.
11. *F. RUFO-GLAUCA*, *Jerdon, Madr. Journ.* (1851), 125; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 107. 4.
Hab. India.
12. *F. PHYLLOPHILA*, *Jerdon, Madr. Journ.* (1851), p. 125; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 107. 43.
Hab. India.
13. *F. CARBONARIA*, *Latr. Hist. Nat. Fourm.* 114, pl. 3. fig. 8, ♀.
Hab. India.
14. *F. STRICTA*, *Jerdon, Madr. Journ.* (1851), 123, ♀; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 105. 37; *Smith, Cat. Hym. Ins.* vi. 16. 57.
Colobopsis striatus, *Mayr, Myrm. Stud.* p. 691.
Hab. India; Borneo; Malabar.
15. *F. VAGANS*, *Jerdon, Madr. Journ.* (1851), 124, ♀, ♂; *Ann. & Mag. Nat. Hist.* 2nd ser. 107. 41.
Hab. India (the Carnatic).

16. *FORMICA VELOX*, *Jerdon, Madr. Journ.* (1851), 124; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 106. 39.
Hab. India; Malabar.
17. *F. ARDENS*, *Smith, Cat. Hym. Ins.* vi. 17. 62, ♀.
Hab. India (Deccan).
18. *F. IMPETUOSA*, *Smith, Cat. Hym. Ins.* vi. 18. 63, ♀.
Hab. India (Bombay).
19. *F. CALLIDA*, *Smith, Cat. Hym. Ins.* vi. 18. 64, ♀.
Hab. India (Deccan).
20. *F. LUTEA*, *Smith, Cat. Hym. Ins.* vi. 19. 65, ♀.
Hab. Northern India.
21. *F. GIBBOSA*, *Smith, Cat. Hym. Ins.* vi. p. 2, fig. 2.
Hab. India.
22. *F. LONGIPES*, *Jerdon, Madr. Journ.* (1851), 122; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 105. 35.
Hab. India; Malacca.
23. *F. VARIEGATA*, *Smith, Cat. Hym. Ins.* vi. 19. 68.
Camponotus variegatus, *Mayr, Myrm. Stud., Verhand. d. k. k. zool.-botan. Gesells. in Wien*, 1862, p. 656. 4.
Hab. Ceylon; Singapore; Syria.
24. *F. MITIS*, *Smith, Cat. Hym. Ins.* vi. 20. 69, ♀.
Hab. Ceylon.
25. *F. VENTRALIS*, *Smith, Cat. Hym. Ins.* iv. 20. 70, ♀.
Hab. Ceylon.
26. *F. BACCHUS*, *Smith, Cat. Hym. Ins.* vi. 21. 71, ♀.
Hab. Ceylon.
27. *F. OBLONGA*, *Smith, Cat. Hym. Ins.* vi. 21. 72, ♀.
Hab. Birmah.
28. *F. TINCTA*, *Smith, Cat. Hym. Ins.* vi. 21. 73, ♀.
Camponotus tinctus, *Mayr, Myrm. Stud.* 676.
Hab. Birmah.
29. *F. IRRITANS*, *Smith, Cat. Hym. Ins.* vi. 22. 75, ♀; *Proc. Linn. Soc.* ii. 55. 11.
Hab. Malacca; Borneo.
30. *F. DILIGENS*, *Smith, Cat. Hym. Ins.* vi. 22. 74, ♀; *Proc. Linn. Soc.* ii. 55. 10.
Hab. Malacca.
31. *F. BADIA*, *Smith, Cat. Hym. Ins.* vi. 22. 76, ♀; *Proc. Linn. Soc.* ii. 54. 9.
Hab. Singapore; Borneo.

32. *FORMICA GRACILIPES*, *Smith, Cat. Hym. Ins.* vi. 22. 77; *Proc. Linn. Soc.* ii. 55. 13.
Hab. Singapore; Celebes; Aru.
33. *F. ARROGANS*, *Smith, Cat. Hym. Ins.* vi. 23. 78, ♀.
Hab. Singapore.
34. *F. CAMELINA*, *Smith, Cat. Hym. Ins.* vi. 23. 79, ♀; *Proc. Linn. Soc.* vi. 57. 18.
Hab. Singapore; Sumatra.
35. *F. FESTINA*, *Smith, Cat. Hym. Ins.* vi. 23. 80, ♀.
Hab. Borneo; Java; China; Sumatra.
36. *F. MISTURA*, *Smith, Cat. Hym. Ins.* vi. 24. 81, ♀; *Proc. Linn. Soc.* ii. 53. 5.
Hab. Borneo.
37. *F. PILOSA*, *Smith, Cat. Hym. Ins.* vi. 24. 82, ♀; *Proc. Linn. Soc.* ii. 54. 7.
Colobopsis pilosa, *Mayr, Myrm. Stud.* 691.
Hab. Borneo.
38. *F. DISTINGUENDA*, *Smith*.
F. ruficeps, *Smith, Cat. Hym. Ins.* vi. 24. 83, ♀; *Proc. Linn. Soc.* ii. 548 (nec *Fabr.*).
Hab. Borneo.
39. *F. FERVENS*, *Smith, Cat. Hym. Ins.* vi. 24. 84, ♀; *Proc. Linn. Soc.* ii. 55. 12.
Hab. Borneo.
40. *F. IRRITABILIS*, *Smith, Cat. Hym. Ins.* vi. 25. 85, ♀; *Proc. Linn. Soc.* ii. 56. 14.
Hab. Borneo; Malacca.
41. *F. SEDULA*, *Smith, Cat. Hym. Ins.* vi. 25. 86, ♀; *Proc. Linn. Soc.* ii. 65. 15.
Hab. Borneo.
42. *F. EXASPERATA*, *Smith, Cat. Hym. Ins.* vi. 25. 87, ♀; *Proc. Linn. Soc.* ii. 54. 16.
Camponotus exasperatus, *Mayr, Myrm. Stud.* 659.
Hab. Borneo.
43. *F. TENUIPES*, *Smith, Cat. Hym. Ins.* vi. 26. 88, ♀; *Proc. Linn. Soc.* ii. 57. 17.
Hab. Borneo.
44. *F. PALLIDA*, *Smith, Cat. Hym. Ins.* vi. 26. 89, ♀; *Proc. Linn. Soc.* ii. 57. 19.
Camponotus pallidus, *Mayr, Myrm. Stud.* 656. 3.
Hab. Borneo.

45. *FORMICA VIGILANS*, *Smith, Cat. Hym. Ins.* vi. 26. 90, ♂.
Hab. Borneo.
46. *F. TRIFASCIATA*, *Smith, Cat. Hym. Ins.* vi. 27. 92, ♀.
Hab. Java.
47. *F. SINGULARIS*, *Smith, Cat. Hym. Ins.* vi. 27. 93, ♀.
Hab. Java.
48. *F. PLACIDA*, *Smith, Cat. Hym. Ins.* vi. 27. 91, ♀.
Hab. Java.
49. *F. LUCTUOSA*, *Smith, Cat. Hym. Ins.* vi. 27. 94, ♀.
Hab. Sumatra.
50. *F. QUADRISECTA*, *Smith, Cat. Hym. Ins.* vi. 28. 95, ♀.
Hab. Philippine Islands.
51. *F. (CAMPONOTUS) REDTENBACHERI*, *Mayr, Myrm. Stud.* 19.
25, ♂.
Hab. Ceylon.
52. *F. (CAMPONOTUS) PRISMATICA*, *Mayr, Myrm. Stud.* 21. 30, ♂.
Hab. India; Borneo.
53. *F. (CAMPONOTUS) SENILIS*, *Mayr, Myrm. Stud.* 675. 38, ♀.
Hab. Borneo.
54. *F. (CAMPONOTUS) SERICEA*, *Mayr, Myrm. Stud.* 675. 38, ♂.
Hab. Mauritius; India; Ceylon; Egypt.
55. *F. (CAMPONOTUS) AUROSA*, *Roger, Berl. Ent. Zeitschr.* (1863),
p. 134. 2, ♂.
Hab. Mauritius.
56. *F. (CAMPONOTUS) QUADRILATERA*, *Roger, Berl. Ent. Zeitschr.*
(1863), p. 136. 6, ♂.
Hab. Coromandel; Pondichery.
57. *F. (CAMPONOTUS) SESQUIPEDALIS*, *Roger, Berl. Ent. Zeitschr.*
(1863), p. 137. 7, ♂.
Hab. Ceylon.
58. *F. (CAMPONOTUS) AGNATA*, *Roger, Berl. Ent. Zeitschr.* (1865),
p. 137. 8, ♂.
Hab. Ceylon.
59. *F. (CAMPONOTUS) BARBATA*, *Roger, Berl. Ent. Zeitschr.* (1863),
p. 138. 9, ♀.
Hab. Ceylon.
60. *F. (CAMPONOTUS) VARIANS*, *Roger, Berl. Ent. Zeitschr.* (1863),
p. 138. 10, ♂.
Hab. Ceylon.

61. *FORMICA* (*CAMPONOTUS*) *RETICULATA*, *Roger, Berl. Ent. Zeitschr.* (1863), p. 139. 11, ♀.

Hab. Ceylon.

62. *F.* (*CAMPONOTUS*) *PLATYPUS*, *Rogers, Berl. Ent. Zeitschr.* (1863), p. 140. 12, ♀.

Hab. Philippine Islands.

63. *F.* (*COLOBOPSIS*) *CORALLINA*, *Roger, Berl. Ent. Zeitschr.* (1863), p. 159. 39, ♀.

Hab. Philippine Islands.

64. *F. ANCEPS*, *Roger, Berl. Ent. Zeitschr.* (1863), p. 164. 50, ♀.

Hab. Malacca.

65. *F. FRAGILIS*, *Smith, Proc. Linn. Soc.* iii. 136. 3, ♀.

Hab. Aru; Waigiou.

66. *F. FLAVITARSUS*, *Smith, Proc. Linn. Soc.* iii. 136. 4, ♀.

Hab. Aru.

67. *F. COXALIS*, *Smith, Proc. Linn. Soc.* iii. 136. 5, ♀.

Hab. Aru; Waigiou; Mysol; New Guinea.

68. *F. CORDATA*, *Smith, Proc. Linn. Soc.* iii. 137. 6, ♀.

Hab. Aru.

69. *F. OCLATA*, *Smith, Proc. Linn. Soc.* iii. 137. 7, ♀.

Hab. Aru.

70. *F. MUTILATA*, *Smith, Proc. Linn. Soc.* iii. 137. 8, ♀.

Colobopsis mutilata, *Mayr, Myrm. Stud., Verhand. d. k. k. zool.-botan. Gesells. in Wien.* 1862, p. 691.

Hab. Aru.

71. *F. QUADRICEPS*, *Smith, Proc. Linn. Soc.* iii. 137. 9, ♀.

Colobopsis quadriceps, *Mayr, Myrm. Stud.* 692. 2.

Hab. Aru; Ceram; New Guinea.

72. *F. LÆVISSIMA*, *Smith, Proc. Linn. Soc.* iii. 138. 10, ♀.

Hab. Aru; Batchian.

73. *F. NITIDA*, *Smith, Proc. Linn. Soc.* iii. 138. 11, ♀.

Hab. Aru; Mysol.

74. *F. SCRUTATOR*, *Smith, Proc. Linn. Soc.* iii. 138. 12, ♀.

Hab. Aru.

75. *F. ANGULATA*, *Smith, Proc. Linn. Soc.* iii. 139. 13, ♀.

Hab. Aru.

76. *F. FAMILIARIS*, *Smith, Proc. Linn. Soc.* v. 68. 4, ♀.

Hab. Celebes; Aru.

77. *F. SUBTILIS*, *Smith, Proc. Linn. Soc.* v. 94. 3, ♀.

Hab. Bachian; Aru.

