

II. *Further descriptions of insects infesting figs.*

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PLATES IV.—X.

THE insects described in the present communication infest the fruit of *Ficus Indica* in Hindostan, having been found at Madras in the months of December, 1856, -7, -8, and -9, by Sir Walter Elliott, who caused a series of magnified figures of several of the species to be made by his native artist, which drawings were placed in my hands by the late Mr. Frederick Smith. The types of these insects are now in the British Museum, and were described by Mr. F. Walker in his 'Notes on Chalcidiae.' Mr. J. Wood-Mason, at Calcutta, also found a number of these parasites in the fruit of the same species of *Ficus*, which he communicated to Sir Sidney S. Saunders, who has placed most of them in my hands for investigation and description, which I have now the pleasure of presenting to the Entomological Society by way of supplement to my two former memoirs on fig-insects, and to those of Sir S. Saunders.

A very unsatisfactory series of descriptions of other fig-insects, by Mr. F. Walker, was published posthumously in the 'Entomologist,' vol. viii., p. 15; 1875. The paper is entitled "Descriptions of new Genera and Species of Parasites belonging to the families *Proctotrupidæ* and *Chalcididæ*, which attack insects destructive to the fig in India," and contains descriptions of *Pseudisa* (n. g., fam. *Dryinoidæ*?), *P. smicroides*; *Isanisa* (n. g., fam. *Eurytomidæ*), *I. decatomoides*; *Agrianisa* (n. g., fam. *Sycophagoidæ*), *A. myrmecoides*; *Micranisa*, n. g. (neither family nor species mentioned); *Polanisa*, n. g. (allied to *Idarnes*), *P. lutea*; *Idarnes orientalis* (with the remark that "the only species hitherto described is a native of the West Indies") [*I. Carme*,] which shows either that Mr. Walker wrote these descriptions before 1871, when he published the fourth part of his 'Notes

on Chalcidiæ,' or that he had forgotten his descriptions of *Idarnes transiens*, *stabilis*, and *Pteromaloides*, which had appeared in that work; whilst, had he previously written these 'Entomologist' descriptions, it is curious that he did not allude to them in his 'Notes.' No collection is named in which the types of these descriptions exist, nor is any notice given by whom they were collected, and I am informed that the box in which they were placed has disappeared.

Another memoir on fig-insects, by Dr. Paul Mayer, has just appeared in the 'Mittheilungen a. d. Zoolog. Station zu Neapel, 1882,' Heft iv. It extends to forty large 8vo pages, and is accompanied by several plates and woodcuts; and reference to a memoir by H. Graf zu Solms-Laubach, entitled "Die Herkunft, Domestication und Verbreitung des gewöhnlichen Feigenbaums (*Ficus carica*, L.)," published in the 'Abhandlungen Kön. Gesellschaft der Wissenschaften zu Göttingen,' 1882, 106 pp. In this memoir (which well deserves translation) Dr. Mayer has dwelt at length on the physiological effect of the presence of the fig-insects in causing capri-fication, and has given a list of the twenty-two different species of *Ficus* and *Sycomorus* from various parts of the world which have afforded species of these fig-insects.

Dr. Mayer's memoir is terminated by extended descriptions and figures of the details of both sexes of *Blastophaga grossorum*, Grav.; of the male of *Sycophaga Sycomori* (*S. crassipes*, Westw., olim); and of two other insects which (evidently deceived by the analogy with the sexual differences of *Blastophaga grossorum*) he describes (pp. 554 and 564) as the two sexes of one species under the provisional name of *Ichneumon ficarius*, Cavo-lini. One of these two insects is a female with a very long exerted ovipositor, and is either identical with or congeneric with Walker's *Idarnes transiens*; and the other, a supposed male, is a subapterous insect which, judging from the figures, seems to me to be identical with the female of *Sycoscypter insignis* described below.

SPECIES OF INSECTS INFESTING *FICUS INDICA*.

SYCOBIA, Walker. ('Notes on Chalcidiae,' p. 60).

Characteres e maribus tantum descripti. Corpus gracile subplanum, fere glabrum. Caput magnum, oblongo-quadratum lateribus subparallellis, angulis posticis rotundatis, disco subplano; oculis ovalibus, fere in medio laterali positis; ocellis tribus posticis; clypeo in medio biimpresso; antennis basi valde approximatis, in medio clypei insertis; capite vix longioribus, articulo 1mo longo, simplici, ad apicem sensim sed paullo incrassato; 2ndo fere dimidium articuli 1mi æquanti; articulis sex sequentibus brevibus, fere æqualibus, ultimo (9mo) oblongo-ovato, quasi sed indistincte 3-articulato. Mandibulæ elongatæ graciles, falcatæ, apice acutæ bifidæ. Maxillæ et labium coalitæ carnosæ porrectæ, palpis maxillaribus 4-articulatis, articulo 1mo crasso, 2ndo et 3tio cylindricis, ultimo parvo subulato, seta rigida terminato; palpis labialibus minutis, ut videtur, exarticulatis, apice seta terminatis. Thorax oblongo-ovalis antice parum angustatum. Pronotum magnum semiovale, sc. subconicum. Scutellum rhomboideum. Metathorax sat magnus. Alæ satis magnæ, anticæ vena tenui, subcostali basali, ad apicem cum costa breviter coalitæ, vena cubitali gracili in discum alæ deflexa, apice parum incrassato; posticæ venis obsoletis. Pedes modice elongati, forma normali, femoribus anticis et posticis subincrassatis; pedibus intermediis gracilioribus et parum brevioribus; tarsis omnibus 5-articulatis, unguibus crassis pulvillo magno instructis. Abdomen vix thoracis longitudine sed latius, subovale, subdepressum; segmento 1mo (pedunculo) squamiformi metanoto angustiori, subplano, angulis posticis subacute productis, margine postico in medio emarginato; segmento 2ndo lato, basi biimpresso; genitalia porrecta elongata depressa parte basali oblonga, retinaculis duabus, 3 dentatis, instructa; parte apicali basi angusta, apice dilatato, caudam piscis simulante, stylis duobus elongatis dorsalibus in tuberculum parvum carnosum terminatis.

Variat secundum magnitudinem individuorum magnitudine mandibulorum. Figura 8 caput individui parvi representat mandibulis clausis et multo brevioribus.

Typus *Sycobia bethyloides*, Walker (*loc. supra cit.*).
(Pl. IV., figs. 1—8).

Lutea, mandibulis fulvis, abdomine fulvo apice pallide testaceo, alis diaphanis venis pallide testaceis. Long. corp. $1\frac{1}{3}$ — $2\frac{1}{2}$ lin.

Hab. Hindostan. In *Ficus Indica*, Calcutta; Sir Walter Elliott and J. Wood-Mason. In Mus. Britann. et S. S. Saunders.

My description of this insect is made from the type-specimens described by Walker, still in the British Museum; and by the permission of Dr. Günther, the chief of the Zoological Department, I have been enabled to make a careful microscopical examination thereof, assisted by several other specimens, received by Sir Sidney S. Saunders from Mr. Wood-Mason, found by him infesting *Ficus Indica* at Calcutta. This has enabled me to ascertain that the specimens described by Walker as females, provided with an exerted ovipositor, are in fact males, with the genitalia exerted to a considerable length, this peculiarity having been observed in all the specimens which I have examined.

On comparing my description with that given by Walker of his misnamed female of *Sycobia bethyloides*, it will be seen that that author overlooked the ocelli, and has described the exerted male genitalia as "*oviductus tubiformis, abdominis dimidio æquilongus.*"

WALKERELLA, n. g.

(*Sycobia*, "neuter? worker?," Walker, 'Notes on Chalcidæ,' p. 61).

Characteres masculini tantum descripti. Corpus parvum breve apterum. Caput magnum depressum transverse ellipticum, angulis rotundatis; pronoto latius; oculis parvis lateralibus, margine antico capitis in medio parum depresso. Ocelli 0. Antennæ in medio capitis insertæ, basi approximatae, articulo 1mo maximo dilatato, basi angustato, 2ndo parvo angusto, 3tio subclavato annuliformi, 5 proximis minutis æqualibus, ultimo (nono) præcedenti paullo majori ovali, et ut videtur exarticulato. Mandibulæ elongatæ, porrectæ falcatae, basi dilatato et denticulato, apice bifidæ. Trophi reliqui obsoleti. Pronotum magnum capite angustius transverso-quadratum; mesonotum exarticulatum?; transversum; metanotum

angustius parum transversum, postice rotundatum. Abdomen angustum, thoracis longitudine, apice genitalibus stylum gracilem formantibus, prope apicem retinaculis duobus 4 dentatis (cercis apicalibus, *Walker*), instructis. Pedes satis elongati et graciles, intermedii parum minores, femoribus anticis paullo incrassatis; tibiis subdilatatis; tarsis omnibus articulis 5 sat gracilibus instructis.

