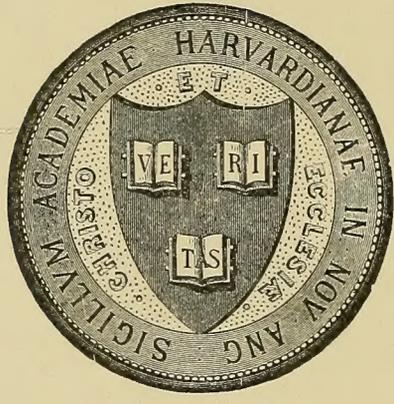


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(New Series.)

VOL. II.



WILLIAMS AND NORGATE,

14, HENRIETTA STREET, COVENT GARDEN, LONDON;

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A 1906.

A PRELIMINARY LIST OF DURHAM
DIPTERA, WITH ANALYTICAL
TABLES.

By the Rev. W. J. WINGATE.

With Seven Plates.

PREFACE.

THIS preliminary list of Durham Diptera has extended to a far greater length than I contemplated when I wrote the introduction. In Mr. Verrall's list of the British species, 1901, there are 2884 names. The following pages contain some guide to the specific characters of 2210 of these. Three families with 390 species are not touched specifically at all, and 284 other species are omitted whose characters I have not been able to discover. But 318 European species are added, some of which have been found, and others may yet be found in Britain. Altogether, characters more or less satisfactory are given for 2526 species, and localities for 626 of these which I have found in our district.

Well do I know how such tables may easily lead a novice far astray; but carefully and cautiously used, I hope they may be the means of enabling some to make a start with the Flies. It does seem strange, that what I may call our 'Domestic Insects' should receive so little attention, that very few, even among entomologists, can point out with any certainty the common House-fly or distinguish between the Blue-bottles. As Schiner well remarks, "niemand kümmert sich um diese unscheinbaren Graujacken"—no one troubles about these insignificant grey-jackets. And yet no order of insects has so many interesting and varied life histories, and none so deeply affects the human race, whether as protectors when acting the part of scavengers, or predators destroying the crops, or scourges carrying the deadly micro-parasite. If some of our members will only start to examine and collect the denizens of their windows, and with the help of the following pages get a knowledge of their parts, and more or less correctly identify the species, I

feel sure their interest will be aroused, and more extended fields will be entered. And having gained some knowledge of the Diptera, may I beg them not to stop short with mere collecting, which after all is only a preliminary, but to go on to the close and patient observation of the habits, and the tracing out of the life histories.

In addition to those mentioned in the Introduction, I desire to thank Mr. Becker, of Liegnitz, for kindly examining some species of Phora. And very specially do I thank Mr. E. Leonard Gill for his most careful and painstaking correcting of the typography, and for many valuable suggestions during the course of publication.

Bishop Auckland,

16th April, 1906.

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A
PRELIMINARY LIST
OF
DURHAM DIPTERA
WITH
ANALYTICAL TABLES
BY
THE REV. W. J. WINGATE.

INTRODUCTION.

The following pages are practically a guide to the small collection of Durham Flies, now in the Society's Museum, and which I collected since 1896, mostly in the southern half of the county. A few words of explanation are due as to the form which it takes, and the presence of the numerous tables of genera and species. The latter are introduced, because in no other way could the characteristic, but not always obvious, points of agreement and difference be more simply and shortly indicated, and also in order that, as there is no easily accessible book in English on Flies, this list might give the beginner some indication of how to identify his captures. All that I venture to claim for it is, that it may be found better than nothing. It is the outcome of my own disappointments. Many a time have I pounced upon some descriptive list of local species in transactions and magazines, hoping to be able to identify some specimens I had taken, only to find that the *learned* phraseology, the want of analysis indicating clearly the points of difference, and the unnecessary repetition of points of agreement, made it an almost hopeless task. Life is too short for this weary groping after the undefined, but a

short life may be practically lengthened, if one is enabled quickly to begin where a predecessor has left off. It is with this object that these tables are given, in the hope that they may enable others in the two counties to take up the study of flies, and soon greatly to extend this very incomplete list. Of course these tables are far from perfect, and in many cases the identification of species is exceedingly difficult in certain families of flies. They are intended in the first instance to point out the characteristic differences in the species represented in this collection, but in order to make them available for additions to our local list I have added in brackets the names of a large number of British species which I have not yet found in this county. They will also serve, I hope, by showing the poverty of the collection, to arouse the desire on the part of some to make it more worthy of the Society. They are chiefly drawn from Schiner's excellent "Fauna Austriaca," Vienna, 1862, with several modifications, and many omissions. In the Syrphidæ I have followed Mr. Verrall's splendid work on the British Syrphidæ, a large book of over 800 pages, dealing at great length with every British species, and indispensable to those who desire to study that family. Loew, Macquart, Zetterstedt, Becker, Meade, and Stein have also been consulted. I have to thank Mr. Austen, Col. Yerbury, Mr. Henderson, Mr. Collin, Mr. Wainwright, Mr. Grimshaw, and Herr P. Stein for their kind help from time to time. The arrangement of the collection is that adopted by Mr. Verrall in his last List of British Diptera, December, 1901. The order is not rigidly adhered to in the tables owing to the characters sometimes overlapping, but the number preceding the name gives the proper position in that list.

As I found it very difficult at first to form a mental picture of some part merely from the descriptive word used, I have added a few, somewhat rough, illustrations, which I hope may make the meaning of terms a little clearer. They are mostly tracings, sometimes slightly altered, taken from Walker's work, which is now out of print. I have added a few of my own, and also a Fly Chart, or Diagram, which, with its description

and index will, I hope, enable any one accurately to follow the tables, without the almost endless mistakes which I had to wade through at first, for want of some short but full explanation of terms.

This list is not meant for advanced Dipterists, whose number is very few. But I hope that it may be the means of enabling several in this and other counties to make a start with these interesting insects. Having made a start, they will probably want fuller details than can be given here. Books on Flies in this district are not many, and those there are are not very accessible. On the Syrphidæ Mr. Verrall's book is all that could be wished, but it is practically the only book in English on Flies, and deals so far with but one large and two small families. Walker's "*Insecta Britannica*," in English, is in the Museum Library, the Newcastle Reference Library, and the Dean and Chapter Library at Durham, but it is now quite out of date. Macquart's book on French Diptera in French, and Zetterstedt's great 12-volume work on the Scandinavian Diptera in Latin, are in the Dean and Chapter Library. There are also some short descriptive lists of certain families in English, reprints from entomological magazines. Particulars of these and a large number of Continental works on the subject will be found in the catalogues of the scientific book-sellers.

COLLECTING AND PRESERVING.

Flies are not hard to find. The windows will supply representatives of almost all the families, and if kept open at the bottom and shut at the top they form good fly-traps. A bottle 4-in. high, $1\frac{1}{4}$ -in. diameter, and $\frac{3}{4}$ -in. across the mouth, lined inside with blotting paper, and having a small piece of sponge jammed into the bottom, on which a few drops of benzine are dropped when necessary, may be placed over the fly as it crawls up the pane. A few seconds stupify, and a few more result in death.

Outside there are few situations where flies may not be found. I use a large green net about sixteen inches diameter, mounted on a very strong padded ring, and firmly fastened on a handle about a foot and a half long. At the small end, which is open, is a ring of flat whalebone 3-in. diameter, fastened by its lower and inner edge to the outer edge of the net (see Plate VII., 29, 30, 31). To the upper and outer edge of a second flat whalebone ring, just large enough to fit inside the former, is fastened the upper and inner edge of a small white Indian muslin bag about 8-in. long, tapering to 2-in. diameter at its lower end, where it is closed by a piece of transparent celluloid—part of a watch protector with the rim cut off. A small piece of flat elastic with a hook and eye, a little below the ring, closes the open end of the bag. The whalebone rings allow of the bag being rapidly attached to the net, the larger net-ring being pushed inside the smaller bag-ring. Ten or twelve of these bags may be carried suspended along the sides and top of a box 12-in. by 8-in. by 3-in., covered with American cloth, and suspended round the shoulders, in which hundreds of flies, the spoil of successive sweepings, may be carried home alive, and in good condition for leisurely examination. A tin canister, blotting-paper lined, in which the bag is placed with a few drops of ether, soon takes the buzz out of them, when they may be shaken out on a piece of white paper for examination. Those wanted are dropped into the benzine bottle

before mentioned, which will soon kill them, the others will all recover if they have not been left too long in the ether. Pin them perpendicularly through the middle of the back with a Tayler's No. 20 pin (D. F. Tayler and Co., Limited, New Hall Works, Birmingham), and pass the pin through the middle of a disc of white card to about the half. Take the lower part of the pin in the left hand, raise the fly a little above the card, pull out the legs, which will probably be curled below, and touch the wings so as to bring them into a position rising upwards and outwards at a considerable angle, which, though not a natural position, is the one in which most of them die, and is the best for examination. Then having arranged the fly to your liking (elaborate setting is not at all desirable), snip off the top of the pin with a pair of bent-nail scissors, and pass a Tayler's No. 16 pin through the edge of the card to the right of the fly. Write the place and date of capture either on the under side of the card, or on a small ticket at the base of the large pin, and put the specimen away to dry. A 50-cigar box, with a piece cut out of each end, and a bit of fine muslin pasted over the holes, forms an excellent drying case. Similar boxes left entire, cork bottom-lined, covered with bookbinder's cloth, and ranged like books on shelves, make a cheap and excellent substitute for the expensive insect cabinet, and, unlike it, they are capable of extension at any point required, with very slight re-arrangement of the specimens. A little powdered albo-carbon, to be got at most gas-fitters, dropped into each box, and renewed from time to time, will keep marauders away.

EXPLANATION OF THE NUMBERING.

In the Index of the description of the Fly Chart, that is the explanation of terms and parts, the CAPITAL LETTER refers to the division so lettered in that description, the ROMAN NUMERAL to the section of that division, and the ARABIC NUMERAL to the paragraph of the given section, except where the capital letter is V, O, or X, which refers to the list of wing names.

In the Tables of Families, Genera and Species, a *Roman Numeral*, followed by a *light Arabic Numeral* in brackets, refers to the plates of illustrations. Thus (VI., 1) means that an illustration of the foregoing description will be found at No. 1 of Plate VI.

The Families, Genera, and Species follow the order of Mr. Verrall's list issued 1901, although with many omissions. The Families, all of which end in *idæ*, are numbered in Roman numerals, I-LX. The Genera are numbered straight through as placed in the list, in Black Arabic numerals 1-672. The Species are also numbered straight through in the same manner in Light Arabic numerals 1-2884, so as to indicate their proper order, and to point out omissions.

At the top of each page is the number of the family and genus with which the page begins, or, if it be a table of genera, then only the family number. Thus, suppose *Tanypus nervosus* were the first species on the page, then VI.80 would stand as the page number, *Tanypus* being the 80th genus and Chironomidæ the 6th family in Verrall's list.

In using the tables, having found the family, pass on to the beginning of the pages bearing that family's Roman numeral, where the table of genera will be found, and having found the genus pass on to the first of the pages with the dark Arabic numeral of the genus, or the nearest lower number, where the table of species will be found.

If the number of a family, genus, or species precede its name, it indicates a stop: there are no further particulars given. If the number follow its name it indicates: pass on

to that number—where further particulars will be found. A specific name in brackets indicates that the species has not yet been taken in Durham county. A name without a number indicates that it is a European genus or species not yet found in Britain, or not yet included in Mr. Verrall's list.

To avoid grammatical criticism, please note that, to save space, "each of" is often omitted before plurals which stand for pairs. "Hind femora with the tip black" means "each of the hind femora with the tip black."

Of course it will be understood that the characters only distinguish between the species here named. The characters will distinguish the species possessing them from any other given in this list, but there may be other species not here given to which the same characters will apply. Therefore, although the tables may indicate the name with considerable probability, to insure more complete accuracy a reference to a full description will be requisite.

I do not consider it necessary to give any explanation of the abbreviations of authors' names. W. Junk, scientific bookseller, Berlin, N.W.S., publishes a priced list of 900 books and pamphlets on Diptera, which list he will send free to anyone interested, and in which all particulars can be easily obtained.

DESCRIPTION OF THE FLY CHART.

The terms used in the analytical tables will be clearly understood by the following description of the Fly Chart, or Diagram. Of course it will be understood that all of these parts are not to be found in any single species.

A. THE HEAD.—The front portion bearing the sense organs. It may be divided into *nine principal parts*.

I. THE VERTEX.—On the top between the eyes. It contains :—

- (1) *The Ocellar Triangle*.—A triangular patch, often raised, in the middle.
- (2) *The Ocelli*.—Or simple eyes, generally three, arranged in a triangle within the ocellar triangle.
- (3) *The Vertical Triangle*.—A coloured triangular patch surrounding the ocellar triangle.
- (4) *The Vertical Bristles*.—Close to, and rather behind, the upper inner corner of the eye. Two, an inner and an outer, on each side. The *inner*, rather nearer to one another in front; the *outer*, a little behind and farther apart.
- (5) *The Post-Vertical Bristles*.—One pair directly behind the ocelli.
- (6) *The Ocellar Bristles*.—One pair among the ocelli.
- (7) *The Vertical Orbit*.—The sides of the vertex, close to the eyes.

II. THE COMPOUND EYES.—On each side of the head, large and often hairy.

III. THE FRONS.—The forehead, between the eyes, above the antennæ, and below or in front of the vertex. The latter boundary is indefinite, but may be generally indicated as an imaginary line from eye to eye, across the forefront of the ocellar triangle. The frons contains :—

- 1) *The Frontal Stripe*.—A dark stripe in the middle, often bifid or forked.

- (A.III.) (2) *The Frontal Orbits*.—The sides between the frontal stripe and the eye.
- (3) *The Frontal Lunule*.—A small crescent-shaped piece immediately above the antennæ (plate VII. 5), only found in the second sub-order—Cyclorrhapha.
- (4) *The Frontal Bristles*.—One pair, on the frontal stripe, in front of the ocelli.
- (5) *The Fronto-orbital Bristles*.—A row or rows, on either side, on the frontal orbits. They often begin in the vertical portion of the orbit, and extend down towards the cheeks.
- (6) *The Lower Fronto-orbital Bristles*.—On the frontal orbit, below the fronto-orbital bristles, but not in the same line. The different rows may be distinguished as inner (nearer to the frontal stripe), outer (nearer to the eyes).
- (7) *The Edge or Margin of the Eye*.—A narrow, often glistening white line on the outer edge of the orbits close to the eye.

IV. THE ANTENNÆ.—Jointed processes, springing from the front of the head, often lying close together in a little pit in the middle of the face. The Diptera may be divided into two sections by the number of the joints of the antennæ. In the one, the Nematocera, the joints are very numerous (Plate II). They consist of:—

- (1) *The Basal Joints*.—The two next to the head, generally large and differing in shape from the others.
- (2) *The Flagellum*.—All the other joints taken together.

In the second section the antennæ consist generally of three joints (Plate III.), namely:—

- (3) *The First Joint*.—The one next to the head.
- (4) *The Second Joint*.
- (5) *The Third Joint*.—This is sometimes ringed, the rings showing like traces of joints, which indeed they are, but closely adhering so as to appear as one ringed joint (Plate III. 1-9).

(A.IV.) (6) *The Arista* or *Seta*.—A bristle or spine springing from the third joint, either at some point of the upper surface between the base and the point, when it is said to be *dorsal*—it is generally jointed and often bears hairs, when it is said to be *plumed* or *plumose* if the hairs are very long, *combed* if they are only on one side, *hairy* if the hairs are rather short, *pubescent* if they are very short, and *bare* if they are absent—or if the bristle or spine springs from the extreme point of the third joint it is a *terminal arista* (Plate III. 29), and if very strong it is called a *style* (Plate III. 22).

V. THE FACE.—The part above the mouth and below the antennæ.

(1) *The Facialium*.—A ridge bounding the face on each side.

(2) *The Facial Bristles*.—A row of bristles on the facialia.

(3) *The Mystax*.—Strong hairs on the front of the face and overhanging the mouth (Plate VI. 28.b).

VI. THE CHEEKS OR GENÆ.—The spaces at the sides of the face, between the facialia and the eyes. They are sometimes divided into two parts by a ridge or seam, when the part nearer the eye is called the *genal orbit* or *eye-margin* (Plate VII. 5).

VII. THE JOWLS.—The parts below the cheeks and the eyes.

VIII. THE MOUTH.

(1) *The Peristome* or *Mouth Edges*.—The part immediately surrounding the mouth. The *epistome* is the part above the mouth, or the upper edge.

(2) *The Mouth Bristles* or *Vibrissæ*.—One or more strong bristles close to the sides of the mouth.

(3) *The Proboscis*.—The jointed sucking instrument, sometimes withdrawn within the mouth-cavity, sometimes long and protruding.

(A.VIII.)(4) *The Palpi*.—Two feelers attached to the proboscis and often jointed.

IX. THE BACK OF THE HEAD OR OCCIPUT.—The back edges of the eyes are the *posterior orbits*, which often bear the *post-orbital bristles*.

B. THE THORAX.—The middle portion, bearing the organs of motion. It is divided longitudinally into:—

I. THE DORSUM, OR THORAX.—(The small *numbers* in brackets refer to the diagram, Plate VI.).

(1) *Boundaries*.—It is bounded in front by (*a*) the *neck* (7), behind by (*b*) the *scutellar suture* (15), or seam which separates it from the *scutellum* (6), a small triangular hump projecting backwards, often bearing several long bristles—the *scutellar bristles*. At the sides by (*c*), in front, the *dorso-pleural suture* (9), a seam running from the front corners of the dorsum to the front of the wing-bases, by (*d*) the *wing-bases* (10), and by (*e*) the *scutellar bridge* (11), a ridge running diagonally from the hind base of the wings to the root of the scutellum.

(2) The dorsum is crossed by a seam—the *dorsal suture* (8). At the front corners is a slightly raised knob—the *shoulder* or *humerus* (1).

Divisions.—In addition to the two shoulders it is divided into six regions by the *dorsal suture* (8) and a slight ridge, or imaginary line, on each side, running from above the shoulders towards the outer front corners of the scutellum; namely, two *central regions* (2, 3), the *præ-sutural* (2) in front of the dorsal suture, the *post-sutural* (3) behind it; two *post-humeral regions* (4), one on either side behind the shoulders, above the dorso-pleural suture and in front of the dorsal suture; two *alar regions* (5) above the wings and behind the dorsal suture.

- (B.I.) (3) At the back of the alar regions is a ridge, the *alar frenum* (12), separated by a hollow from the *scutellar bridge* (11). The scutellar bridge and alar frenum = the *postalar calli*.
- (4) *Bristles*.—The larger *bristles* or *macrochætæ* are distinguished by the names of the regions. The arrangement of bristles is termed *chaetotaxy*.
- (5) The *Dorso-Central Præ- or Post-sutural Bristles*, inner (13) or outer (14) rows, are on the præ-sutural and post-sutural central regions. When they are all absent, except one or two behind, then these latter are often called the *præ-scutellar bristles*. *Acrostichal bristles*, rows of minute bristles on the centre of the dorsum.
- (6) The *Humeral Bristles*, on the humerus.
- (7) The *Post-humeral Bristles*, behind the humerus on the edge of the dorso-pleural suture.
- (8) The *Intra-humeral Bristle*, near the upper border of the post-humeral region. The *præ-sutural bristle*, near the inner hind corner of the post-humeral region.
- (9) The *Supra-alar Bristles*, generally three, two on the edge of the alar frenum, and one in front, forming a kind of triangle above and rather behind the root of the wing.
- (10) The *Intra-alar Bristles*, on the fore part of the alar region.

II. THE SIDES, OR PLEURÆ.

- ### III. THE BREAST, OR STERNUM.
- For practical purposes, the pleura and the portion of the sternum seen in a side view, are considered together.

Divisions :—

- (1) The *Prothorax*, below the shoulders and above the fore-leg. Behind it is bounded by the *prothoracic suture*, a seam coming down from the dorso-pleural suture, in front of the hairy

- (B.III.) breathing-hole, which is usually very conspicuous. A large bristle just above the fore coxa is the *prothoracic bristle*.
- (2) The *Meso-pleura*, bounded in front by the prothoracic suture, above by the *dorso-pleural suture*, behind by the *meso-pleural suture* (which comes down from the fore-edge of the wing-base, and is often fringed with bristles), and beneath by the *sterno-pleural suture*. Near its upper front corner is the *stigma*, a prominent orifice of the respiratory tubes. A large bristle just below this stigma is the *stigmatical bristle*.
 - (3) The *Ptero-pleura* below the wings, and behind the meso-pleural suture.
 - (4) The *Meta-pleura*, behind the ptero-pleura. "A more or less tubercular piece, between the root of the wing and the haltere."
 - (5) The *Sterno-pleura*, a more or less triangular piece, above the middle leg, and below the sterno-pleural suture.
 - (6) The *Hypo-pleura*, behind the sterno-pleura, and above the hind leg.

Bristles.—They are named after the region on which they are placed, as prothoracic bristle, meso-pleural bristle, &c.

IV. THE META-NOTUM.—The part of the thorax behind and beneath the scutellum, and between it and the back of the abdomen.

C. APPENDAGES OF THE THORAX.

I. THE LEGS, distinguished as *fore*, *mid*, and *hind*, or 1st, 2nd, 3rd. I beg to enter my protest against the unnecessary confusion introduced by the use of the words anterior for the fore and mid legs together, and posterior for the mid and hind legs together. From the use of the words in other connections one is naturally apt to think of them as referring to the fore or hind legs only, and it is just as easy to use

(C.I.) the prefixes fore and mid or mid and hind, about which there can be no mistake, in the comparatively few cases in which they are required.

Each leg consists of *nine joints* :

- (1) The *Coxæ*, the joints attached to the body.
- (2) The *Trochanters*, very small and inconspicuous.
- (3) The *Femora* or *Thighs*.
- (4) The *Tibiæ* or *Shins*.
- (5) The *Metatarsus* or *First Tarsal Joint*.
- (6) The *Second Tarsal Joint*.
- (7) The *Third Tarsal Joint*.
- (8) The *Fourth Tarsal Joint*.
- (9) The *Fifth Tarsal Joint*.
- (10) The *Knees* are the extremities of the femora and tibiæ, about where they join.
- (11) The 5th Tarsal Joint bears the *claws*, *ungues*, or *unguiculi*, beneath which are the *foot-pads*, *pulvilli*, or *onychia*. Between the two claws is the *empodium*.
- (12) *Parts of the Joints*.—The *base* is the part nearest to the body. The *tip*, *end*, *apex*, or *distal portion* is that which is farthest from the body (Plate VII. 15). The *under* or *inner side* is the side which would be beneath, if the leg were spread out at right angles to the body. The *underside* of the tibiæ and femora shut up against one another. The *upper* or *outer side* is the opposite side, that which would be above were the legs spread out. The *foreside* is that which is on the head side; the *hinderside* that which is on the abdomen side, when the legs are spread out. Half-way between any of these four sides is indicated by combining the terms, as *under foreside*, *upper hinderside*, &c. See Plate VII., 15, 16.