78. *FORMICA VITREA*, *Smith, Proc. Linn. Soc.* v. 94. 4, ♀.
Hab. Bachian.
79. *F. CRUDA*, *Smith, Proc. Linn. Soc.* v. 95. 5, ♀.
Hab. Bachian.
80. *F. LACTARIA*, *Smith, Proc. Linn. Soc.* v. 95. 6, ♀.
Hab. Bachian; Gilolo.
81. *F. INCURSOR*, *Smith, Proc. Linn. Soc.* v. 95. 7, ♀.
Hab. Bachian.
82. *F. RUFIFRONS*, *Smith, Proc. Linn. Soc.* v. 95. 8.
Colobopsis rufifrons, *Mayr, Myrm. Stud.* 691.
Hab. Bachian.
83. *F. PAVIDA*, *Smith, Proc. Linn. Soc.* v. 96. 9, ♀.
Hab. Bachian; Mysol.
84. *F. DOMESTICA*.
Formica familiaris, *Smith, Proc. Linn. Soc.* v. 96. 10.
Hab. Bachian.
85. *F. DORYCUS*, *Smith, Proc. Linn. Soc.* v. 96. 11, ♀.
Hab. New Guinea.
86. *F. DESECTA*, *Smith, Proc. Linn. Soc.* v. 97. 12, ♀.
Hab. New Guinea.
87. *F. CONSANGUINEA*, *Smith, Proc. Linn. Soc.* vi. 36. 3, ♀.
Hab. Celebes.
88. *F. CIRCUMSPECTA*, *Smith, Proc. Linn. Soc.* vi. 37. 4, ♀, ♀.
Hab. Celebes; Waigiou.
89. *F. LEUCOPHÆA*, *Smith, Proc. Linn. Soc.* vi. 7. 35, ♀.
Hab. Celebes.
90. *F. TROPICA*, *Smith, Proc. Linn. Soc.* vi. 7. 36, ♀.
Hab. Gilolo.
91. *F. VIRULENS*, *Smith, Proc. Linn. Soc.* vi. 38. 7, ♀.
Hab. Celebes.
92. *F. LONGICEPS*, *Smith, Proc. Linn. Soc.* vii. 13. 9, ♀.
Hab. Waigiou.
93. *F. AFFINIS*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), 314. 8, ♀.
Hab. Borneo.
94. *F. ARCUATA*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), 315. 10, ♂.
Hab. Borneo.
95. *F. RUGINOSA*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), 316. 11, ♀.
Hab. Borneo.

96. *FORMICA PYRRHOCEPHALA*, *Motsch. Bull. Soc. Imp. des Nat. Mosc.* (1863), 11, ♀.
Hab. Ceylon.
97. *F. FUSCICAUDA*, *Motsch. Bull. Soc. Imp. des Nat. Mosc.* 12, ♀.
Hab. Ceylon.
98. *F. SUBPICEA*, *Motsch. Bull. Soc. Imp. des Nat. Mosc.* 12.
Hab. Ceylon.
99. *F. LATEBROSA*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 371, ♂.
Hab. Ceylon.
100. *F. PUNGENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 371, ♂.
Hab. Ceylon.
101. *F. INGRUENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 372, ♀.
Hab. Ceylon.
102. *F. DIFFIDENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 372, ♀.
Hab. Ceylon.
103. *F. OBSCURANS*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 372, ♀.
Hab. Ceylon.
104. *F. INDEFLEXA*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 373, ♀.
Hab. Ceylon.
105. *F. CONSULTANS*, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 373, ♂.
Hab. Ceylon.

Gen. *PARATRECHINA*, *Motsch.*

1. *PARATRECHINA VAGABUNDA*, *Motsch. Bull. Soc. Imp. des Nat. Mosc.* (1863), 13, ♀.
Hab. Ceylon (the mountains of Patannas).

Gen. *TAPINOMA*, *Foerst.*

1. *TAPINOMA GLABRATA*, *Smith, Proc. Linn. Soc.* ii. 58. 1, ♀.
Hab. Malacca.
2. *T. THORACICA*, *Smith, Proc. Linn. Soc.* v. 69. 1, ♀.
Hab. Celebes.
3. *T. NITIDA*, *Smith, Proc. Linn. Soc.* v. 69. 2, ♀.
Hab. Celebes.
4. *T. PRATENSIS*, *Smith, Proc. Linn. Soc.* v. 97. 1, ♀.
Hab. Bachian.
5. *T. GIBBA*, *Smith, Proc. Linn. Soc.* vi. 38. 8, ♀.
Hab. Celebes.

6. *TAPINOMA ALBIPES*, *Smith, Proc. Linn. Soc. vi. 38. 9, ♀.*
Hab. Celebes.

7. *T. ALBITARSE*, *Motsch. Bull. Imp. des Nat. Mosc. 14, ♀.*
Hab. Ceylon (Colombo).

Gen. HYPOCLINEA, *Mayr.*

1. *HYPOCLINEA BITUBERCULATA*, *Mayr, Myrm. Stud. p. 705. 2, ♀.*
Hab. Philippines.

2. *H. GRACILIS*, *Motsch. Bull. Imp. Soc. des Nat. Mosc. 14, ♀.*
Hab. Ceylon (Colombo).

Gen. POLYRHACHIS, *Smith.*

1. *POLYRHACHIS (FORMICA) BIHAMATUS*, *Drury, Ins. ii. pl. 38. fig. 7, ♀; Fabr. Syst. Piez. p. 411. 66; Oliv. Encycl. Méth. vi. 499; Latr. Hist. Nat. Fourm. p. 127; Smith, Cat. Hym. Ins. vi. 58. 1; Proc. Linn. Soc. ii. 58, 59; Mayr, Myrm. Stud. 677. 1.*
Hab. India; Sumatra; Borneo; Waigiou; Bachian; Celebes; Ceram.

2. *P. HASTATUS*, *Latr. Hist. Nat. Fourm. p. 129, pl. iv. fig. 23, ♀; St.-Farg. Hym. i. 221. 29; Jerdon, Ann. & Mag. Nat. Hist. 2nd ser. xiii. 109.*
Hab. India.

3. *P. SEXSPINOSUS*, *Latr. Hist. Nat. Fourm. p. 126. pl. iv. fig. 21, ♀; St.-Farg. Hym. i. 219. 26; Le Guillou, Ann. Soc. Ent. Fr. (1841), 313. 4; Guér. Voy. Coq. Zool. ii. 204, pl. 8. fig. 3; Jerdon, Ann. & Mag. Nat. Hist. 2nd ser. xiii. 109; Smith, Cat. Hym. Ins. vi. 59. 3; Proc. Linn. Soc. iv. 139. 2.*
Hab. India; Philippine Islands; Triton Bay.

4. *P. (FORMICA) RELUCENS*, *Latr. Hist. Nat. Fourm. p. 131; St.-Farg. Hym. i. 220. 27; Jerdon, Ann. & Mag. Nat. Hist. 2nd ser. xiii. 109. Smith, Proc. Linn. Soc. ii. 59. 2; Mayr, Myrm. Stud. 685. 17.*
Hab. India; Borneo; Ceylon; Java.

5. *P. RASTELLATUS*, *Latr. Hist. Nat. Fourm. p. 130. ♀.*
Hab. India.

6. *P. NIDIFICANS*, *Jerdon, Ann. & Mag. Nat. Hist. 2nd ser. xiii. 108. 45.*
Hab. India (Malabar).

7. *P. SYLVICOLA*, *Jerdon, Ann. & Mag. Nat. Hist. 2nd ser. xiii. 108. 46.*
Hab. India.

8. *P. LACTEIPENNIS*, *Smith, Cat. Hym. Ins. vi. 34. 115, ♀.*
Hab. Northern India.

9. *POLYRHACHIS PILIVENTRIS*, *Smith, Cat. Hym. Ins.* vi. 60. 9, ♀.
Hab. Singapore.
10. *P. DIVES*, *Smith, Cat. Hym. Ins.* vi. 60. 10, ♂; *Proc. Linn. Soc.* ii. 64. 19.
Hab. Singapore; Malacca; Waigiou; Ceram; Bachian.
11. *P. FLAVICORNIS*, *Smith, Cat. Hym. Ins.* vi. 60. 11, ♀; *Proc. Linn. Soc.* ii. 63. 17.
Hab. Singapore; Malacca; Borneo.
12. *P. HECTOR*, *Smith, Proc. Linn. Soc.* ii. 62. 14, ♂; *Cat. Hym. Ins.* vi. 61. 12.
Hab. Singapore.
13. *P. MODESTUS*, *Smith, Proc. Linn. Soc.* ii. 62. 12; *Cat. Hym. Ins.* vi. 61. 13, ♀.
Hab. Singapore.
14. *P. CHALYBEUS*, *Smith, Proc. Linn. Soc.* ii. 61. 9; *Cat. Hym. Ins.* xii. 61. 14, ♂.
Hab. Singapore; Malacca.
15. *P. PANDARUS*, *Smith, Proc. Linn. Soc.* ii. 62. 13; *Cat. Hym. Ins.* vi. 65. 27, ♀.
P. defensus, *Smith, Proc. Linn. Soc.* ii. 59. 4; *Cat. Hym. Ins.* vi. 62. 15.
Hab. Singapore; Java; Philippines; Borneo.
16. *P. LÆVIGATUS*, *Smith, Proc. Linn. Soc.* ii. 62. 15; *Cat. Hym. Ins.* vi. 62. 16, ♂.
Hab. Malacca; Borneo.
17. *P. TEXTOR*, *Smith, Proc. Linn. Soc.* ii. 60. 8; *Cat. Hym. Ins.* vi. 62. 17, pl. i. fig. 1, ♂.
Hab. Malacca.
18. *P. CARBONARIUS*, *Smith, Proc. Linn. Soc.* ii. 60. 7; *Cat. Hym. Ins.* vi. 62. 18, ♂.
Hab. Malacca.
19. *P. AFFINIS*, *Smith, Cat. Hym. Ins.* vi. 63. 19, ♂.
Hab. Burmah.
20. *P. ABDOMINALIS*, *Smith, Cat. Hym. Ins.* vi. 63. 20, ♂.
Hab. Burmah.
21. *P. TIBIALIS*, *Smith, Cat. Hym. Ins.* vi. 63. 21, ♂.
Hab. Burmah.
22. *P. MUTATUS*, *Smith, Cat. Hym. Ins.* vi. 64. 22, ♂, pl. iv. figs. 12, 13.
Hab. Burmah.

23. *POLYRHACHIS LÆVISSIMUS*, *Smith, Cat. Hym. Ins.* vi. 64. 23, ♂.
Hab. Burmah.
24. *P. FURCATUS*, *Smith, Cat. Hym. Ins.* vi. 64. 24, ♀, pl. 4. f. 20.
Hab. Burmah.
25. *P. BICOLOR*, *Smith, Cat. Hym. Ins.* vi. 65. 25, ♀.
Hab. Burmah.
26. *P. SUMATRENSIS*, *Smith, Cat. Hym. Ins.* vi. 65. 26, pl. 4. fig. 43.
Hab. Sumatra.
27. *P. CUSPIDATUS*, *Smith, Cat. Hym. Ins.* vi. 66. 28, ♂; *Proc. Linn.*
Soc. ii. 63. 14.
Hab. Borneo.
28. *P. EQUINUS*, *Smith, Cat. Hym. Ins.* vi. 66. 29, ♂; *Proc. Linn.*
Soc. ii. 63. 16.
Hab. Borneo.
29. *P. VINDEX*, *Smith, Cat. Hym. Ins.* vi. 66. 30, ♂; *Proc. Linn. Soc.*
ii. 64. 20.
Hab. Borneo.
30. *P. RUFIPES*, *Smith, Cat. Hym. Ins.* vi. 66. 31, ♂, pl. 4. fig. 28.
Hab. Borneo.
31. *P. CASTANEIVENTRIS*, *Smith, Cat. Hym. Ins.* vi. 67. 32, ♀.
Hab. Borneo.
32. *P. VILLIPES*, *Smith, Cat. Hym. Ins.* vi. 67. 33, ♂, pl. 4. figs. 37,
38; *Proc. Linn. Soc.* ii. 61. 11.
Hab. Borneo.
33. *P. NITIDUS*, *Smith, Cat. Hym. Ins.* vi. 67. 34; *Proc. Linn. Soc.* ii.
61. 10.
Hab. Borneo.
34. *P. RUFICORNIS*, *Smith, Cat. Hym. Ins.* vi. 68. 35, ♀; *Journ. Proc.*
Linn. Soc. ii. 60. 6.
Hab. Borneo.
35. *P. CONSTRUCTOR*, *Smith, Cat. Hym. Ins.* vi. 68. 36, ♀; *Proc. Linn.*
Soc. ii. 60. 5.
Hab. Borneo.
36. *P. INERMIS*, *Smith, Cat. Hym. Ins.* vi. 68. 37, ♂, pl. 4. f. 25, 26.
Hab. Celebes.
37. *P. RIXOSUS*, *Smith, Cat. Hym. Ins.* vi. 68. 38, ♀, pl. 4. fig. 27.
Hab. Celebes.
38. *P. PHILIPPINENSIS*, *Smith, Cat. Hym. Ins.* vi. 69. 41, ♂.
Hab. Philippines.