Typus *Walkerella temeraria*, n. s. (mas). (Pl. IV., figs. 9—12).

(*Sycobia bethyloides*, "neuter? worker?," *Walker*, *op. cit.*, p. 62).

Testacea lutea, mandibulis fulvis. Long. corp. 1 lin.

Habitat in *Fico Indica*, Hindostan (Sir W. Elliott). In Mus. Brit. et Hopeiano Oxoniæ.

This male insect, which Walker rashly described as the neuter or worker of *Sycobia bethyloides* (unmindful of the physiological considerations involved in the adoption of such a term) differs from *Sycobia* in its apterous condition, the structure and place of insertion of the antennæ, the want of maxillæ and other inferior parts of the mouth, and the structure of the parts of the thorax.

The shape of the head and the position of the antennæ, with the simple 5-jointed tarsi, will also distinguish this insect from any of the other apterous or subapterous species subsequently to be described in this memoir.

SYCOBIELLA, n. g.

Characteres e mare descripti. Corpus minutum apterum vel subapterum. Caput magnum, thorace latius angulis anticis obliquis; margine postico capitis in medio emarginato et utrinque in angulum parvum producto. Oculi laterales triangulares; clypeus vel margo anticus capitis emarginatus. Antennæ sublaterales prope marginem internum oculorum insertæ, articulo 1mo maximo, plano, subquadrato, basi extus rotundato, intus profunde inciso; 2do parvo obconico paullo curvato, 3tio minuto annuliformi, 4to ad 8vum parvis subæqualibus, singulo extus incisione parva subapicali notato; 9no ovali vix articulado. Mandibulæ robustæ trigonæ apice curvato bifido, parte supera apicis supra

truncata (quasi dente altero truncato armata). Trophi reliqui obsoleti. Prothorax magnus transversus, planus, lateribus rotundatis; meso- et metathorax brevibus angustioribus. Alæ anticæ (saltem in maribus) rudimentariæ, prope angulos anticos mesothoracis insertæ, stylum longitudine pronoti, sensim ad apicem attenuatum, subarticulatum et longe setigerum, formantes. Pedes breves valde incrassati, tibiis anticis subtrigonis apice spinosis, tarsis brevibus crassis ut videtur 3-articulatis, articulis duobus basalibus brevissimis; tibiis intermediis vix crassitudine dimidium tibiæ anticarum æquantibus; tarsis ut videtur 4-articulatis, articulis 3 basalibus brevissimis, pulvillo permagno. Abdomen parvum subovale apice styligero, retinaculis in maribus elongatis apice curvalis 3-dentatis. Fœmina mihi invisæ.

Sycobiella Saundersii, n. s. (Pl. V., figs. 13—19).

Pallide luteo-fulva; oculis nigris, mandibulis apice et medio clypei castaneis. Long. corp. fere 2 mm.

Habitat in India orientali, Calcutta, in *F. Indica*, D. Wood-Mason. In Mus. S. S. Saunders.

The form of the short, strong mandibles, the remarkably dilated basal joint of the antennæ inserted at the sides of the head near the inner margin of the black eyes, and the curious rudimentary pair of alary appendages, distinguish this insect from the other apterous or subapterous fig-insects.

SYCOSCAPTER, *S. S. Saunders MSS.*, n. g.

Corpus parvum in utroque sexu, apterum vel subapterum. Caput magnum thorace latius et fere ejusdem magnitudine subconvexum, angulis anticis subacutis, et truncatis; posticis densim rotundatis, margine postico capitis emarginato; lateribus rotundatis parce setosis. Mandibulæ crassæ curvatæ, porrectæ, apice acuto integro, intus prope medium denticulo parvo instructæ, basi extus valde incisæ. Maxillæ, saltem in fœmina, parvæ, lobo apicali obtuso setoso, basi utrinque lateraliter, ut videtur, squama oblonga defensæ; palpis maxillaribus 4-articulatis, articulo 2^{do} majori, apicali subulato seta terminato; mentum obovale, fere longitudine

maxillarum, palpis labialibus parvis biarticulatis, articulis fere æqualibus, apice seta longa terminato. Antennæ breves, basi valde approximatae et in medio antico clypei insertæ; articulo 1mo longo, parum incrassato, vix dilatato, 2ndo præcedenti dimidio breviori, 3tio minimo annuliformi; 4to brevi cyathiformi, 5to ejusdem formæ at minori, 6to 7mo et 8vo, fere æqualibus et præcedenti (5to) paullo majoribus, reliquis tribus massam ovalem majorem formantibus. Thorax oblongus subovalis depressus. Pronotum magnum angulis anticis rotundatis. Mesonoto et metanoto brevibus, singulo lateribus rotundatis. Alæ anticæ (in utroque sexu?, certe in fœmina) rudimentariæ, thoracis longitudine, e filamento tenui, cylindrico multiarticulato formatae. Alæ posticæ obsoletæ. Pedes breves crassi, coxis magnis squamiformibus; femoribus dilatatis; tibiis crassis clavatis, apicibus acute multi-spinosis, tibiis anticis subtrigonis, intermediis ovalibus basi angustioribus, posticis longioribus curvatis extus serie denticulorum circiter 12 armatis. Tarsis omnibus crassis brevibus et 5-articulatis, articulis 4 basalibus brevissimis obliquis, 5to maximo incrassato; unguibus crassis, basi intus acute dilatatis. Abdomen oblongo-ovatum, postice attenuatum; genitalibus maris exsertis, retinaculis duobus tridentatis.

Sycosapter insignis, S. S. Saunders MSS. (Pl. V., figs. 20—29).

Totus pallide luteo-fulvus nitidus, capite magis fulvo, mandibulis magis castaneis. Long. corp. circ. 2 mm.

Habitat in India orientali, Calcutta, in *F. Indica*, D. Wood-Mason. In Mus. Saunders et nostr.

The general similarity in form in the two sexes of this insect, the acute apex of the rather short and robust mandibles, pointed at the tips, the existence of maxillæ, labium and palpi, at least in the females, the place of insertion and structure of the antennæ, the short strong and nearly equal-sized legs, 5-jointed tarsi, and the very remarkable structure of the rudimentary pair of wings, which I have only noticed in the females, attached near the anterior lateral angles of the mesothorax, distinguish this genus from the other apterous or subapterous species of these fig-parasites.

SYCOSCAPTELLA, n. g.

Characteres e mare descripti. Corpus parvum, apterum, depressum. Caput magnum pronoto paullo latius, subdepressum angulis posticis rotundatis dense setigeris; oculis sublateralibus reniformibus antice attenuatis; ocellis 0; antennæ capite breviores, basi approximatae in medio clypei insertae; articulo 1mo magno depresso subclavato, 2ndo parvo, 3tio fere indistincto, 5 sequentibus brevibus, inter se subarcte applicatis, ultimo breviter ovato in medio quasi 2-articulato. Mandibulae parvae apice acuto integro; palpi distincti, maxillares breves, 4-articulati, articulis duobus intermediis paullo majoribus. Prothorax magnus subplanus, angulis anticis rotundatis; mesothorax transversus, angulis, anticis paullo lobatis; metathorax brevis. Alae 0? Abdomen basi latitudine metanoti aequale, lobo medio semiovali antice producto; retinaculis maris elongatis subclavatis tridentatis. Pedes breves crassi, femoribus anticis dilatatione basali cum trochantere continua; tibiis anticis perbrevibus subtrigonis apice spinigeris, tibiis intermediis parum angustioribus; tibiis posticis angustioribus spinigeris; tarsis perbrevibus ut videtur 3-articulatis, articulis duobus basalibus in pedibus anticis extus dilatatis setas longas nonnullas emittentibus.

Sycoscaptella affinis, n. s. (Pl. VI., figs. 30—35).

Tota pallide lutea, mandibulis castaneis, pedibus fulvis. Long. corp. 2 mm.

Habitat in India orientali, Calcutta, D. Wood-Mason, in *F. Indica*. In Mus. S. S. Saunders.