II. THE WINGS.—The names given to the veins and cells differ greatly with different authors, and their nomenclature appears sometimes quite arbitrary, and often

(C.II.) very puzzling at first. In order to shorten the Tables, I have ventured to introduce a system of numbering and lettering for the veins and cells of the wing, which is merely an extension of the plan adopted by Schiner and others. It may often be artificial, but it is distinctly useful, and I consider it to be a very great improvement on the long clumsy names used by English authors. That there is great confusion in wing terminology among various writers will appear from the tables of vein and cell names at the end of F. It is greatly to be desired that some uniformity could be arrived at. I do not suppose that a suggestion from a mere outsider would be likely to do anything to forward that result, but the following system is simple and short, and the use of figures and letters, instead of words, makes it of easy international application.

As an instance of how it is calculated to shorten descriptions, I give the translation of Schiner's first character for dividing the genus *Bibio* into two parts, using English vein-names.

"The basal portion of the cubital vein, where it springs from the sub-costal vein near the middle of the wing, measured from its source to the middle cross vein, much, or at least, distinctly longer than the middle cross vein which forms an angle with it."

In the following pages the same description reads thus :

"V.3¹. much, or at least, distinctly longer than X.4."

The system here adopted is as follows :

A number preceded by V. indicates a *longitudinal vein*.

A number preceded by X. indicates a *cross vein*.

A number preceded by O. indicates a *cell*.

A number followed by a. indicates an *upper branch* of a long vein.

A number followed by b. indicates a *lower branch* of a long vein.

(C.II.) A *small number above the line* indicates a *section* of a long vein, or, if connected with a cross-vein or cell, it indicates the 1st, 2nd, or 3rd of its kind, numbering from the base of the wing.

The *longitudinal veins* are numbered 1 to 7.

The *cross veins* bear the number of the vein on which they rest, *i.e.*, regarding the fore margin as the top of the wing.

V.1. is read "The first vein" or shorter "V one."

V.4.b. is read "The lower branch of the 4th vein."

O.2.b. is read "The lower 2nd cell."

X.5². is read "The 2nd cross-vein on the 5th vein"; and so on, but it is far better to say simply "cross five two," as that is shorter, and the mental picture is developed in the proper order, first the kind of vein, then its general position, and then its exact place.

The cells bear the number of the long-vein upon which they rest, that is the one which bounds them on their lower side. If cross-veins be present, and therefore more than one cell along the upper side of a vein, they are distinguished by the addition of "*inner,*" "*middle,*" or "*outer,*" or of a small figure ¹, ², or ³, thus O.5¹. or O.5. In. is the first or inner cell resting on the fifth vein. They are said to be open when they are bounded at their outer end by the costa or the margin of the wing. On Plate V, O.2. is open in 19, closed in 20.

(2) *How to Read a Fly's Wing.*—First notice that there are two principal vein-systems. Each arises from the base of the wing in a single main stem, which throws out one or more branches. These systems are quite unconnected with one another, except at one place, where a small cross-vein unites them. (Sometimes they are also united near the tip of the wing by the bending up of the fourth vein). This cross-vein is the key of the position.

(C.II.2.) The vein above it is V.3, the one below it is generally V.4. The main stem of the upper system is V.1., that of the lower is V.5. The vein between V.1. and V.3., if there be one, is V.2. If V.3. springs from V.1., then V.2. is absent. The vein below V.5. is V.6. Sometimes there is another vein V.7., which rises independently in the base of the wing.

(3) *Regions*.—The wing is divided longitudinally into a *front* and *hind region* by an imaginary line drawn from the base to the tip, through the cross-vein (X.4.); and transversely into a *basal* and *apical region* by a line across the wing, from the middle of the fore-margin and at right angles to it; or into four independent regions, the *fore* and *hind-basal regions*, and the *fore* and *hind-apical regions*.

(4) *The Longitudinal Veins*.—The vein which bounds the wing at the margin is called the *costa* (C). It sometimes stops suddenly near the tip of the wing, sometimes it is attenuated round the hind-margin. It generally bears short bristles—*ciliated*—with sometimes a row of strong thorns among them—*spined*. The *setula* is the strong spine on the costa at the end of V.1.a. Each division of the *costa* is numbered according to the number of the cell which it bounds. C.1.a. is the *costa* from X.1.a. to the end of V.1.a., &c.

V.1. The first vein below the costa, always present and strong. It often consists of two long branches.

V.1.a. The upper branch of V.1. usually weak and often absent.

V.1.b. The lower main branch of V.1. when V.1.a. is present.

V.2. It springs from the lower side of V.1., and is often absent.

- (C.II.4.) V.3. It springs from the hinder side of V.2., or from V.1. if V.2. be absent. It is always present, and is always the lowest long vein of the front vein-system ; that is, it is always the first vein above the ordinary cross-vein, X.4.
- V.4. It springs from the upper side of V.5., and is the uppermost long vein of the middle vein-system. It is often much branched and sometimes absent.
- V.5. The main strong vein of the middle system.
- V.6. It springs from the under side of V.5., and it is often weak or absent.
- V.7. The last vein. It springs direct from the root of the wing. It is generally weak, and often absent.

The veins are divided into *sections* by the X-veins and the branches. These are indicated by small numbers placed above the line. For instance, in the chart, V.4¹ would be the portion of V.4. from its base to where it is met by X.5¹; V.4² the portion from X.5¹ to X.4; V.4³ from X.4. to X.5²; V.4⁴ from X.5² to the margin. If V.4. happened to branch as in the dotted line, V.4.b. then V.4² would be the portion from X.5¹ to the fork, and the remainder of what was V.4² would become V.4.a¹, that is, the first section of the upper branch of the fourth vein, and so on.

Vena Spuria.—A longitudinal thickening of the wing, characteristic of the family Syrphidæ. It looks like a vein lying between V.3. and V.4., and crossing X.4., after which it dies away. (See the dotted line in Plate V.19, 20, 21).

- (5) *The Cross Veins*.—These are short veins connecting the longitudinal veins.

X.1.a. Near the base of the wing in front.

(C.II.5). X.4. or simply X. The vein which joins the two principal vein-systems near the middle of the wing. It is always present, and generally rests on V.4., or, when that vein is absent, on V.5. It is often much inclined, and frequently looks like the base of V.3. (See Plate IV. 1, 4, 5, where the vein marked X is this X-vein, that beyond, which looks like a X-vein, being regarded as the base of V.3. in this system, which is distinctly artificial but useful).

X.5¹ or X.5. In. The X-vein uniting V.5. to V.4. near to the base of the wing, and placed before or only a little beyond X.4.

X.5² or X.5.Out. The X-vein which unites V.5. to V.4. on the apical region. One or both of the X.5s may be absent. If only one be present, it may be called simply X.5., or X.5¹ or X.5² according to whether its position is before, or much beyond X.4.

X.6. The X-vein which unites V.6 and V.5. It is often absent.

Other X-veins are in like manner indicated by the number of the vein on which they rest.

A Hang Vein or Appendix is a very short incomplete branch, often recurrent, which sometimes projects from the angle of a bent long-vein, as in Plate V.7, where a recurrent hang-vein is seen at the angle of V.3.a, or as in Plate V.18, where one, not recurrent, projects from the hinder side of V.4⁴.

- (6) *The Cells or Areolets*.—These bear the numbers of the veins on which they rest, preceded by O. The enclosed cell, which is often present near the middle of the wing, and which may be either O.4.b. or O.5², may also be indicated simply by O. It is commonly called the *discal* or *discoidal cell*.

(C.II.6.) A cell is said to be closed when it is not bounded at any place by the wing margin. O.2. is open in Plate V.19, closed in Plate V.20. When it is closed some distance from the margin, and one of the enclosing veins continues on alone, it is said to be *stalked*, as O.2. in Plate V.20, or O.4² in Plate V.24.

(7) *The Stigma*.—A thickened portion of the wing at the end of V.1.

(8) *The Alula, or Axillary Lobe*, O.9.—A rounded projection at the hinder base of the wing.

III. THE HALTERES.—Knobbed projections behind the wings, peculiar to the Diptera and characteristic.

IV. THE SQUAMÆ OR CALYPTRA.—Scale-like appendages beneath the wings and above the halteres, generally fringed with hairs.

D. THE ABDOMEN.—The hind portion of the body, bearing the organs of generation.

(1) *Segments*.—It is divided across into *segments* indicated by numbering from *the base*, that is the part attached to the thorax; thus, the 1st or *basal segment*, the 2nd, the 3rd, &c.

(2) *Anus*.—The last segment, of a peculiar shape, is the *anal segment* or *anus*.

(3) *Generative Organs*.—From the anus proceed the organs of generation. Those of the male are called *genitalia*, *hypopygium*, or *male organs* (Plate VI. 17). They consist often of a pair of *forceps* (*a*) springing from the outer upper side of the last segment, and a single middle organ beneath, the *pennis* (*b*). Sometimes a pair of plates, often fringed, are present, the *lamellæ* (*c*).

The *female organ* is the *ovipositor* or *vagina*, often hidden within the body.

(4) *Plates*.—The segments consist of two horny plates, the *back* or *upper plate*, and the *belly* or *under* or *ventral plate*, united by a more membranous portion, often invisible—the *sides*.

(D.) (5) *Bristles*.—The *abdominal bristles* are distinguished by the numbers of the segments, and by whether they are placed on the *fore* or *hind margin*, or on the *disc* (that is, between the fore and hind margins), or on the *centre*, or on the *side* of the segment; thus, in the diagram Plate VI. 41—1-1 are the *side fore marginal bristles*; 2-2, the *side hind marginal*; 3, the *central fore marginal*; 4, the *central hind marginal*; 5, the *discal*.

E. BRISTLES AND HAIRS.—Very short and fine hairs, sometimes somewhat scale-like, are called *tomentum* or *pubescence*; stronger and longer—*hairs*; still stronger—*bristles*, or *setæ*, or *spines*; or a very thick one—a *thorn*, a *spur*, or a *calcar*.

F. MARKS.—When a long marking lies parallel, or nearly so, to the major axis of the body, leg, or wing, *i.e.*, from head to tip of abdomen, or from base to tip of leg or wing, it is called a *stripe*; when it lies at, or nearly at right angle to this, it is called a *band*.

TABLE OF VEIN AND CELL NAMES.

The following table may be useful in consulting works on Diptera, and shows the confusion of the wing terminology.

LONGITUDINAL VEINS.

NAME USED IN THIS LIST.	VARIOUS SYNONYMS.
V.C.	Costa, costal vein, Vorderrandader, or Randader.
V.1.a.	Mediastinal vein, Vorderast der ersten Längsader, zweite Längsader, or Hülfader.
V.1.b.	Subcostal, submarginal, erste Längs-, dritte Längs-, Unterrand-Ader.
V.2.	Radial, or zweite Längsader.
V.2.a.	Upper branch of the radial vein, obere Gabel der zweiten Längsader, or fünfte Spitzenader.
V.2.b.	Lower branch of the radial vein, untere Gabel der zweiten Längsader, or vierte Spitzenader.

- V.2¹. Præfurca, petiole of the radial and cubital cell, Basal-Stück oder Stiel der zweiten Längsader, or Nebenrandader.
- V.2². Petiole of the 1st submarginal cell.
- V.3. Cubital vein. Dritte Längsader. Dritte Spitzenader.
- V.4¹. Præbrachial, externomedial, or discal vein. Vierte Längsader or Mittelader.
- V.4.a a. Upper branch of the 1st externomedial vein. Erste der aus der Discoidalzelle entspringenden Adern. Vorderast der zweiten Spitzenader.
- V.4.a b. Lower branch of the 1st externomedial vein. Zweite der aus der Discoidalzelle entspringenden Adern. Hinterast der zweiten Spitzenader.
- V.4.b a. 2nd externomedial vein. Erste Spitzenader.
- V.4.b b. 3rd externomedial vein. Vorderster Theil der vierten Längsader.
- V.5¹. Pobrachial, internomedial, or postical vein. Fünfte Längsader, or Hinterader.
- V.6. Anal vein. Sechste, Anal-, or Achsel-Ader.
- V.7. Axillary vein. Siebente, Axillar-, or After-Ader.

CROSS VEINS.

- X.1.a. Humeral vein. Humeral or basal cross-vein. Wurzelquerader.
- X.1.b. Subcostal, or mediastinal cross-vein. Die die beiden Aeste der ersten Längsader verbindende Querader. Hinterer Quernerv der zweiten Längsader.
- X.2. Marginal or stigmatical cross-vein. Die Randzelle theilende Querader. Hinterer Quernerv der dritten Längsader.
- X.4 or X. Ordinary transverse vein. Discal, middle, or central cross-vein. Kleine, or gewöhnliche Querader. Quernerv vor der Mittelzelle.
- X.5¹. Lower or small cross-vein. Die die hintere Basalzelle vorn begrenzende Querader.
- X.5². Second transverse vein. Postical, great, or lower marginal cross-vein. Hintere Querader. Grosser Quernerv.
- X.6. Anal cross-vein.

CELLS.

- O.1. Costal cell. Vorderrandzelle.
 O.1.a¹. Humeral cell. Basal costal cell. Wurzelzelle.
 O.1.a². Second costal cell. Erste Vorderrandzelle.
 O.1.b. Subcostal cell. Zweite Vorderrandzelle.
 O.2. Radial or marginal cell. Randzelle. Nebenrandzelle.
 O.2¹. Innere Randmalzelle.
 O.2². Siebente Spitzenzelle.
 O.2.a. First radial area. Erste Randzelle.
 O.2.b. First submarginal cell. Second radial area. Zweite Randzelle.
 O.3. Cubital, submarginal, or second submarginal cell. Unterrandzelle, or sechste Spitzenzelle.
 O.4¹. Præbrachial, upper (or 1st) basal (or radial) cell. Vordere Basalzelle. Vordere Scheibenzelle. Schulterzelle.
 O.4². First-posterior, or subapical cell. Erste Hinderrandzelle. Fünfte Spitzenzelle. Obere Scheibenzelle.
 O.4.b or O. Discal cell. Discal externomedial areolet. Discoidalzelle. Mittelzelle.
 O.4.a b. Second posterior cell. First externomedial areolet. Zweite Hinterrand-, vierte Spitzen-, mittlere Scheiben-Zelle.
 O.4.b a. Third posterior cell. Second externomedial. Dritte Hinterrand-, dritte Spitzen-, untere Scheiben-Zelle.
 O.4.b b. Fourth posterior cell. Third externomedial areolet. Vierte Hinterrand-, zweite Spitzen-Zelle. Hinterzelle
 O.5¹. Pobrachial cell. Hintere Basalzelle.
 O.5² or O. Discal or second posterior cell. Discoidalzelle.
 O.5³. Second to fifth* posterior or externomedial cell. Erste bis fünfte* Hinterrandzelle. Erste Spitzenzelle.
 O.6. Anal cell. Analzelle. Vordere Strahlzelle. Achselzelle.
 O.6¹. Anal cell. Analzelle.
 O.6². Third posterior cell. Zweite Hinterrandzelle.
 O.7. Axillary cell. Axillarzelle. Hintere Strahlzelle.
 O.8. Subaxillary area. Lappenzelle. Achselzelle.

Unnecessary difficulty is caused by this confusion of nomenclature.

* It depends on the branching of the 4th vein whether the external cell resting on the last section of the 5th vein is the 2nd, 3rd, 4th, or 5th.

INDEX TO TERMS.

The numbers refer to the paragraph and section, &c., in description of Fly Chart :—

Abdomen	D.	Dorsum	B.I.
Acrostichal	B.I.5.	Edge of eye	A.III.7.
Alar frenum	B.I.3.	Empodium	C.I.11.
Alar region	B.I.2.	Epistome	A.VIII.1.
Alula	C.II.8.	Eye margin	A.III.7. and A.VI.
Anal vein	V.6.	Face	A.V.
Antennæ	A.IV.	Facial bristles	A.V.2.
Anterior legs	C.I.	Facialium	A.V.1.
Anus	D.2.	Flagellum	A.IV.2.
Apex	C.I.12.	Femora	C.I.3.
Apical region	C.II.3.	Forceps	D.3.
Appendix	C.II.5.	Frons	A.III.
Areolet	C.II.6.	Frontal bristles	A.III.4.
Arista	A.IV.6.	Frontal lunule	A.III.3.
Auxiliary vein	V.1.a.	Frontal orbits	A.III.2.
Axillary vein	V.7.	Fronto-orbital bristles	A.III.5.
Axillary lobe	C.II.8.	Frontal stripe	A.III.1.
Band	F.	Genæ	A.VI.
Basal region of wing	C.II.3.	Genal orbit	A.VI.
Breast	B.III.	Genitalia	D.3.
Bristle	E.	Hair	E.
C =Costa	C.II.4.	Halteres	C.III.
Calcar	E.	Hang vein	C.II.5.
Calyptra	C.IV.	Humerus	B.I.2.
Cell	C.II.6.	Humeral bristle	B.I.6.
Chætotaxy	B.I.4.	Hypopleura	B.III.6.
Cheek	A.VI.	Hypopygium	D.3.
Ciliated	C.II.4.	Intra-humeral bristle	B.I.8.
Combed	A.IV.6.	Intra-alar bristles	B.I.10.
Costa	C.II.4.	Jowls	A.VII.
Coxa	C.I.1.	Knees	C.I.10.
Cubital vein	V.3.	Lamellæ	D.3.
Discal abdominal bristles	D.5.	Lower fronto-orbital bristles	A.III.6.
Discal cell	C.II.6.	Macrochætæ	B.I.4.
Distal	C.I.12.	Margin of the eye	A.III.7. & A.VI.
Dorsal arista	A.IV.6.	Mediastinal	V.1.a.
Dorsal suture	B.I.2.	Mesopleura	B.III.2.
Dorsopleural suture	B.I.1.		

Mesopleural suture	B.III.2.	Radial vein	V.2.
Metanotum	B.IV.	Scutellum	B.I.1.
Metapleura	B.III.4.	Scutellar bridge	B.I.1. & 3.
Metatarsus	C.I.5.	Scutellar bristles	B.I.1.
Mystax	A.V.3.	Scutellar suture	B.I.1.
○=Cell or Areolet of the wing		Segments	D.1.
	C.II.6.	Seta	A.IV.6.
Occiput	A.IX.	Setæ	E.
Ocelli	A.I.2.	Setula	C.II.4.
Ocellar bristles	A.I.6.	Shoulders	B.I.2.
Ocellar triangle	A.I.1.	Spine	E.
Onychia	C.I.11.	Spined costa	C.II.4.
Orbit	A.I.7, A.III.2, A.VI, A.IX.	Spur	E.
Ovipositor	D.3.	Squamæ	C.IV.
Palpi	A.VIII.4.	Sternopleura	B.III.5.
Pennis	D.3.	Sternopleural suture	B.III.2.
Peristome	A.VIII.1.	Sternum	B.III.
Pleuræ	B.II.	Stigma of pleura	B.III.2.
Plumose	A.IV.6.	Stigma of wing	C.II.7.
Pobrachial vein	V.5.	Stigmatical bristle	B.III.2.
Post-alar calli	B.I.3.	Stripe	F.
Posterior legs	C.I.	Subcostal vein	V.1.
Posterior orbits	A.IX.	Supra-alar bristles	B.I.9.
Posthumeral bristles	B.I.7.	Style	A.IV.6.
Posthumeral region	B.I.2.	Tarsi	C.I.5-9.
Postorbital bristles	A.IX.	Tibiæ	C.I.4.
Postsutural bristles	B.I.5.	Thorax	B.
Postsutural region	B.I.2.	Thorn	E.
Postvertical bristles	A.I.5.	Tomentum	E.
Præbrachial vein	V.4 ¹	Trochanter	C.I.2.
Præfurca	V.2 ¹	Unguicula	C.I.11.
Præscutellar bristles	B.I.5.	V =Longitudinal vein of the	
Præsutural bristle	B.I.8.	wing	C.II.4.
Præsutural bristles	B.I.5.	Vagina	D.3.
Præsutural region	B.I.2.	Vena spuria	C.II.4.
Prothorax	B.III.1.	Ventral	D.4.
Prothoracic bristle	B.III.1.	Vertex	A.I.
Prothoracic suture	B.III.1.	Vertical bristles	A.I.4.
Proboscis	A.VIII.3.	Vertical orbit	A.I.7.
Pteropleura	B.III.3.	Vertical triangle	A.I.3.
Pubescence	E.	Vibrissæ	A.VIII.2.
Pubescent	A.IV.6.	X =Cross-vein of the wing	C.II.5
Pulvilli	C.I.11.		

ANALYTICAL TABLE OF FAMILIES.

Verrall's list of British Diptera begins with 30 species of *Pulicidæ* (Fleas), of which I take no account. (For numbering see page 6).

1 (141). Body not horny, head free, proboscis and palpi present, claws moderate. Perfect insect not parasitic on warm blooded animals.

*1½ (52½). Frontal lunule absent.

ORTHORRHAPHA.

Flies which escape through a T-shaped opening in the back of the larval skin (VI. 38). Pupa indicating the outlines of the imago (VI. 39). Adults without a frontal lunule.

2 (25). Antennæ many jointed and generally long (Plate II.).

NEMATOCERA.

3 (4). Vein-endings, counting round the margin of the wing, not more than six (IV. 1, 2, 3).

CECIDOMYIDÆ (II.)

4 (3). Vein-endings, counting round the margin of the wing, more than six.

5 (20). Thorax without any strong cross-seam (VI. 31).

6 (15). Costa ending at the apex of the wing (IV. 4-11).

7 (12). Ocelli present, three in a triangle, or in a line, or two lying on the inner edges of the eyes (VI. 1, and II. 4).

8 (9). O. (discal cell) present (IV. 16). RHYPHIDÆ (XIV.)

9 (8). O. absent (IV. 4-7).

10 (11). Antennæ long and rather slender (II. 3-6), or if short then the coxæ much elongated.

MYCETOPHILIDÆ (III.)

11 (10). Antennæ short and thick (II. 7, 8). Coxæ not elongated.

BIBIONIDÆ (IV.)

12 (7). Ocelli absent.