39. *POLYRHACHIS MALIGNUS*, *Smith, Cat. Hym. Ins.* vi. 70. 42, pl. 4. fig. 44.
Hab. Philippines.
40. *P. CYANIVENTRIS*, *Smith, Cat. Hym. Ins.* vi. 70. 43, ♀, pl. 4. fig. 47.
Hab. Philippines.
41. *P. ACICULATUS*, *Smith, Cat. Hym. Ins.* vi. 70. 44, ♂, pl. 4. figs. 17, 18.
Hab. Philippines.
42. *P. CARINATUS*, *Fabr. Syst. Piez.* p. 413. 71; *St.-Farg.* i. 220. 28; *Jerdon, Madr. Journ.* 1851, 126; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 109.
Hab. Malacca; Singapore.
43. *P. SERICATUS*, *Guér. Voy. Coq.* ii. 203, Atlas, pl. 8. figs. 2, 2 a, b, c, d; *Smith, Append. Cat. Hym. Ins.* vi. 200; *Proc. Linn. Soc.* iii. 139. 1.
Hab. Bachian; Martabello; Bouru; Key; Aru; New Hebrides.
44. *P. MARGINATUS*, *Smith, Proc. Linn. Soc.* iii. 139. 3, ♀.
Hab. Aru; India; Philippines; Waigiou; Bachian.
45. *P. HOSTILIS*, *Smith, Proc. Linn. Soc.* iii. 139. 4, ♂.
Hab. Aru.
46. *P. LONGIPES*, *Smith, Proc. Linn. Soc.* iii. 140. 5, ♀.
Hab. Aru.
47. *P. SERRATUS*, *Smith, Proc. Linn. Soc.* iii. 140. 6, ♀.
Hab. Aru; Waigiou.
48. *P. SCUTULATUS*, *Smith, Proc. Linn. Soc.* iii. 140. 7, ♀.
Hab. Aru; Ceram.
49. *P. MUCRONATUS*, *Smith, Proc. Linn. Soc.* iii. 140. 8, ♂.
Hab. Aru.
50. *P. GEOMETRICUS*, *Smith, Proc. Linn. Soc.* iii. 141. 9, ♀.
Hab. Aru.
51. *P. IRRITABILIS*, *Smith, Proc. Linn. Soc.* iii. 141. 10, ♂ (*sexspinosus* ♀?).
Hab. Aru.
52. *P. LÆVISSIMUS*, *Smith, Proc. Linn. Soc.* iii. 141. 11, ♂.
Hab. Aru.
53. *P. BELlicosus*, *Smith, Proc. Linn. Soc.* iii. 142. 12, ♂.
Hab. Aru.
54. *P. HECTOR*, *Smith, Proc. Linn. Soc.* iii. 142. 13, ♂.
Hab. Aru.

55. POLYRHACHIS RUFOFEMORATUS, *Smith, Proc. Linn. Soc.* iii. 142.

14, ♂.

Hab. Aru; Ternate; Ceram.

56. P. PHYLLOPHILUS, *Smith, Proc. Linn. Soc.* v. 69. 1, ♂.

Hab. Celebes.

57. P. COMPRESSICORNIS, *Smith, Proc. Linn. Soc.* v. 69. 2, ♀.

Hab. Celebes.

58. P. RUGIFRONS, *Smith, Proc. Linn. Soc.* v. 70. 3, ♀.

Hab. Celebes; Mysol.

59. P. SCULPTURATUS, *Smith, Proc. Linn. Soc.* v. 70. 4, ♀ ♂.

Hab. Celebes; Timor.

60. P. NUDATUS, *Smith, Proc. Linn. Soc.* v. 71. 5, ♂.

Hab. Celebes.

61. P. PEREGRINUS, *Smith, Proc. Linn. Soc.* v. 71. 6, ♀.

Hab. Celebes.

62. P. VESTITUS, *Smith, Proc. Linn. Soc.* v. 71. 7, ♂.

Hab. Celebes.

63. P. SÆVISSIMUS, *Smith, Proc. Linn. Soc.* v. 71. 8, ♂.

Hab. Celebes.

64. P. ORSYLLUS, *Smith, Proc. Linn. Soc.* vi. 39. 8, ♂, pl. 1. fig. 6.

Hab. Celebes; Ceram.

65. P. MUTILÆ, *Smith, Proc. Linn. Soc.* vi. 39. 9, ♂, pl. 1. fig. 7.

Hab. Celebes.

66. P. OLENUS, *Smith, Proc. Linn. Soc.* vi. 39. 10, ♂, pl. 1. fig. 8.

Hab. Celebes.

67. P. DEMOCLES, *Smith, Proc. Linn. Soc.* vi. 40. 11, ♀, pl. 1.
fig. 9.

Hab. Celebes.

68. P. VALERUS, *Smith, Proc. Linn. Soc.* vi. 40. 12, ♂, pl. 1. fig. 10.

Hab. Celebes.

69. P. TRISPINOSUS, *Smith, Proc. Linn. Soc.* vi. 40. 13, ♀, pl. 1.
fig. 11.

Hab. Celebes.

70. P. DIAPHANTUS, *Smith, Proc. Linn. Soc.* vi. 40. 14, ♂, pl. 1.
fig. 12.

Hab. Celebes; Ceram.

71. P. AMANUS, *Smith, Proc. Linn. Soc.* vi. 41. 15, ♂, pl. 1. fig. 13.

Hab. Celebes.

72. *POLYRHACHIS CLEOPHANES*, *Smith, Proc. Linn. Soc.* vi. 41. 16,
♂, pl. 1. fig. 14.
Hab. Celebes.
73. *P. EXASPERATUS*, *Smith, Proc. Linn. Soc.* vi. 41. 17, ♂, pl. 1.
figs. 15, 16.
Hab. Celebes.
74. *P. VIBIDIA*, *Smith, Proc. Linn. Soc.* vi. 42. 18, ♀, pl. 1. fig. 17.
Hab. Celebes.
75. *P. NUMERIA*, *Smith, Proc. Linn. Soc.* vi. 42. 20, ♂, pl. 1. fig. 19.
Hab. Celebes.
76. *P. HIPPOMANES*, *Smith, Proc. Linn. Soc.* vi. 43. 21, ♂, pl. 1.
fig. 20.
Hab. Celebes.
77. *P. LYCIDAS* *Smith, Proc. Linn. Soc.* vi. 43. 22, ♂, pl. 1. fig. 21.
Hab. Celebes.
78. *P. ZOPYRUS*, *Smith, Proc. Linn. Soc.* vi. 43. 23, ♂, pl. 1. fig. 22.
Hab. Celebes.
79. *P. EURYTUS*, *Smith, Proc. Linn. Soc.* vi. 43. 24, ♀, pl. 1. fig. 23.
Hab. Celebes.
80. *P. CHAONIA*, *Smith, Proc. Linn. Soc.* vi. 42. 19, ♀, pl. 1.
fig. 18.
Hab. Gilolo.
81. *P. CHARAXUS*, *Smith, Proc. Linn. Soc.* v. 98. 6, ♂, pl. 1.
fig. 14.
Hab. Bachian.
82. *P. BUSIRIS*, *Smith, Proc. Linn. Soc.* v. 98. 7, ♂, pl. 1. fig. 15.
Hab. Bachian; Dorey.
83. *P. ACANTHA*, *Smith, Proc. Linn. Soc.* v. 98. 8, ♂, pl. 1. fig. 16.
Hab. Bachian.
84. *P. MEROPS*, *Smith, Proc. Linn. Soc.* v. 98. 9, ♂.
Hab. Bachian.
85. *P. ITHONUS*, *Smith, Proc. Linn. Soc.* v. 99. 10, ♂.
Hab. Bachian.
86. *P. EUDORA*, *Smith, Proc. Linn. Soc.* v. 99. 11, ♀.
Hab. Bachian.
87. *P. METELLA*, *Smith, Proc. Linn. Soc.* v. 99. 12, ♂.
Hab. Dory.
88. *P. ATROPOS*, *Smith, Proc. Linn. Soc.* v. 100. 13, ♂.
Hab. Dory.

89. *POLYRHACHIS ACASTA*, *Smith, Proc. Linn. Soc.* v. 100. 14, ♂.
Hab. Bachian.
90. *P. ALPHENUS*, *Smith, Proc. Linn. Soc.* v. 100. 15, ♂.
Hab. Bachian.
91. *P. LABELLA*, *Smith, Proc. Linn. Soc.* v. 100. 16, ♂.
Hab. Bachian.
92. *P. FERVENS*, *Smith, Proc. Linn. Soc.* v. 110. 17, ♂.
Hab. Amboyana.
93. *P. DOLOMEDES*, *Smith, Proc. Linn. Soc.* vii. 14. 17, ♀, ♀.
Hab. Ceram.
94. *P. TROPHIMUS*, *Smith, Proc. Linn. Soc.* vii. 14. 18, ♂.
Hab. Ceram.
95. *P. ALPHEUS*, *Smith, Proc. Linn. Soc.* vii. 14. 19, ♂.
Hab. Waigiou.
96. *P. BUBASTES*, *Smith, Proc. Linn. Soc.* vii. 15. 20, ♀.
Hab. Waigiou.
97. *P. PAROMALUS*, *Smith, Proc. Linn. Soc.* vii. 15. 21, ♂.
Hab. Ceram.
98. *P. XIPHIAS*, *Smith, Proc. Linn. Soc.* vii. 16. 22, ♀.
Hab. Waigiou.
99. *P. EURYALUS*, *Smith, Proc. Linn. Soc.* vii. 16. 23, ♂.
Hab. Mysol.
100. *P. DEREYNUS*, *Smith, Proc. Linn. Soc.* vii. 16. 24, ♂.
Hab. Waigiou.
101. *P. SPARAXES*, *Smith, Proc. Linn. Soc.* vii. 16. 25, ♀.
Hab. Mysol.
102. *P. NIGRICEPS*, *Smith, Proc. Linn. Soc.* vii. 17. 26, ♂.
Hab. Waigiou.
103. *P. PAXILLUS*, *Smith, Proc. Linn. Soc.* vii. 17. 27, ♂.
Hab. Martabello.
104. *P. NEPTUNUS*, *Smith, Proc. Linn. Soc.* viii. 69. 17, ♂.
Hab. New Guinea.
105. *P. THRINAX*, *Roger, Berl. Ent. Zeitschr.* (1863), 152. 29, ♂.
Hab. Ceylon.
106. *P. PUNCTILLATA*, *Roger, Berl. Ent. Zeitschr.* (1863), 152.
30, ♂.
Hab. Ceylon.

107. *POLYRHACHIS CONVEXA*, Roger, *Berl. Ent. Zeitschr.* (1863), 153. 31, ♂.

Hab. Ceylon.

108. *P. DECIPIENS*, Roger, *Berl. Ent. Zeitschr.* (1863), 156. 35, ♂.

Hab. Bachian.

109. *P. RUPICAPRA*, Roger, *Berl. Ent. Zeitschr.* (1863), 154. 32, ♂.

Hab. Ceylon.

110. *P. PROXIMA*, Roger, *Berl. Ent. Zeitschr.* (1863), 155. 33, ♂.

Hab. Island of Lingga.

111. *P. LATIFRONS*, Roger, *Berl. Ent. Zeitschr.* (1863), 155. 34, ♂.

Hab. Island of Bintang.

112. *P. PRESSUS*, Mayr, *Myrm. Stud.* p. 33. 8, ♂.

Hab. Java.

113. *P. ARGENTEUS*, Mayr, *Myrm. Stud.* p. 34. 9, ♂.

Hab. Philippines.

114. *P. CLYPEATUS*, Mayr, *Myrm. Stud.* p. 35. 12, ♀.

Hab. Ceylon.

115. *P. NIGER*, Mayr, *Myrm. Stud.* p. 35. 13, ♀.

Hab. Ceylon.

116. *P. AURICHALCEUS*, Mayr, *Myrm. Stud.* p. 36. 14, ♀.

Hab. Java.

117. *P. CYANEUS*, Mayr, *Myrm. Stud.* p. 36. 16, ♀. (*P. cyani-ventris*, *Cat. Form.* p. 70, var. ?)

Hab. Java.

118. *P. STRIATUS*, Mayr, *Myrm. Stud.* p. 38. 19, ♀.

Hab. Java.

119. *P. STRIATORUGOSUS*, Mayr, *Myrm. Stud.* p. 38. 20, ♂.

Hab. Birmah, Java.

120. *P. FRAUENFELDI*, Mayr, *Myrm. Stud.* p. 39. 22, ♂.

Hab. Java.

121. *P. (FORMICA) RASTELLATUS*, Latr. *Fourm.* p. 130, ♀; Mayr, *Myrm. Stud.* p. 40. 23, ♀.

Hab. India.

122. *P. (FORMICA) ARMATUS*, Le Guillou, *Ann. Soc. Ent. Fr.* (1841), 313. 5.

Hab. Philippines.

123. POLYRHACHIS MAYRI, Roger, *Berl. Ent. Zeitschr.* (1863), 7. 198.
Hab. Ceylon; Java; Philippines.

124. P. ILLAUDATUS, Walk. *Ann. & Mag. Nat. Hist.* (1859), iv.
 373, ♀.
Hab. Ceylon.

125. P. (FORMICA) EXERCITUS, Walk. *Ann. & Mag. Nat. Hist.* (1859),
 iv. 370, ♀.
Hab. Ceylon.

Gen. HEMIOPTICA, Roger.