This insect is closely allied to *Sycoscapter* in the insertion of the antennæ closely together in the middle of the clypeus, but the joints of the clava of these organs are continuous and not cyathiform, and the formation of the legs, and especially of the tarsi, differs from that of *Sycoscapter*. I was not able to observe any rudimentary alary appendage in the only specimen I have seen, which has been mounted in Canada balsam by Sir Sidney S. Saunders.

IDARNELLA, n. g.

Idarnes (pars), Walker, 'Notes on Chalcidæ,' p. 62.

The genus *Idarnes* was proposed by Walker (Ann. Nat. Hist., xii. 47) for the reception of a minute female chalcidaceous insect from St. Vincent's, West Indies (*I. carme*), with extremely long ovipositor and slender body, the palpi being described in that species as biarticulate; the antennæ short and clavate (the number of joints not being indicated), the 1st joint long and thick, the 2nd cyathiform, the 3rd and following very short; the prothorax large and transverse; the abdomen as "longiovatum," with the 1st segment large; the oviduct very long, the vaginæ being thrice the length of the body; the femora of the fore and hind legs thick, the middle legs being "graciles."

The type, *Idarnes carme*, is brassy green, with the abdomen cupreous, antennæ black, legs fulvous, eyes and ocelli red, oviduct fulvous, sheaths black.

Idarnella transiens,* Walker (*op. cit.*, p. 62). (Pl. VI., figs. 36—42).

The species which is represented in the accompanying figures inhabits Hindostan and Ceylon, and is distinguished by a rather large head, long slender antennæ in both sexes, the basal joint being long and not clavate, the 2nd joint about one-fourth of the length of the preceding, the 3rd small and annular, the four following equal sized, each rather longer than the 2nd, and the 9th, 10th, and 11th forming a long articulated mass, pointed at the tip. The prothorax is rather small and conical. The fore wings have an elongated deflexed vein. The abdomen of the male is armed with two 3-dentate retinacula, whilst that of the female is terminated by a long slender cylindrical joint as long as the whole of the preceding portion of the abdomen, and this is succeeded by another still more slender cylindrical joint, from the extremity of which arise the two sheaths of the very elongate ovipositor (thickened at their extremities), the ovipositor itself being extremely slender and hair-like.

* The typical specimen of *I. carme*, in the British Museum, has unfortunately lost its head.

The following characters of *Idarnes*, as described by Walker, seem sufficient to separate this insect generically from the type of the genus, *I. carme* (for the former of which I propose the name of *Idarnella*). The antennæ are clavate, 10-jointed, the 1st and 2nd joints long and slender, the 3rd and following short and transverse; the prothorax elongate-conical; the abdomen lanceolate, a little longer than the thorax; oviduct setose, much more than twice the length of the body, tubiform, and like the body in colour towards the base; sheaths black, and with the usual structure from thence to the tip, the tubiform part as long as the abdomen. Legs short, stout; coxæ long; fore femora incrassated, four posterior femora slightly incrassated; tibiæ with two apical spines.*

Idarnes stabilis, Walker (*op. cit.*, p. 62), also reared from *Ficus Indica* by Sir W. Elliott, is described by Walker as golden green, much like *I. transiens* in structure, with the sheaths of the oviduct black, thrice the length of the body, with the usual structure, not tubiform towards the base. I presume from the latter character that *I. stabilis* agrees with *I. carme* generically.

Idarnes pteromaloides, Walker (*op. cit.*, p. 63), also infesting *Ficus Indica* and discovered by Sir W. Elliott, is described as golden green, with 9-jointed? subclavate antennæ, inserted near the mouth, with the club fusi-form, longer than the two preceding joints together; the prothorax somewhat elongate; the mesothorax rather small, with the sutures of the parapsides indistinct; the abdomen convex, with four segments a little longer, broader, and deeper than the thorax, terminating in a lanceolate black tube, which is about one-sixth of the whole length. Wings pellucid; veins very pale yellowish; ulna much shorter than the humerus; radius shorter than the ulna, cubitus shorter than the radius, descending abruptly to the disk; stigma small. It has not the long oviduct which distinguishes the other species of the genus, which character alone, in my opinion, sufficiently separates it generically from the

* *I. transiens*, fœm.—“Lutescens, caput transversum; antennæ fusæ, 10-articulatæ basi pallide flavæ; prothorax longi-conicus petiolus brevissimus; abdomen lanceolatum, thorace paullo longius; oviductus corpore plus duplo longior, basi tubiformis; femora subincrassata; alæ diaphanæ venis pallide flavis.” Long. corp. 1 lin.

other *Idarnes*, as well as *Idarnella*; but it possesses other characters, not noticed by Walker, which will be described and figured in a future paper, in which also detailed descriptions and figures of *Sycophila megastigmoides* and *decatomoides* (Walker, *op. cit.*, p. 64), also found by Sir W. Elliott infesting *Ficus Indica*, will be given.

SPECIES OF INSECTS INFESTING THE SEEDS OF *FICUS RELIGIOSA* IN CEYLON.

I am indebted to the great care and attention bestowed on the investigation of the species of hymenopterous parasites infesting the seeds of figs of various kinds in Ceylon by the late Dr. G. H. K. Thwaites, of the Botanic Gardens at Paradenya, and by J. Stainforth Green, Esq., of Colombo, for specimens of a great number of distinct species preserved both in spirits of wine and mounted in Canada balsam.

The species of figs observed to be infested with these little parasites in Ceylon are—1, *Ficus (Urostigma) religiosa*, Linn.; 2, *F. asperrima*, Koenig.; 3, *F. (Covellia) glomerata*, Willd.; 4, *F. (Urostigma) laccifera*, Roxb.; 5, *F. (Urostigma) Tjiela*, Roxb.; 6, *F. (Urostigma) Mysoriensis*, Roxb.; 7, *F. (Urostigma) infectoria*, Willd.; 8, *F. parasitica*, Koenig.; 9, *F. (Covellia) oppositifolia*, Willd.; 10, *F. heterophylla*, Roxb.; 11, *F. Wightiana*; 12, *F. modesta*; and 13, *F. cinerascens*.

As the fruit of most of these species of *Ficus* is infested with a number of distinct parasites of very minute size, often under a line in length, their microscopical investigation will occupy considerable time, and must form the subjects of partial publication from time to time. On the present occasion I describe some of those infesting *Ficus religiosa* :—

OTITSELLA, n. g.

Characteres masculini descripti. Corpus minutum subdepressum subapterum. Caput oblongum parum convexum, angulis posticis rotundatis, margine antice in lobos duos rotundos supra basin mandibularum porrecto. Oculi laterales versus angulos anticos capitatis positi. Ocelli 0. Mandibulæ magnæ porrectæ, fere

capitis longitudine, apice acuto curvato et supra denticulo truncato instructo; margine interno mandibularum dente latiori truncato pone medium armato. Maxillæ et labium ut videtur obsoleta. Antennæ longiores in medio partis posticæ capitis insertæ, articulo 1mo magno ovali compresso, 2ndo mediocri (annuli pone 2um obsoleti), 5 sequentibus parvis fere æqualibus, ultimo fere 2di magnitudine, ovali, ut videtur ex annulis tribus (2us apicalibus minutis) formato. Thorax oblongo-quadratus, prothorace magno, mesothorace transverso, versus angulos anticos utrinque ala rudimentaria instructo. Pedes valde robusti, omnibus subæqualibus, femoribus magnis ovalibus compressis; tibiis robustis, anticis apice spinigeris; posticis 4 extus rotundato-dilatatis; apice interno calcaratis; tarsis magnis articulis tribus brevissimis, 4to apicali maximo, unguibus robustis basi dilatatis. Abdomen basi metanoti latitudine, apice attenuato, genitalibus utrinque retinacula denticulata armatis.

The general form of the body in this genus closely resembles that of the males of *Sycosapter*, but the structure of the mandibles, the position of the antennæ, and the form of the alary rudiments and tarsi separate it from the other subapterous groups of fig-insects.

Otitesella digitata, n. s. (Pl. VII., figs. 43—51).

Mas. Tota fulva; mandibulis margine interno in medio rotundato emarginatis, tarsis omnibus articulo 4to maximo ovali et in pedibus 4 posticis nigro, retinaculis 4 denticulatis; alis rudimentalibus e stylo tenui biarticulato apice longe-setigero et vix mesonoto longiori formatis. Long. corp. circ. 2 mm.