13 (14). Antennæ shorter than the thorax (II. 9). Wings very broad (IV. 8).

SIMULIDÆ (V.)

* The paragraphs with fractions may be disregarded, being inserted merely to indicate the Sub-orders.

- 14 (13). Antennæ longer than the thorax, plumed in the male
(II. 10, 11). Wings rather narrow (IV. 9-11).
CHIRONOMIDÆ (VI.)
- 15 (6). Costa continued round the hind margin (IV. 12-14).
- 16 (17). Wings, when at rest, roof-like. X-veins only present
at the base of the wing (IV. 12).
PSYCHODIDÆ (VIII.)
- 17 (16). Wings, when at rest, lying flat over the abdomen.
X-veins on the middle of the wing.
- 18 (19). Veins hairy (IV. 13). CULICIDÆ (IX.)
- 19 (18). Veins bare.
- 19a (19b). Antennæ long. V.4. and V.2. forked. X.4. ending
in V.2. (IV. 14). DIXIDÆ (X.)
- 19b (19a). Antennæ 11-jointed but very short. No veins
forked. ORNEPHELIDÆ (VII.)
- 20 (5). Thorax with a strong cross-seam (VI. 32).
- 21 (22). V.6. absent (IV. 15). PTYCHOPTERIDÆ (XI.)
- 22 (21). V.6. present.
- 23 (24). V.1.a. ending in the costa, and united to V.1.b. by a
X-vein (IV. 17-22). Last joint of the palpi usually
shorter than the one before it, and never whip-like
(VI. 4). LIMNOBIDÆ (XII.)
- 24 (23). V.1.a. ending in V.1.b., and, except for X.1.a. at its
base, not united by any X-vein, either with the
costa, or with V.1.b. (IV. 23-26). Last joint of
the palpi long and whip-like (VI. 5).
TIPULIDÆ (XIII.)
- 25 (2). Antennæ short, three-jointed, third joint sometimes
ringed (Plate III.).

BRACHYCERA.

- 26 (140). Wing veining normal. X-veins present.
- 27 (32). Third antennal joint ringed, arista, if present, apical
(III. 1-9).
- 28 (29). Costa ending at the apex of the wing (V. 1).
STRATIOMYIDÆ (XV.)

- 29 (28). Costa continued round the hind margin (V. 2).
- 30 (31). Squamæ very large. TABANIDÆ (XVI.)
- 31 (30). Squamæ very small.
XYLOPHAGUS, Mg. (XVII. 164).
- 32 (27). Third joint of antennæ not ringed (III. 10-55).
- 33 (55). Arista or style terminal or wanting (III. 10-26,
28-32, 35-40, 48).
- 34 (46). V.3. forked (V. 3-10, 13).
- 35 (45). O.6¹ long, extending to, or nearly to, the hind margin,
or entirely wanting (V. 3-9, 13).
- 36 (39). Empodium much enlarged, giving the appearance of
three foot-pads (VI, 9).
- 37 (38). Squamæ small, not covering the halteres, O.6¹ long
and distinct (V. 3). Long bodied flies, head of
normal proportions. LEPTIDÆ (XVII.)
- 38 (37). Squamæ very large, hiding the halteres, O.6¹ absent
(V. 13). Short round-bodied flies, with very small
heads. CYRTIDÆ (XXII.)
- 39 (36). Empodium small, only two foot-pads apparent (VI.
10, 11).
- 40 (41). Vertex hollowed out between the eyes (VI. 28).
ASILIDÆ (XVIII.)
- 41 (40). Vertex flat or raised, eyes not protruding.
- 42 (43) (44). V.4. ending in three branches at the margin,
between V.3. and V.5. (V. 6, 7).
BOMBYLIDÆ (XIX.)
- 43 (42) (44). V.4. ending in four branches at or near the
margin, between V.3. and V.5. (V. 8).
THEREVIDÆ (XX.)
- 44 (42) (43). V.4. ending in two branches at the margin,
between V.3. and V.5. (V. 9). Antennæ without
a style (III. 23). SCENOPINIDÆ (XXI.)
- 45 (35). O.6¹ short, not nearly reaching the hind margin
(V. 10). EMPIDÆ, part (XXIII.)
- 46 (34). V.3. not forked (V. 11, 12, 14-17).
- 47 (52). Alulæ absent or rudimentary.
- 48 (51). Apex of the wing rounded.

49 (50). X.4. placed near the middle of the wing, generally beyond X.5¹, at most only a little before it. V.5. with two X-veins, bounding a discal cell (V. 11); or if only one, then X.5. is placed before, or at most only a little beyond X.4. (V. 12).

EMPIDÆ, part (XXIII.)

50 (49). X.4. placed very near the base of the wing, V.5. with only one X-vein, which is placed far beyond X.4. No discal cell (V. 14, 15).

DOLICHOPODIDÆ, part (XXIV.)

51 (48). Apex of the wing pointed (V. 16).

LONCHOPTERIDÆ (XXV.)

52 (47). Alulæ present.

52½ (1½). Frontal lunule present (VII. 5).

CYCLORRHAPHA.

Flies which escape from the larval skin, through a circular orifice made by pushing off the head end of it (VI. 37). The pupæ form a close case. Adults with a frontal lunule.

52¾ (141). Proboscis and palpi present (rudimentary in *Æstridæ*).

PROBOSCIDEA.

53 (54). Antennæ with a long bristle (III. 39, 40).

PLATYPEZIDÆ (XXVI.)

54 (53). Antennæ with a short spine (III. 48).

CONOPIDÆ, part (XXIX.)

55 (33). Arista dorsal (III. 27, 33, 34, 41-47, 49-55).

56 (61). O.6¹ long, extending to, or nearly to, the hind margin (V. 18-21½). Abdomen without strong bristles (*macrochètæ*).

57 (60). Proboscis of moderate length, generally retracted (VI. 12-16).

58 (59). *Vena spuria* absent (V. 18). Eyes very large, filling the head. O.4² open. PIPUNCULIDÆ (XXVII.)

59 (58). *Vena spuria* present. Eyes moderate. O.4² closed. (V. 19-21). SYRPHIDÆ (XXVIII.)

- 50 (51). Proboscis projecting far in front, very thin and long, often double-kneed (VI. 27). No *vena spuria* (V. 21 $\frac{1}{2}$). CONOPIDÆ, part (XXIX.)
- 61 (56). O.6¹ short, not nearly reaching the margin, or absent. (V. 12, 22-39). Abdomen often with strong bristles.
- 62 (63). Proboscis and palpi rudimentary. CESTRIDÆ (XXX.)
- 63 (62). Proboscis and palpi distinctly present.
- 64 (67). X.5¹ absent, X.5² present, that is, only one X-vein on V.5., and that beyond X.4.
- 65 (66). X.4. placed very near to the base of the wing, X.5. far beyond X.4. (V. 14, 15).
DOLICHOPODIDÆ, part (XXIV.)
- 66 (65). X.4. placed more towards the middle of the wing, and nearer to X.5. (V. 12, 36, 37).
- 66a (66b). Proboscis directed straight downwards, pointed, of the perpendicular Empis type. STILPON (212)
- 66b (66a). Proboscis retracted, of the ordinary Muscid type. (Pass on to No. 108 of this table).
- 67 (64). X.5¹ present, that is, a X-vein on V.5. before, or under X.4.; or, no X-veins on V.5.
- 68 (69). No X-veins on V.5. PHYTOMYZIDÆ, part (LIV.)
- 69 (68). At least X.5¹ present, and generally also X.5².
- 70 (75). Squamæ distinctly present, though sometimes small.

MUSCIDÆ CALYPTERÆ.

- 71 (74). V.4. angled or bent towards V.3. (V. 24-29).
- 72 (73). Abdomen with strong bristles on the middle segments, in addition to finer hairs, or, if absent, then the arista is bare, or bare on the tip half (III. 49, 50).
TACHINIDÆ (XXXI.)
- 73 (72). Abdomen with no strong bristles (macrochætæ absent) on the middle segments, although often with rather strong hairs. Arista always plumed, or combed, to the tip (III. 51).
MUSCIDÆ (XXXII.)
- 74 (71). V.4. going straight, or nearly straight to the hind margin (V. 30). ANTHOMYIDÆ (XXXIII.)

(NOTE.—*Platystoma* (XLI.) has distinct squamæ but the wings are clouded and thickly dotted with clear spots).

75 (70). Squamæ absent or rudimentary.

MUSCIDÆ ACALYPTERÆ.

76 (105). V.1.a. distinctly present, and nearly as thick as V.1.b., which latter generally ends in the fore margin at or beyond the middle of the wing (V. 31, 32, 34).

77 (84). Vibrissæ or mouth bristles present, that is one or two bristles much longer and stronger than the hairs that may be present (VII. 2).

78 (79). V.4⁴ four or five times as long as V.4³, that is X.5² very much nearer to X.4. than to the wing margin, measuring along V.4.

HETERONEURIDÆ (XXXVII.)

79 (78). V.4⁴ about equal to V.4³, or only a little longer.

80 (81). Costa with a row of distinct spines, in addition to the ciliation (VII. 14). HELOMYZIDÆ (XXXVI.)

81 (80). Costa without a row of spines, only ciliated.

82 (83). Fronto-orbital bristles present; if absent, then body never shining black. CORDYLURIDÆ (XXXIV.)

83 (82). Fronto-orbital bristles absent, body always shining black. SEPSIDÆ, part (XLVI.)

84 (77). Vibrissæ absent, mouth at most with short hairs, but often bare, or if the hairs are strong then they are all about the same length and strength (VII. 1, 3, 4.)

85 (88). Antennæ very long and horizontal, second joint as long, or longer than the third, the upper edge of which is concave (III. 54 & VII. 1).

86 (87). Profile not triangular, the face being perpendicular, or only slightly retreating.

SCIOMYZIDÆ, part (XXXVIII.)

87 (86). Profile triangular, the face retreating almost horizontally (VII. 1). ORTALIDÆ, part (XLI.)

88 (85). Antennæ not long, or, if long, drooping, not horizontal, second joint always shorter than the third, the upper edge of which is straight or convex.

89 (90). Brown or black shore flies, with flat horny thorax, and with strong mouth hairs.

PHYCODROMIDÆ (XXXV.)

90 (89). Otherwise than 89.

91 (94). O.5¹ and O.6¹ very small and indistinct.

92 (93). Only one fronto-orbital bristle on each side, tibiæ without the præapical bristle.

LONCHÆIDÆ (XLIII.)

93 (92). More than one fronto-orbital bristle on each side, the præapical bristle present on at least some of the tibiæ.

SAPROMYZIDÆ (XLIV.)

94 (91). O.5¹ and O.6¹ fairly large and quite distinct.

95 (96). Hind tibiæ with a præapical bristle.

SCIOMYZIDÆ, part (XXXVIII.)

96 (95). Hind tibiæ without the præapical bristle.

97 (98). Lower fronto-orbital bristles present and close to the eye. V.1.a. sharply bent up at its end (V. 34). (Usually the wings are spotted or latticed, and the females have the ovipositor protruding).

TRYPETIDÆ (XLII.)

98 (97). Lower fronto-orbital bristles absent. V.1.a. gently bent towards the costa.

99 (104). Legs long, abdomen narrow and long, contracted at the base.

100 (103). V.4. straight or nearly so. Shining black species.

101 (102). V.6. reaching to the wing margin. Abdomen narrow, more than twice as long as the thorax.

PSILIDÆ, part (XXXIX.)

102 (101). V.6. not nearly reaching the margin. Abdomen rather broad and only slightly longer than the thorax.

SEPSIDÆ, part (XLVI.)

103 (100). V.4. much bent towards V.3. Brown species.

CALOBATA, Mg. (536)

104 (99). Legs normal, abdomen comparatively short and broad, never contracted at the base.

ORTALIDÆ, part (XLI.)

105 (76). V.1.a. absent or only rudimentary, and much thinner than V.1.b., which latter, as a rule, ends before the middle of the fore margin, and often very near the base.

- 106 (107). Hind metatarsus thickened, and shorter than the next joint. BORBORIDÆ (LVI.)
- 107 (106). Hind metatarsus longer than the next joint, and not thicker than it.
- 108 (115). X.5¹ absent, X.5² present, that is only one X-vein on V.5., and that placed beyond X.4. (V. 36).
- 109 (110). Legs long and thin, abdomen very long.
MICROPEZA, Mg. (535)
- 110 (109). Legs short and strong, abdomen oval or elliptical.
- 111 (112). Lower fronto-orbital bristles absent. Third joint of the antennæ round, or if lengthened then the head in profile is triangular. CHLOROPIDÆ (LI.)
- 112 (111). Lower fronto-orbital bristles present. Third joint of the antennæ generally long or oval, the head in profile never triangular.
- 113 (114). Head square, face strongly convex (VII. 21). O.6¹ absent, not orange coloured species.
EPHYDRIDÆ (XLIX.)
- 114 (113). Head round or semicircular, face not arched (VII. 19). O.6¹ present, or if absent then the species orange coloured. DROSOPHILIDÆ (L.)
- 115 (108). X.5¹ present, or if absent then X.5² also absent, that is, two X-veins or no X-vein on V.5. (V. 33, 38).
- 116 (117). Scutellum in the male extraordinarily long and squared off behind. Costa thickened from the end of V.1. to the wing tip.
501. THYREPHORA, Mg. (2245. *furcata*, F.)
- 117 (116). Scutellum usually short, and somewhat triangular. Costa normal.
- 118 (133). Mouth bristles present.
- 119 (122). Fronto-orbital bristles absent.
- 120 (121). Wings without a black spot near the tip.
PIOPHILIDÆ (XLVII.)
- 121 (120). Wings with a black spot near the tip.
SEPSIDÆ, part (XLVI.)
- 122 (119). Fronto-orbital bristles present.

- 123 (128). X.5² placed before the middle of the wing, the two X-veins, X.4. and X.5² very near to the base of the wing, and exceedingly near to one another; or, no X-vein on V.5.
- 124 (127). X.5² immediately under X.4., or nearer to the base of the wing; or, X.5¹ and X.5² both absent (V. 38).
- 125 (126). Arista bare or nearly so. PHYTOMYZIDÆ (LIV.)
- 126 (125). Arista with long hairs on one side. ASTIADÆ (LV.)
- 127 (124). X.5² always present, and placed further from the base of the wing than X.4.
AGROMYZIDÆ, part (LIII.)
- 128 (123). X.5² at or beyond the middle of the wing; X.4. and X.5² neither very near to the wing base nor to one another.
- 129 (130). The arista bare. Body short and broad.
MILICHIDÆ (LII.)
- 130 (129). The arista plumose, combed, or distinctly pubescent, or, if bare, then the body always narrow and long.
- 131 (132). Arista thinly but long haired, plumose or combed.
DROSOPHILIDÆ (L.)
- 132 (131). Arista thickly and short haired, pubescent, or bare,
GEOMYZIDÆ (XLVIII.)
- 133 (118). Mouth bristles absent.
- 134 (137). O.5¹ and O.6¹ large and very prominent.
- 135 (136). Antennæ moderately long or very long, male genitalia not prominent. PSILIDÆ, part (XXXIX.)
- 136 (135). Antennæ short, male genitalia prominent, club-shaped. **580.** TETANURA, Fln.
(2522. *pallidiventris*, Fln.)
- 137 (134). O.5¹ and O.6¹ small and not very prominent.
- 138 (139). Light grey or silvery species.
AGROMYZIDÆ, part (LIII.)
- 139 (138). Orange or brownish-red species.
OPOMYZIDÆ, part (XLV.)
- 140 (26). Wings with two short very thick veins in the upper basal region from which spring a few very fine unbranched veins. X-veins apparently absent (V. 35). PHORIDÆ (LVII.)

- 141 (1) ($52\frac{3}{4}$). Body of a horny or leathery nature, head sunk into a hollow in the thorax (VI. 35). No proper proboscis or palpi. Claws very large (VI. 36). Perfect insect parasitic on warm blooded animals.

EPROBOSCIDEA.

- 142 (145). Head fairly large, inserted in a hollow in the thorax; sometimes without wings. Parasitic on birds, mammalia, and bees.
- 143 (144). Eyes, ocelli, scutellum, halteres, and wings all absent. Last tarsal joint combed with bristles.

BRAULIDÆ (LIX.)

Only one species (2882. *Braula caeca*, Nitz.), found in beehives.

- 144 (143). Eyes and scutellum present, last tarsal joint with well developed claws. HIPPOBOSCIDÆ (LVIII.)

- 145 (142). Head small, when at rest thrown back upon the dorsum. Always wingless. Parasitic on bats.

NYCTERIBIDÆ (LX.)

ANALYTICAL TABLES OF GENERA AND SPECIES
WITH LISTS OF LOCAL SPECIES.

ORDER.—DIPTERA.

Insects with one pair of wings, and one pair of halteres in place of hind wings, 5-jointed tarsi, and mouth adapted for sucking, proboscis not spirally coiled.

SUB-ORDER I.—ORTHORRHAPHA.

Flies with mummy-pupæ.

SECTION I.—NEMATOCERA.

FAMILY I.—PULICIDÆ (The Fleas).

Verrall lists thirty British species of Fleas. I know nothing about them.

FAMILY II.—CECIDOMYIDÆ (The Gall Gnats).

I have not attempted these difficult little flies, whose study involves minute microscopical work. They have not been worked in Britain to any extent, and await the advent of some young, clear-sighted, patient entomologist. The larvæ live mostly in galls and other plant malformations. The flies are very hard to identify in the dry state.

FAMILY III.—MYCETOPHILIDÆ (The Fungus Gnats).

The larvæ live mostly in fungi and other vegetable matter.

I have scarcely touched this family, and can only give a short list of the few species I have been able to identify. But I subjoin a table of the most of the British genera, taken from Schiner.

NOTE.—It must be borne in mind that in the wings of many Mycetophilidæ, and in other families also, according to Schiner's system, which is here followed, the base of V.3. is short and thick, looking like a X-vein, and that X.4. often looks like the base of V.3., and is in a line with it: see Plate IV. 4, where X is X.4., and the short X-vein beyond is considered as V.3¹.

- 1 (8). Coxæ moderately long.

Sub-Family SCIARINÆ.

- 2 (3). Wings and halteres wanting. **23.** EPIDAPUS, Hat.
 3 (2). Wings and halteres distinctly present.
 4 (5). Wings small, shorter than the body. **22.** BRADYSIA, Winn.
 5 (4). Wings longer than the body.
 6 (7). Antennæ with round, long stalked, and thickly verticillate flagellar joints. **24.** ZYGONEURA, Mg.
 7 (6). Antennæ with roundish or longish flagellar joints, which are not stalked, and only slightly hairy (II. 3). **20.** SCIARA, Mg.
 8 (1). Coxæ very much lengthened.
 9 (26). V.4. branching from V.5. far beyond the base of the wing, near the middle.
 10 (11). V.3. not forked.

Sub-Family DIADOCIDINÆ.

- 63.** DIADOCIDIA, Ruthé.
 11 (10). V.3. forked in front, the upper branch sometimes looking like a X-vein.
 12 (17). V.3.a. very long.

Sub-Family MYCETOBINÆ.

- 13 (14). V.3. forking just at X.4. **60.** MYCETOBIA, Mg.
 14 (13). V.3. forking a little beyond X.4.
 15 (16). The fork of V.3. longer than the fork of V.4. **61.** DITOMYIA, Winn.
 16 (15). The fork of V.3. shorter than the fork of V.4. **62.** PLESIASTINA, Winn.
 17 (12). V.3.a. short (IV. 6), and sometimes so much at right angles with V.3. as to appear as a X.3.
 18 (19). X.4. distinctly apparent.

Sub-Family BOLITOPHILINÆ.

- 59.** BOLITOPHILA, Mg.
 19 (18). X.4. apparently absent, as V.4. coalesces for some distance with V.3., so that the end of V.4. looks like a forked branch of V.3. (IV. 6).

III.

20 (21). Antennæ usually long and thin, filiform (II. 6).

Sub-Family MACROCERINÆ.

58. MACROCERA, Pz.

21 (20). Antennæ rather short, and usually rather thick and plump.

Sub-Family CEROPLATINÆ.

22 (23). Proboscis very long, beaklike. **55.** ASINDULUM, Ltr.

23 (22). Proboscis not lengthened into a beak.

24 (25). Antennæ dilated, palpi not bent together.

57. CEROPLATUS, Bosc.

25 (24). Antennæ not dilated, palpi bent together.

56. PLATYURA, Mg.

26 (9). V.4. branching from V.5. quite close to the base of the wing.

27 (38). V.3. forked, the upper branch usually almost at right angles, looking like a X.3., enclosing a small cell.

Sub-Family SCIOPHILINÆ.

28 (29). X.4. like the base of V.3., and more than twice as long as V.3¹, which latter and V.3.a. both look like small parallel X-veins enclosing a small rectangular cell. **51.** TETRAGONEURA, Winn.

29 (28). X.4. not like the base of V.3., not in line with V.3., and at most only slightly longer than V.3¹. V.3¹ and V.3.a. not parallel.

30 (31). Costa reaching only to the end of V.3.

54. SCIOPHILA, Mg.

31 (30). Costa always reaching somewhat beyond, and often much beyond, the end of V.3.

32 (33). V.4. forking close to X.4., V.4² therefore very short.

52. LASIOSOMA, Winn.

33 (32). V.4. forking far beyond X.4., V.4² therefore very long.

34 (35). V.5. forking below, or before X.4. V.3. always straight. **50.** EMPHERIA, Winn.

35 (34). V.5. forking far beyond X.4. V.3. sometimes looped or bent.

- 36 (37). V.1.a. incomplete, or if complete ending in the costa beyond the little cell, O.3¹. 49. POLYLEPTA, Winn.
- 37 (36). V.1.a. always complete and ending in the costa always above or before the little cell, O.3¹. 48. EMPALIA, Winn.
- 38 (27). V.3. not forked (IV. 5).

Sub-Family MYCETOPHILINÆ.