1. HEMIOPTICA (POLYRHACHIS?) SCISSA, Roger, *Berl. Ent. Zeitschr.*
 (1862), 240, Taf. 1. fig. 12, ♀, ♂.
Hab. Ceylon.

Gen. ECHINOPLA, Smith.

1. ECHINOPLA MELANARCTOS, Smith, *Proc. Linn. Soc.* ii. 79. 1, ♂;
Cat. Hym. Ins. Form. vi. 197. 1.
Hab. Singapore; Borneo; Sumatra.

2. E. PALLIPES, Smith, *Proc. Linn. Soc.* ii. 80. 2, ♀; *Cat. Hym. Ins.*
Form. vi. 198. 2; Mayr, *Myrm. Stud.* p. 688. 1.
Hab. Borneo; Celebes.

3. E. STRIATA, Smith, *Proc. Linn. Soc.* ii. 80. 3, ♂; *Cat. Hym. Ins.*
Form. vi. 80. 3, ♀; Mayr, *Myrm. Stud.* p. 689. 2, ♀.
Hab. Malacca; Borneo; Sumatra; Celebes; Ceram.

4. E. PRÆTEXTA, Smith, *Proc. Linn. Soc.* v. 113. 1, ♀.
Hab. Bachian.

5. E. DUBITATA, Smith, *Proc. Linn. Soc.* vi. 50. 3, ♀.
Hab. Celebes.

6. E. NITIDA, Smith, *Proc. Linn. Soc.* vii. 23. 2, ♀.
Hab. Ceram.

7. E. LINEATA, Mayr, *Myrm. Stud.* 689. 3, ♀.
Hab. Java.

8. E. SENILIS, Mayr, *Myrm. Stud.* p. 690. 4, ♀.
Hab. Sambelong.

9. E. DECEPTOR, Smith, *Proc. Linn. Soc.* vii. 23. 3, ♀.
Hab. Bouru.

Gen. PLAGIOLEPIS, Mayr.

1. PLAGIOLEPIS PISSINA, Roger, *Berl. Ent. Zeitschr.* (1863), 162. 45.
Hab. Ceylon.

Gen. ACROPYGA, *Roger*.

1. ACROPYGA ACUTIVENTRIS, *Roger*, *Berl. Ent. Zeitschr.* (1862), 243, ♀, ♂.

Hab. Ceylon.

Gen. ŒCOPHYLLA, *Smith*.

1. ŒCOPHYLLA (FORMICA) SMARAGDINA, *Fabr. Syst. Piez.* p. 397. 4; *Latr. Fourm.* p. 176, pl. 3. fig. 18; *St.-Farg. Hym.* i. 218. 25; *Jerdon, Mad. Journ.* (1851), 121; *Ann. & Mag. Nat. Hist.* (1854), xiii. 104; *Smith, Proc. Linn. Soc.* v. 102.

Hab. India; China; Philippines; Malacca; Borneo; Gilolo; Java; Bachian; Waigiou; Dorey; Mysol; Celebes; Aru; Timor.

Fam. ODONTOMACHIDÆ, *Mayr*.Gen. ODONTOMACHUS, *Latr.*

1. ODONTOMACHUS RIXOSUS, *Smith, Cat. Hym. Ins. Form.* vi. 79. 9, ♂; *Proc. Linn. Soc.* ii. 64. 1.

Hab. Singapore; Ternate.

2. O. RUGOSUS, *Smith, Proc. Linn. Soc.* ii. 65. 2.

Hab. Singapore.

3. O. SÆVISSIMUS, *Smith, Cat. Hym. Ins. Form.* vi. 80. 12, ♀.

Hab. Ceram; Bachian.

4. O. SIMILLIMUS, *Smith, Cat. Hym. Ins. Form.* vi. 80. 11, ♀.

Hab. Fidjee Islands; Ceylon; Aru; Celebes; China; Waigiou.

5. O. INFANDUS, *Smith, Cat. Hym. Ins. Form.* vi. 81. 13, ♂.

Hab. Philippines.

6. O. NIETNERI, *Roger, Berl. Ent. Zeitschr.* (1860), 23. 78, ♀;

(*O. simillima*, *Smith*, ♂?).

Hab. Ceylon.

7. O. TYRANNICUS, *Smith, Proc. Linn. Soc.* iii. 144. 2, ♂.

Hab. Aru; Waigiou.

8. O. MALIGNUS, *Smith, Proc. Linn. Soc.* iii. 144. 3, ♂.

Hab. Aru; Mysol; Ceram.

9. O. ANIMOSUS, *Smith, Proc. Linn. Soc.* v. 102. 2, ♀.

Hab. New Guinea.

10. O. NIGRICEPS, *Smith, Proc. Linn. Soc.* v. 103. 3, ♂.

Hab. New Guinea.

11. ODONTOMACHUS GLADIATOR, *Smith, Proc. Linn. Soc.* vi. 44. 3, ♂
(nec "tyrannicus," *Linn. Proc.* vol. iii. 144. 2).
Hab. Mysol; Celebes.
12. O. CEPHALOTES, *Smith, Proc. Linn. Soc.* vii. 19. 5, ♂.
Hab. Ceram.
13. O. ACICULATUS, *Smith, Linn. Proc. Soc.* vii. 19. 6, ♂.
Hab. Mysol.

Gen. DREPANOGNATHUS, *Smith.*

1. DREPANOGNATHUS (HARPEGNATHOS) SALTATOR, *Jerdon, Madr. Journ.* (1851), 116, and *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 100 (1854); *Smith, Cat. Hym. Ins. Form.* vi. 82. 1.
Hab. India.
2. D. VENATOR, *Smith, Cat. Hym. Ins. Form.* vi. 82. 3.
Hab. Madras.

Fam. PONERIDÆ, *Smith.*

Gen. PONERA.

1. PONERA SCULPTA, *Jerdon, Madr. Journ.* (1851), 117, and *Ann. & Mag. Nat. Hist.* (1854), xiii. 101; *Smith, Cat. Hym. Ins. Form.* vi. 84. 4.
Hab. Malabar.
2. P. STENOICHEILOS, *Jerdon, Madr. Journ.* (1851), 118; *Ann. & Mag. Nat. Hist.* (1854), xiii. 101.
Hab. Malabar.
3. P. PROCESSIONALIS, *Jerdon, Madr. Journ.* (1851), 118; *Ann. & Mag. Nat. Hist.* (1854), xiii. 102.
Hab. India.
4. P. AFFINIS, *Jerdon, Madr. Journ.* (1851), 118; *Ann. & Mag. Nat. Hist.* (1854), xiii. 102.
Hab. Malabar.
5. P. PUMILA, *Jerdon, Madr. Journ.* (1851), 119; *Ann. & Mag. Nat. Hist.* (1854) xiii. 102.
Hab. Malabar.
6. P. SCALPRATA, *Smith, Cat. Hym. Ins. Form.* vi. 84. 9, ♀.
Hab. Northern India.
7. P. IRIDIPENNIS, *Smith, Cat. Hym. Ins. Form.* vi. 85. 10, ♂.
Hab. North Bengal.
8. P. RETICULATA, *Smith, Cat. Hym. Ins. Form.* vi. 85. 11, ♂.
Hab. Birmah.
9. P. PALLIDA, *Smith, Cat. Hym. Ins. Form.* vi. 85. 12, ♂.
Hab. Birmah.

10. *PONERA RUBRA*, *Smith, Cat. Hym. Ins. Form.* vi. 86. 13, ♀;
Journ. Proc. Linn. Soc. ii. 66. 2.

Hab. Singapore.

11. *P. GEOMETRICA*, *Smith, Cat. Hym. Ins. Form.* vi. 86. 14, ♂;
Proc. Linn. Soc. ii. 67. 8; *Roger, Berl. Ent. Zeitschr.* (1860), 301.
26.

Diacamma geometricum, *Roger, Berl. Ent. Zeitschr.* (1863), p. 16.

Hab. Singapore; Ceylon; Celebes.

12. *P. TRANSVERSA*, *Smith, Cat. Hym. Ins. Form.* vi. 86. 15, ♀; *Proc.*
Linn. Soc. ii. 68. 9.

Hab. Singapore.

13. *P. PALLIPES*, *Smith, Cat. Hym. Ins. Form.* vi. 87. 16, ♂.

Hab. Java.

14. *P. VERSICOLOR*, *Smith, Cat. Hym. Ins. Form.* vi. 87. 17, ♀; *Proc.*
Linn. Soc. ii. 65. 1.

P. sculpta, *Roger, Berl. Ent. Zeitschr.* (1860), p. 300 (nec Jerdon).

Hab. Borneo; Philippines.

15. *P. (APICALIS) TERMINALIS*, *Smith, Cat. Hym. Ins. Form.* vi.
88. 18 (nec "apicalis," *Latr. Fourm.* p. 204).

Hab. Borneo.

16. *P. IRIDESCENS*, *Smith, Cat. Hym. Ins. Fourm.* vi. 88. 19, ♀;
Journ. Proc. Linn. Soc. ii. 66. 4.

Hab. Borneo.

17. *P. (RUGOSA) COXALIS*, *Smith, Cat. Hym. Ins. Form.* vi. 88. 20;
Proc. Linn. Soc. ii. 66. 5. (nec "rugosa," *Le Guillou*).

P. coxalis, *Roger, Berl. Ent. Zeitschr.* (1860), 308. 43.

Hab. Borneo; Celebes; Aru.

18. *P. RUGOSA*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), p. 318.
15, ♀.

Hab. Borneo.

19. *P. INTRICATA*, *Smith, Cat. Hym. Ins. Form.* vi. 88. 21, ♀; *Proc.*
Linn. Soc. ii. 67. 7.

Hab. Borneo.

20. *P. VIDUA*, *Smith, Cat. Hym. Ins. Form.* vi. 89. 22, ♂; *Proc. Linn.*
Soc. ii. 68. 10.

Hab. Borneo.

21. *P. DIMINUTA*, *Smith, Cat. Hym. Ins. Form.* vi. 89. 23, ♀; *Proc.*
Linn. Soc. ii. 69. 11.

Hab. Borneo.

22. *PONERA POMPILOIDES*, *Smith, Cat. Hym. Ins. Form.* vi. 90.
24, ♂; *Proc. Linn. Soc.* ii. 69. 12.
Hab. Borneo.
23. *P. LÆVICEPS*, *Smith, Cat. Hym. Ins. Form.* vi. 90. 25; *Proc. Linn. Soc.* ii. 69. 13.
Hab. Borneo; Waigiou; Bachian; Celebes.
24. *P. OCELLIFERA*, *Roger, Berl. Ent. Zeitschr.* (1860), p. 13. 68, ♀.
Hab. Ceylon.
25. *P. (SYSCIA) TYPHLA*, *Roger, Berl. Ent. Zeitschr.* (1860), p. 20.
75, ♀.
Hab. Ceylon.
26. *P. (MYOPIAS) AMBLYOPS*, *Roger, Berl. Ent. Zeitschr.* (1860),
p. 39. 120, ♀.
Hab. Ceylon.
27. *P. (LEPTOGENYS) FALCIGERA*, *Roger, Berl. Ent. Zeitschr.* (1860),
p. 42. 122, ♀.
Hab. Ceylon.
28. *P. SCULPTURATA*, *Smith, Proc. Linn. Soc.* iii. 142. 2, ♀.
Diacamma sculpturatum, *Roger, Berl. Ent. Zeitschr.* (1863), p. 16.
Hab. Aru.
29. *P. PARALLELA*, *Smith, Proc. Linn. Soc.* iii. 143. 3, ♀.
Hab. Aru; Celebes.
30. *P. QUADRIDENTATA*, *Proc. Linn. Soc.* iii. 143. 4, ♀.
Hab. Aru.
31. *P. TRUNCATA*, *Smith, Proc. Linn. Soc.* v. 72. 3, ♀.
Hab. Celebes.
32. *P. UNICOLOR*, *Smith, Proc. Linn. Soc.* v. 73. 4, ♂.
Hab. Celebes.
33. *P. PALLIDICORNIS*, *Smith, Proc. Linn. Soc.* v. 73. 5, ♂.
Hab. Celebes.
34. *P. PALLIDIPENNIS*, *Smith, Proc. Linn. Soc.* v. 73. 6, ♂.
Hab. Celebes.
35. *P. MALIGNA*, *Smith, Proc. Linn. Soc.* vi. 44. 4, ♀.
Hab. Celebes.
36. *P. NITIDA*, *Smith, Proc. Linn. Soc.* vi. 45. 5, ♀.
Hab. Celebes.
37. *P. MUTABILIS*, *Smith, Proc. Linn. Soc.* vi. 45. 6, ♀.
Hab. Celebes.