Habitat in *F. religiosa*, in insula Tabrobana (DD. Thwaites et J. Stainforth Green). In Mus. Hopeiano Oxoniæ.

The singularly dilated large-sized terminal joint of the tarsi and alary appendages distinguish this species from every other known hymenopterous insect.

Otitesella religiosa, n. s. (Pl. VII., figs. 52—57).

Mas. Parva. Tota luteo-fulva; subaptera, capite subquadrato, angulis anticis et posticis rotundatis; pronoto transverso, breviori, subquadrato, angulis posticis setis nonnullis longis instructis; alis duabus rudimentariis.

longitudine pronoti, e filamento tenui cylindrico 6-articulato formatis, articulis 4 ultimis seta longa extus instructis; abdomine basi metanoto angustiori; pedibus brevibus, robustis, tarsorum articulis tribus basalibus brevibus, ultimo crasso, subclavato; mandibulis robustis, porrectis apice acutis, extus ante apicem dente truncato instructis; margine interno in medio in lobum latum planum intus dilatato; retinaculis latis 5 dentatis. Long. corp. circ. 2 mm.

Habitat in *F. religiosa*, in insula Taprobana (DD. Thwaites et J. Stainforth Green). In Mus. Hopeiano Oxoniæ.

Sycoscapter monilifer, n. s. (Pl. VIII., figs. 58—62).

Totus luteo-fulvus. Apteris, capite magno subquadrato, antice paullo angustiore, angulis anticis recte truncatis, posticis rotundatis et pronoto parum latoribus; lateribus serie tuberculorum 16 parvorum singulo seta instructo; antennis parvis in medio clypei basi approximatis; articulo 1mo magno clavato, 2do fere dimidium longitudine primi æquanti, 3tio cyathiformi intus paullo extenso, 4to minuto, 5to, 6to, et 7mo parvis æqualibus, reliquis massam ovalem exarticulatam? formantibus; oculis lateralibus versus angulos anticos capitis positus; mandibulis porrectis mediocribus apice integro acuto; dente truncato sub apicem armatis; margine interno parum curvato, denteque basali instructis (maxillis labio palpisque haud observatis). Prothorace semiovali, angulis anticis rotundatis, capite parum angustiori angulis posticis subacutis, singulo seta valida porrecta instructo; alarum rudimentis non detectis; abdomine attenuato, thorace breviori, apice in stylum tenuem terminato, retinaculis non detectis; pedibus satis robustis; tibiis posticis apice parum clavatis, tarsis gracilibus 5-articulatis articulo 1mo elongato, subtus apice parum dilatato setoso, pedibus intermediis femoribus tibiisque crassioribus. De sexu nihil constat. Long. corp. circ. 2 mm.

Habitat in *F. religiosa*, in insula Taprobana. (DD. Thwaites et J. S. Green). In Mus. Hopeiano Oxoniæ.

Sycoscapter gracilipes, n. s. (Pl. VIII., figs. 63—66).

Mas. Præcedenti valde similis, totus luteo-fulvus, differt capite angulis anticis rotundatis, mandibulis falcatis apice acuto denteque oblique truncato sub apicem

armatis, maxillis labio palpisque, ut videtur, obsoletis; pronoto angulis posticis seta porrecta instructis; mesonoto absque rudimentis alarum; abdomine thorace minori, apice attenuato; genitalibus retinaculis 2, 4-denticulatis armatis; pedibus subelongatis tarsis simplicibus 5-articulatis, articulo 1mo in pedibus posticis tribus sequentibus simul sumptis fere æque-longo; an mas speciei præcedentis? Long. corp. fere 2 mm.

Habitat in *F. religiosa*, in insula Taprobana. (DD. Thwaites et J. S. Green). In Mus. Hopeiano Oxoniæ.

Sycoscaptella? anguliceps, n. s. (Pl. IX., figs. 67—75).

Mas. Minuta, luteo-fulva; capite oblongo-quadrate, lateribus parallelis setis tribus longis instructis, margine antico fere recto angulis anticis rotundatis, posticis in angulum parvum extus porrectum productis; oculis versus angulos anticos positis; antennis parvis, basi in medio clypei approximatis; articulo 1mo elongato apice incrassato, 2ndo ovali (annulis sequentibus haud detectis) articulis 5 proximis parvis 2ndo minoribus, ultimo (8vo) ovali integro; mandibulis parvis falcatis apice acutis integris, maxillis labio et palpis, ut videtur, obsoletis; thorace oblongo, aptero, prothorace magno, meso- et meta-thorace majori, abdomine postice attenuato, genitalibus retinaculis 2us angustis curvatis armatis; pedibus mediocribus, tarsis 5-articulatis, pedum 4 anticorum articulis simplicibus, tribus basalibus, in anticis brevissimis, in intermediis brevibus, 5to longitudine præcedentibus simul sumptis æquali, unguibus crassis basi dilatatis; tibiis pedum posteriorum calcari longo apicali tarsisque difformibus et ut videtur 5-articulatis, articulo 1mo oblongo subtus serie duplici spinarum parvarum, setaque longissima apicali armato, articulo 2ndo parvo sub apicem præcedentis abscondito, 3tio minuto, 4to brevi setis circiter 4 longissimis apicalibus instructo, articulo ultimo crasso oblongo ovato, unguibus basi dilatatis pulvilloque ordinario armatis. Long. circ. 2 mm.

Habitat in *F. religiosa*, in insula Taprobana (DD. Thwaites et J. S. Green). In Mus. Hopeiano Oxoniæ.

In addition to the preceding species of fig-insects infesting *Ficus religiosa*, I have received the following additional species, parasitic on the same plant, which will require description:—

1. Both sexes of a species of *Blastophaga*, of which the antennæ of the female are strongly clavate with the terminal joints armed with very strong compressed bristles.

2. A female *Idarnella* of comparatively large size; two individuals of a green colour, and one fulvous.

3, 4. Females of two species (*Idarnes*?) with ovipositors much longer than the body, and of the ordinary structure; one pitchy coloured on the back, with the legs and under side pale yellow; the other rather larger, pale yellow, with the abdomen banded with dark brown, and the outer sheath of the ovipositor setose throughout its whole length.

5. A large fulvous-winged female, like an *Eurytoma*, with unspotted wings.

6. A small, winged, brassy-green, polished species, with the ovipositor not exerted.

7. The winged male of a very small fulvous species, with large black eyes, possibly the male of an *Idarnes* or *Idarnella*.

I add to the preceding descriptions of species infesting the seeds of *Ficus Indica* and *religiosa* the description of another species which infests *Ficus asperrima* in Ceylon, and which seems to be identical with the male insect described by Dr. P. Mayer as the male of *Ichneumon ficarius* (Mitth. d. Zool. Station z. Neapel, vol. iii., pl. xxv., fig. 2; and pl. xxvi., figs. 1, 2, 6 and 8), but which has no relationship with the insect figured by him as the *Ichneumon ficarius* female, which is an *Idarnella*; whereas the present insect appears to belong to my genus *Sycoscaptella*, and is remarkable for possessing four rudimentary alary appendages.

Sycoscaptella ? 4-setosa, n. s. (Pl. X., figs. 76—85).

Fulva, nitida, subconvexa, capite saturatiore, abdomine albido, mandibulis apice acutis integris, intus obtuse dentatis; capite subquadrato antice parum angustiori angulis posticis rotundatis (inde subcordato) setis longis instructis; clypeo in medio supra profunde impresso genis infra in medio in tubercula duo porrecta, maxillis minutis labioque cum palpis inter tubercula affixis, maxillarum lobo apicali setoso, palpis maxillaribus 4-articulatis, articulo basali longiori, palpis labialibus

minutis biarticulatis: antennis parvis, ut videtur 8-articulatis, annulis inter 2um et 3um articulos et articulis? in ultimo haud computatis: prothorace magno antice rotundato fere magnitudine capitis, setis paucis longis lateralibus instructis; mesothorace et metathorace perbrevis, singulo filamentis duobus (alis rudimentalibus) instructis, latitudinem thoracis longitudine æquantibus, setosis et, ut videtur, multiarticulatis; pedibus perbrevis incrassatis spinigeris; tarsi pedum anticorum brevissimis articulis basalibus arcte coalitis; pedum intermediorum 4-articulatis, articulis 3 basalibus brevibus at simplicibus, 4to parvo clavato; tarsi pedum posteriorum difformibus, articulo basali longiori subtus in lobum producto, articulis 2 vel 3? minimis, ultimo elongato clavato; unguibus omnibus crassis basi dilatatis; abdomine thorace minori et angustiori segmentis apicalibus attenuatis, genitalibus exsertis, retinaculis duobus, apice 3-dentatis, lobis duobus membranaceis apice seta instructis, pene gracili curvato. Long. corp. maris circiter $1\frac{1}{2}$ mm.