- 39 (80). Three ocelli present.
- 40 (61). Costa reaching beyond the end of V.3.
- 41 (44). V.5. not forked.
- 42 (43). V.4. not forked, X.4. long, and in a line with V.3., as if its base. 39. AZANA, Wlk.
- 43 (42). V.4. forked, X.4. only a little longer, or as long as V.3¹. 49. ACNEMIA, Winn.
- 44 (41). V.5. forked.
- 45 (56). Base of the fork of V.5. before or under the base of the fork of V.4.
- 46 (53). V.1.a. and V.1.b. united by a X-vein.
- 47 (48). The ocelli about equally large; V.1.a. broken off at X.1.b. (SYNTEMNA, Winn.)
- 48 (47). Ocelli of unequal size; V.1.a. not broken off, but ending in the costa.
- 49 (50). X.4. of the same length as V.3¹. 45. ANACLINIA, Winn.
- 50 (49). X.4. twice as long, or at least distinctly longer than V.3¹.
- 51 (52). Costa reaching far or very far beyond the end of V.3. 46. BOLETINA, Stæg.
- 52 (51). Costa reaching very little beyond the end of V.3. 47. LEPTOMORPHUS, Curt.
- 53 (46). No X-vein between V.1.a. and V.1.b.
- 54 (55). Tip of O.4¹ reaching beyond the middle of the wing; the base of V.4.a. and of V.5.a. invisible. 44. LEIA, Mg.
- 55 (54). O.4¹ moderately long and always ending before the middle of the wing, the base of V.4.a. and of V.5.a. distinct. 34. DOCOSIA, Winn.

III.

- 56 (45). Base of the fork of V.5. distinctly beyond the base of the fork of V.4.
- 57 (58). V.1.a. as long or nearly as long as O.4¹.
41. CÆLOSIA, Winn.
- 58 (57). V.1.a. very short and scarcely the eighth of the length of O.4¹.
- 59 (60). Costa reaching far beyond the end of V.3.
35. ANATELLA, Winn.
- 60 (59). Costa reaching very little beyond the end of V.3.
36. PHRONIA, Winn.
- 61 (40). Costa reaching only to the end of V.3.
- 62 (65). V.5. not forked.
- 63 (64). V.3. close to V.1., curved, and running nearly parallel with the costa.
37. SCEPTONIA, Winn.
- 64 (63). V.3. rather distant from V.1., and not parallel with the costa.
38. ZYGOMYIA, Winn.
- 65 (62). V.5. forked.
- 66 (67). V.1.a. very long, and always ending in the costa.
43. GLAPHYROPTERA, Winn.
- 67 (66). V.1.a. very short, or if longer then always ending in V.1.b., and not in the costa.
- 68 (75). V.5. forking before or under X.4., and always nearer to the root of the wing than the base of the fork of V.4.
- 69 (70). V.1.a. reaching beyond the middle of O.4¹.
28. TRICHONTA, Winn.
- 70 (69). V.1.a. never reaching to the middle of O.4¹, often rudimentary.
- 71 (72). Base of O.5.b. very acute; V.5.b. from its middle suddenly diverging from V.5.a.
29. RHYMOSIA, Winn.
- 72 (71). Base of O.5.b. not very acute; V.5.b. diverging gradually.
- 73 (74). V.7. short but distinct.
31. ALLODIA, Winn.
- 74 (73). V.7. entirely wanting.
33. BRACHYCAMPTA, Winn.
- 75 (68). V.5. forking beyond X.4., and always nearer the margin of the wing than the base of the fork of V.4.

- 76 (77). V.5.a. and V.5.b. converging at their ends.
32. MYCOTHERA, Winn.
- 77 (76). V.5.a. and V.5.b. diverging at their ends.
- 78 (79). V.4. forking before the end of O.4¹; X.4. longer than V.3¹.
30. EXECHIA, Winn.
- 79 (78). V.4. forking beyond the end of O.4¹; X.4. shorter than V.3¹.
36. PHRONIA, Winn.
- 80 (39). Only two ocelli present (VI. 1).
- 81 (82). V.1.a. incomplete; forks of V.4. and V.5. about the same length.
27. MYCETOPHILA, Mg.
- 82 (81). V.1.a. bending down into V.1.b. in front; forks of V.4. and V.5. of unequal length.
- 83 (84). V.1.a² forming an equal-pronged fork with X.1.a.; V.4.b. often not reaching the margin.
25. CORDYLA, Mg.
- 84 (83). V.1.a² longer than X.1.a.; V.4.b. always reaching the margin.
26. DYNATOSOMA, Winn.

LIST OF THE FEW LOCAL SPECIES IN THE MUSEUM.

NOTE.—In the notes of local species ♂ stands for male, ♀ for female. In the Museum collection the males are placed in the left hand row, the females in the right hand one.

27. MYCETOPHILA, Mg.

180. *Mycetophila punctata*, Mg.
 Common.

195. *Mycetophila cingulum*, Mg.
 Bishop Auckland, 2 ♀, October-November, 1901.

43. GLAPHYROPTERA, Winn.

256. *Glaphyroptera fascipennis*, Mg.
 Bishop Auckland, 1 ♀, September, 1900.

52. LASIOSOMA, Winn.

289. *Lasiosoma hirtum*, Mg.
 Bishop Auckland, 2 ♂, May, 1900.

III. 54.

54. SCIOPHILA, Mg.

309. *Sciophila ornata*, Mg.
Shull, 1 ♀, September, 1900.

58. MACROCERA, Pz.

334. *Macrocera fasciata*, Mg.
Gibside, 1 ♀. Bishop Auckland, 1 ♀, July, 1900.
341. *Macrocera stigma*.
Harperley, 1 ♂, June, 1903.

59. BOLITOPHILA, Mg.

344. *Bolitophila fusca*, Mg.
Stanhope, 1 ♀, May, 1900.
346. *Bolitophila cinerea*, Mg.
Bishop Auckland, 1 ♂, 1 ♀, May, 1900. Harperley,
1 ♂, June, 1900.

FAMILY IV.—BIBIONIDÆ.

The members of this family, many of which are of a good size, are mostly black, or black and yellow. No one can fail to find several species along the banks of our streams or in damp woods from May till September. Larvæ phytophagous, on living plants, rotting vegetable matter, dung, &c.

TABLE OF GENERA.

- | | | |
|---|---|-----------------------|
| 1 | (2). O.5. open, X.5. absent | SCATOPSE, Geoff. (65) |
| 2 | (1). X.5. present, closing O.5 ¹ (IV. 7). | |
| 3 | (4). Fore tibiæ ending in a crown of thorns (VI. 2). | |
| | | DILOPHUS, Mg. (67) |
| 4 | (3). Fore tibiæ ending in a strong beak-like process (VI. 3). | BIBIO, Geoff. (68) |

TABLES OF SPECIES.

65. SCATOPSE, Geoff.

The larvæ live on vegetable matter and in dung.

- | | | |
|---|--|--------------------------------|
| 1 | (4). Base of V.4.a. widely awanting. | |
| 2 | (3). O.1. very broad, V.3. bent upwards. | (366. <i>inermis</i> , Ruthé.) |

IV. 67.

- 4 (1). Legs partly yellow.
5 (6). Dorsum entirely black.

Dilophus femoratus, Mg.

Bishop Auckland, 1 ♀; Evenwood, 1 ♀, June, 1897.

This is new to the British list.

- 6 (5). Dorsum black with yellow shoulders.

379. *Dilophus humeralis*, Mg.

Howick, Northumberland, 1 ♀, August, 1905.

68. BIBIO, Geoff.

Larvæ live in earth, dung, and rotting vegetable matter.

- 1 (6). V.3¹ much, or at least distinctly longer than X.4.
(IV. 7.)

- 2 (3). Legs black with orange femora.

380. *Bibio pomonæ*, F.

Shull, 2 ♂, September, 1900; Wearhead, 3 ♂,

August, 1901; Harperley, 1 ♀, July, 1900. I

have also picked it up on the coast washed up
by the waves.

- 3 (2). Legs entirely black.

- 4 (5). Thorax and abdomen entirely black, and black-haired
throughout.

381. *Bibio marci*, L.

Common, especially along the willow-bordered banks
of streams.

- 5 (4). Dorsum and abdomen orange, or, if black, then the
pleuræ and abdomen pale-haired.

(383. *hortulanus*, L.)

- 6 (1). V.3¹ shorter, or at most as long as X.4.

- 7 (18). Stigma prominent and sharply bounded.

- 8 (13). Veins of the hind region almost as thick and dark as
those of the front.

- 9 (10). Hind metatarsus thin, and at least twice as long as
the second tarsal joint. (386. *venosus*, Mg.)

- 10 (9). Hind metatarsus somewhat swollen, and never much
longer than the next joint.

- 11 (12). Male thorax pale-haired. Female abdomen black above, orange beneath. (387. *reticulatus*, Lw.)
- 12 (11). Male thorax black haired. Female abdomen all black. (388. *nigriventris*, Hal.)
- 13 (8). Veins of the hind region much fainter than those of the front.
- 14 (15). Legs black, male wings milky white.
(382. *leucopterus*, Mg.)
- 15 (14). Legs all, or partly, orange or pale brown, or if male with legs nearly black, then wings brownish.
- 16 (17). Hind metatarsus very plump, stigma very prominent. Black haired.
391. *Bibio johannis*, L.
Common. Witton, Escomb, Belburn, Gibsonees, Harperley, Hesleden.
- 17 (16). Hind metatarsus rather slender, stigma less prominent.
(389. *varipes*, Mg.)
- 18 (7). Stigma faint, neither prominent nor sharply bounded.
- 19 (20). Hind legs very thin and long, femora and tibiæ thin at the base, becoming suddenly much thickened from the middle on—club-shaped.
(394. *clavipes*, Mg.)
- 20 (19). Hind legs neither very thin nor long, femora and tibiæ gradually thickening from base to tip.
- 21 (24). Legs black.
- 22 (23). Thorax black haired. (389. *varipes*, Mg. ♂)
- 23 (22). Thorax pale haired. (385. *ferruginatus*, L.)
- 24 (21). Legs partly or wholly orange.
- 25 (26). Abdomen black on both sides. Pale haired.
390. *Bibio laniger*, Mg.
Common, with *johannis*, from which its pale hair and faint stigma distinguishes it. Belburn, Shull, Harperley, Escomb.
- 26 (25). Abdomen dark above, orange beneath.
- 27 (28). Legs all yellow. (389. *varipes*, Mg. ♀)
- 28 (27). Legs mostly black. (385. *ferruginatus*, L. ♀)

FAMILY V.—SIMULIDÆ.

69. SIMULIUM, Ltr.

Larvæ live in running streams attached to stones or stems.

TABLE OF SPECIES.

Males.—Eyes touching.

- 1 (6). Thorax distinctly silvered in front, which is not hidden by gold tomentum.
- 2 (3). Silver edging very broad, and only narrowly broken in the middle. (395. *ornatum*, Mg.)
- 3 (2). Silver edging moderately broad and widely broken in the middle.
- 4 (5). Hind tibiæ white only at the very base. Hind metatarsi all dark. Large species. 2–3 mm.
reptans, L. (396)
- 5 (4). Hind tibiæ white to the middle, base of hind metatarsi white. Small species. 1–1½ mm.
(399. *nanum*, Ztt.)
- 6 (1). Thorax not silvered, or silvering hidden by gold tomentum.
- 7 (8). Thorax with thick short golden hair in front. Large species. 2–3 mm. *latipes*, Mg. (398)
- 8 (7). Thorax with only scattered gold hairs here and there. Small species. 1–1½ mm. (397. *maculatum*, Mg.)

Females.—Eyes remote.

- 1 (8). Brownish or grey species.
- 2 (3). Thorax with three dark stripes, small species.
(397. *maculatum*, Mg.)
- 3 (2). Thorax unstriped.
- 4 (5). Small species. 1½ mm. (399. *nanum*, Ztt.)
- 5 (4). Large species. 2–2½ mm.
- 6 (7). Base of the wing yellowish. Front edge of the thorax very distinctly whitish grey. (395. *ornatum*)
- 7 (6). Base of the wing not yellowish. Front edge of the thorax only slightly whitish grey.

396. *Simulium reptans*, L.

This is the common species, and the only one that

I have seen in numbers. The females swarmed at Hesleden, April, 1901, and are generally too abundant. Prof. Miall gives a most interesting account of their life history in his "Aquatic Insects."

8 (1). Thorax black or dark grey.

398. *Simulium latipes*, Mg.

Bishop Auckland, 1 ♂, November, 1900; 1 ♀, May, 1902.

FAMILY VI.—CHIRONOMIDÆ.

I have not paid much attention to this very large and difficult Family. I give the following tables containing a large number of the British species, extracted chiefly from Schiner and Zetterstedt, in the hope that it may prove helpful to some beginner. Some of my identifications of local species are only approximate, but they are as near as I can come at present. The larvæ live in water, some in earth or dung.

TABLE OF GENERA.

1 (2). Wings club-shaped, very narrow at the base, and gradually widening. Very small, 1 mm., black species.

70. CORYNONEURA, Winn.
(400. *minuta*, Winn.)

2 (1). Wings not club-shaped, the anal or hind basal angle of the wing being well developed, and often almost a right angle.

3 (4). Proboscis and palpi rudimentary.

81. CLUNIO, Hal.

532. *Clunio marinus*, Hal.

The ♂'s were common on rock pools at Beadnell, Northumberland, in June, 1905.

4 (3). Proboscis distinctly present, palpi four-jointed.

5 (24). Dorsum, viewed sideways, much arched, and usually overhanging in front; legs long and thin, especially the fore legs; V.3. never forked; the long-haired male antennæ plume-shaped (II. 10).

VI.

- 6 (21). X.5. absent (IV. 10).
- 7 (8). Fourth tarsal joint heart-shaped and short.
71. THALASSOMYIA, Schin. (402. *frauenfeldi*, Schin.)
- 8 (7). Fourth tarsal joint normal.
- 9 (16). Wings bare.
- 10 (11). Fore metatarsus distinctly longer than the fore tibia.
 CHIRONOMUS, Mg. (**72**)
- 11 (10). Fore metatarsus about equal to or shorter than the tibia.
- 12 (13). Legs with white rings. CRICOTOPUS, v.d. Wulp (**73**)
- 13 (12). Legs not white ringed.
- 14 (15). V.5.b. normal, bent gradually down to the hind margin.
 ORTHOCLADIUS, v.d. Wulp (**74**)
- 15 (14). V.5.b. bent down and turned up at the hind margin.
 CAMPTOCLADIUS, v.d. Wulp (**75**)
- 16 (9). Wings hairy.
- 17 (18). Fore metatarsus longer than the tibia.
 TANYTARSUS, v.d. Wulp (**76**)
- 18 (17). Fore metatarsus shorter than the tibia.
- 19 (20). Tarsi stout, hind tibiæ thick, broad, and hairy.
77. EURYCNEMUS, v.d. Wulp. (496. *elegans*, Mg.)
- 20 (19). Tarsi slender, hind tibiæ not specially broad.
 METRIOCNEMUS, v.d. Wulp. (**78**)
- 21 (6). X.5. present (IV. 11).
- 22 (23). Female antennæ 7-8-jointed, male 15-jointed, eyes round.
 DIAMESA, Mg. (**79**)
- 23 (22). Antennæ 15-jointed in both sexes, eyes not round, indented on inner sides. TANYPUS, Mg. (**80**)
- 24 (5). Dorsum, viewed sideways, only moderately arched, and not overhanging in front; legs moderately long, and often very strong; V.3. often with a X-vein to V.1.; V.2. absent; the long hairs of the male antennæ brush-shaped (II. 11).
 CERATOPOGON, Mg. (**82**)

TABLES OF SPECIES.

72. CHIRONOMUS, Mg.

- 1 (16) (27). Wings with a small spot or tick on X.4., but no other spot or streak.

- 2 (13). Fore tarsi with long hairs in the male.
 3 (10). Dorsum with black or grey stripes.
 4 (7). Abdomen chiefly pale.
 5 (6). Large species, at least 10 mm.
 403. *Chironomus plumosus*, L.
 A very common species. The females were abundant over a farm pond at Hesleden, in August, 1900, and the males were in a swarm cloud about a hundred yards up a lane.
- 6 (5). Smaller species, about 8 mm.
 (405. *prasinus*, Mg.?) (*intermedius*, Stæg.)
- 7 (4). Abdomen chiefly dark.
 8 (9). Ground of thorax grey.
 407. *Chironomus annularis*, Deg.
 Harperley, 2 ♂, 26-5-99; Hesleden, 1 ♂, 16-8-00.
- 9 (8). Ground of thorax yellow. (413. *aprilinus*, Mg.)
 10 (3). Dorsum with red stripes.
 11 (12). Large species, at least 10 mm.
 (404. *ferrugineovittatus*, Ztt.)
- 12 (11). Small species, not over 6 mm.
 411. *Chironomus flaveolus*, Mg. (?)
 Bishop Auckland, 1 ♀, 20-7-00.
- 13 (2). Fore tarsi bare in the male.
 14 (15). Ground of thorax grey. (409. *riparius*, Mg.)
 15 (14). Ground of thorax greenish-yellow. (416. *tentans*, F.)
 16 (1)(27). Wings spotted, streaked, or clouded.
 17 (26). Halteres pale.
 18 (23). Legs not white ringed.
 19 (22). Abdomen dark.
 20 (21). Abdomen not banded. (417. *scalæmus*, Schrk.)
 21 (20). Abdomen banded. (418. *rufipes*, L.)
 22 (19). Abdomen bright green. (419. *flexilis*, L.)
 23 (18). Legs white ringed.
 24 (25). Male fore tarsi with long hairs; wings with only a small basal mark and one dark spot.
 (436. *histrion*, F.)

VI. 72.

25 (24). Male fore tarsi almost bare ; wings with a dark central spot and three grey spots.

435. *Chironomus pictulus*, Mg.

Bishop Auckland, 1 ♂, 17-5-02.

26 (17). Halteres black.

438. *Chironomus nubeculosus*, Mg.

Bishop Auckland, 2 ♂, 3 ♀, April-June.

27 (1) (16). Wings quite clear, without any dark tick on the X-vein, or wing-spots.

28 (34). Male fore tarsi with long hairs.

29 (30) (31). Thorax shining black, not striped.

(421. *dispar*, Mg.)

30 (29) (31). Thorax green with greyish stripes.

(425. *psittacinus*, Mg.)

31 (29) (30). Thorax green with flesh-coloured stripes.

32 (33). Legs all pale.

(410. *tendens*, F.)

33 (32). Legs with the fore tibiæ and tarsi black.

(430. *nigrimanus*, Stæg.)

34 (28). Fore tarsi bare in the male.

35 (56). Fore metatarsus not white.

36 (45). Thorax with red stripes.

37 (38). Abdomen pale yellow with broad brown bands.

(412. *dorsalis*, Mg.)

38 (37). Abdomen green.

39 (40). Large species, at least 7 mm.

(410. *tendens*, F.)

40 (39). Smaller species, at most 6 mm.

41 (42). Fore tibiæ about as long as the femora.

(426. *viridis*, Mcq.)

42 (41). Fore tibiæ much shorter than the femora.

43 (44). Size about 4 mm.

427. *Chironomus brevitibialis*, Ztt.

Bishop Auckland, 2 ♂, 2 ♀, May-June.

44 (43). Size about 2 mm.

(428. *viridulus*, L.)

45 (36). Thoracic stripes not red.

46 (55). Thoracic stripes black.

- 47 (48). Dark dusky olive and black species.
(420. *chloris*, Mg.)
- 48 (47). Species with pale or green abdomen.
- 49 (52). Abdomen pale with dark end.
- 50 (51). Halteres all pale.
422. *Chironomus pedellus*, Deg.
Bishop Auckland, 2 ♂.
- 51 (50). Halteres with black knobs. (423. *pedestris*, Mg.)
- 52 (49). Abdomen bright green.
- 53 (54). Thoracic stripes dark fuscous. (433. *pusillus*, L.)
- 54 (53). Thoracic stripes shining black.
(434. *prasinatus*, Stæg.)
- 55 (46). Thorax green with pale stripes. (429. *paganus*, Mg.)
- 56 (35). Fore metatarsus white.
- 57 (58). Tarsi with two white rings. Thorax entirely green.
(431. *biannulatus*, Stæg.)
- 58 (57). Fore tarsi with one ring.
- 59 (60). Thorax green with red stripes. (432. *virescens*, Mg.)
- 60 (59). Thorax all shining black. (437. *albimanus*, Mg.)

73. CRICOTOPUS, v.d. Wulp.

- 1 (4). The white rings on the tibiæ only, the tarsi all black.
- 2 (3). Thorax all black. (460. *tibialis*, Mg.)
- 3 (2). Thorax yellow in front. (463. *ephippium*, Ztt.)
- 4 (1). Tarsi partly pale.
- 5 (8). Fore tarsi with hairs in the male.
- 6 (7). Thorax shining black, fore tibiæ and tarsi all black.
(*obscurimanus*, Ztt.)
- 7 (6). Thorax yellow with black stripes, all tibiæ and tarsi
white-ringed, except the fore tarsi.
(462. *pilitarsis*, Ztt.)
- 8 (5). Fore tarsi bare in the male.
- 9 (16). Mid and hind femora nearly all black.
- 10 (11). Abdomen with two broad black bands on the third
and fourth rings.

464. *Cricotopus bicinctus*, Mg.

Very common at Bishop Auckland in spring.

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- 11 (10). Abdomen with narrow whitish bands on the hind margins of the segments.
- 12 (13). All tarsi with white rings.
458. *Cricotopus tremulus*, L.
Escomb, 1 ♂, 1 ♀, 15-6-99.
- 13 (12). Only the mid and hind tarsi with white rings.
- 14 (15). Thorax yellow with black stripes. (461. *motiator*, L.)
- 15 (14). Thorax black, unstriped, only a little yellow in front.
465. *Cricotopus annulipes*, Mg.
Very common at Bishop Auckland in spring.
- 16 (9). Mid and hind femora nearly all white.
466. *Cricotopus sylvestris*, F.
Common at Bishop Auckland in spring.

74. ORTHOCLADIUS, v.d. Wulp.

- 1 (19). Halteres pale.
- 2 (6). Large species, at least 4 mm.
- 3 (4) (5). Thorax dark green, shining, stripes black.
(473. *olivaceus*, Mg.)
- 4 (3) (5). Thorax yellow, stripes brown.
(476. *sordidellus*, Ztt.)
- 5 (3) (4). Thorax yellow, stripes black. (478. *notatus*, Mg.)
- 6 (2). Smaller species, under 4 mm.
- 7 (13). Darkish species.
- 8 (12). Size 2-3 mm.
- 9 (10) (11). Thorax black with two white lines.
(472. *albolineatus*, Mg.)
- 10 (9) (11). Thorax black with yellow shoulders.
(477. *frigidus*, Ztt.)
- 11 (9) (10). Thorax yellow with black or chestnut stripes.
(471. *variabilis*, Stæg.)
- 12 (8). Size 1 mm. (481. *minutus*, Ztt.)
- 13 (7). Pale or yellow species.
- 14 (17) (18). Thorax testaceous and striped.
- 15 (16). Abdomen green, or brown, with pale faint bands.
(474. *testaceus*, Mcq.)