38. *PONERA PURPUREA*, *Smith, Proc. Linn. Soc.* vii. 18. 4, ♀.
Hab. Gilolo.
39. *P. TORTUOLOSA*, *Smith, Proc. Linn. Soc.* vii. 18. 5, ♀, ♀.
Hab. Ceram; Bouru.
40. *P. FEROX*, *Smith, Proc. Linn. Soc.* viii. 70. 5, ♀.
Hab. Salwatty.
41. *P. SOLITARIA*, *Smith, Proc. Linn. Soc.* v. 103. 2, ♂.
Hab. Bachian.
42. *P. VAGANS*, *Smith, Proc. Linn. Soc.* v. 103. 3, ♀.
Diacamma vagans, *Roger, Berl. Ent. Zeitschr.* (1863), 16.
Hab. Bachian.
43. *P. STRIATA*, *Smith, Proc. Linn. Soc.* v. 104. 4, ♀.
Hab. Bachian.
44. *P. SIMILLIMA*, *Smith, Proc. Linn. Soc.* v. 104. 5, ♀.
Hab. Bachian; New Guinea.
45. *P. CUPREA*, *Smith, Proc. Linn. Soc.* v. 104. 6, ♀.
Hab. Bachian.
46. *P. NOMINATA*, *Smith (simillima), Proc. Linn. Soc.* v. 105. 7.
Hab. Dory.
47. *P. BISPINOSA*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), x. 317.
14, ♀.
Diacamma bispinosum, *Roger, Berl. Ent. Zeitschr.* (1863), 18.
Hab. Ternate.
48. *P. RUGOSA*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), x. 318. 15, ♀.
Diacamma rugosum, *Mayr, Myrm. Stud.* p. 78. 1.
Hab. Borneo.
49. *P. HOLOSERICA*, *Roger, Berl. Ent. Zeitschr.* (1860), 302. 27, ♀.
Diacamma holosericum, *Roger, Berl. Ent. Zeitschr.* (1863), p. 16.
Hab. Java.
50. *P. ARANEOIDES*, *Le Guillou, Ann. Soc. Ent. Fr.* (1841), x. 317. 13.
Ectatomma rugosum, *Roger, Berl. Ent. Zeitschr.* (1863), p. 17 (nec
Smith).
Hab. Ceylon.
51. *P. (FORMICA) EXUDANS*, *Walk. Ann. & Mag. Nat. Hist.* (1859)
iv. 371, ♂.
Hab. Ceylon.
52. *P. (FORMICA) MENTANS*, *Walk. Ann. & Mag. Nat. Hist.* (1859)
iv. 371, ♂.
Hab. Ceylon.

Gen. OOCERÆA, *Roger*.

1. OOCERÆA FRAGOSA, *Roger, Berl. Ent. Zeitschr.* (1842), 249, ♂,
Taf. i. fig. 16 a.
Hab. Ceylon.

Gen. PACHYCONDYLA, *Smith*.

1. PACHYCONDYLA MELANCHOLICA, *Smith, Proc. Linn. Soc.* viii.
71. 1, ♂.
Hab. Morty Island.

Gen. ECTATOMMA, *Smith*.

1. ECTATOMMA RUGOSA, *Smith, Proc. Linn. Soc.* iii. 143. 1, ♂.
Hab. Aru; Ceram; Sula.

Gen. AMBLYOPONE, *Erichs.*

1. AMBLYOPONE CASTANEA, *Smith, Proc. Linn. Soc.* v. 105. 1, ♂.
Hab. Bachian; Ceram.
2. A.? TESTACEA, *Motsch. Bull. Imp. Soc. des Nat. Mosc.* (1863),
15, ♀.
Hab. Ceylon (Colombo).

Gen. ANOMMA, *Shuck.*

1. ANOMMA ERRATICA, *Smith, Proc. Linn. Soc.* viii. 71. 1, ♀.
Hab. New Guinea.

Gen. TYPHLOPONE, *West.*

1. TYPHLOPONE LÆVIGATA, *Smith, Proc. Linn. Soc.* ii. 70. 1, ♂.
Hab. Singapore.

Gen. MESOXENA, *Smith*.

1. MESOXENA MISTURA, *Smith, Proc. Linn. Soc.* v. 107. 1, ♂.
Hab. Bachian.

Fam. MYRMICIDÆ, *Smith*.Gen. MYRMICA, *Latr.*

1. MYRMICA LONGIPES, *Smith, Proc. Linn. Soc.* ii. 70. 1, ♂.
Isomyrmex longipes, Mayr, Myrm. Stud. Zool. Botan. Gesell. (1862),
739. 1.
Hab. Singapore; Borneo.
2. M. (MONOMORIUM?) PELLUCIDA, *Smith, Proc. Linn. Soc.* ii. 71.
2, ♂.
Hab. Singapore.

3. *MYRMICA AGILIS*, *Smith, Proc. Linn. Soc.* ii. 71. 4.
Hab. Malacca.
4. *M. (MONOMORIUM?) VASTATOR*, *Smith, Proc. Linn. Soc.* ii. 71. 3.
Hab. Malacca.
5. *M. PARALLELA*, *Smith, Proc. Linn. Soc.* iii. 147. 1, ♀.
Hab. Aru.
6. *M. SCABROSA*, *Smith, Proc. Linn. Soc.* iii. 147. 2, ♀.
Hab. Aru.
7. *M. THORACICA*, *Smith, Proc. Linn. Soc.* iii. 148. 3, ♀.
Hab. Aru.
8. *M. MELLEA*, *Smith, Proc. Linn. Soc.* iii. 148. 5, ♀.
Hab. Aru.
9. *M. CARINATA*, *Smith, Proc. Linn. Soc.* iii. 148. 6, ♀.
Hab. Aru.
10. *M. GRACILESCENS*, *Smith, Proc. Linn. Soc.* v. 74. 2, ♀.
Hab. Celebes.
11. *M. PONEROIDES*, *Smith, Proc. Linn. Soc.* v. 107. 2, ♀.
Hab. Bachian ; Ceram ; Bouru.
12. *M. OBLONGA*, *Smith, Proc. Linn. Soc.* v. 107. 1, ♀.
Hab. Bachian.
13. *M. PUNCTATA*, *Smith, Proc. Linn. Soc.* v. 108. 3, ♀.
Hab. Bachian.
14. *M. MODESTA*, *Smith, Proc. Linn. Soc.* v. 108. 4, ♀.
Hab. Bachian.
15. *M. LÆVISSIMA*, *Smith, Proc. Linn. Soc.* v. 108. 5, ♀.
Hab. Bachian.
16. *M. POLITA*, *Smith, Proc. Linn. Soc.* v. 108. 6, ♀.
Hab. Bachian.
17. *M. CÆCA*, *Smith, Proc. Linn. Soc.* v. 108. 7, ♀.
Hab. New Guinea.
18. *M. MOLESTA*, *Say, Bost. Journ. Nat. Hist.* i. 293. 6 ; *Smith, Cat. Brit. Hym. Form.* p. 34. 13.
M. domestica, *Shuck. Mag. Nat. Hist.* (1838), p. 628 ; *Curtis, Trans. Linn. Soc.* xxi. 217. 13 ; *Nyl. Form. Fr. et d'Algér.* 98. 26.
M. Pharaonis, *Roger, Berl. Ent. Zeitschr.* (1862) ; *Mayr, Myrm. Stud.* 752. 1.
Formica Pharaonis, *Linn. Syst. Nat.* ii. 963. 8 ?
Hab. Europe ; Egypt ; Cape of Good Hope ; Celebes ; India ; Philippines ; Australia ; Canada ; New York ; South America ; Brazil.

19. *MYRMICA PEDESTRIS*, *Smith, Proc. Linn. Soc.* vi. 46. 2, ♀.
Hab. Celebes.
20. *M. RUFICEPS*, *Smith, Proc. Linn. Soc.* vi. 46. 3, ♀.
Hab. Celebes.
21. *M. FUSCIPENNIS*, *Smith, Proc. Linn. Soc.* vi. 46. 4, ♀.
Hab. Celebes.
22. *M. PERTINAX*, *Smith, Proc. Linn. Soc.* vi. 46. 5, ♂.
Hab. Celebes.
23. *M. VEXATOR*, *Smith, Proc. Linn. Soc.* vi. 47. 6, ♂.
Hab. Ternate.
24. *M. INSOLENS*, *Smith, Proc. Linn. Soc.* vi. 47. 7, ♀.
Hab. Menado.
25. *M. OPACA*, *Smith, Proc. Linn. Soc.* vi. 47. 8, ♂.
Hab. Celebes.
26. *M. INCERTA*, *Smith, Proc. Linn. Soc.* vii. 21. 2, ♂.
Crematogaster incerta?
Hab. Mysol.
27. *M. MESTA*, *Smith, Proc. Linn. Soc.* vii. 21. 3, ♂.
Hab. Martabello.
28. *M. UMBRIPENNIS*, *Smith, Proc. Linn. Soc.* vii. 21. 4, ♂.
Hab. Mysol.
29. *M.?* *QUADRISPINOSA*, *Smith, Proc. Linn. Soc.* viii. 72. 2, ♂,
pl. 4. fig. 6.
Hab. Salwatty.
30. *M. MALIGNA*, *Smith, Proc. Linn. Soc.* viii. 72. 3, ♀.
Hab. Morty Island.
31. *M. ASPERSA*, *Smith, Proc. Linn. Soc.* viii. 72. 4, ♂.
Hab. Morty Island.
32. *M. DILIGENS*, *Smith, Proc. Linn. Soc.* viii. 73. 5, ♂.
Hab. New Guinea.
33. *M. HUMILIS*, *Smith, Cat. Hym. Ins. Form.* vi. 123. 38, ♀.
Hab. India (Bombay).
34. *M. RUGIFRONS*, *Smith, Cat. Hym. Ins. Form.* vi. 124. 39, ♀.
Hab. India; Penang.
35. *M. BIDENTATA*, *Smith, Cat. Hym. Ins. Form.* vi. 124. 40, ♂.
Hab. Calcutta.
36. *M. FRAGILIS*, *Smith, Cat. Hym. Ins. Form.* vi. 124. 42, ♂.
Hab. Singapore.

37. *MYRMICA BASALIS*, *Smith, Cat. Hym. Ins. Form.* vi. 125. 43, ♀.
Hab. Ceylon.
38. *M. CONTIGUA*, *Smith, Cat. Hym. Ins. Form.* vi. 125. 44, ♀.
Hab. Ceylon.
39. *M. (MONOMORIUM) GLYCIPHILA*, *Cat. Hym. Ins. Form.* vi. 125. 45.
Hab. Ceylon.
40. *M. TRACHYLISSE*, *Smith, Cat. Hym. Ins. Form.* vi. 126. 47, ♀.
Hab. Borneo.
41. *M.?* *CONSTERNENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv.
 374, ♂, ♀.
Hab. Ceylon.
42. *M. PALLINODIS*, *Motsch. Bull. Soc. Nat. Mosc.* (1863), 16, ♀.
Hab. Ceylon.
43. *M. OBSCURATA*, *Motsch. Bull. Soc. Nat. Mosc.* (1863), 16, ♀.
Hab. Ceylon.

Gen. MYRMECINA, *Curtis*.

1. *MYRMECINA PILICORNIS*, *Smith, Cat. Hym. Ins. Form.* vi. 133. 2, ♂
Hab. India (Bombay).

Gen. PODOMYRMA, *Smith*.

1. *PODOMYRMA FEMORATA*, *Smith, Proc. Linn. Soc.* iii. 145. 1, ♀.
Hab. Aru.
2. *P. STRIATA*, *Smith, Proc. Linn. Soc.* iii. 146. 2, ♀.
Hab. Aru.
3. *P. LÆVIFRONS*, *Smith, Proc. Linn. Soc.* iii. 146. 3, ♀.
Hab. Aru.
4. *P. BASALIS*, *Smith, Proc. Linn. Soc.* iii. 147. 4, ♀, ♀.
Hab. Aru; Amboyna; New Guinea; Mysol; Bouru.
5. *P. NITIDA*, *Smith, Proc. Linn. Soc.* v. 110. 2, ♀.
Hab. New Guinea.
6. *P. SILVICOLA*, *Smith, Proc. Linn. Soc.* v. 110. 3, ♀.
Hab. Bachian; Morty Island.
7. *P. SIMILLIMA*, *Smith, Proc. Linn. Soc.* v. 111. 4, ♀.
Hab. Bachian.
8. *P. LÆVISSIMA*, *Smith, Proc. Linn. Soc.* vii. 20. 2, ♀.
Hab. Mysol.
9. *P. RUFICEPS*, *Smith, Proc. Linn. Soc.* vii. 203, ♀.
Hab. Mysol.

Gen. PSEUDOMYRMA, Guér.