Habitat in *F. asperrima*, in insula Taprobana. (DD. Thwaites et J. S. Green). In Mus. Hopeiano Oxoniæ.

I also add, by way of further illustration of the figures, a figure of—

Palmon (Pachytomus) Klugianus. (Pl. X., figs. 86—88).

Westw., Trans. Ent. Soc. Lond., vol. iv., p. 260; pl. 10 fig. 23, with details.

“Ex ficibus Ægypti,” a specimen of which was kindly communicated to me by the late Dr. Klug. I do not know the species of *Ficus* which it infests, and am not acquainted with the female, which has probably an elongated, exserted ovipositor.

Respecting this insect Dr. Paul Mayer observes:—“G. Mayr giebt an (Die europäischen *Torymiden*, Verh. zool.-bot. Ges. Wien., 1874, xxiv., p. 63 Anm.) die Merkmale von *Pachytomus* nach Westwood (Trans. Ent. Soc., iv., p. 260) passen auf die ♂ von *Podagrion*, Spin. und höchst wahrscheinlich seien die in Feigen gefundenen Exemplare in dieselben nur eingedrungen, um Zucker zu lecken (*op. cit.*, p. 581, note 3).

EXPLANATION OF PLATES.

PLATE IV.

- FIG. 1. *Sycobia bethyloides*, magnified.
2. Mandible of ditto.
3. Maxillary and labial palpi of ditto.
4. Front of clypeus and antenna of ditto.
5. Extremity of hind leg of ditto.
6. Extremity of the male genitalia of ditto, with the retinacula seen obliquely.
7. One of the retinacula of ditto, seen flat.
8. Head of a smaller male specimen of ditto, with smaller mandibles.
9. *Walkerella temeraria*, magnified.
10. Extremity of mandibles of ditto.
11. Antenna of male.
12. Extremity of the male genitalia of ditto.

PLATE V.

13. *Sycobiella Saundersii*, male, magnified.
14. Mandible of ditto.
15. Antenna of ditto.
16. Alary appendage of ditto.
17. Fore leg of ditto.
18. Tarsi of intermediate legs of ditto.
19. Extremity of the male genitalia of ditto.
20. *Sycoscapter insignis*, male, magnified.
21. Mandible of ditto.
22. Maxillæ, labium, and palpi of ditto.
23. Antenna of ditto, with several detached joints.
24. Part of the middle of one of the rudimentary wings of ditto.
25. Fore leg of ditto.
26. Hind leg of ditto.
27. Metathorax and abdomen of the male, with the terminal parts withdrawn.
28. Male genitalia of ditto, exerted.
29. Extremity of ditto, with the retinacula.

PLATE VI.

- FIG. 30. Head of *Sycoscaptella affinis*, male.
 31. Mandibles and maxillary palpi of ditto.
 32. Antenna of ditto.
 33. Fore leg of ditto.
 34. Hind leg of ditto.
 35. Extremity of male abdomen of ditto.
 36. *Idarnella transiens*, male.
 37. " " female.
 38. Antenna of male *I. transiens*.
 39. " female "
 40. Stigmal portion of wing of female ditto.
 41. Hind leg of male ditto.
 42. Extremity of abdomen of male ditto.

PLATE VII.

43. *Otitesella digitata*, magnified.
 44. Mandible of ditto.
 45. Antenna of ditto.
 46. Extremity of second and the following joint of antenna.
 47. Alary appendages of mesothorax of ditto.
 48. Extremity of fore leg of ditto.
 49. Tibia and tarsus of intermediate leg of ditto.
 50. Tibia and tarsus of hind leg of ditto.
 51. Genitalia of male *O. digitata*.
 52. *Otitesella religiosa*, magnified.
 53. Mandibles of ditto.
 54. Extremity of basal and terminal joints of antenna.
 55. Alary appendage of mesothorax of ditto.
 56. Tarsus of intermediate leg of ditto.
 57. Genitalia of male *O. religiosa*.

PLATE VIII.

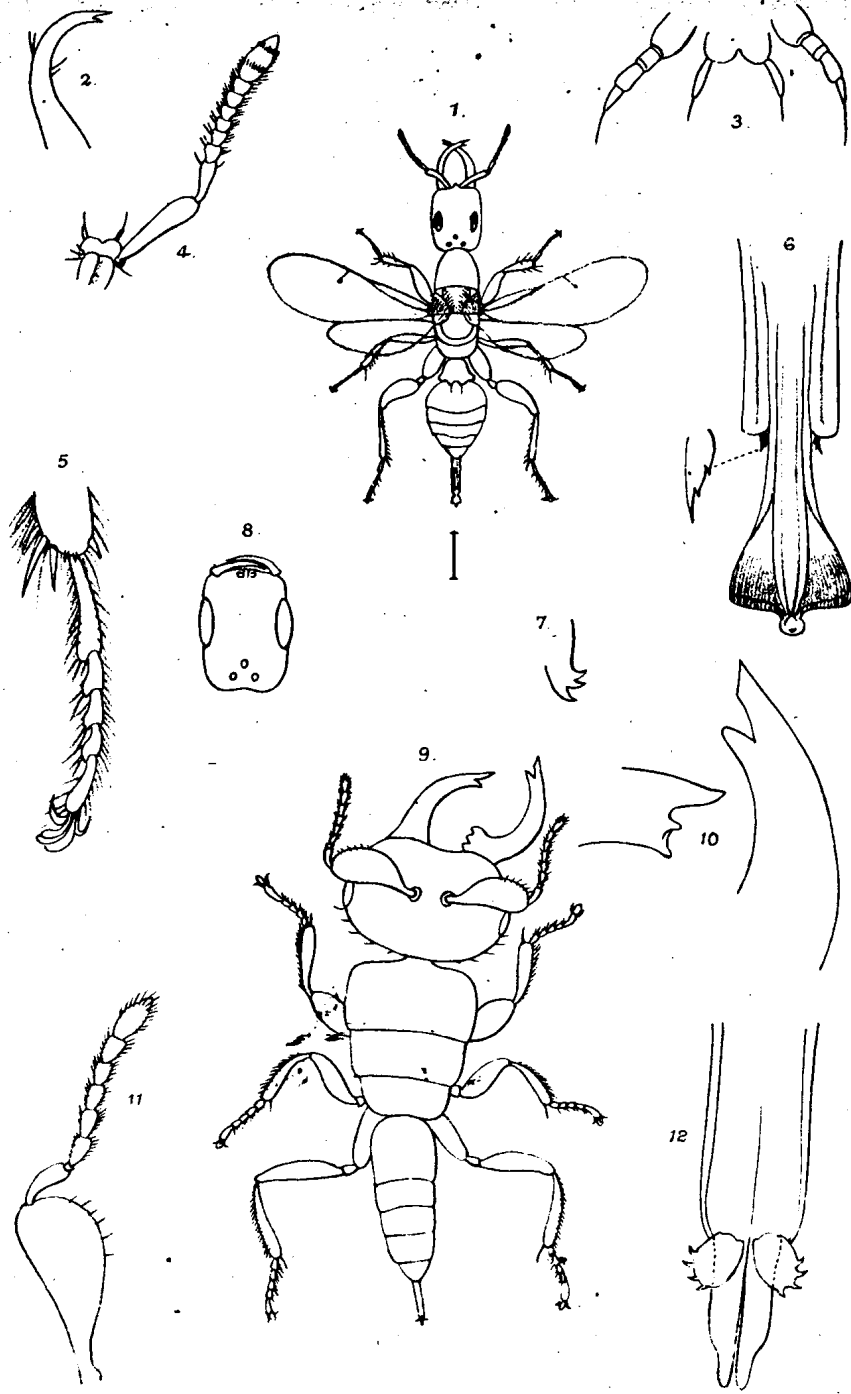
58. *Sycoscapter monilifer*, magnified.
 59. Right side of the head, mandibles, and antenna of ditto.
 60. Extremity of fore tibia and tarsus of ditto.
 61. " middle tibia and tarsus of ditto.
 62. " hind tibia and tarsus of ditto.
 63. *Sycoscapter gracilipes*, magnified.
 64. Front of head, mandibles, and antenna of ditto.
 65. Hind tarsus of ditto.
 66. One of the retinacula of male ditto.