- 16 (15). Abdomen testaceous with black central stripe.
(483. *pygmæus*, Mg.)
- 17 (14) (18). Thorax white with three brown stripes.
(482. *melaleucus*, Mg.)
- 18 (14) (17). Thorax, abdomen, and legs all yellow.
(484. *ictericus*, Mg.)
- 19 (1). Halteres black.
- 20 (21). Large black species, at least 8 mm.
470. *Orthocladus niveipennis*, Ztt. (*dolens*, Wlk.)
Gibside, 8 ♂, 1 ♀, 19-4-98. They were flying over
the Lily Pond.
- 21 (20). Small species, black, at most 4 mm.
- 22 (23). Fore tarsi hairy in the male. (475. *barbicornis*, F.)
- 23 (22). Fore tarsi bare in the male.
- 24 (25). Dull black species.
479. *Orthocladus stercorarius*, Deg.
Very common. The larvæ live in dung.
- 25 (24). Shining black species. (480. *lucens*, Ztt.)

75. CAMPTOCLADIUS, v.d. Wulp.

- 1 (2). Antennæ with white plumes. (486. *byssinus*, Schrk.)
- 2 (1). Antennæ with dark plumes.
- 3 (4). Wings whitish, size 2 mm. (485. *aterrimus*, Mg.)
- 4 (3). Wings darkish grey, size about 1 mm.
(487. *minimus*, Mg.)

76. TANYTARSUS, v.d. Wulp.

- 1 (4). Thorax black unstriped.
- 2 (3). Abdomen bright green. (488. *punctipes*, W.)
- 3 (2). Abdomen shining dark brown.
495. *Tanytarsus flavipes*, Mg.
Gibside, 3 ♂, 2 ♀, 19-4-98; Hesleden, 4 ♂, 29-5-99.
- 4 (1). Thorax striped.
- 5 (8). Legs dark brown.
- 6 (7). Olive green species. (494. *vernus*, Mg.)
- 7 (6). Black species, thorax grey with black stripes.
(492. *præcox*, Mg.)
- 8 (5). Legs pale.

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- 9 (10). Thorax with black stripes. (491. *pusio*, Mg.)
 10 (9). Thorax with brown or reddish stripes.
 11 (12) (13). Thorax flesh-coloured with brown stripes.
 (490. *flabellatus*, Mg.)
 12 (11) (13). Thorax pale yellowish green with red stripes.
 489. *Tanytarsus tenuis*, Mg.
 Belburn, 1 ♂, 17-5-00. Bishop Auckland, 1 ♀,
 19-5-00; 1 ♀, 3-10-00.
- 13 (11) (12). Thorax testaceous with brown stripes, abdomen
 green. (493. *debilis*, Mg.)

78. METRIOCNEMUS, v.d. Wulp.

497. *Metriocnemus fuscipes*, Mg.

Bishop Auckland, 9 ♂, 1 ♀, March, 1903.

79. DIAMESA, Mg.

- 1 (2) (9). V.5. forks beyond X.5., which rests on V.5.
 (500. *obscurimanus*, Mg.)
 2 (1) (9). V.5. forks a little before X.5., which rests on V.5.a.
 3 (4). The fourth tarsal joint twice as long as the fifth.
 (501. *chiron*, Hal.)
 4 (3). The fourth tarsal joint shorter than the fifth, and
 notched at the tip.
 5 (8). Antennæ of female 8-jointed.
 6 (7). Thorax all blackish grey. (502. *walthii*, Mg.)
 7 (6). Thorax and scutellum reddish, with stripes.
 (503. *ammon*, Hal.)
 8 (5). Antennæ of female 7-jointed. (504. *tryphon*, Hal.)
 9 (1) (2). V.5. forks at X.5. Antennæ scantily haired in
 the male, and not forming a plume.
 (505. *tonsa*, Hal.)

80. TANYPUS, Mg.

- 1 (11). Dark species.
 2 (8). V.5. forks beyond X.5., which rests on V.5.
 3 (4). Wings quite bare. (531. *nervosus*, Mg.)
 4 (3). Wings hairy.
 5 (6) (7). Wings many spotted. (511. *punctipennis*, Mg.)

- 6 (5) (7). Wings only hairy at the point, and with a brown streak between X.4. and the tip.
(520. *culiciformis*, L.)
- 7 (5) (6). Wings slightly hairy, unspotted, except the X.4. dot.
509. *Tanypus choreus*, Mg.
Hesleden, 1 ♂, 21-8-00.
- 8 (2). V.5. forks before X.5., which rests on V.5.a.
- 9 (10). Wings bare, male fore tarsi thickly haired.
(523. *plumipes*, Fries.)
- 10 (9). Wings hairy, somewhat spotted.
508. *Tanypus nebulosus*, Mg.
Bishop Auckland, 1 ♀, 26-5-02; 1 ♂, 1 ♀,
28/29-9-02.
- 11 (1). Pale species.
- 12 (30). Wings spotted or banded.
- 13 (27). Legs not many-ringed.
- 14 (17). Wings spotted rather than banded.
- 15 (16). Male with dark brown tufted hairs at the joints of the abdomen. Wings of the female much spotted.
507. *Tanypus varius*, F.
Hesleden, 1 ♀, 10-8-00; 1 ♂, 29-4-01.
- 16 (15). Male with whitish hairs on the abdomen, not brown, or tufted. Wing of the female not very much spotted.
(510. *punctatus*, F.)
- 17 (14). Wings banded.
- 18 (19). Wings with three bands. (516. *trifascipennis*, Ztt.)
- 19 (18). Wings with two bands.
- 20 (21). Thoracic side stripes dark yellow, edged with black in front.
(515. *ornatus*, Mg.)
- 21 (20). Thoracic stripes not edged.
- 22 (23) (26). Thorax pale with grey stripes.
(514. *lentiginosus*, Fries.)
- 23 (22) (26). Thorax pale with red stripes.
- 24 (25). Legs unicolorous.
513. *Tanypus carneus*, F.
Bishop Auckland, 1 ♀, 15-5-97.

VI. 80.

- 25 (24). Femora with dark ends. (518. *lætus*, Mg.)
- 26 (22) (23). Thorax white with red stripes, fore legs white.
(519. *dubius*, Stæg.)
- 27 (13). Legs with many black and yellow rings.
- 28 (29). Fore tarsi of the male bare. (521. *monilis*, L.)
- 29 (28). Fore tarsi of the male bearded. (522. *phatta*, Egg.)
- 30 (12). Wings plain, not spotted nor banded.
- 31 (32) (33). Grey species with brown antennæ, size 6 mm.
Abdomen with three rows of dark spots.
(524. *notatus*, Mg.)
- 32 (31) (33). White species with yellowish thoracic stripes,
white antennæ, size 4 mm., abdomen plain whitish.
Tanypus melanops, Mg.
Belburn, 1 ♂, May, 1900.
- 33 (31) (32). Pale reddish species, with red stripes and pale
antennæ, size 3 mm. (526. *ferrugineicollis*, Mg.)

82. CERATOPOGON, Mg.

This genus also I know nothing about, but I have extracted the following from Schiner and others in the hope that it may give some slight indication of the specific characters. The larvæ live beneath the bark of decaying trees, in manure, and in water.

- 1 (92). X.3. present, joining V.3. and V.1., there are therefore two O.3s. (It must be borne in mind that V.2. is absent in this genus).
- 2 (23). V.3. ending in the fore margin before or only a little after the middle of the wing.
- 3 (14). Metatarsus not longer than the next tarsal joint.
- 4 (9). V.3. ending before the middle of the fore margin.
- 5 (6). Dorsum with yellow hairs. Wings dusky with a white spot on the costa, beyond the end of V.3.
(543. *bipunctatus*, L.)
- 6 (5). Dorsum all black haired.
- 7 (8). Wings milk-white, black or dark brown species, tarsi paler.
(533. *niger*, Winn.)

- 8 (7). Wings grey. (539. *myrmecophilus*, Egg.)
- 9 (4). V.3. ending at or a little beyond the middle of fore margin.
- 10 (11). Dorsum shining black. Tibiæ fringed with pointed lancet-like scales. (537. *ciliatus*, Winn.)
- 11 (10). Dorsum dark grey, the humeri orange.
- 12 (13). Coxæ whitish yellow. (538. *kaltenbachii*, Winn.)
- 13 (12). Coxæ pitch-brown or black. (536. *piceus*, Winn.)
- 14 (3). Metatarsus distinctly longer than the next joint.
- 15 (20). Legs black-haired.
- 16 (17). Dorsum with short yellow and long black hairs. All femora and tibiæ thickened. (540. *crassipes*, Winn.)
- 17 (16). Dorsum with all black or greyish hairs, or almost bare.
- 18 (19). Dorsum shining black, nearly bare with few black hairs. Abdomen and legs shining black and black haired. (541. *brevipennis*, Mcq.)
- 19 (18). Dorsum deep black, with black hairs, grey in some lights. Abdomen with greyish white shimmering hairs. Legs pale brown. (542. *alacer*, Winn.)
- 20 (15). Legs pale yellow-haired.
- 21 (22). Dorsum and scutellum shining black. Abdomen dark grey-haired. (544. *titillans*, Winn.)
- 22 (21). Dorsum matt grey. Scutellum all orange, or at least the margin. Abdomen with long pale yellow hair. (543. *murinus*, Winn.)
- 23 (2). V.3. always ending considerably beyond the middle of the fore margin, and often near the wing tip.
- 24 (64). Wings hairy, at least at the tip.
- 25 (38). Claws with distinct footpads.
- 26 (29). Legs pale yellow.
- 27 (28). Wings hairy on more than just the wing tip. Dorsum with short whitish hair. (547. *lucorum*, Mg.)
- 28 (27). Wings only hairy at the tip. Dorsum with fine small yellow hairs. (552. *minutus*, Mg.)
- 29 (26). Legs pitch-brown or orange.

VI. 82.

- 30 (31). Proboscis longer than in other species.
(548. *rostratus*, Winn.)
- 31 (30). Proboscis not lengthened.
- 32 (33). Halteres entirely white. (549. *brunnipes*, Winn.)
- 33 (32). Halteres wholly or partly black, at least never quite white.
- 34 (35). V.3. ending some distance before the tip of the wing.
(546. *frutetorum*, Winn.)
- 35 (34). V.3. ending rather near to the tip of the wing.
- 36 (37). Legs brick-red, femora and tibiæ with dark brown tips.
(550. *pavidus*, Winn.)
- 37 (36). Legs all brick-red, femora and tibiæ not dark at the tips.
(551. *fuscus*, Mg.)
- 38 (25). Claws without footpads.
- 39 (48). Wings with dark bands, marks, or spots.
- 40 (47). Wings with grey bands, or grey with white bands or spots, but not with merely isolated dark spots.
- 41 (42). Tip of the wing grey, without clear spots at the top. A clear band across the apical region and two spots.
(555. *fascipennis*, Stæg.)
- 42 (41). Tip of the wing quite clear, or, with clear spots.
- 43 (44). A clear spot beyond the end of V.3., which never extends to V.4., also a clear band over X.4. which reaches V.5., and numerous clear spots.
(556. *pictipennis*, Stæg.)
- 44 (43). The clear spot beyond the end of V.3. is extended to form a band often reaching to the hind margin.
- 45 (46). Wings with three grey bands. (554. *varius*, Winn.)
- 46 (45). Wings with a brown bowshaped stripe and other markings.
(557. *arcuatus*, Winn.)
- 47 (40). Wings with numerous isolated grey or grey-brown spots. Three on the fore margin, the third being double and characteristic. (558. *pulicaris*, L.)
- 48 (39). Wings quite unmarked.
- 49 (50). O.3² indistinct on account of V.3. coalescing with the costa.
(561. *scutellatus*, Mg.)
- 50 (49). Both of the O.3s distinct.

- 51 (56). V.4. dividing at or before X.4.
- 52 (53). Dorsum brown. Antennæ black.
(563. *neglectus*, Winn.)
- 53 (52). Dorsum black. Antennæ brown.
- 54 (55). Dorsum shining black, with shining white hairs.
(544. *titillans*, Winn.)
- 55 (54). Dorsum matt black with black hairs.
(545. *velox*, Winn.)
- 56 (51). V.4. dividing some distance beyond X.4.
- 57 (58). Entirely orange species. (565. *ochraceus*, Winn.)
- 58 (57). Species with at least the thorax black or dark.
- 59 (60) (61) Palpi and antennæ black. Dorsum matt dark-
grey with five black stripes. (560. *æstivus*, Winn.)
- 60 (59) (61). Palpi brown. Antennæ pale brown with snow-
white shimmer. Dorsum dark brown, not striped.
(553. *amænus*, Winn.)
- 61 (59) (60). Palpi yellow.
- 62 (63). Abdomen brown with white hairs.
(559. *albicans*, W.)
- 63 (62). Abdomen flesh-coloured, brown above when dried.
(562. *pumillus*, Winn.)
- 64 (24). Wings quite bare.
- 65 (68). V.4. dividing some distance beyond X.4.
- 66 (67). Wings with dark markings. (569. *illustris*, Winn.)
- 67 (66). Wings quite clear. (568. *candidatus*, Winn.)
- 68 (65). V.4. dividing at or before X.4.
- 69 (72). Femora without thorns on the underside.
- 70 (71). Small species not more than 1 mm. long.
(566. *lacteipennis*, Ztt.)
- 71 (70). Large species at least 2 mm. long.
567. *Ceratopogon nitidus*, Mcq.
Shull, 1 ♀, June, 1904; Bedburn, 1 ♀, June, 1905.
- 72 (69). Femora with thorns on the underside.
- 73 (83). Claws without teeth.
- 74 (75). Hind femora much thickened, and with strong thorns
beneath. (583. *femoratus*, Mg.)
- 75 (74). Hind femora not thickened, and at most with
ordinary thorns.

VI. 82.

- 76 (77). Claws in the female of unequal length.
(576. *fulvus*, Mcq.)
- 77 (76). Claws in both sexes of equal length.
- 78 (82). Thorns present only on the fore femora.
- 79 (80) (81). Eight thorns on the fore femora. Shining black.
(571. *flavipes*, Mg.)
- 80 (79) (81). Six to ten thorns on the fore femora. Blackish brown. Halteres yellow with black knobs.
(573. *brachialis*, Hal.)
- 81 (79) (80). Yellow species. Halteres cream white. Fore femora with 6-10 thorns. (574. *distinctus*, Hal.)
- 82 (78). Thorns present on all the femora. Fore with up to seven, mid with one, hind with three.
(572. *spinipes*, Mg.)
- 83 (73). Claws with teeth.
- 84 (87). The soles of the feet with thorns beneath.
- 85 (86). Dorsum and abdomen shining black.
(580. *tibialis*, Mg.)
- 86 (85). Dorsum light grey with light brown stripes; abdomen yellowish with dark brown bands; very large species. 4-4½ mm. (581. *fasciatus*, Mg.)
- 87 (84). Soles of the feet not thorned.
- 88 (91). Dorsum black, or black and yellow.
- 89 (90). All femora with three to four spines. Thorax shining black.
(577. *serripes*, Mg.)
- 90 (89). Fore femora with many strong spines, mid with none, hind with one near the tip. Humeri and pleuræ yellow.
(578. *rufpectus*, Winn.)
- 91 (88). Dorsum grey with brown stripes. Fore femora many spined. Hind 3-4 spines. (579. *lineatus*, Mg.)
- 92 (1). V.3. without any X-vein.
- 93 (97). Femora not spined.
- 94 (95) (96). Dorsum shining black. (585. *venustus*, Mg.)
- 95 (94) (96). Dorsum chesnut. (582. *rubiginosus*, Winn.)
- 96 (94) (95). Dorsum grey with brown stripes.
(584. *bicolor*, Mg.)
- 97 (93). All femora spined beneath, or at least some of them.

VI. 82.

- 98 (103). Claws of the female with a small tooth on the inner side.
- 99 (100). Fore femora with four spines. Tarsi white with ends of joints dark. (592. *solstitialis*, Winn.)
- 100 (99). Fore femora with two spines.
- 101 (102). Halteres pale. Tarsi dusky. Hind tibiæ strongly ciliated. (589. *tæniatus*, Hal.)
- 102 (101). Halteres dusky. Tarsi pale. Hind tibiæ not strongly ciliated. (590. *calceatus*, Hal.)
- 103 (98). Claws not toothed.
- 104 (105) (106). Legs shining black, only the three first tarsal joints white. (586. *albipes*, Winn.)
- 105 (104) (106). Fore and mid femora and all the tibiæ with yellowish white rings. (587. *signatus*, Mg.)
- 106 (104) (105). Legs pale yellow with dark rings on the femora and tibiæ; joints also dark. (588. *ornatus*, Mg.)

FAMILY VIII.—PSYCHODIDÆ.

I have taken several species, but have not attempted as yet to identify them. A synopsis of the British Psychodidæ by the Rev. A. E. Eaton may be found in the Entomologist's Monthly Magazine, 1893-95.

FAMILY IX.—CULICIDÆ (GNATS).

This family also I have scarcely touched, but I give the following tables from Schiner. The larvæ live in stagnant water.

TABLE OF GENERA.

- 1 (4). Proboscis short, scarcely longer than the head.
- 2 (3). Metatarsus shorter than the next tarsal joint.
90. MOCHLONYX, Lw. (*velutinus*, Ruthé.)
- 3 (2). Metatarsus longer than the next tarsal joint.
89. CORETHRA, Mg.
- 4 (1). Proboscis very long, and always longer than the head and thorax together.

IX.

5 (6) (7). Palpi very short in both sexes.

91. *Aedes*, Mg. (641. *cinereus*, Mg.)

6 (5) (7). Palpi very long in both sexes (VI. 6); male forceps not longer than the last abdominal segment.

Anopheles, Mg. (92)

7 (5) (6). Palpi long in the male, very short in the female (VI. 7); male forceps longer than the last segment.

Culex, L. (93)

TABLES OF SPECIES.

89. *CORETHRA*, Mg.

1 (2). Legs with many brown dots along the femora and tibiae. (639. *pallida*, F.)

2 (1). Legs without dots.

3 (4). Plume of the male pale yellow. General colour pale brownish. Thorax with broad white side stripes.

(638. *plumicornis*, F.)

4 (3). Plume of the male darkish brown. General colour dark brown. Thoracic side marks mere small ticks, and never white. (637. *culiciformis*, Mg.)

92. *ANOPHELES*, Mg.

1 (2). Legs black. (642. *nigripes*, Stæg.)

2 (1). Legs yellow.

3 (4). Wings spotted. (644. *maculipennis*, Mg.)

4 (3). Wings unspotted. (643. *bifurcatus*, L.)

93. *CULEX*, L.

1 (10). Tarsi with white rings.

2 (3). Wings spotted. (645. *annulatus*, Schrk.)

3 (2). Wings unspotted.

4 (5). Abdomen grey with two rows of black spots.

(651. *dorsalis*, Mg.)

5 (4). Abdomen brown with white or yellow bands.

6 (7). Small species, 6 mm.

(647. *vexans*, Mg.)

7 (6). Large species, 8-9 mm.

IX. 93.

- 8 (9). Abdomen dark brown with distinct white bands.
(646. *cantans*, Mg.)
- 9 (8). Abdomen pale brown or orange. Bands absent or very faint.
(648. *annulipes*, Mg.)
- 10 (1). Tarsi without white rings.
- 11 (12). Small species less than 4 mm., with white side dots on the abdomen.
(652. *lateralis*, Mg.)
- 12 (11). Larger species, at least 5 mm.
- 13 (18). Femora mostly pale, only dark at the point.
- 14 (15). Femora with a shimmering silver spot at the point.
655. *Culex nemorosus*, Mg.
Bishop Auckland, 2 ♀, July, 1900-02.
- 15 (14). Legs without the silver spot.
- 16 (17). Large brown species, 6 mm., with dark abdomen.
659. *Culex pipiens*, L.
Very common.
- 17 (16). Smaller reddish species, 5 mm., with light brown abdomen.
659. *Culex ciliaris*, L. (var. of *pipiens*?)
Not uncommon.
- 18 (13). Femora mostly black.
- 19 (20). Pleuræ with a tuft of shining silver hair. Thorax thickly pale-haired with two dark stripes.
(653. *ornatus*, Mg.)
- 20 (19). Pleuræ without silver tuft. Thorax unstriped.
- 21 (22). Thorax with reddish hairs. Abdomen plain brown-black.
(658. *nigritulus*, Ztt.)
- 22 (21). Thorax all black haired. Abdomen black in the male, white ringed in the female; legs all dark.
(656. *nigripes*, Ztt.)

FAMILY X.—DIXIDÆ.

95. DIXA, Mg.

The larvæ live in water.

- 1 (4). Wings spotted, at least with the X-veins clouded.

X. 95.

- 2 (3). Wings with only the X-veins clouded.

(662. *maculata*, Mg.)

- 3 (2). Wings with the X-veins clouded, and also other spots.

(663. *nebulosa*, Mg.)

- 4 (1). Wings unspotted.

- 5 (6). Testaceous, thorax with four reddish-brown stripes, of which the side ones are short.

664. *Dixa æstivalis*, Mg.

Gibside, 1 ♂, April, 1898.

- 6 (5). Black, thorax testaceous along each side, and with two pale centre streaks.

(665. *aprilina*, Mg.)

FAMILY XI.—PTYCHOPTERIDÆ.

96. PTYCHOPTERA, Mg.

The larvæ live in shallow muddy pools.

- 1 (8). Wings spotted.

- 2 (7). Hind metatarsi not white.

- 3 (4). Pleuræ shining silvery white.

666. *Ptychoptera contaminata*, L.

Hesleden, 1 ♂, 4-8-99; Waskerley, 1 ♂, 20-4-01.

- 4 (3). Pleuræ shining black without any silver sheen.

- 5 (6). Abdomen all black.

(667. *paludosa*, Mg.)

- 6 (5). Abdomen with two yellow bands.

668. *Ptychoptera lacustris*, Mg.

Bedburn, 1 ♀, 7-7-02.

- 7 (2). Hind metatarsi white.

669. *Ptychoptera albimana*, F.South Durham, 3 ♀; Bishop Middleham, 1 ♂, 1 ♀,
June, 1903.

- 8 (1). Wings unspotted.

670. *Ptychoptera scutellaris*, Mg.Bishop Auckland, 1 ♂, 25-6-02; Bishop Middleham,
2 ♂, 1 ♀, June, 1903.

FAMILY XII.—LIMNOBIDÆ.

TABLE OF SUB-FAMILIES.