1. PSEUDOMYRMA (TETRAPONERA) ATRATA, *Smith, Ann. & Mag. Nat. Hist.* 2nd ser. ix. 45, ♀; *Cat. Hym. Ins. Form.* vi. 159. 26; *Proc. Linn. Soc.* ii. 70. 1.
Hab. India; Borneo; Ceylon.
2. P. LÆVICEPS, *Smith, Proc. Linn. Soc.* iii. 145. 1, ♂.
Hab. India; New Guinea; Aru.
3. P. CARBONARIA, *Smith, Proc. Linn. Soc.* vii. 20. 2, ♀.
Hab. Bouru.
4. P. (ECITON) RUFONIGRA, *Jerdon, Madr. Journ.* iii. p. 53; *Smith, Proc. Linn. Soc.* viii. 73. 2; *Cat. Hym. Ins. Form.* vi. 159. 24.
Sima rufo-nigra, *Roger, Berl. Ent. Zeitschr.* (1863), sp. 68.
Hab. India; Morty Island.
5. P. MODESTA, *Smith, Proc. Linn. Soc.* v. 106. 2, ♀.
Hab. Bachian.
6. P. NITIDA, *Smith, Proc. Linn. Soc.* v. 106. 3, ♀.
Hab. Bachian.
7. P. (ECITON) RUFIPES, *Jerdon, Madr. Journ.* (1851), 112, ♀; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 53; *Smith, Cat. Hym. Ins. Form.* vi. 159. 23.
Hab. India (Salem district).
8. P. (ECITON) MINUTA, *Jerdon, Madr. Journ.* (1851), 112, ♀; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 53.
Hab. India (the Carnatic and Malabar).
9. P. (ECITON) NIGRA, *Jerdon, Madr. Journ.* (1851), 112, ♀; *Ann. & Mag. Nat. Hist.* 2nd ser. xiii. 53; *Smith, Cat. Hym. Ins. Form.* vi. 159. 25.
Hab. India (the Carnatic and Malabar).
10. P. PILOSA, *Smith, Cat. Hym. Ins. Form.* vi. 160. 27, ♀.
Sima nigra, *Roger, Berl. Ent. Zeitschr.* (1863), 25.
Hab. Borneo.
11. P. ALLABORANS, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv. 375, ♀.
Hab. Ceylon.

Gen. SIMA, Roger.

1. SIMA COMPRESSA, *Roger, Berl. Ent. Zeitschr.* (1863), 179. 68, ♀.
Hab. Ceylon.

Gen. LEPTOMYRMA, *Motsch.*

1. LEPTOMYRMA GRACILIPES, *Motsch. Bull. Soc. Imp. Nat. Mosc.* (1863), 17, ♀.

Pheidole (worker minor?).

Hab. Ceylon (mountains of Nura Ellia).

Gen. CERAPACHYS, *Smith.*

1. CERAPACHYS ANTENNATUS, *Smith, Proc. Linn. Soc. ii. 74. 1, ♀.*
Hab. Borneo; Celebes.

2. C. OCOLATUS, *Smith, Proc. Linn. Soc. ii. 74. 2, ♂.*
Hab. Borneo.

3. C. FEMORALIS, *Motsch. Bull. Soc. Imp. Nat. Mosc.* (1863), 21.
Hab. Ceylon.

4. C. CEYLONICA, *Motsch. Bull. Soc. Imp. Nat. Mosc.* (1863), 22.
Hab. Ceylon.

Gen. CREMATOGASTER, *Lund.*

1. CREMATOGASTER KIRBII, *Smith, Cat. Hym. Ins. Form. vi. 136. 4.*
Myrmica Kirbii, Sykes, Trans. Ent. Soc. Lond. i. 99, pl. 13, figs. 2, 3.
Hab. India (Poona).

2. C. ANTHRACINUS, *Smith, Proc. Linn. Soc. ii. 75. 1, ♀; Cat. Hym. Ins. Form. vi. 136. 5.*
Hab. Singapore; Ceylon.

3. C. BRUNNEUS, *Smith, Proc. Linn. Soc. ii. 75. 2, ♀; Cat. Hym. Ins. Form. vi. 138. 10.*
Hab. Borneo; Ceylon.

4. C. CEPHALOTES, *Smith, Proc. Linn. Soc. ii. 75. 3, ♀; Cat. Hym. Ins. Form. vi. 137. 9.*
Hab. Borneo; Aru.

5. C. OBSCURUS, *Smith, Proc. Linn. Soc. ii. 76. 4, ♀.*
Hab. Borneo; Bachian; Aru.

6. C. INFLATUS, *Smith, Proc. Linn. Soc. ii. 76. 5, ♀; Cat. Hym. Ins. Form. vi. 136. 6, pl. 9. f. 1.*
Hab. Borneo; Birimah; Singapore.

7. C. DIFFORMIS, *Smith, Proc. Linn. Soc. ii. 76. 6, ♀; Cat. Hym. Ins. Form. vi. 137. 7.*
Hab. Borneo; Celebes; Singapore.

8. C. OCHRACEA, *Mayr, Myrm. Stud. Zool. Botan. Gesell.* (1862), 766.
5, ♀.
Hab. Manilla.

9. *CREMATOGASTER POLLENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv. 374, ♀.

Hab. Ceylon.

10. *C. DEPONENS*, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv. 374, ♀.

Hab. Ceylon.

11. *C. FORTICULUS*, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv. 374, ♀.

Hab. Ceylon.

12. *C. APICALIS*, *Motsch. Bull. Soc. Imp. Mosc.* (1863), 20, ♀.

Hab. Ceylon.

13. *C. BRUNNESCENS*, *Motsch. Bull. Soc. Imp. Nat. Mosc.* (1863), 20.

Hab. Ceylon (near Colombo).

Gen. MYRMICARIA, *Saund.*

Myrmicaria, *Saund. Trans. Ent. Soc. Lond.* iii. 57, ♂.

Physatta, *Smith, Proc. Linn. Soc.* ii. 77, ♀.

Heptacondylus, *Smith, Proc. Linn. Soc.* ii. 71, ♀.

1. *MYRMICARIA BRUNNEA*, *Saund. Trans. Ent. Soc. Lond.* iii. 57, pl. 5. fig. 2, ♂; *Smith, Cat. Hym. Ins. Form.* vi. 141. 1, pl. x. figs. 6-8.

Hab. India.

2. *M. VIDUA*, *Smith, Cat. Hym. Ins. Form.* vi. 141. 2, ♂.

Hab. Java.

3. *M. (HEPTACONDYLUS) SUBCARINATA*, *Smith, Proc. Linn. Soc.* ii. 73. 2, ♀; *Cat. Hym. Ins. Form.* vi. 172. 1.

Hab. Borneo.

4. *M. (HEPTACONDYLUS) CARINATA*, *Smith, Proc. Linn. Soc.* ii. 73. 3, ♀; *Cat. Hym. Ins. Form.* vi. 172. 2.

Hab. Borneo.

5. *M. (HEPTACONDYLUS) ARACHNOIDES*, *Smith, Proc. Linn. Soc.* ii. 72. 1, ♀.

Hab. Borneo.

6. *M. (HEPTACONDYLUS) LONGIPES*, *Smith, Cat. Hym. Ins. Form.* vi. 142. 3, ♀.

Hab. Borneo.

7. *M. (PHYSATTA) DROMEDARIUS*, *Smith, Proc. Linn. Soc.* ii. 78. 1 *Cat. Hym. Ins. Form.* vi. 171. 1, pl. x. figs. 9-11.

Hab. Borneo.

8. MYRMICARIA (PHYSATTA) CRINITA, *Smith, Cat. Hym. Ins. Form.* vi. 171. 2, ♀ (M. brunnea, ♀?).

Hab. India (Madras).

9. M. (PHYSATTA) GIBBOSA, *Smith, Cat. Hym. Ins. Form.* vi. 172. 3, ♀.

Hab. Java.

Gen. PHEIDOLE, *Westw.*

1. PHEIDOLE (ATTA) PROVIDENS, *Sykes, Trans. Ent. Soc. Lond.* i. 103, pl. 13. f. 7, f. 5; *Westw. Ann. & Mag. Nat. Hist.* vi. 87 (1841); *Jerdon, Madr. Journ.* (1851), 108; *Ann. & Mag. Nat. Hist.* (1854) xiii. 50. 8.

Hab. India (Poona).

2. P. (ÆCODOMA) MALABARICA, *Jerdon, Madr. Journ.* (1851), 107; *Ann. & Mag. Nat. Hist.* (1854) xiii. 49.

Hab. India.

3. P. (ÆCODOMA) DIFFUSA, *Jerdon, Madr. Journ.* (1851), 109; *Ann. & Mag. Nat. Hist.* (1854) xiii. 51. 9.

Hab. India.

4. P. (ÆCODOMA) DIVERSA, *Jerdon, Madr. Journ.* (1851), 109; *Ann. & Mag. Nat. Hist.* (1854) xiii. 51. 10.

Hab. India (Wynaad).

5. P. (ÆCODOMA) AFFINIS, *Jerdon, Madr. Journ.* (1851), 110; *Ann. & Mag. Nat. Hist.* (1854) xiii. 51. 11.

Hab. India (Malabar).

6. P. (ÆCODOMA) MINOR, *Jerdon, Madr. Journ.* (1851), 110; *Ann. & Mag. Nat. Hist.* (1854) xiii. 51. 12.

Hab. India (Tellicherry).

7. P. (ÆCODOMA) QUADRISPINOSA, *Jerdon, Madr. Journ.* (1851), 111; *Ann. & Mag. Nat. Hist.* (1854) xiii. 52.

Hab. India (Malabar).

8. P. OCELLIFERA, *Smith, Cat. Hym. Ins. Form.* vi. 174. 10, ♂.
Pheidologeton ocellifera, *Mayr, Myrm. Stud. Zool. Botan. Gesell.* (1862), 750. 1.

Hab. Birmah; Hong Kong; Philippines.

9. P. JANUS, *Smith, Cat. Hym. Ins. Form.* vi. 175. 11, pl. ix. figs. 13, 17, ♂.

Hab. Ceylon.

10. P. TAPROBANE, *Smith, Cat. Hym. Ins. Form.* vi. 175. 12, ♂.
Pheidologeton Taprobane, *Roger, Berl. Ent. Zeitschr.* (1863), 30.

Hab. Ceylon.

11. *PHEIDOLE RUGOSA*, *Smith, Cat. Hym. Ins. Form.* vi. 175. 13, ♂.
Hab. Ceylon.
12. *P. SILENUS*, *Smith, Cat. Hym. Ins. Form.* vi. 176. 14, ♂.
Pheidologeton Silenus, *Mayr, Myrm. Stud. Berl. Zool. Botan. Gesell.*
(1862), 751. 3.
Hab. Singapore.
13. *P. COMATA*, *Smith, Cat. Hym. Ins. Form.* vi. 176. 15, ♂.
Hab. Borneo.
14. *P. FERVENS*, *Smith, Cat. Hym. Ins. Form.* vi. 176. 15, ♂.
Hab. Singapore.
15. *P. MILITARIS*, *Smith, Proc. Linn. Soc.* v. 74. 1, ♂.
Hab. Celebes (Makassar).
16. *P. NOTABILIS*, *Smith, Proc. Linn. Soc.* v. 111. 1, ♂.
Hab. Bachian.
17. *P. RUBRA*, *Smith, Proc. Linn. Soc.* v. 111. 2, ♂.
Hab. Bachian.
18. *P. PLAGIARIA*, *Smith, Proc. Linn. Soc.* v. 112. 3, ♂.
Hab. Bachian.
19. *P. PABULATOR*, *Smith, Proc. Linn. Soc.* v. 112. 4, ♂.
Hab. Bachian.
20. *P. MEGACEPHALA*, *Smith, Proc. Linn. Soc.* v. 112. 5, ♂.
Pheidologeton megacephalus, *Roger, Berl. Ent. Zeitschr.* (1863), 30.
Hab. Bachian; Celebes; Timor; Tondano; Sula.
21. *P. SINGULARIS*, *Smith, Proc. Linn. Soc.* vii. 22. 2, ♂.
Hab. Mysol.
22. *P. MORDAX*, *Smith, Proc. Linn. Soc.* vii. 22. 3, ♂.
Hab. Mysol.
23. *P. PENETRALIS*, *Smith, Proc. Linn. Soc.* vii. 23. 4, ♂.
Hab. Mysol.
24. *P. HOSPES*, *Smith, Proc. Linn. Soc.* viii. 74. 2, ♂.
Hab. New Guinea.
25. *P. SULCATICEPS*, *Roger, Berl. Ent. Zeitschr.* (1863), 85, ♂, ♀, ♂.
Hab. Ceylon.
26. *P. LATINODA*, *Roger, Berl. Ent. Zeitschr.* (1863), 195. 86, ♂.
Hab. Ceylon.
27. *P. NANUS*, *Roger, Berl. Ent. Zeitschr.* (1863), 191. 84.
Pheidologeton, *Mayr, Myrm. Stud. Zool. Botan. Gesell.* (1862).
Hab. Ceylon.