PLATE IX.

- FIG. 67. *Sycoscaptella ? anguliceps*, magnified.
68. Right side of head, mandibles, and antenna of ditto.
69. Mandibles of ditto, seen from beneath.
70. Fore tarsus of ditto.
71. Middle tarsus of ditto.
72, 73, 74. Hind tarsus of ditto, in different positions.
75. Genitalia of male ditto.

PLATE X.

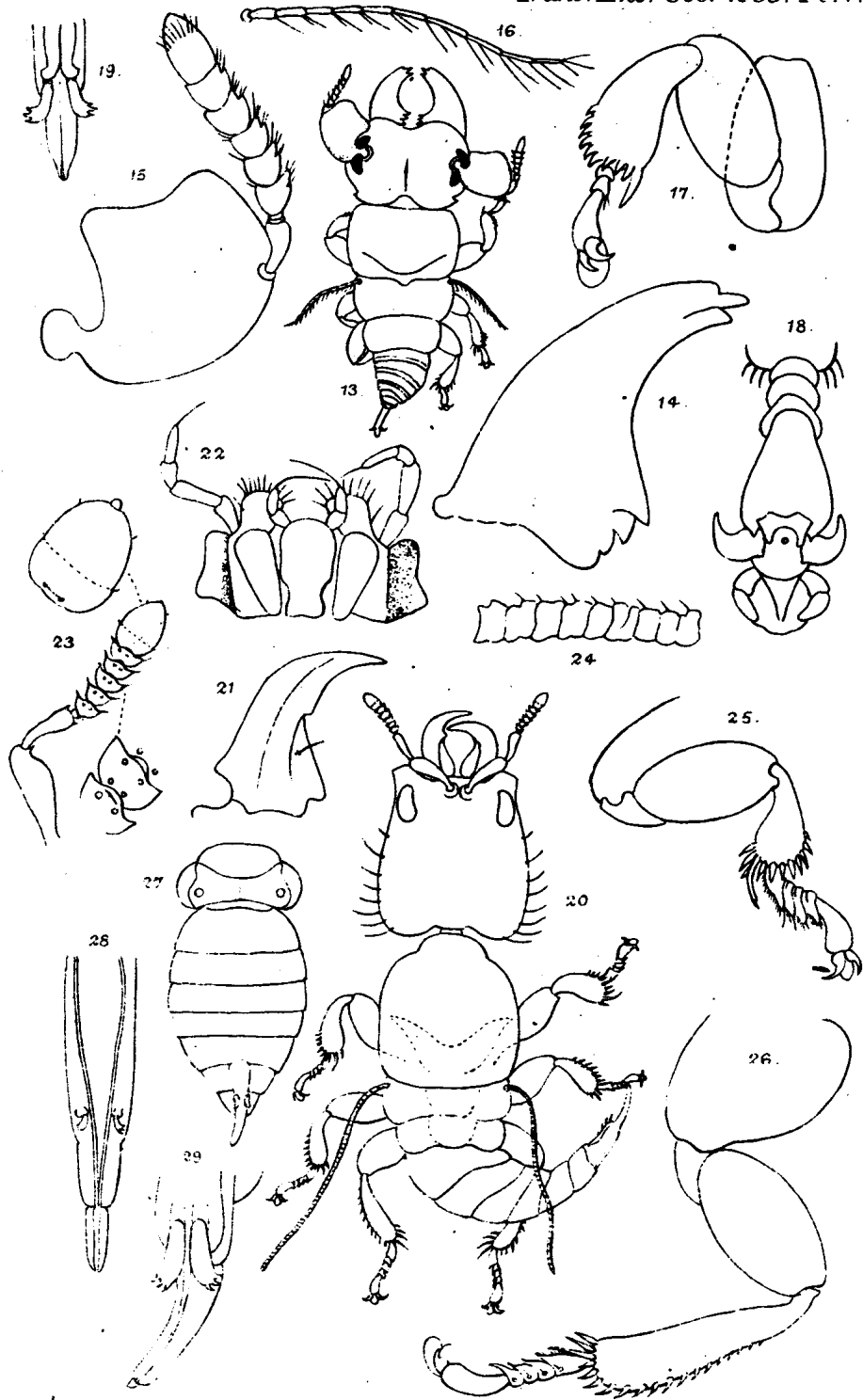
76. *Sycoscaptella quadrisetosa*, magnified.
77. Front of under side of the head, showing the porrected tubercles, between which the maxillæ and labium are inserted.
78. Outer lobe of one of the maxillæ, one of the maxillary palpi, and the two labial palpi of ditto.
79. Mandibles and bilobed under side of head of ditto.
80. Antenna of ditto.
81. Extremity of prothorax, mesothorax, and base of metathorax, of one side of the thorax, showing the two rudimentary winglets.
82. Extremity of the anterior tibia of ditto.
83. Intermediate tibia and tarsus of ditto.
84. Hind leg of ditto.
85. Genitalia of male.
86. *Palmon (Pachytomus) Klugianus*, magnified.
87. Part of front margin of fore wing of ditto.
88. Fore leg of ditto.



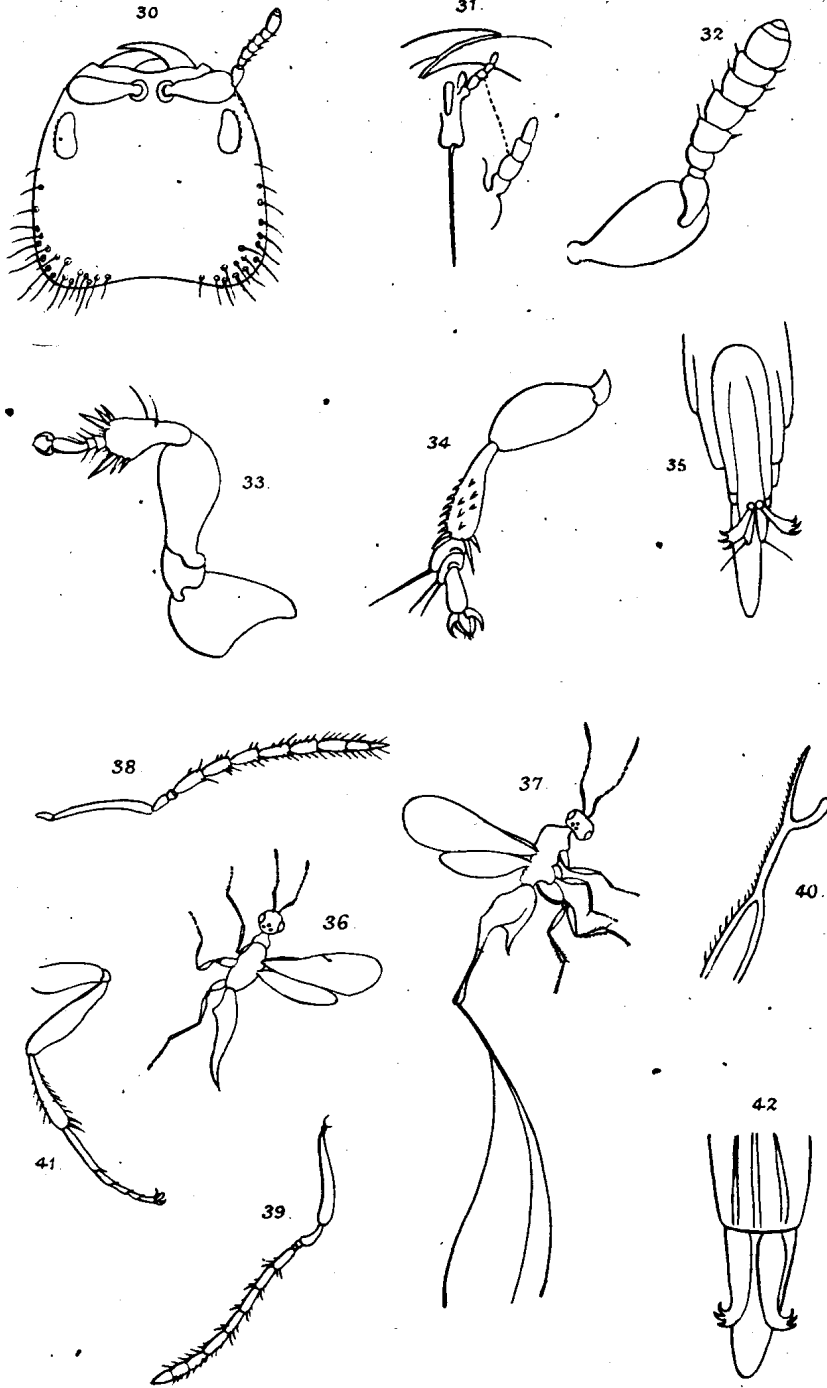
W. del.