- 1 (6). V.2. not forked (IV. 17, 18), *i.e.*, only two veins between the ends of V.1.b. and V.4.a.
- 2 (3). Antennæ 14-jointed. LIMNOBINÆ (XII.—A.)
- 3 (2). Antennæ 16-jointed.
- 4 (5). V.1. ending in the costa. V.5. not sharply bent downwards. Tibiæ not spurred.
RAMPHIDINÆ (XII.—B.)
- 5 (4). V.1. ending in V.2. V.5. sharply bent downwards. Tibiæ spurred. CYLINDROTOMINÆ (XII.—G.)
- 6 (1). V.2. forked (IV. 19-22), *i.e.*, three veins between the ends of V.1.b. and V.4.a.
- 7 (8). Tibiæ not spurred. X.1.b. beyond the base of V.2.
ERIOPTERINÆ (XII.—C.)
- 8 (7). Tibiæ spurred.
- 9 (12). X.1.b. beyond the base of V.2.
- 10 (11). Antennæ 16-jointed. LIMNOPHILINÆ (XII.—D.)
- 11 (10). Antennæ 6-10-jointed. ANISOMERINÆ (XII.—E.)
- 12 (9). X.1.b. before the base of V.2. AMALOPINÆ (XII.—F.)

TABLES OF GENERA.

Sub-Family A.—LIMNOBINÆ.

- 1 (6). Proboscis not longer than the head.
- 2 (5). Antennæ simple, not comb-like, and the joints not stalked.
- 3 (4). V.1.a. extending far beyond the base of V.2. Male forceps two horny hooks. LIMNOBIA, Mg. (97)
- 4 (3). V.1.a. ending about opposite the end of V.2. Male forceps two fleshy lobes.
DICRANOMYIA, Steph. (98)
- 5 (2). Antennal joints stalked; in the male with comb-like side processes (II. 16). RHIPIDIA, Mg. (99)
- 6 (1). Proboscis longer than the head and thorax.
100. GERANOMYIA, Hal. (697. *unicolor*, Hal.

XII.

Sub-Family B.—RAMPHIDINÆ.

- 1 (2). Proboscis at least twice as long as the head.
 101. RAMPHIDIA, Mg. (698. *longirostris*, Mg.)
- 2 (1). Proboscis shorter than the head.
- 3 (4). O. (*i.e.*, discal cell) present. ANTOCHA, O-Sack (**103**)
- 4 (3). O. absent.
- 5 (6). V.4.a. not forked.
 102. ORIMARGA, O-Sack. (699. *virgo*, Ztt.)
- 6 (5). V.4.a. forked.
 104. THAUMASTOPTERA, Mik. (701. *calceata*, Mik.)

Sub-Family C.—ERIOPTERINÆ.

- 1 (10). Wings conspicuously hairy at any rate on the veins.
- 2 (3). Wings conspicuously hairy on the whole surface.
 RHYPHOLOPHUS, Kolen. (**110**)
- 3 (2). Wings conspicuously hairy on the veins only.
- 4 (5). V.3. branches from V.2.b. X.5. much nearer the
 base than X.4. Hence O.5¹ much shorter than
 O.4¹. MOLOPHILUS, Curt. (**109**)
- 5 (4). V.3. branches from V.2¹. X.5. in line with X.4.,
 hence O.5¹=O.4¹.
- 6 (7). V.7. bent upwards. O.6. widest in the middle (IV. 20
 is inaccurate, V.7. should have bent upwards, and
 ended about over the o). ERIOPTERA, Mg. (**111**)
- 7 (6). V.7. straight. O.6. widest at the end.
- 8 (9). X.1.b. much before the end of V.1.a. Wings spotted.
 ACYPHONA, O-Sack. (**108**)
- 9 (8). X.1.b. at the end of V.1.a. Wings clear.
 107. CHILOTRICHIA, Rnd. (711. *imbuta*, Mg.)
- 10 (1). Wings not hairy on the cells, and very slightly on the
 veins.
- 11 (14). O.2.b. very short, not more than half as long as O.3.,
 and shaped like an equilateral triangle.
- 12 (13). X.2. present. EMPEDA, O-Sack. (**105**)
- 13 (12). X.2. absent. GONOMYIA, Steph. (**106**)
- 14 (11). O.2.b. long, and like an isocetes triangle (IV. 19).

15 (16). X.1.b. close to the tip of V.1.a.

LIPSOTHRIX, Lw. (114)

16 (15). X.1.b. a long way from the tip of V.1.a. (IV. 19).

17 (18). V.7. very much looped (IV. 19). SYMPLECTA (112)

18 (17). V.7. straight.

113. TRIMICRA, O-Sack. (734. *pilipes*, F.)

Sub-Family D.—LIMNOPHILINÆ.

1 (2). V.7. very short, and suddenly bent downwards
(IV. 22) TRICHOCERA, Mg. (122)

2 (1). V.7. not short, and nearly straight (IV. 21).

3 (4). O.1.a. divided by an extra X-vein about the middle
of the wing. EPIPHRAGMA, O-Sack. (119)

4 (3). O.1.a. not divided by an extra X-vein.

5 (8). O.5¹ divided by an extra X-vein.

6 (7). Antennæ long and thin. IDIOPTERA, Mcq. (115)

7 (6). Antennæ short, and thick at the base.

EPHELIA, Schin. (116)

8 (5). O.5¹ not divided by an extra X-vein.

9 (10). X.5. opposite the base of O.

DACTYLOLABIS, O-Sack. (117)

10 (9). X.5. near the middle of O. (IV. 21).

11 (12). Wings with numerous black dots.

POECILOSTOLA, Schin. (118)

12 (11). Wings without spots. { LIMNOPHILA, Mcq. (120)
ADELPHOMYIA, Bergr. (121)

Sub-Family E.—ANISOMERINÆ.

1 (2). Antennæ apparently 6-jointed in the male and 10-
jointed in the female. 123. ANISOMERA, Mg.

2 (1). Antennæ apparently 7-jointed in the male and 9-
jointed in the female. 124. PERONECERA, Curt.

Sub-Family F.—AMALOPINÆ.

1 (2). Antennæ 13-jointed. DICRANOTA, Ztt. (126)

2 (1). Antennæ 16-17-jointed.

XII.

- 3 (4). V.4.a. not forked, *i.e.*, O.4.a.b. absent. Wings pubescent. ULA, Hal. (125)
- 4 (3). V.4.a. forked, *i.e.*, O.4.a.b. present. Wings bare.
- 5 (6). X.4. nearly upright. Wings without large bold brown markings, at most slightly spotted. AMALOPIS, Hal. (127)
- 6 (5). X.4. very oblique. Large species with conspicuous brown streaks and bands on the wings. PEDICIA, Ltr. (128)

Sub-Family G.—CYLINDROTOMINÆ.

- 1 (4). 4.a. forked.
- 2 (3). Black and yellow species with the antennal joints bearing rather long whorled hairs. 129. CYLINDROTOMA, Mcq. (784. *distinctissima*, Mg.)
- 3 (2). Dull blackish species with the antennal joints bare, or with only fine hairs not whorled. 131. PHALACROCERA, Schin. (787. *replicata*, L.)
- 4 (1). 4.a. not forked. 130. LIOGMA, O-Sack. (786. *glabrata*, Mg.)

TABLES OF SPECIES.

97. LIMNOBIA, Mg.

Larvæ in decaying wood and fungi.

- 1 (6). V.1.b. ending at or before X.2.
- 2 (3). Wings with no clouds and no sharply defined spots; and no spots at all much nearer the base than the origin of V.2. (671. *bifasciata*, Schrk.)
- 3 (2). Wings with numerous clouds, and with sharply defined spots, one or more being nearer the base than the origin of V.2.
- 4 (5). Femora with two sharp black rings. Very large spot. (672. *annulus*, Mg.)
- 5 (4). Femora with one terminal ring. 673. *Limnobia quadrinotatus*. Mg.

County Durham, no locality, but I am almost sure it was at Gibside in 1896. One male.

- 6 (1). V.1.b. continued much beyond X.2.
- 7 (16). Wings with spots and clouds, or at least three black spots near the costa.
- 8 (13). Thorax chiefly blackish, wings clouded, besides the three spots near the costa.
- 9 (12). Wings clouded all over, and with three black spots near the costa. Antennal joints elongate, with hairs much longer than the joints.
- 10 (11). Femora with at least two clearly defined dark rings.
 674. *Limnobia nubeculosa*, Mg.
 Common in the Bishop Auckland district in May and June. It was very abundant at Raby on yew, 29-5-01.
- 11 (10). Femora with only one clearly defined dark ring at the tip.
 675. *Limnobia flavipes*, F.
 Shipley Moor, 1 ♂, 27-5-98. Hesleden, 1 ♂, 2 ♀, 20-6-02.
- 12 (9). Wings with slight cloudings and three blackish spots near the costa. Antennal joints oval with hairs only rather longer than the joints.
 (676. *analis*, Mg.)
- 13 (8). Thorax chiefly clear shining yellow. Wings with three spots near the costa, but not clouded.
- 14 (15). Fore femora with only the basal third yellow, the rest black.
 (677. *nigropunctata*, Schum.)
- 15 (14). Fore femora nearly all yellow, with only a ring near the tip black.
 678. *Limnobia tripunctata*, F.
 Shipley Moor, 1 ♂, 27-5-98. Bishop Auckland, 2 ♂, 1 ♀, 27-6-02; 1 ♀, 16-7-02. Hesleden, 2 ♂, 2 ♀, August, 1902.
- 16 (7). Wings clear, without markings.
- 17 (18). Frons and face yellow. Female femora entirely yellow, without any dark ring at the end.
 (679. *stigma*, Mg.)

XII. 97.

18 (17). Frons and face dark. End of the femora in both sexes with a dark ring.

680. *Limnobia trivittata*, Schum.

Hesleden, 4 ♂, 4 ♀, 13-8-00.

(See also the first three species in the next table).

98. DICRANOMYIA, Steph.

- 1 (6). There seem to be three species in which the generic character of the position of the base of V.2. in regard to the end of V.1.a. is not a good guide, as V.1.a. ends somewhat in front of the base of V.2.
- 2 (3). Thorax orange yellow.
(681. *Limnobia macrostigma*, Schum.)
- 3 (2). Thorax dark.
- 4 (5). O. absent, 4.b. forked. Wings not hairy.
(682. *aquosa*, Verr.)
- 5 (4). O. present or 4.a. forked. Apical region of the wing hairy.
(683. *pilipennis*)
- 6 (1). V.1.a. ends before or opposite the base of V.2.
- 7 (24). Thorax not shining black.
- 8 (19). Wings quite clear, without either spots or clouds other than the stigma, or a cloud about the base of V.2.a., or the X-veins clouded, but without distinct spots.
- 9 (10). Outer half of the antennal joints elongate.
684. *Dicranomyia modesta*, Mg.?
Bishop Auckland, 1 ♂, 27-6-02; Brancepeth, 1 ♀,
15-6-02.
- 10 (9). Outer half of the antennal joints not elongate.
- 11 (14). Distinctly yellow species.
- 12 (13). Antennæ all blackish, male genitalia with a long process beneath.
685. *Dicranomyia mitis*, Mg.?
Bishop Auckland, 1 ♂, 4-9-00.
- 13 (12). Antennæ yellowish at the base, male genitalia without any long process beneath. (686. *lutea*, Mg.)

- 14 (11). Species not at all, or very little yellow.
- 15 (16). Pleuræ somewhat yellowish, stigma present, base of V.2.a. and the X-veins clouded.
687. *Dicranomyia chorea*, Mg.
Very common everywhere.
- 16 (15). Pleuræ not yellowish.
- 17 (18). Stigma absent. Dark species with blackish legs.
(688. *sericata*, Mg.)
- 18 (17). Stigma distinct. X-veins not at all clouded.
(689. *stigmatica*, Mg.)
- 19 (8). Wings spotted, at least two or three distinct spots near the costa.
- 20 (23). Wings not *many*-spotted, only two or three conspicuous spots near the costa.
- 21 (22). Wings three-spotted. X.1.b. placed much before the end of V.1.a.
(690. *didyma*, Mg.)
- 22 (21). Wings two-spotted. X.1.b. practically at the end of V.1.a.
691. *Dicranomyia dumetorum*, Mg.
Hesleden, 2 ♂, 1 ♀, 12-8-02.
- 23 (20). Wings dotted along V.5. and many other spots.
(692. *ornata*, Mg.)
- 24 (7). Thorax shining black, frons and pleuræ silvery.
(694. *morio*, F.)

99. RHIPIDIA, Mg.

695. *Rhipidia maculata*, Mg.

Bishop Auckland, 2 ♂, 2 ♀, June-July, 00-02; Shull, 1 ♂, 5-9-00; Raby, 1 ♀, 29-5-01.

103. ANTOCHA, O-Sack.

Life history unknown.

Antocha opalizans, O-Sack.

Bishop Auckland, 1 ♂, 27-6-02.

XII. 105.

105. EMPEDA, O-Sack.

1 (2). Bright yellow species.

702. *Empeda flava*, Schum.

Bishop Auckland, 1 ♂, 27-6-02; Hesleden, 1 ♂,
1-8-02.

2 (1). Greyish species.

703. *Empeda nubila*, Schum.

Bishop Auckland, 2 ♂, 2 ♀, 23-5-02.

106. GONIOMYIA, Steph.

Life history unknown.

I cannot give characters for the species of this genus. We have at least two, of which I took ♂ and ♀ at Hesleden in August, 1904, possibly *tenella*, Mg., and *scutellata*, Egg.

108. ACYPHONA, O-Sack.

712. *Acyphona maculata*, Mg.

Hesleden, 1 ♂, 1 ♀, August, 1902.

109. MOLOPHILUS, Curt.

Life history unknown.

1 (8) (11). Yellowish or orange brown species.

2 (5). Entirely yellow species.

3 (4). Male genitalia with two very small, almost hidden,
black hooks. (713. *ochraceus*, Mg.)

4 (3). Male genitalia with four long black processes.

714. *Molophilus appendiculatus*, Staeg.

Brancepeth, Harperley, Hesleden, 4 ♂, 4 ♀, June and
August, 1902.

5 (2). Species brownish, especially on the abdomen.

6 (7). Male genitalia with two short black processes beneath.

715. *Molophilus propinquus*, Egg.

South Durham, 1 ♂, Brancepeth, 1 ♀, 15-6-02;
Hesleden, 2 ♀, August, 1902.

- 7 (6). Male genitalia with two very long sickle-shaped black processes.

716. *Molophilus biflatus*, Verr.

Hesleden, 1 ♂, August, 1900.

- 8 (1) (11). Dark grey species.

- 9 (10). Knob of the halteres whitish.

717. *Molophilus obscurus*, Mg.

South Durham, 1 ♂; Hesleden, 1 ♀, 3-8-02.

- 10 (9). Knob of the halteres blackish. (718. *murinus*, Mg.)

- 11 (1) (8). Deep black species. (719. *ater*, Mg.)

110. RHYPHOLOPHUS, Kolen.

Life history unknown.

- 1 (6). V.7. straight and rather short. Antennal joints petiolate (stalked) in the male.

- 2 (5). Brownish grey species.

- 3 (4). Thorax with a centre stripe.

720. *Rhypholophus lineatus*, Mg.

Stanhope, 2 ♂, 23-5-00.

- 4 (3). Thorax not striped.

721. *Rhypholophus nodulosus*, Mcq.

Common everywhere.

- 5 (2). Yellow species.

723. *Rhypholophus similis*, Staeg.

Deepdale, Yorks, 1 ♀, 26-6-01.

- 6 (1). V.7. twisted and long. Antennal joints not stalked, close together.

- 7 (8). Thorax with four distinct stripes. Wings considerably mottled.

724. *Rhypholophus varius*, Mg.

Wearhead, 2 ♂, 20-8-01.

- 8 (7). Thorax indistinctly striped. Wings less mottled.

725. *Rhypholophus hæmorrhoidalis*, Ztt.

Wearhead, 1 ♂, 20-8-01.

XII. 111.

111. ERIOPTERA, Mg.

Life history not accurately known.

- 1 (10). O. absent, there being no X-vein between 4.b.a. and 4.a. (IV. 20).
- 2 (9). Yellow or brown species.
- 3 (6). Wings brightly tinged with yellow. Bright yellow species.
- 4 (5). Palpi yellow, smallish species.
726. *Erioptera flavescens*, Mg.
Wearhead, 1 ♂, 3-8-01; Brancepeth, 1 ♂, 3 ♀, 15-6-02.
- 5 (4). Palpi black, larger species.
727. *Erioptera macrophthalma*, Lw.
Hesleden, 1 ♀, 15-6-00.
- 6 (3). Wings tinged with grey, general colour brownish yellow.
- 7 (8). Thorax yellow. Palpi yellow with brown tips. (728. *lutea*, Mg.)
- 8 (7). Thorax brownish. Palpi brown.
729. *Erioptera tænio-nota*, Mg.
Bishop Auckland, 1 ♂, 25-5-00.
- 9 (2). Dark grey species with dark tinged wings.
730. *Erioptera fuscipennis*, Mg.
Hesleden, 4 ♂, 1-8-02.
- 10 (1). O. present, grey species.
731. *Erioptera trivialis*, Mg.
Hesleden, 1 ♀, 4-8-99; Wearhead, 3 ♂, 1 ♀, Aug., 1901.

112. SYMPLECTA, Mg.

- 1 (2). X.2.b. present, V.4.b. forked, V.4.a. simple, the X-vein closing O. being X.4.b.a. (IV. 19).
(732. *punctipennis*, Mg.)
- 2 (1). X.2.b. absent, V.4.a. forked, V.4.b. simple, the X-vein closing O. being X.4.b. (733. *stictica*, Mg.)

114. LIPSOTHRIX, Lw.735. *Lipsothrix errans*, Wlk.

Belburn, 1 ♂, 1 ♀, 17-6-98.

115. IDIOPTERA, Mg.

Life history unknown.

- 1 (2). Wings with dark markings at the base and apex, and two dark transverse bands between.

737. *Idioptera pulchella*, Mg.

Wearhead, 2 ♂, 13-8-01.

- 2 (1). Wings with three spots along the fore margin.

(738. *trimaculata*, Ztt.)**116.** EPHELIA, Schin.

Life history unknown.

- 1 (4). Wing-veins entirely without small dots on them.

- 2 (3). The spots at the tip of the wing sharply separated; large species. (739. *miliaria*, Egg.)

- 3 (2). The spots at the tip of the wing coalescing into a cloud which occupies all the tip of the wing; smallest species. (740. *apicata*, Lw.)

- 4 (1). Wings with numerous, or at least some dark dots on them.

- 5 (6). Dots on the wings not numerous, hence considerable open clear spaces on the wings.

(741. *submarmorata*, Verr.)

- 6 (5). Dots on the veins very numerous, leaving scarcely any clear spaces.

- 7 (8). X.5. beneath the *middle* of O. (742. *marmorata*).

- 8 (7). X.5. beneath the *base* of O. (743. *varinervis*, Ztt.)

117. DACTYLOLABIS, O-Sack.

Life history unknown.

- 1 (2). A dark spot at the base of O.5¹; size 10 mm.

(744. *frauenfeldi*, Egg.)

XII. 117.

- 2 (1). No dark spot at the base of O.5¹; size 6-8 mm.

745. *Dactylolabis gracilipes*, Lw.

Harperley, 2 ♂, 4-6-00.

118. PÆCILOSTOLA, Schin.

- 1 (2). Legs dark brown, the basal half of the femora orange.
14-16 mm. (746. *punctata*, Schrk.)

- 2 (1). Legs yellow with only the tips of the femora and the
bases and tips of the tibiæ black. 10-14 mm.

(747. *pictipennis*, Mg.)

119. EPIPHRAGMA, O-Sack.

Life history unknown.

Epiphragma picta, F.

Deepdale, 1 ♂, 26-6-01.

This specimen is peculiar. On one wing there is an extra X-vein, X.2.b. dividing O.2.b. into two; and on both wings there is a short recurrent vein at the sharp bend of V.2., which almost divides O.4¹ into two.

120. LIMNOPHILA, Mcq.

The life history of a few species is known.

- 1 (18). X.2. at the end of V.1.b.

- 2 (15). V.2¹ never more than twice as long as V.2², often only about as long.

- 3 (14). Fork of V.4.a. not more than twice as long as the handle, *i.e.*, V.4.a³ at least half as long as V.4.a.a.

- 4 (5). Blackish grey species.

749. *Limnophila meigenii*, Verr.

Waskerley, 1 ♀, 5-7-01.

- 5 (4). Yellowish species.

- 6 (13). Thorax with a central black line, at least in front.

- 7 (10). Stigma distinct, though not conspicuous.

- 8 (9). Wings somewhat pellucid. Femora, when mature, blackish, leaving only the basal third yellowish.
750. *Limnophila dispar*, Mg.
Harperley, 3 ♂, 4-6-00.
- 9 (8). Wings distinctly yellowish. Femora with only the tip dark.
751. *Limnophila lineola*, Mg.
South Durham, 1 ♀.
- 10 (7). Stigma absent.
- 11 (12). O. closed.
752. *Limnophila lineolella*, Verr.
Wearhead, 1 ♀, 4-8-01; Bedburn, 1 ♂, 1 ♀, 7-7-02.
- 12 (11). O. open. (753. *aperta*, Verr.)
- 13 (6). Thorax entirely yellow, no trace of a central black line. (754. *ferruginea*, Mg.)
- 14 (3) Fork of V.4.a. four times as long as the handle. V.2² much arched.
755. *Limnophila ochracea*, Mg.
Bishop Auckland, 1 ♂, 15-7-02; Hesleden, 2 ♂, 3 ♀, August, 1902.
- 15 (2). V.2¹ three or four times as long as V.2² (IV. 21). Base of V.2. clouded.
- 16 (17). Blackish grey species. (756. *bicolor*, Mg.)
- 17 (16). Yellowish species. (757. *punctum*, Mg.)
- 18 (1). X.2. distinctly before the end of V.1.b. V.2¹ always long (IV. 21).
- 19 (28). Fork of V.4.a. almost as long as the handle, sometimes longer.
- 20 (25). X.5. at or beyond the middle of O. (IV. 21). Antennæ bearing bristly hairs three or four times as long as each joint.
- 21 (22). Entirely yellow species. (758. *fuscipennis*, Mg.)
- 22 (21). Disc of the thorax shining dark brown.
- 23 (24). X.5. near the outer end of O. X-veins clear.
759. *Limnophila discicollis*, Mg.
Bedburn, 1 ♂, 7-7-02.