28. *PHEIDOLE (ATTA) DIDITA*, *Walk. Ann. & Mag. Nat. Hist.* (1859) iv. 375, ♀.

Hab. Ceylon.

29. *P. (ÆCOPHTHORA) CEYLONICA*, *Motsch. Bull. Soc. Imp. Nat. Mosc.* (1863), 18, ♂, ♀, ♀.

Hab. Ceylon (Colombo and mountains of Nura Ellia and Patannas).

30. *P. (SOLENOPSIS) PUNGENS*, *Smith, Proc. Linn. Soc.* vi. 48, ♀.

Hab. Menado.

Gen. *PHEIDOLACANTHINUS*, *Smith.*

1. *PHEIDOLACANTHINUS ARMATUS*, *Smith, Proc. Linn. Soc.* viii. 75.

1, pl. iv. fig. 8, ♀.

Hab. Salwatty.

Gen. *SOLENOPSIS*, *Westw.*

1. *SOLENOPSIS CEPHALOTES*, *Smith, Proc. Linn. Soc.* iii. 149. 1.

Hab. Aru; Bachian; Celebes; Ceram.

2. *S. TRANSVERSALIS*, *Smith, Proc. Linn. Soc.* v. 74. 1, ♀.

Hab. Aru.

3. *S. LABORIOSA*, *Smith, Proc. Linn. Soc.* vi. 48. 2, ♀.

Hab. Celebes; Waigiou.

4. *S. CALIDA*, *Smith, Proc. Linn. Soc.* vii. 22. 3, ♀.

Hab. Ceram.

5. *S. LÆVIS*, *Smith, Proc. Linn. Soc.* viii. 75. 1, ♀.

Hab. Morty Island.

Gen. *ATTA*, *Latr.*

1. *ATTA INSTABILIS*, *Smith, Cat. Hym. Ins. Form.* vi. 163. 10, ♀.

Hab. N. India.

2. *A. BELLICOSA*, *Smith, Cat. Hym. Ins. Form.* vi. 164. 11, ♀.

Hab. Birmah.

3. *A. NODIFER*, *Smith, Cat. Hym. Ins. Form.* vi. 165. 44, ♀.

Hab. North China.

4. *A. CINGULATA*, *Smith, Proc. Linn. Soc.* ii. 77. 2, ♀.

Hab. Borneo.

5. *A. PENETRANS*, *Smith, Proc. Linn. Soc.* ii. 77. 1, ♀.

Hab. Borneo.

Gen. *TYPHLATTA*, *Smith.*

1. *TYPHLATTA LÆVICEPS*, *Smith, Proc. Linn. Soc.* ii. 79. 1, ♀.

Hab. Borneo.

Gen. CAREBARA, *Westw.*

1. CAREBARA LIGNATA, *Westw. Ann. & Mag. Nat. Hist.* (1841) vi. 86, pl. 6. fig. 6; *Smith, Cat. Hym. Ins. Form.* vi. 178. 1.

Hab. Java.

2. C. CASTANEA, *Smith, Cat. Hym. Ins. Form.* vi. 178. 2, ♀.

Hab. Hong Kong.

Gen. STRUMIGENYS, *Smith.*

1. STRUMIGENYS (LABIDOGENYS) LYROESSA, *Roger, Berl. Ent. Zeitschr.* (1862), 251, Taf. 1. fig. 17, ♂.

Hab. Ceylon.

Fam. CRYPTOCERIDÆ, *Smith.*Gen. MERANOPLUS, *Smith.*

1. MERANOPLUS CASTANEUS, *Smith, Proc. Linn. Soc.* ii. 81. 1, ♀; *Cat. Hym. Ins. Form.* vi. 194. 5.

Hab. Borneo.

2. M. CORDATUS, *Smith, Proc. Linn. Soc.* ii. 82. 2, ♂; *Cat. Hym. Ins. Form.* vi. 193. 3.

Hab. Borneo.

3. M. MUCRONATUS, *Smith, Proc. Linn. Soc.* ii. 82. 3, ♂; *Cat. Hym. Ins. Form.* vi. 194. 4.

Hab. Malacca.

4. M. (CRYPTOCERUS) BICOLOR, *Guér. Icon. Règ. Anim.* p. 425; *Smith, Mon. Crypt., Trans. Ent. Soc. Lond.* 2nd. ser. ii. 224. 1.

M. villosus, *Motsch. Etud. Ent.* (1859), p. 115.

M. dimicans, *Walk. Ann. & Mag. Nat. Hist.* (1859), iv. 375. ♂.

Hab. India (Pondicherry); Ceylon.

5. M. SPINOSUS, *Smith, Proc. Linn. Soc.* iii. 150. 1.

Hab. Aru.

Gen. CATAULACUS, *Smith.*

1. CATAULACUS SETOSUS, *Smith, Proc. Linn. Soc.* v. 114. 1, ♂.

Hab. Bachian; Mysol; Waigiou.

2. C. FLAGITIOSUS, *Smith, Proc. Linn. Soc.* vi. 49. 1, ♀.

Hab. Celebes.

3. C. HISPIDULUS, *Smith, Proc. Linn. Soc.* viii. 76. 1, pl. iv. fig. 7, ♂.

Hab. Sumatra.

4. *CATAULACUS TAPROBANE*, *Smith, Mon. Crypt., Trans. Ent. Soc. Lond.* 2nd. ser. ii. 225. 1, pl. 20. fig. 10, ♂; *Cat. Hym. Ins. Form.* vi. 195. 1.
Hab. Ceylon.
5. *C. GRANULATUS*, *Smith, Mon. Crypt., Trans. Ent. Soc. Lond.* new ser. ii. 226. 4; *Cat. Hym. Ins. Form.* 196. 4.
Formica granulata, *Latr. Hist. Nat. Fourm.* p. 275, pl. 12. fig. 75, ♀.
Cyrtocerus granulatus, *St.-Farg. Hym.* i. 171. 2.
Hab. India.
6. *C. INSULARIS*, *Smith, Proc. Linn. Soc.* ii. 80. 1, ♂; *Cat. Hym. Ins. Form.* vi. 197. 7.
Hab. Borneo.
7. *C. HORRIDUS*, *Smith, Proc. Linn. Soc.* ii. 81. 2, ♀; *Cat. Hym. Ins. Form.* vi. 196. 5.
Hab. Borneo; Malacca.
8. *C. RETICULATUS*, *Smith, Proc. Linn. Soc.* v. 81. 3, ♀; *Cat. Hym. Ins. Form.* vi. 196. 6.
Hab. Malacca.

Gen. CEPHALOXYS, *Smith.*

1. *CEPHALOXYS CAPITATA*, *Smith, Proc. Linn. Soc.* viii. 77. 1, ♀.
Hab. New Guinea.

Fam. DORYLIDÆ, *Shuck.*

Gen. DORYLUS, *Latr.*

1. *DORYLUS LABIATUS*, *Shuck. Ann. & Mag. Nat. Hist.* (1840), v. 319. 6; *West. Arc. Ent.* i. 80. 6.
Hab. India (Poonah and Assam).
2. *D. HINDOSTANUS*, *Smith, Cat. Hym. Ins. Dor. & Thynn.* vii. 3. 7.
Hab. India (Punjaub).
3. *D. ORIENTALIS*, *Westw. Proc. Zool. Soc.* (1835), p. 72; *Arc. Ent.* i. 80. 7; *Shuck. Mon. Dor., Ann. & Mag. Nat. Hist.* (1840) v. 320. 7.
Hab. India (Bengal).
4. *D. LONGICORNIS*, *Shuck. Mon. Dor., Ann. & Mag. Nat. Hist.* (1840) v. 321. 8; *West. Arc. Ent.* i. 80. 8.
Hab. India.

Gen. *ÆNICTUS*, *Shuck.*

1. *ÆNICTUS AMBIGUUS*, *Shuck. Mon. Dor., Ann. & Mag. Nat. Hist.* (1840) v. 268; *Westw. Arc. Ent.* i. 79. 1.
Hab. India (Poonah).
2. *Æ. CERTUS*, *Westw. Arc. Ent.* i. 79. 2.
Hab. India?
3. *Æ. PUBESCENS*, *Smith, Cat. Hym. Ins. Dor. & Thynn.* 10. 4.
Hab. N. India.
4. *Æ. OBSCURUS*, *Smith, Proc. Linn. Soc.* viii. 79. 1.
Hab. New Guinea.
5. *Æ. POROZONOIDES*, *Walk. Ann. & Mag. Nat. Hist.* (1860) v. 306, ♂.
Hab. Ceylon.

Fam. *MUTILLIDÆ*, *Leach.*Gen. *MUTILLA*, *Linn.*

1. *MUTILLA ANALIS*, *St.-Farg. Hym.* iii. 630. 52, ♂; *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 30. 165.
Hab. India.
2. *M. FUSCIPENNIS*, *St.-Farg. Hym.* iii. 602. ♂.
Hab. Java.
3. *M. DIMIDIATA*, *St.-Farg. Hym.* iii. 628. 50, ♂.
Hab. India.
4. *M. BENGALENSIS*, *St.-Farg. Hym.* iii. 637. 63, ♀.
Hab. Bengal.
5. *M. GLABRATA*, *Fabr. Syst. Piez.* p. 438. 45, ♀; *Oliv. Ency. Méth.* viii. 65. 64.
Hab. India.
6. *M. INDICA*, *Linn. Syst. Nat.* i. 966. 3, ♀.
Hab. India.
7. *M. NIGRIPES*, *Fabr. Syst. Piez.* p. 439. 51, ♀.
Hab. India.
8. *M. RUFOGASTRA*, *St.-Farg. Hym.* iii. 629. 51, ♂.
Hab. India; China; Celebes.
9. *M. RUGOSA*, *Oliv. Ency. Méth.* viii. 61. 35, ♀.
Hab. India.

10. *MUTILLA SEXMACULATA*, *Swed. Nov. Act. Holm.* viii. 286. 44, ♀.
M. fuscipennis, *Fabr. Syst. Piez.* p. 436. 35, ♂.
Hab. India.
11. *M. OCLATA*, *Fabr. Syst. Piez.* p. 432. 19, ♀; *Oliv. Ency. Méth.* viii. 60. 32.
Hab. Hong Kong.
12. *M. ANTENNATA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 31. 166, ♂.
Hab. India.
13. *M. ARGENTIPES*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 31. 167, ♀.
Hab. India.
14. *M. AURIFRONS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 31. 168, ♀.
Hab. India.
15. *M. BLANDA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 32. 170, ♀.
Hab. India; Malacca.
16. *M. DIVERSA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 32. 171, ♀.
Hab. India.
17. *M. DIVES*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 32. 172, ♀.
Hab. India.
18. *M. INDOSTANA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 33. 175, ♂.
Hab. Madras.
19. *M. MIRANDA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 33. 176, ♀.
Hab. India.
20. *M. NOBILIS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 33. 178.
Hab. Madras.
21. *M. OPTIMA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 34. 179, ♀.
Hab. India.
22. *M. OPULENTA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 34. 180, ♂.
Hab. India.
23. *M. PULCHRINA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 34. 181, ♀.
Hab. Madras.

24. *MUTILLA REPRÆSENTANS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 35. 182, ♀.
Hab. India; Borneo; Malacca.
25. *M. RETICULATA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 35. 183, ♀.
Hab. India.
26. *M. RUFIVENTRIS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 36. 184, ♀.
Hab. India.
27. *M. SEMIAURATA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 36. 187, ♂, ♀.
Hab. India.
28. *M. AULICA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 37. 189, ♀.
Hab. N. India.
29. *M. FUNERARIA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 37. 190, ♀.
Hab. N. India.
30. *M. PUSILLA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 37. 191, ♀.
Hab. N. India.
31. *M. REGIA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 38. 192, ♀.
Hab. N. India.
32. *M. UNIFASCIATA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 38. 193, ♂.
Hab. N. India; Celebes.
33. *M. CHINENSIS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 38. 194, ♀.
Hab. N. China.
34. *M. DESPONSA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 38. 195, ♂.
Hab. N. China.
35. *M. VARIEGATA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 39. 196, ♀.
Hab. N. China.
36. *M. SINENSIS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 39. 198, ♂, ♀.
Hab. Hong Kong.
37. *M. SPECIOSA*, *Smith, Cat. Hym. Ins. Mut. & Pomp.* iii. 40. 199, ♀.
Hab. Hong Kong.