West Newman & C^o lith.

Sycobia bethyloides, Walk. *Walkerella temeraria*, Westw.



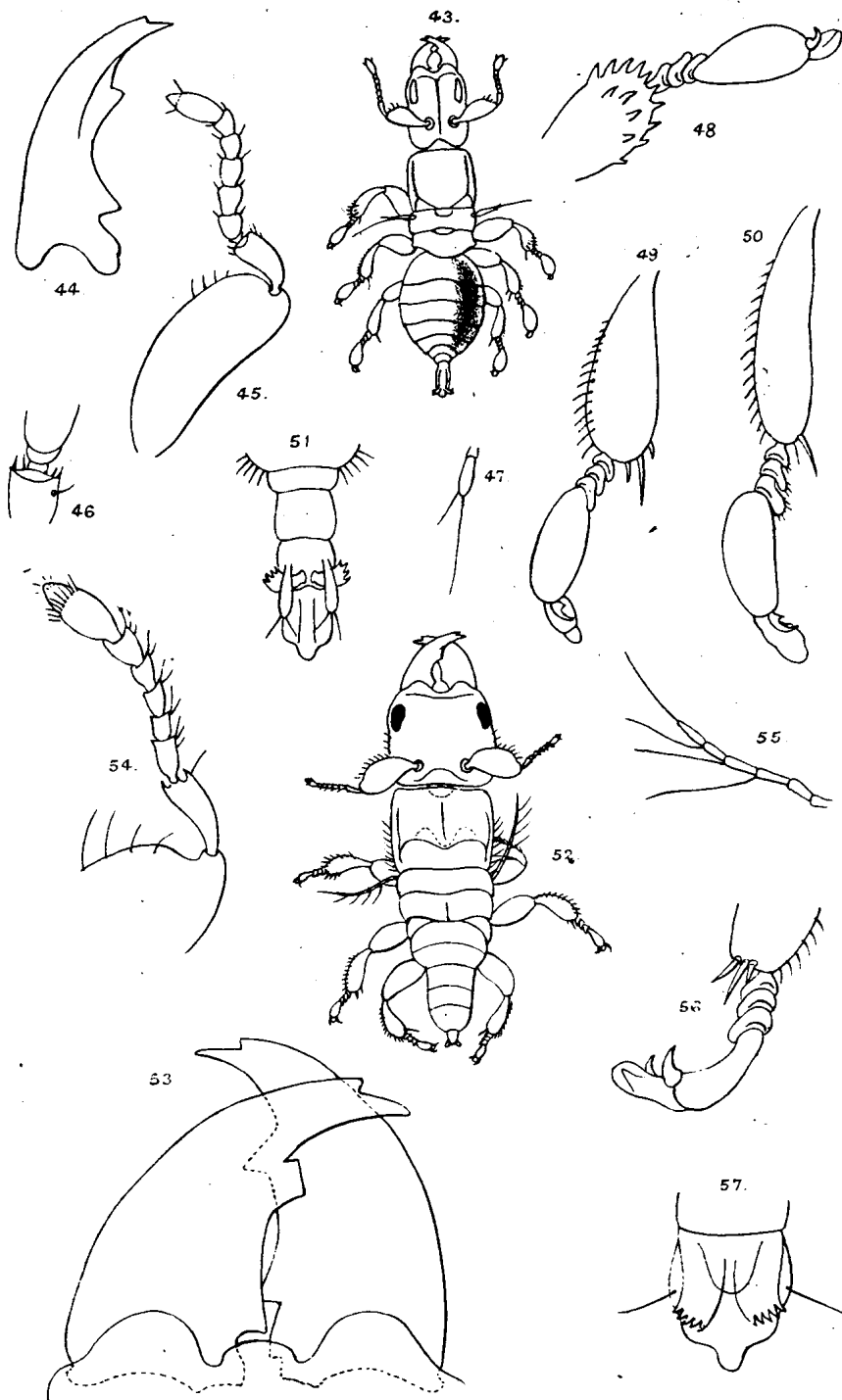
W. L. L. West Newman & Co. Lith.
Sycobiella Saundersii, Westw. *Sycoscapter insignis*, Saunders.



W. del.

West Newman & C^o lith.

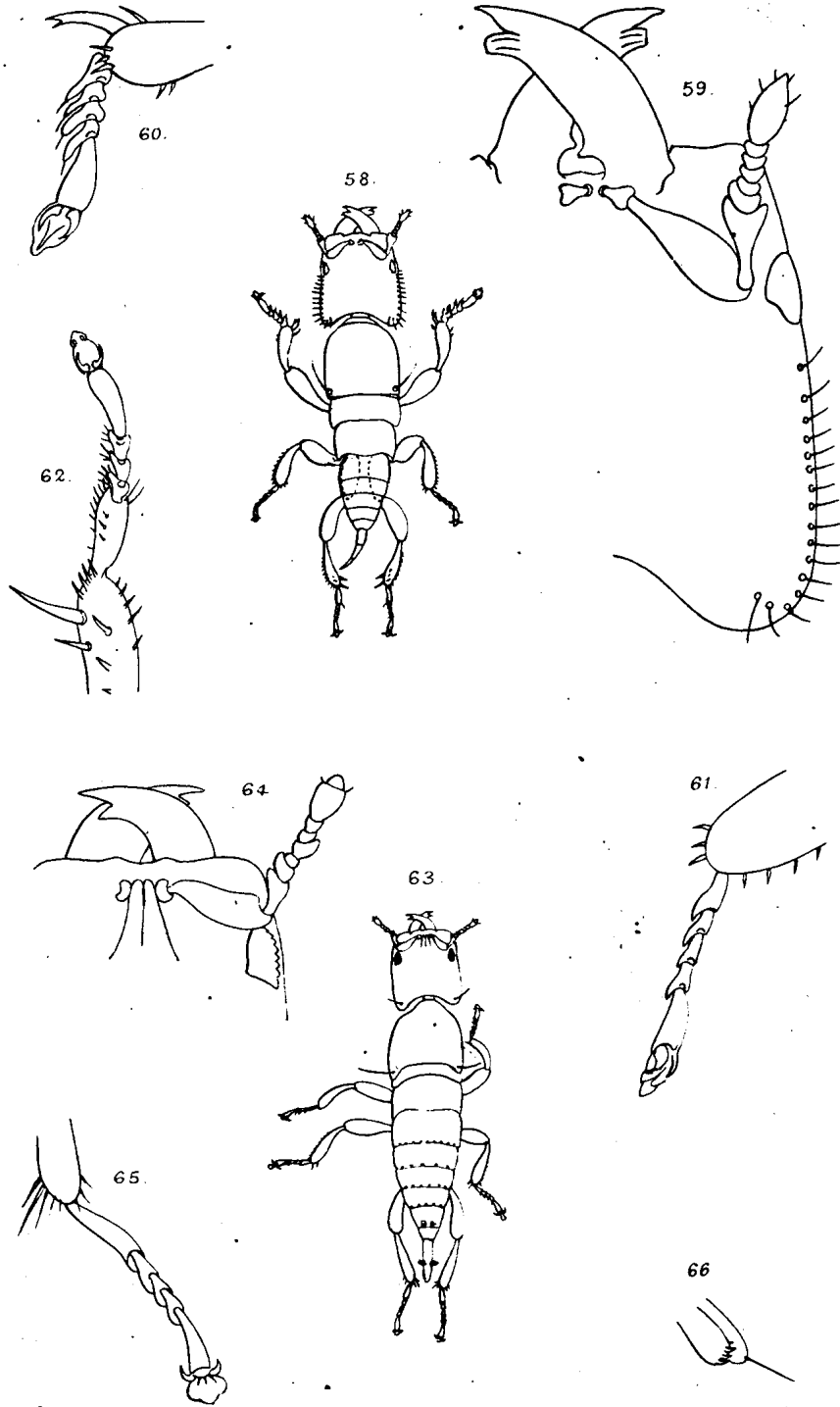
Sycoscaptella affinis, Westw. *Idarnella transiens*, Walk.