XII. 120.

- 24 (23). X.5. at the middle of O. X-veins clouded.
(760. *subtineta*, Ztt.)
- 25 (20). X.5. before the middle of O. Antennæ bearing
bristly hairs about twice as long as each joint.
- 26 (27). Pleuræ grey.
761. *Limnophila lucorum*, Mg.
Bedburn, 2 ♂, 2 ♀, 7-7-02.
- 27 (26). Pleuræ yellowish. (762. *sepium*, Verr.)
- 28 (19). Fork of V.4.a. only from a half to one-tenth of the
length of the handle (IV. 21), and sometimes
absent.
- 29 (30). Light grey medium-sized species, usually with stripes
on the thorax.
763. *Limnophila nemoralis*, Mg.
Bishop Auckland, 1 ♀, 11-7-00; Shull, 1 ♂, 7-7-02;
Hesleden, 2 ♂, 12-8-02, in a wood.
- 30 (29). Dark small species, thorax unstriped.
- 31 (32). Blackish; wings narrow, almost bare.
(764. *filata*, Wlk.)
- 32 (31). Brown; wings broad and hairy even on the disc near
the tip.
121. ADELPHOMYIA, Bergr. (765. *senilis*, Hal.)

122. TRICHOCERA, Mg.

Larvæ in fungi and decaying vegetable matter.

NOTE.—The species of “Winter Gnats” require more minute study before any decided opinions can be given as to the distinctness of the species.—Verrall.

- 1 (2). Brownish-yellow species, abdomen with brown and
yellow rings.
766. *Trichocera annulata*, Mg.
Bishop Auckland, 1 ♂, 2 ♀, 1-11-01.
- 2 (1). Brown-grey species, abdomen unicolorous.

3 (4) (5). Wings quite clear, without clouded spot, or general brown tinge.

767. *Trichocera hiemalis*, Deg.

Very common in winter.

4 (3) (5). Wings with a brown tinge, but without any clouded spot.

768. *Trichocera fuscata*, Mg.

Common at Bishop Auckland in winter.

5 (3) (4). Wings clear without brown tinge, but with X.4. and sometimes X.5. clouded.

769. *Trichocera regelationis*, L.

Very common in winter.

I do not believe that there is any difference between *hiemalis* and *regelationis*. Schiner's character of the place of X.5. is not reliable. I have seen specimens that according to it were *hiemalis* on one wing and *regelationis* on the other.

125. ULA, Hal.

Larvæ in fungi.

774. *Ula pilosa*, Schum.

Stanhope, 1 ♂, 23-5-00; Harperley, 1 ♂, 9-6-00.

126. DICRANOTA, Ztt.

Life history unknown.

1 (2). V.4.a. not forked.

(775. *pavida*, Hal.)

2 (1). V.4.a. forked.

776. *Dicranota bimaculata*, Schum.

Hesleden, 1 ♂, 1 ♀, 23/24-4-01.

127. AMALOPIS, Hal.

Life history unknown.

1 (8). Blackish or greyish species.

2 (7). Rather small species, the wings without any marks.

3 (6). Antennæ 16-jointed.

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- 4 (5). V.3. apparently forked, as X.4. meets V.2. just at its fork, and considerably before the point where V.3. leaves V.2.b.

777. *Amalopsis immaculata*, Mg.

Shipleigh Glen, 3 ♂, 27-5-98; Bishop Auckland, 1 ♀, 23-6-02.

- 5 (4). V.3. not apparently forked, as X.4. meets V.2. at the place where V.2.a., V.2.b., and V.3. branch almost all together.

778. *Amalopsis unicolor*, Schum.

Harperley, 1 ♂, 28-6-02.

- 6 (3). Antennæ 17-jointed. (779. *claripennis*, Verr.)

- 7 (2). Large species with conspicuous marks on the wings.

(780. *occulta*, Mg.)

- 8 (1). Large yellow species.

(782. *littoralis*, Mg.)

128. PEDICIA, Ltr.

Larvæ in water.

783. *Pedicia rivosa*, L.

Gibside, 1 ♂; Hesleden, 2 ♂, 31-7-00.

FAMILY XIII.—TIPULIDÆ.

TABLE OF GENERA.

- 1 (2). O. absent, tibiæ not spurred.

132. DOLICHOPEZA, Curt. (788. *sylicola*, Curt.)

- 2 (1). O. present, tibiæ spurred.

- 3 (8). Antennæ not combed.

- 4 (5). Antennæ 19-jointed in the male, 15-jointed in the female. 133. NEPHROTOMA, Mg. (789. *dorsalis*, F.)

- 5 (4). Antennæ 13-jointed in both sexes.

- 6 (7). Yellow and black species. Upper two veins from O., V.4.a.a. and V.4.a.b., touching O., or almost touching. That is, the fork of V.4.a., either without any handle beyond O. (IV. 25), or with the handle so short as to be less than one-fifth of the length of the fork. PACHYRRHINA (134)

XIII.

- 7 (6). Species not yellow and black. Fork of V.4.a. with a handle always more than one-fifth of the length of the fork (IV. 26). TIPULA (135)
- 8 (3). Antennæ combed in the male, the joints with side processes.
- 9 (10). Male antennæ combed on the inner side only.
136. DICTENIDIA, Brul. (838. *bimaculata*, L.)
- 10 (9). Male antennæ combed on both sides.
- 11 (12). Male antennæ combed beneath as well as at the two sides. XIPHURA, Brul. (137)
- 12 (11). Male antennæ not combed beneath, but only at the two sides. CTENOPHORA (138)

NOTE.—In some of the Tipulidæ V.4. branches before reaching O. Thus V.4.1.b. does not touch O. at all, and the other branch divides at O., its upper branch again dividing beyond O. So that the four branches from V.4. at the margin would read 4.a.a.a., 4.a.a.b., 4.a.b. (or 4.a.a., 4.a.b.a., 4.a.b.b.), and 4.b.. But it is better to keep to the usual formulæ and call them 4.a.a., 4.a.b., 4.b.a., 4.b.b. (IV. 23 and 24), as this only occurs in a few small genera.

TABLES OF SPECIES.

134. PACHYRRHINA, Mcq.

Larvæ in rotting wood and under decaying leaves.

- 1 (4). Abdomen black with entire yellow bands.
- 2 (3). Thorax almost black with orange spots, abdomen with four bands.
790. *Pachyrrhina crocata*, L.
Bedburn, 2 ♀, 7-7-02.
- 3 (2). Thorax yellow with three black streaks, abdomen with more than five bands. (791. *imperialis*, Mg.)
- 4 (1). Abdomen yellow, usually with a dark central line, often interrupted.
- 5 (20). Abdomen with a central line.
- 6 (11). Stigma faint, brownish yellow, or pale brown.
- 7 (8). Side stripes on the dorsum straight at their front ends. (792. *scurra*, Mg.)

XIII. 134.

- 8 (7). Side stripes on the dorsum curved outwards at their front ends.
- 9 (10). Pleuræ before the halteres (metapleuræ) yellow, with a blackish brown spot on the under side only.
793. *Pachyrrhina histrio*, F.
Harperley, 4 ♂, 2 ♀, 28-6-02.
- 10 (9). Metapleuræ yellow, but blackish brown on three sides.
794. *Pachyrrhina maculosa*, Mg.
Bishop Auckland, 2 ♀, 12-6-00, 4-7-01; Bollihope, 1 ♀, 15-6-01.
- 11 (6). Stigma distinct, blackish brown.
- 12 (19). Side stripes on the dorsum curved outwards at their ends.
- 13 (18). X.5. and V.5³ not clouded.
- 14 (17). Pleuræ with blackish markings.
- 15 (16). The vertical triangle nearly equilateral.
795. *Pachyrrhina cornicina*, L.
Bishop Auckland, 2 ♂, 25/27-6-02; Harperley, 1 ♀, 28-6-02.
- 16 (15). Vertical triangle produced forwards in a long point.
796. *Pachyrrhina guestfalica*, Westh.
Bishop Auckland, 1 ♀, 4-7-01.
- 17 (14). Pleuræ with reddish brown markings.
797. *Pachyrrhina analis*, Schum.
Bishop Auckland, 1 ♂, 1 -02.
- 18 (13). X.5. and V.5³ clouded.
798. *Pachyrrhina quadrifaria*, Mg.
The commonest species in this district.
- 19 (12). Side stripes on the dorsum straight.
800. *Pachyrrhina lunulicornis*, Schum.
Bishop Auckland, 1 ♂, 26-6-02; Harperley, 1 ♂, 28-6-02.
- 20 (5). Abdomen without any central line.
799. *Pachyrrhina annulicornis*, Mg.
Harperley, 1 ♂, 28-6-02.

135. TIPULA, L.

The larvæ live on vegetable matter, grass roots, &c.

1 (46). Wings marmorated, spotted, or streaked (always with something more than a pale longitudinal streak under the darkened fore-margin, or a pale spot or diagonal band just before the stigma). Rarely the only distinct evidence of the mottling is an indistinct pale spot near the middle of O.5¹, or V.5. clouded.

2 (3). Fore region of the wing with a broad dark brown band with two deep white indentations, very large species.

830. *Tipula gigantea*, Schrk.

Harperley, 1 ♂, June, 1900, 1 ♂, 28-6-02; Shull, 1 ♂, 7-7-02.

3 (2). Fore region of the wing without the dark brown indented band.

4 (5). Wings with a dark spot in the middle of O.6. Wings indistinctly clouded. Also a large species.

831. *Tipula lutescens*, F.

Gibside, 1 ♀; Bishop Auckland, 1 ♂, 2-7-00; Harperley, 1 ♂, 28-6-02; Hesleden, 2 ♂, 14-8-02.

5 (4). No dark spot in the middle of O.6.

6 (39). Wings with spots or clouds in the basal region, always something more than merely V.5. darkened.

7 (14). Dorsum with three broad, dark stripes, which have often dark brown margins, the middle one often divided by a dark line.

8 (9). Dorsal stripes not dark edged, and so broad that they almost fill the dorsum. A row of pale spots along the middle of the wing from base to tip.

829. *Tipula vittata*, Mg.

Belburn, 1 ♂, 17-5-00; Harperley, 1 ♂, 4-6-00; Raby, 1 ♀, 29-5-01.

XIII. 135.

- 9 (8). Dorsal stripes moderately broad with dark edges and centre line.
- 10 (13). Wings distinctly marmorated in brownish and white. Dorsal stripes grey.
- 11 (12). First antennal joint dark grey, at least at the base.
809. *Tipula truncorum*, Mg.
Bishop Auckland, 1 ♂, 8-6-01.
I am not sure if this is correct. The thoracic stripes are peculiar.
- 12 (11). Antennal joints all yellow. Pale wing spots smaller.
(810. *winnertzii*, Fgg.)
- 13 (10). Wings almost all brownish, but at least a pale spot in O.5¹. Dorsal stripes brown.
(812. *pabulina*, Mg.)
- 14 (7). Dorsum with four brown or grey stripes, often brown edged.
- 15 (22). Dorsal stripes very little darker than the ground colour, but always dark edged.
- 16 (17). Pleuræ with a sharp-edged dark longitudinal stripe.
(807. *rufina*, Mg.)
- 17 (16). No pleural stripe.
- 18 (19). Inner edges of middle dorsal stripes so near together that they almost make one broad centre brown stripe. Joints of the flagellum, in the male, deeply cut out beneath.
(817. *excisa*, Schum.)
- 19 (18). Centre dorsal stripes at least divided at some point. Flagellar joints not incised.
- 20 (21). Central dorsal stripes touching in front and behind.
816. *Tipula scripta*, Mg.
Wearhead, 1 ♂, 26-8-01; Harperley, 1 ♂, 28-6-02.
- 21 (20). Central dorsal stripes, at most, touching only in front.
(815. *nubeculosa*, Mg.)
- 22 (15). Dorsal stripes darker than the ground colour, but without dark edges, central pair narrowed behind and approximated.

23 (28). Wing tip distinctly darkened, so that there is a conspicuous light band between it and the stigma.

24 (25). The pale band beyond the stigma includes nearly all of O.4.b.b.

811. *Tipula hortensis*, Mg.

Raby, 1 ♂, 2 ♀, 29-5-01; Bishop Auckland, 1 ♂, 1-6-01.

25 (24). The pale band beyond the stigma only includes just the base of O.4.b.b.

26 (27). Pleuræ with a sharp-edged dark longitudinal stripe.

(807. *rufina*, Mg.)

27 (26). Pleural stripe absent.

808. *Tipula longicornis*, Schum.

Bishop Auckland, 1 ♂, 27-6-02; Harperley, 2 ♂, 2 ♀, 28-6-02.

28 (23). Wing tip only slightly darkened, pale band not very conspicuous. (NOTE.—This is not a very good character, as sometimes in the following the pale band is fairly conspicuous).

29 (32). V.2.a. cut short and not joined to the costa.

30 (31). First antennal joint dark, at least at the base.

814. *Tipula varipennis*, Mg.

Barnard Castle, 2 ♀, June, 1900; Wearhead, 2 ♂, 5-6-01. Some of the two foregoing have V.2.a. cut short, and in some it reaches the costa. I cannot believe that this small variation indicates a different species.

31 (30). First antennal joint all yellow. (813. *hortulana*, Mg.)

32 (29). V.2.a. complete and ending in the costa.

33 (34). V.4.a.a. and V.4.a.b. not approximated at their ends, wings very slightly marmorated.

(803. *obsoleta*, Mg.)

34 (33). V.4.a.a. and V.4.a.b. a little approximated at their ends.

XIII. 135.

35 (36). Pleuræ whitish grey, contrasting with the reddish first abdominal segment. Male genitalia with scarcely any processes.

805. *Tipula confusa*, v.d. Wulp.

Wearhead, 6 ♂, 4 ♀, August, 1901.

36 (35). Pleuræ reddish like the first abdominal segment. Male genitalia with conspicuous processes.

37 (38). Abdomen without any blackish brown marks. Male processes fringed with long fine pale hairs.

(806. *marmorata*, Mg.)

38 (37). Abdomen with blackish brown marks. Male processes exceedingly long, and bearing short black bristly hairs.

(804. *signata*, Staeg.)

39 (6). Wings having a streaked rather than a spotted appearance, owing to the clouding of at least V.5. and X.5.; or if almost unicolorous, then the dorsal stripes are always dark edged.

40 (41). Abdomen orange with dark dorsal stripe, but no side stripes.

828. *Tipula vernalis*, Mg.

Bishop Auckland, Harperley. Common in June, especially females.

41 (40). Abdomen with side lines, but no dorsal line.

42 (43). O.1. blackish brown. (824. *marginata*, Mg.)

43 (42). O.1. brownish yellow.

44 (45). V.5. clouded with brown its whole length.

825. *Tipula lateralis*, Mg.

Common everywhere.

45 (44). V.5. only clouded at its outer part.

(826. *montium*, Egg.)

46 (1). Wings unicolorous, except the stigma, or with only a pale streak under the brown fore-margin, or with a pale spot or diagonal band just before the stigma.

47 (50). Wings with a dark fore-margin, sharply contrasted against the rest of the wing.

XIII. 135.

- 48 (49). Greyish species with grey-brown wings, the whitish streak rather conspicuous. Female wings large, longer than the abdomen.

832. *Tipula oleracea*, L.

Common everywhere in autumn. The larvæ of this, and probably other Crane Flies, are very hurtful to the roots of grasses. They are known as "Leather-jackets," changing into pupæ beneath the surface, and when matured are able to raise themselves half out of the ground, when the fly escapes through a slit along the back.

- 49 (48). Reddish brown species, the pale wing-streak indistinct. Female wings shorter than the abdomen.

833. *Tipula paludosa*, Mg.

Common in marshy places.

- 50 (47). Wings without the dark fore-margin.

- 51 (52). Wings blackish and short, especially in the female.

O.4.a.b. often touches O., as in *Pachyrrhina*.

(801. *nigra*, L.)

- 52 (51). Wings yellowish, pale brownish, or greyish, sometimes quite clear.

- 53 (66). The pale spot before the stigma small, often indistinct, and never extending beyond V.2.

- 54 (59). Abdomen with a dark dorsal line.

- 55 (56). Antennæ entirely black or blackish brown.

(818. *melanoceras*, Schum.)

- 56 (55). Antennæ yellow at the base.

- 57 (58). Dorsum with three brown stripes, the middle one divided by a darker line. (821. *luteipennis*, Mg.)

- 58 (57). Dorsum with four brown stripes. *pagana*, Mg. (802)

- 59 (54). Abdomen without any central line.

- 60 (63). Antennæ with some of the basal joints yellow.

- 61 (62). Second antennal joint, and only the tip of the first, yellow, base blackish.

802. *Tipula pagana*, Mg.

Shull, 3 ♂, 5-9-00.

XIII. 135.

- 62 (61). Antennæ very long, with the first two or three joints all yellow. (822. *flavolineata*, Mg.)
- 63 (60). Antennæ entirely blackish.
- 64 (65). Veins clouded with grey, wings short.
819. *Tipula plumbea*, F.
Harperley, 1 ♂, 4-6-00, 1 ♂, 28-6-02; Bedburn, 1 ♂, 1 ♀, 7-7-02.
- 65 (64). Veins not clouded with grey, wings normal. (820. *pruinosa*, W.)
- 66 (53). The pale spot before the stigma large, like a band or lunule, and extending into O. or beyond it.
- 67 (70). Abdomen grey.
- 68 (69). The joints of the flagellum not incised beneath.
823. *Tipula lunata*, L.
Harperley, 3 ♂, 2 ♀, 28-6-02.
- 69 (68). The joints of the flagellum deeply incised beneath. (827. *diana*, Mg.)
- 70 (67). Abdomen yellowish.
- 71 (74). Thorax ashy-grey, brown-grey, or black.
- 72 (73). The pale spot before the stigma only enters the base of O. Dorsum with four distinct dark stripes. (834. *selene*, Mg.)
- 73 (72). The pale spot before the stigma extending beyond O. Dorsum unstriped, or with only faint traces of stripes.
835. *Tipula fascipennis*, Mg.
Harperley, 2 ♂, 28-6-02.
- 74 (71). Thorax orange-yellow.
- 75 (76). Stigma darkish brown. Male genitalia with a tufted tongue-like plate hanging out beneath.
837. *Tipula ochracea*, Mg.
Bishop Auckland, 5 ♂, 1 ♀. The males are very common in June. Barnard Castle, 1 ♂, 20-6-00.

XIII. 135.

76 (75). Stigma brownish yellow. Male genitalia without the tufted plate beneath.

836. *Tipula peliostigma*, Schum. (?)

Bishop Auckland, 1 ♀, 12-6-02.

137. XIPHURA, Brul.

1 (2). Antennæ not all black, joints 4, 5, 6, and 7 white at the base. (839. *atrata*, L.)

2 (1). Antennæ entirely black. (840. *nigricornis*, Mg.)

138. CTENOPHORA, Mg.

Larvæ in rotten wood.

1 (2). A large brown blotch on the stigma extending to O. (841. *ornata*, Mg.)

2 (1). The spot at the stigma small, not nearly reaching O.

3 (4). Abdomen orange with black central spots, which often spread in the female till only small orange side spots are left. (843. *pectinicornis*, L.)

4 (3). Abdomen black with yellow bands. (842. *flaveolata*, F.)

They are all very rare, and I have not found any of them in this county.

FAMILY XIV.—RHYPHIDÆ.

Larvæ live in rotting vegetable matter.

139. RHYPHUS, Ltr.

1 (4). Tip of the wing brown.

2 (3). Dorsum with three dark stripes.

844. *Rhyphus fenestralis*, Scop.

Bishop Auckland, 1 ♂, 14-5-02, 4 ♀, July, 1901;

Hesleden, 1 ♂, 23-4-01, 1 ♀, 20-8-02.

3 (2). Dorsum unstriped. (845. *cinctus*, F.)

4 (1). Tip of the wing quite clear.

846. *Rhyphus punctatus*, F.

Bishop Auckland, 1 ♂, each 25-5-00, 31-5-01, 13-6-01,

1 ♀, 3-6-0; Hesleden, 1 ♀, 4-8-00; Shull, 1 ♂, 5-9-00.

SECTION II.—BRACHYCERA.

FAMILY XV.—STRATIOMYIDÆ.

TABLE OF GENERA.

- 1 (22). Abdomen with five, or at most six distinct segments
Scutellum without thorny processes, or at most
with only two such.
- 2 (5). V.4. breaking up into only three branches. Third
antennal joint round (III. 1).
- 3 (4). Eyes touching in the male. Posterior orbits produced
into a prominent ridge in both sexes.
PACHYGASTER, Mg. (140)
- 4 (3). Eyes separate in both sexes. Posterior orbits not
produced into a ridge in either sex. (See Mr.
Austen's note, E.M.M., 1901, p. 241).
140½. NEOPACHYGASTER, Aust.
(850. *orbitalis*, Whllg.) (*meromelæna*, Dup.)
- 5 (2). V.4. breaking up into four branches (V. 1). Third
antennal joint longer than broad (III. 2-5).
- 6 (15). Non-metallic species, mostly black or dark brown,
with light spots or bands, sometimes with yellow
abdomen.
- 7 (8). Dorsum with a strong thorn-like process on each
side. 141. EPHIPIUM, Ltr. (851. *thoracicum*, Ltr.)
- 8 (7). Dorsum without any such process.
- 9 (10). Scutellum without any thorn-like process.
NEMOTELUS, Geoff. (142)
- 10 (9). Scutellum with two thorns.
- 11 (14). First antennal joint about as long, or at most twice
as long as the second (III. 2).
- 12 (13). Style of the antennæ long and thin (III. 2).
OXYCERA, Mg. (143)
- 13 (12). Style of the antennæ short. ODONTOMYIA, Mg. (145)
- 14 (11). First antennal joint always more than twice as long,
often three or four times as long as the second
(III. 3). STRATIOMYS, Geoff. (144)
- 15 (6). Metallic blue-green or violet species, without pale spots.

- 16 (19). Eyes of the male not touching. Arista placed a little before the end of the third antennal joint (III. 4). Abdomen very long.
- 17 (18). The ocelli equidistant, forming a small equilateral triangle. *CHRYSONOTUS*, Lw. (146)
- 18 (17). The ocelli unequally distant, forming an isocetes triangle. *SARGUS*, F. (147)
- 19 (16). Eyes of the male touching. Arista placed exactly at the point. Abdomen moderately long.
- 20 (21). Eyes distinctly hairy.
- 148.** *CHLOROMYIA*, Dunc. (887. *formosa*, Scop.)
- 21 (20). Eyes bare or almost bare. *MICROCHRYSA*, Lw. (149)
- 22 (1). Abdomen with at least seven distinct segments. Scutellum generally with four to six thorns.
- 23 (24). V.4. breaking up into only three branches. Palpi small and inconspicuous. *BERIS*, Ltr. (150)
- 24 (23). V.4. breaking up into four branches, of which the third is often rudimentary. Palpi three-jointed, conspicuous.
- 151.** *CHORISOPS*, Rnd. (897. *tibialis*, Mg.)