38. *MUTILLA PHILIPPINENSIS*, *Smith, Cat. Hym. Ins. Mut. & Pomp.*
iii. 40. 200, ♀.
Hab. Philippines.
39. *M. DEIDAMIA*, *Smith, Proc. Linn. Soc.* ii. 83. 3, ♀.
Hab. Borneo.
40. *M. URANIA*, *Smith, Proc. Linn. Soc.* ii. 83. 4, ♀.
Hab. Borneo.
41. *M. SUSPICIOSA*, *Smith, Proc. Linn. Soc.* ii. 84. 5, ♂.
Hab. Borneo; Bachian; Celebes; Amboyna; Bouru; Flores.
42. *M. GRACILLIMA*, *Smith, Proc. Linn. Soc.* ii. 84. 6, ♂.
Hab. Borneo.
43. *M. FAMILIARIS*, *Smith, Proc. Linn. Soc.* ii. 84. 7, ♀.
Hab. Singapore; Borneo.
44. *M. CALLIOPE*, *Smith, Proc. Linn. Soc.* ii. 85. 8, ♀.
Hab. Borneo.
45. *M. PROSERPINA*, *Smith, Proc. Linn. Soc.* ii. 85. 9, ♀.
Hab. Borneo.
46. *M. PANDORA*, *Smith, Proc. Linn. Soc.* ii. 85. 10, ♀.
Hab. Borneo.
47. *M. SIBYLLA*, *Smith, Proc. Linn. Soc.* ii. 86. 11, ♀*.
Hab. Borneo; Celebes; Aru.
48. *M. CASSIOPE*, *Smith, Proc. Linn. Soc.* ii. 86. 12, ♀.
Hab. Borneo.
49. *M. DARDANUS*, *Smith, Proc. Linn. Soc.* ii. 86. 13, ♀.
Hab. Borneo.
50. *M. UNIMACULATA*, *Smith, Proc. Linn. Soc.* ii. 87. 14, ♀.
Hab. Borneo; Celebes.
51. *M. VOLATILIS*, *Smith, Proc. Linn. Soc.* iii. 9. 4, ♂.
Hab. Celebes.
52. *M. MANIFESTA*, *Smith, Proc. Linn. Soc.* iii. 150. 2, ♂, ♀.
Hab. Aru.
53. *M. CARINATA*, *Smith, Proc. Linn. Soc.* iii. 150. 3, ♀.
Hab. Aru.
54. *M. NIGRA*, *Smith, Proc. Linn. Soc.* iii. 151. 4, ♂.
Hab. Aru; Celebes.
55. *M. EXILIS*, *Smith, Proc. Linn. Soc.* iii. 151. 5, ♂.
Hab. Aru.

* No. 41 is the male of this species, taken *in coilu*.

56. *MUTILLA MAURA*, *Smith, Proc. Linn. Soc.* v. 75. 3, ♂.
Hab. Celebes.

57. *M. FACILIS*, *Smith, Proc. Linn. Soc.* v. 76. 4, ♂.
Hab. Celebes.

58. *M. THORACICA*, *Smith, Proc. Linn. Soc.* v. 76. 5, ♂.
Hab. Celebes.

59. *M. NEGLECTA*, *Smith, Proc. Linn. Soc.* v. 76. 6, ♂.
Hab. Celebes.

60. *M. FERVIDA*, *Smith, Proc. Linn. Soc.* v. 76. 7, ♂, ♀.
Hab. Celebes.

61. *M. MEROPS*, *Smith, Proc. Linn. Soc.* v. 115. 2, ♀.
Hab. Bachian; Gilolo.

62. *M. IANTHEA*, *Smith, Proc. Linn. Soc.* v. 115. 3, ♂, ♀.
Hab. Bachian; Gilolo.

63. *M. ANTHYLLA*, *Smith, Proc. Linn. Soc.* v. 115. 4, ♂.
Hab. Bachian; Gilolo; Ceram; Amboyna.

64. *M. ZEBINA*, *Smith, Proc. Linn. Soc.* v. 115. 5, ♀.
Hab. Bachian.

65. *M. PENTHEUS*, *Smith, Proc. Linn. Soc.* v. 116. 6, ♀.
Hab. Bachian; New Guinea.

66. *M. DORICHA*, *Smith, Proc. Linn. Soc.* v. 116. 7, ♀.
Hab. New Guinea (Dory); Bachian; Ceram; Amboyna.

67. *M. MIRABILIS*, *Smith, Proc. Linn. Soc.* vii. 24. 5, ♂.
Hab. Waigiou.

68. *M. DAMIA*, *Smith, Proc. Linn. Soc.* vii. 24. 6, ♂.
Hab. Ceram.

69. *M. THERA*, *Smith, Proc. Linn. Soc.* vii. 24. 7, ♀.
Hab. Ceram.

70. *M. FAUSTA*, *Smith, Proc. Linn. Soc.* vii. 25. 8, ♀.
Hab. Mysol.

~~71. *M. AGILIS*, *Smith, Proc. Linn. Soc.* viii. 79. 5, ♂.~~
Hab. New Guinea.

72. *M. FLUCTUATA*, *Smith, Proc. Linn. Soc.* viii. 80. 6, ♂.
Hab. Morty Island.

Gen. APTEROGYNA, *Latr.*

1. APTEROGYNA MUTILLOIDES, *Smith, Cat. Hym. Ins. Mut. & Pomp.*
iii. 64. 5, ♂, ♀.
Hab. India.

Gen. MYRMOSIDA, *Smith.*

1. MYRMOSIDA PARADOXA, *Smith, Proc. Linn. Soc.* ii. 88. 1, ♀, tab. 2.
fig. 1.
Hab. Singapore.

Fam. THYNNIDÆ, *Erichs.*Gen. THYNNUS, *Fabr.*

1. THYNNUS ERRATICUS, *Smith, Proc. Linn. Soc.* v. 114. 1, ♂.
Hab. Bachian.
2. T. ATRATUS, *Smith, Proc. Linn. Soc.* vi. 51. 1, ♂, & viii. 77.
2, ♀.
Hab. Gilolo.
3. T. (AGRIOMYIA) VAGANS, *Smith, Proc. Linn. Soc.* vi. 51. 2, ♂, ♀.
Hab. Gilolo.
4. T. LUGUBRIS, *Smith, Proc. Linn. Soc.* vii. 25. 1, ♂.
Hab. Ceram.
5. T. INSULARIS, *Smith, Proc. Linn. Soc.* vii. 26. 2, ♀.
Hab. Mysol.
6. T. PLACIDUS, *Smith, Proc. Linn. Soc.* vii. 26. 3, ♂.
Hab. Waigiou.
7. T. PULLATUS, *Smith, Proc. Linn. Soc.* vii. 26. 4, ♂, ♀.
Hab. Bouru.
8. T. LÆVISSIMUS, *Smith, Proc. Linn. Soc.* viii. 77. 1, ♀.
Hab. New Guinea.
9. T. (AGRIOMYIA) ABDUCTOR, *Smith, Proc. Linn. Soc.* viii. 78.
3, ♂.
Hab. Salwatty; New Guinea.

Gen. ÆLURUS, *Klug.*

1. ÆLURUS COMATUS, *Smith, Proc. Linn. Soc.* vii. 27. 1, ♂.
Hab. Waigiou.

Gen. ISWARA, *Westw.*

1. ISWARA LUTEUS, *Westw. Trans. Ent. Soc. Lond.* new ser. i. pl. 7. fig. 5.
Hab. India.

Indian region.										Australian region.																		
Asia.		Indo-Malay islands.				Philippines.				Celebes.		Moluccan group.							Papuan Islands.			Timor group.						
Indian Asia.	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.	Borneo.					Sulla Islands.	Bachian.	Kaioa Island.	Gilolo and Ternate.	Morty Island.	Bouru.	Ceram and Ambonya.	Goram and Matabello.	Key Island.	Aru Islands.	Mysol.	Waigiu.	New Guinea and Salwaty.	Lombok.	Flores.	Timor.	Australia.		
Formica, 105 species ...	45 5	11 5 6 21	32	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Polyrhachis, 125 species.	48	12 3 9 14	32	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Ponera, 52 species.....	27	3 ... 2 11	32	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Myrmica, 43 species.....	16	6 2	16	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Pheidole, 30 species	15 1	2 1	7	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Mutilla, 72 species	16	3 ... 1 13	3	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1
Scolia, 64 species	25	4 9 19 8	15	10	4	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ...	9 ... 2 1 	14 ... 2 1 10 2 1	5 ... 2 1 	6 ... 1 2 1 1 1 1 ...	5 ... 2 1 	3 	5 2 ... 3	10	3 1	4	5 1 1 3	10	2 2 1 3	8	...	...	...	1

Elis, 31 species	15 3	... 4 14 1	2	2	...	 1 2 		...	...	1
Pompilus, 32 species ...	15 7 ...	2 1 2 2	1	10	...	4 ... 1 2 ... 2 	2 1 1 ...	...	...	1
Agania, 34 species	3 ...	5 1 ... 6	...	12	...	1 ... 1 1 ... 2 ... 1	6 4 1 2	...	...	1
Mygminia, 23 species ...	5 ...	4 5 2 4	...	3	...	 2 5 1 ...	1 3 ... 3	...	...	2
Pelopæus, 20 species ...	8 1	2 ... 3 3	1	3	...	2 ... 1 2 	1 1	...	...	1
Sphex, 22 species	8 2	2 5 4 2	2	6	1	6 1 3 1 ... 5 	6 ... 2 3	...	...	2
Larrada, 30 species	8 1	2 2 2 6	2	9	...	3 ... 1 ... 1 1 ... 1	1 ... 2 1	...	...	3
Eumenes, 39 species	13 4	3 2 3 4	2	9	...	2 2 6 ... 3 6 ... 2	... 3 1 4	...	...	3
Odynerus, 31 species ...	15 8 1	1 1 1 4	...	10	...	 3 1 ... 2 	4 3 1 1	...	...	2
Icaria, 28 species	8 7 1	4 3 1 6	1	3	...	1 3 ... 1	5 3 1 3	...	...	2
Polistes, 22 species	6 4	... 2 4 1	2	4	...	3 1 2 3 ... 6 ... 2	5 3 1 4	...	...	2
Vespa, 23 species	12 6	5 1 6 4	4	3	1	1 ... 1 1 1 3 	... 1 ... 1	...	...	1

	Indian region.					Australian region.																
	Asia.	Indo-Malay islands.				Philippines.	Celebes.	Sulla Islands.	Moluccan group.							Papuan Islands.				Timor group.		
	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.	Borneo.		Bachian.	Kaia Island.	Gilolo and Ternate.	Morty Island.	Bouru.	Ceram and Ambonya.	Goram and Matabello.	Key Island.	Aru Islands.	Mysol.	Waigou.	New Guinea and Salwatty.	Tombock.	Flores.	Timor.	Australia.
Nomia, 21 species.....	4 ...	3 ... 1 ...	4	...	...	5	4 ... 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	4 ... 2 2 2 2 2 2 2 3 ... 1	2 4 1 2	2 4 1 2	2 4 1 2	2 4 1 2	...	...	...	...	
Megachile, 48 species ...	20 2	3 ... 2 6	4	2	2	4	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	4 ... 5 1 3 2 2 	3 3 ... 3	3 3 ... 3	3 3 ... 3	3 3 ... 3	...	...	1	...
Xylocopa, 33 species ...	20 19 6	5 4 6 6	10	4	4	5	2 1 1 1 	2 1 1 1 	2 1 1 1 	2 1 1 1 	2 1 1 1 	2 1 1 1 	2 1 1 1 	2 1 1 1 	1 2 1 ...	1 2 1 ...	1 2 1 ...	1 2 1 ...	...	...	3	2
Chrysis, 21 species	9 ...	 2	10	2	2	7													...	...	...	...
Pimpla, 33 species	3 ...	 1	10	1	1	6	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	4 2 ... 3 ... 2	3 4 ... 5	3 4 ... 5	3 4 ... 5	3 4 ... 5	...	...	...	...
Bracon, 48 species	5 ...	4 3 3 9	19	1	1	8	2 1 	2 1 	2 1 	2 1 	2 1 	2 1 	2 1 	2 1 	8 2 ... 4	8 2 ... 4	8 2 ... 4	8 2 ... 4	...	...	...	...
Agathis, 20 species	4 ...	 2 ...	19	...	...	5	1 ... 1 1 2 	1 ... 1 1 2 	1 ... 1 1 2 	1 ... 1 1 2 	1 ... 1 1 2 	1 ... 1 1 2 	1 ... 1 1 2 	1 3	1 3	1 3	1 3	...	...	...	...	

Summary. Total Aculeate HYMENOPTERA.	Indian region.										Australian region.																	
	Asia.		Indo-Malay Islands.				Philippines.				Celebes.					Moluccan group.					Papuan group.				Timor group.			Australia.
	Indian Asia.	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.	Borneo.	61	290	7	126	10	61	25	23	103	7	22	142	77	38	99		21	20	25			
	505	79	136	70	131	216	61	290	7	126	10	61	25	23	103	7	22	142	77	38	99		21	20	25			
	536		417				61		295					280					296					37				
	Indian region.										Australian region.																	
	124 genera.										120 genera.																	
	42 peculiar.										38 peculiar.																	
	82 genera common to both regions.																											
	1597 species																											