W. del.

West Newman & Co lith.

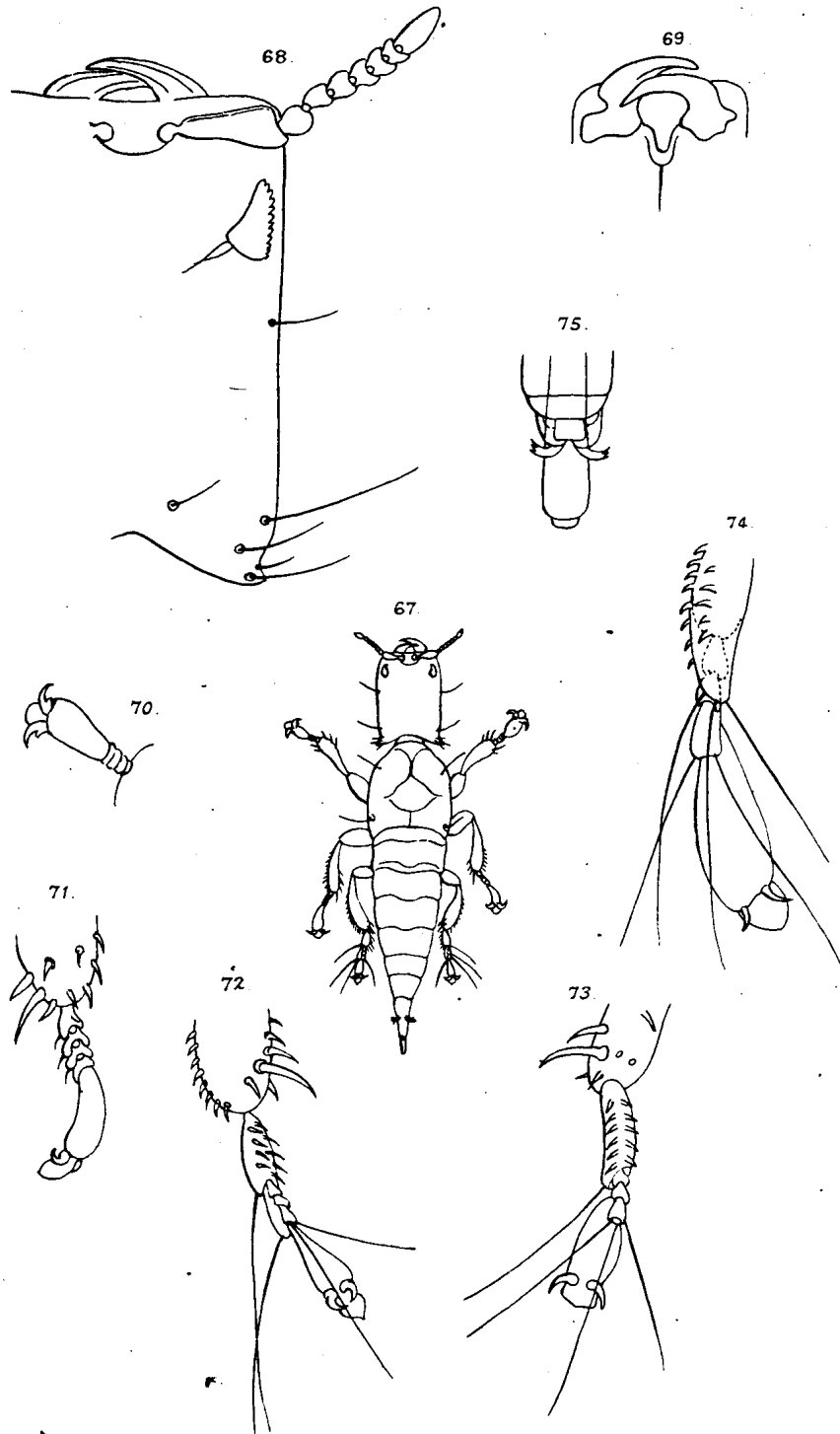
Otitesella digitata Westw. *O. religiosa* Westw.



Fr. det.

West Newman & Co lith.

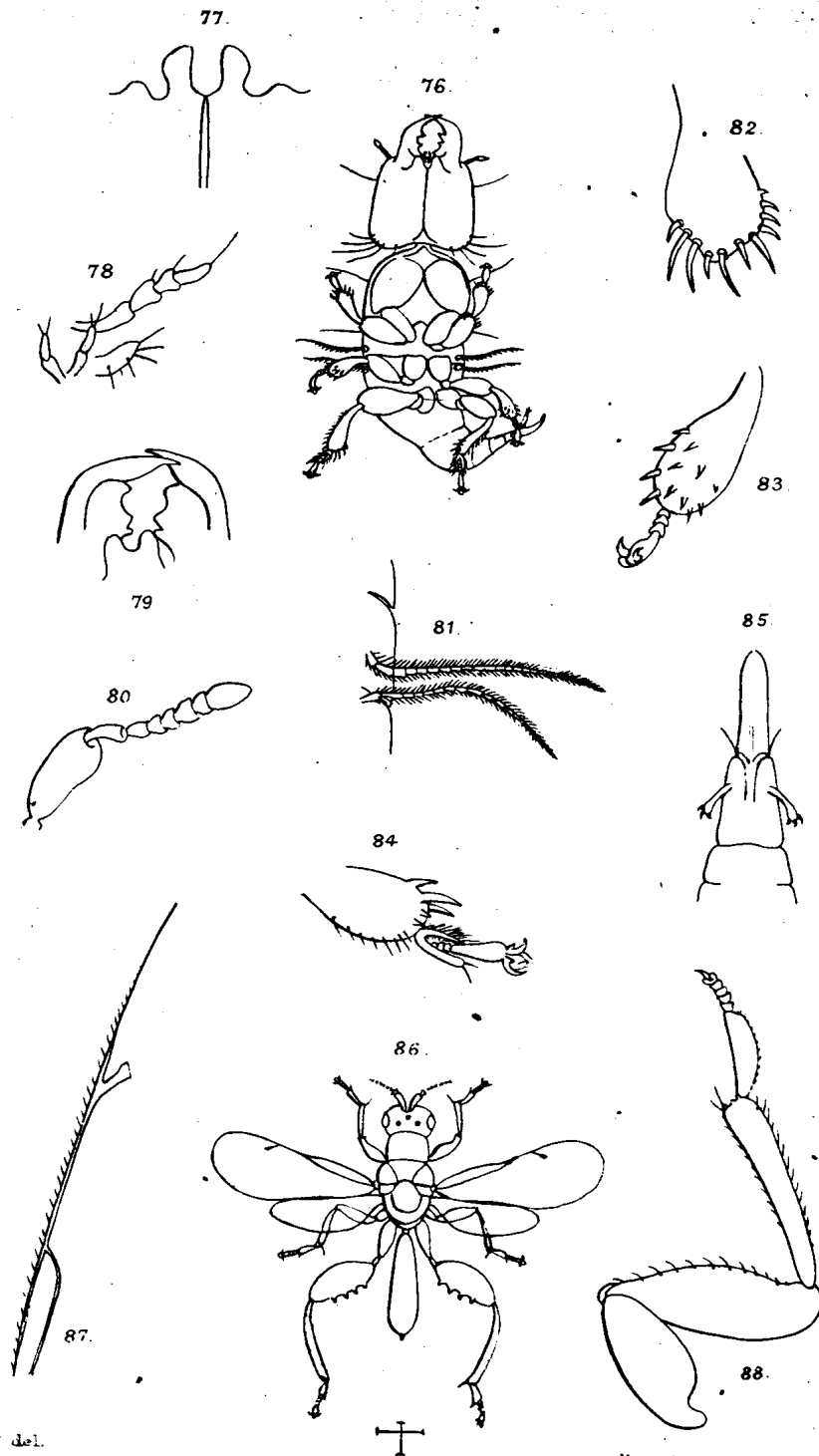
Sycosapter monilifer. Westw. *S. gracilipes*, Westw.



W. del.

West Newman & Co lith.

Sycoscaptella anguliceps, Westw.



del.

West Newman & Co. lith.

Sycoscaptella 4-setosa. Westw. *Pachytomus Klugianus*, Westw.