140. *PACHYGASTER*, Mg.

Larvæ live in decaying vegetable matter.

- 1 (4). Wings brown at the base.
- 2 (3). Legs yellow with black femora. Halteres yellow with black knobs. (847. *atra*, Pz.)
- 3 (2). Legs black, with the fore tibiæ, the tip of the hind tibiæ, and all the tarsi yellow. Halteres all black. (849. *tarsalis*, Ztt.)
- 4 (1). Wings all clear. Legs entirely yellow. (848. *leachii*, Curt.)

142. *NEMOTELUS*, Geoff.

Life history unknown.

- 1 (5) (10). Upper side of the abdomen chiefly whitish-yellow with black spots or bands.

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- 2 (3) (4). Under side of the abdomen entirely whitish-yellow, except at the base.
(852. *pantherinus*, L., ♂)
- 3 (2) (4). Under side of the abdomen whitish-yellow, with a double row of black spots on the first, second, third, and fourth rings. (854. *notatus*, Mg., ♂)
- 4 (2) (3). Under side of the abdomen black with yellow incisions, and a large yellow central spot at the base. (853. *uliginosus*, L., ♂)
- 5 (1) (10). Upper side of the abdomen black with whitish-yellow spots or bands.
- 6 (9). Face much produced, beaklike, the distance from the tip of the same to the eye margin as great as the breadth of the eye.
- 7 (8). No white spots above the antennæ, but in their place a distinct impression. (852. *pantherinus*, L., ♀)
- 8 (7). Above the antennæ two small pale yellow oblong spots, which are broken in the middle.
(853. *uliginosus*, L., ♀)
- 9 (6). Face but little protruding, the distance from the front of the same to the eye margin not more than half the width of the eye. (854. *notatus*, Ztt., ♀)
- 10 (1) (5). Upper side of the abdomen entirely black.
(855. *nigrinus*, Fln.)

143. OXYCERA, Mg.

Larvæ live in slimy mud.

- 1 (20). Abdomen chiefly black with yellow spots or bands.
- 2 (3). Wings with a brown spot beneath the stigma.
(856. *analis*, Mg.)
- 3 (2). Wings without a spot below the stigma.
- 4 (7). Upper side of the abdomen black with at most the tip yellow.
- 5 (6). Dorsum with a yellow stripe on each side. Antennæ longer than the head. (860. *tenuicornis*, Mcq.)
- 6 (5). Dorsum all black. (862. *terminata*, Mg.)

- 7 (4). Upper side of the abdomen black with yellow side-spots on the middle segments, besides the yellow tip.
- 8 (11). Scutellum black, the thorns and at most a narrow border yellow.
- 9 (10). Dorsum black with a narrow pale yellow stripe at the sides, and a like-coloured spot before the base of the wing. Small species, size 3 mm. Legs yellow with black rings on the femora and tibiæ.
(857. *pygmæa*, Fln.)
- 10 (9). Dorsum with a whitish stripe on each side, forming a minute spot in front, a larger spot before the base of each wing, and a third spot behind. Larger species, 5 mm. Legs yellow, femora with broad black rings, hind tibiæ black, yellowish at the base, tarsi black.
(862. *morrisii*, Curt.)
- 11 (8). Scutellum and thorns yellow, sometimes the sides black.
- 12 (19). Legs mostly yellow.
- 13 (16). Femora entirely yellow.
- 14 (15). Antennæ black. Dorsum of the female yellow, with three black stripes united behind.
(859. *formosa*, Mg.)
- 15 (14). Antennæ brown. Dorsum of the female black, with yellow side-stripes, and with two yellow dashes on the middle, which are not united with the side stripes.
(863. *pardalina*, Mg.)
- 16 (13). Femora yellow, black at the base or on the middle.
- 17 (18). Abdomen with only two pairs of yellow side-spots and a yellow anal spot.
(866. *pulchella*, Mg.)
- 18 (17). Abdomen with three pairs of yellow side-spots and a yellow anal spot.
(875. *fallenii*, Stæg.)
- 19 (12). Legs mostly black, tibiæ brownish. (854. *dives*, Lw.)
- 20 (1). Abdomen green or greenish yellow with black spots or bands.
(867. *trilineata*, F.)

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144. STRATIOMYS, Geoff.

Larvæ live in slime and damp sand and earth.

- 1 (8). Upper side of the abdomen with yellow or whitish side-marks or bands.
- 2 (7). Upper side of the abdomen with three pairs of yellow or whitish side-spots.
- 3 (4). Under side of the abdomen yellow with black spots.
(868. *chamæleon*, L.)
- 4 (3). Under side of the abdomen black, the segments with yellow or whitish hind margins, or with band-like spots.
- 5 (6). Upper side of the abdomen with whitish side-dashes and whitish anus. (870. *riparia*, Mg.)
- 6 (5). Upper side of the abdomen with three pairs of rather broad yellow side-spots, and a triangular spot on the anus. (871. *furcata*, F.)
- 7 (2). Upper side of the abdomen with two pairs of yellow side-spots and a yellow band on the fourth segment; or only one pair of side-spots, and the third and fourth segments with complete bands.
(869. *potamida*, Mg.)
- 8 (1). Upper side of the abdomen without yellow or whitish side-marks or bands, at most with lighter hairs at the sides, which may have the appearance of spots. (872. *longicornis*, Scop.)

145. ODONTOMYIA, Mg.

Larvæ in damp earth, slime, and rotting leaves.

- 1 (4). First antennal joint nearly twice as long as the second.
- 2 (3). Upper side of the abdomen with yellow triangular side-spots, and with golden down in the female, or, in certain lights, silver down in the male.
(873. *argentata*, F.)
- 3 (2). Upper side of the abdomen with narrow white side lines, and a similar one on the anus; almost bare.
(874. *microleon*, L.)

- 4 (1). First antennal joint as long as, or but little longer than the second.
- 5 (6) (9). Upper side of the abdomen entirely black.
(879. *tigrina*, F.)
- 6 (5) (9). Upper side of the abdomen black with orange sides, or black with yellow side-spots or bands.
- 7 (8). Wings clear tawny along the fore border till near the tip. Abdomen with three pairs of somewhat triangular spots which successively decrease in size from the base. (876. *hydrodromia*, Mg.)
- 8 (7). Wings unicolorous. Upper side of the abdomen with three pairs of yellow (gold-green in fresh specimens) side-spots of nearly the same size.
(875. *ornata*, Mg.)
- 9 (5) (6). Abdomen green or greenish yellow, with or without spots or marks.
- 10 (11). Upper side of the abdomen with a black central stripe, which is so broad as only to leave a narrow yellowish green margin at the sides.
(878. *felina*, Pz.)
- 11 (10). Abdomen with a broad black central stripe, which leaves a broad green margin at the sides.
- 12 (15). Uppermost branch of V.4. (V.4.a.a.) distinctly present; the third (V.4.b.a.) shortened or rudimentary.
- 13 (14). Abdominal central stripe not broadened out in bands on each segment. Antennæ yellow or brown.
(877. *angulata*, Pz.)
- 14 (13). Abdominal central stripe widened out like bands on each segment. Antennæ dark brown or black.
(880. *hydroleon*, L.)
- 15 (12). Uppermost branch of V.4. rudimentary, the third entirely absent. (881. *viridula*, F.)

146. CHRYSNOTUS, Lw.

882. *Chrysonotus bipunctatus*, Scop.

Hesleden, 2 ♀, 23-8 and 1-9-99.

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147. SARGUS, F.

Larvæ in cow-dung, garden earth, and under stones.

- 1 (2). Legs all yellow, or at least the hind tibiæ all yellow.

883. *Sargus flavipes*, Mg.

Hesleden, 3 ♂, 1 ♀, August, 1899 and 1900.

- 2 (1). Legs all black, or brown with yellow knees.

- 3 (4). Legs brown with yellow knees.

885. *Sargus cuprarius*, L.

Bishop Auckland, 1 ♀, 9-6-97; Hesleden, 2 ♂, August, 1902.

- 4 (3). Legs black.

886. *Sargus iridatus*, Scop.

This is our commonest species. A handsome fly with rather smoky wings, blue metallic thorax, and violet abdomen.

149. MICROCHRYSA, Lw.

Larvæ have been found under stones.

- 1 (2). Legs for the most part black. Antennæ black.

888. *Microchrysa polita*, L.

Bishop Auckland, 2 ♂, 6 ♀, June-July, 99-01; Hesleden, 1 ♂, 15-8-00.

- 2 (1). Legs and antennæ for the most part yellow.

- 3 (4). Antennæ brownish or tawny. Abdomen brassy, thorax with white side stripes; larger species, at least 2 mm.

889. *Microchrysa flavicornis*, Mg.

Bishop Auckland, 4 ♂, 25-6-01, 1 ♀, 20-7-01.

- 4 (3). Antennæ yellow, abdomen violet; small species, 1½ mm. (890. *cyaneiventris*, Ztt.)

150. BERIS, Ltr.

Life history unknown. Pupa of 893 has been found in moss.

- 1 (4). Abdomen orange.

- 2 (3). Abdomen with black marks; wings in both sexes dusky brown. (891. *clavipes*, L.)
- 3 (2). Abdomen without black marks; wings dusky brown in the male, yellow brown in the female, with large dark brown stigma.
892. *Beris vallata*, Forst.
Bishop Auckland, 1 ♀, 19-7-00.
- 4 (1). Abdomen violet, or shining metallic brown, or dull black.
- 5 (10). Wings dusky brown; legs chiefly blackish or brownish.
- 6 (9). Dorsum and scutellum shining black.
- 7 (8). Legs almost entirely yellowish brown; hind metatarsus very thick, and scarcely longer than the four other joints together.
893. *Beris chalybeata*, Forst.
Common, Bishop Auckland, 11 ♂, 9 ♀, May-June.
- 8 (7). Legs dark brown with pale knees; hind metatarsus moderately thick, and distinctly longer than the other four joints together. (894. *fuscipes*, Mg., ♂)
- 9 (6). Dorsum and scutellum shining metallic blue.
895. *Beris geniculata*, Curt.
Bishop Auckland, 1 ♂, 2 ♀, 11-7-00, 1 ♂, 26-6-01;
Hesleden, 2 ♂, 1 ♀, August, 1902.
- 10 (5). Wings yellowish brown, legs mostly yellow.
- 11 (12). Eyes either touching, or separated by not more than the fifth of the width of the head.
(896. *morrisii*, Dale.)
- 12 (11). Eyes separated by fully one-third of the width of the head.
- 13 (14). Hind metatarsi much longer than the remaining four joints together. (884. *fuscipes*, Mg., ♀)
- 14 (13). Hind metatarsi scarcely longer than the remaining four joints together. *chalybeata*, Forst., ♀ (893)

Correction.—On page 28 insert after the third line from the top :

- 31a (31b). First antennal joint about as long as the second.
O.4.b.b. closed. XYLOMYIA, Rnd. (XV. 152)
31b (31a). First antennal joint much longer than the second.
O.4.b.b. open. XYLOPHAGUS, Mg. (XVII. 164)

152. XYLOMYIA, Rnd.

- 1 (2). Middle of the dorsum yellow spotted. Abdomen with broad bands. (898. *maculata*, F.)
2 (1). Middle of the dorsum black. Abdomen with narrow bands or all black.
3 (4). Legs, including the coxæ, yellow. (899. *varia*, Mg.)
4 (3). Legs yellow, coxæ black. (900. *marginata*, Mg.)

FAMILY XVI.—TABANIDÆ.

The larvæ live in damp earth or among damp leaves. Most of the females are blood-suckers, called Breeze Flies and Clegs.

TABLE OF GENERA AND SPECIES.

- 1 (30). Hind tibiæ without spurs. Ocelli absent.
2 (5). Third antennal joint with four rings, not widened at the base nor cut out on the upper side (III. 8).

153. HÆMATOPOTA, Mg.

- 3 (4). Antennæ scarcely longer than the head; third joint yellow at the base in both sexes; first joint, in the female, twice as thick as the third, and shorter than it.

901. *Hæmatopota pluvialis*, L.

The Cleg, very common, especially the females. 902, *crassicornis*, is like *pluvialis*, but shorter and blacker; the spots on the abdomen white, not grey, and the first antennal joint thicker.

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- 4 (3). Antennæ much longer than the head, all shining black in the male, the first joint in the female longer than the third, and scarcely thicker.
(903. *italica*, Mg.)
- 5 (2). Third antennal joint with five rings, widened at the base, and cut out on the upper side (III. 9).
- 6 (17). Eyes distinctly hairy.
- 7 (14). V.3.a. without any recurved veinlet at its base.

154. THERIOPECTES, Zlr.

- 8 (9). Legs black. (904. *micans*, Mg.)
- 9 (8). Legs with at least the tibiæ more or less yellow.
- 10 (11). Abdomen mostly grey brown.
905. *Theriopectes montanus*, Mg.
Waskerley, 1 ♀, 5-7-01. I am not at all sure of this identification.
- 11 (10). Abdomen largely yellow, leaving only an undefined dark dorsal stripe.
- 12 (13). Antennæ with at least part of the first two joints dark, a brown spot at the base of O.3.b., no orange warts at the sides of the dorsum.
(906. *tropicus*, Mg.)
- 13 (12). Antennæ all yellow except the dark tip, no brown spot at the base of O.3.b. Dorsum with orange side-warts.
907. *Theriopectes solstitialis*, Mg.
One female caught by Mr. Greenwell in the neighbourhood of Bishop Auckland.
- 14 (7). V.3.a. with a recurved veinlet at its base.

155. ATYLOTUS, O-Sack.

- 15 (16). Whitish-grey looking woolly-haired species.
(908. *rusticus*, F.)
- 16 (15). Dirty-yellow looking species with short felt-like hairs.
(909. *fulvus*, Mg.)
- 17 (6). Eyes bare, or only a few hairs apparent,

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156. TABANUS, L.

- 18 (21). Very large species, 20-22 mm., dark brown with yellow bands.
- 19 (20). Sides of the abdomen largely yellow, the dark brown ground not predominant. (910. *bovinus*, L.)
- 20 (19). Sides of the abdomen only slightly yellow, the almost velvet-black ground predominant.
(411. *sudeticus*, Zlr.)
- 21 (18). Smaller species, 10-16 mm., of whitish-grey colour with rows of whitish spots on the abdomen.
- 22 (23). Male vertical triangle shining black; female with four black warts above the antennæ.
(917. *glaucopis*, Mg.)
- 23 (22). Male vertical triangle dusted whitish grey; female with only the usual three black warts between the eyes.
- 24 (27). Antennæ black. Eyes banded.
- 25 (26). Large plump species with a short broad abdomen.
912. *Tabanus autumnalis*, L.
Bishop Auckland, 1 ♂, 1 ♀, July, 1899; Harperley,
3 ♀, 28-6-02.
- 26 (25). Abdomen elongated and narrow. (916. *cordiger*, W.)
- 27 (24). Antennæ yellow, or at least not all black.
- 28 (29). A row of rather long forward-directed hairs on the vertex and posterior orbit. (915. *maculicornis*, Ztt.)
- 29 (28). These hairs absent from the posterior orbit.
(914. *bromius*, L.)
- 30 (1). Hind tibiæ spurred. Ocelli present. Wings banded.

157. CHRYSOPS, Mg.

Life history unknown.

- 31 (36). The black shining warts on the cheeks distinctly separated from those on the jowls.
- 32 (33). Legs all black in the male, or at most the mid and hind metatarsi and the base of the mid tibiæ brownish in the female. The black base of the

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abdomen connected with the black on the third segment by a V-shaped mark on the second segment.

918. *Chrysops cæcutiens*, L.

Witton, 1 ♀, 12-7-99; Bishop Auckland, 6 ♀ July-August, 1900-02.

33 (32). All the tibiæ, or at least the mid tibiæ wholly and the mid and hind metatarsi brownish yellow. The black entirely broken at the second segment, the hind part of which is narrowly yellow all across.

34 (35). Second abdominal segment with a broad rectangular spot in the middle in the male, or a small isolated round spot in the female. (919. *quadrata*, Mg.)

35 (34). Second abdominal segment with two black blunt triangles, like a solid w (▼)—broad, and repeated on the third and fourth segments in the male; small, and with only interrupted black bands on the third and fourth segments in the female.

920. *Chrysops relictæ*, Mg.

2 ♂ and 3 ♀ were taken near Greatham by Mr. Gardner, of Hartlepool.

36 (31). The warts on the cheeks and jowls united, face and cheeks wholly shining black.

(921. *sepulchralis*, F.)

FAMILY XVII.—LEPTIDÆ.

TABLE OF GENERA.

- 1 (4) (7). Third antennal joint conical or round with a terminal bristle, long and usually bent (III. 10, 11).
 2 (3). O.6. open. LEPTIS (158)
 3 (2). O.6. closed. CHRYSOPILUS (159)
 4 (1) (7). Third antennal joint kidney-shaped, with an apparently dorsal straight bristle (III., 12, 13).
 5 (6). O.6. open. SYMPHROMYIA (162)
 6 (5). O.6. closed. ATHERIX (160)
 7 (1) (4). Third antennal joint with a short terminal style (III. 14). 163. SPANIA (938. *nigra*, Mg.)

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158. LEPTIS, F.

Larvæ have been found on beetles and in damp earth.

- 1 (4). Wings distinctly spotted.
 2 (3). Scutellum and pleuræ grey in the male; dorsum grey in the female.

922. *Leptis scolopacea*, L.

Gibside, 1 ♀, Bishop Auckland, 1 ♂, 21-6-99, 1 ♀, 10-6-01; Wearhead, 1 ♂, 5-6-01; Waskerley, 2 ♂, 6-7-01.

- 3 (2). Scutellum and pleuræ yellow in the male; dorsum yellow in the female. (923. *strigosa*, Mg.)
 4 (1). Wings not distinctly spotted.
 5 (10). Large species, more than 9 mm.
 6 (7). Stigma large and distinct. (924. *notata*, Mg.)
 7 (6). Stigma faint or absent.
 8 (9). Coxæ yellow.

925. *Leptis tringaria*, L.

Apparently rare. I have only taken one female in this neighbourhood.

- 9 (8). Coxæ dark, with whitish grey dust.
 927. *Leptis conspicua*, Mg.
 Common at Hesleden in August.

- 10 (5). Small species, less than 7 mm. Stigma distinct.

928. *Leptis lineola*, F.

Apparently rare. I have only taken one male in this district.

159. CHRYSOPILUS, Mcq.

- 1 (2). Legs all yellow. (929. *aureus*, Mg.)
 2 (1). Legs with at least the femora black.

930. *Chrysopilus auratus*, F.

Common in marshy places.

160. ATHERIX, Mg.

- 1 (2). Legs black. (931. *marginata*, F.)

- 2 (1). Legs mostly yellow.
 3 (4). Wings with brown spots and bands.
 932. *Atherix ibis*, F.
 Taken by Mr. C. Robson in Northumberland.
 4 (3). Wings clouded, not spotted. (933. *crassipes*, Mg.)

162. SYMPHROMYIA, Frfld.

- 1 (2). Wings dark brown. (936. *melana*, Mg.)
 2 (1). Wings quite clear, or only very slightly brown.
 3 (4). First antennal joint very thick and bristly.
 935. *Symphoromyia crassicornis*, Pz.
 Bishop Auckland, 1 ♀, 10-7-00, 1 ♀, 15-7-00;
 Rowley, 1 ♀, July, 1904.
 4 (3). First antennal joint scarcely thickened.
 (937. *immaculata*, F.)

164. XYLOPHAGUS, Mg.

- 1 (2). V.3² much longer than V.3.b., abdomen of the female
 all black. (939. *ater*, F.)
 2 (1). V.3² about equal to V.3.b., abdomen of the female
 red on the middle. (940. *cinctus*, Deg.)

FAMILY XVIII.—ASILIDÆ.

The flies prey on other insects; the larvæ of some species feed apparently on vegetable matter.

TABLE OF GENERA AND SPECIES.

- 1 (22). O.2. open (V. 5).
 2 (5). Feet without pads. X.5. ends in V.4.b.

165. LEPTOGASTER, Mg.

- 3 (4). Hind femora with a black stripe on each side. Tarsal
 joints black, first, second, and third yellow at the
 base. (941. *cylindrica*, Deg.)

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- 4 (3). Hind femora with a black ring or band. Tarsal joints yellow with orange ends and black tips.
(942. *guttiventris*, Ztt.)
- 5 (2). Foot-pads present (VI. 10), or, if absent, then X.5. ends in V.4.b.b. (V. 5).
- 6 (19). Third antennal joint with a distinctly two-jointed short blunt terminal style.

166. DIOCTRIA, Mg.

Life history unknown.

- 7 (8). Pleuræ with only a slight glistening streak.
(945. *rheinhardi*, W.)
- 8 (7). Pleuræ with a distinct glistening streak.
- 9 (10). All femora, and also the fore tibiæ black.
(945. *atricapilla*, Mg.)
- 10 (9). The fore and mid femora at least yellow.
- 11 (12). Wings entirely dark brown or black.
(943. *elandica*, L.)
- 12 (11). Wings clear.
- 13 (18). Abdomen black without yellow bands.
- 14 (15). Frontal knob large and prominent.
946. *Dioctria rufipes*, Deg.
Common near streams. Barnard Castle, Harperley, and Bishop Auckland.
- 15 (14). Frontal knob small.
- 16 (17). Face white.
(948. *flavipes*, Mg.)
- 17 (16). Face yellow.
(947. *baumhaueri*, Mg.)
- 18 (13). Abdomen with yellow bands.
(949. *linearis*, F.)
- 19 (6). Third antennal joint with an indistinctly two-jointed, pointed, terminal style, or with a terminal bristle.
- 20 (21). Face without any knob.

167. ISOPOGON, Lw. (950. *brevirostris*, Mg.)

- 21 (20). Face with a distinct knob.

168. LASIPOGON, Lw. (951. *cinctus*, F.)

- 22 (1). O.2. closed (V. 4).
- 23 (26). Third antennal joint without either style or bristle (III. 18).

169. LAPHRIA, Mg.

24 (25). Thorax black without a trace of lighter dusting on the shoulder or light reflections on the pleuræ.

(952. *flava*, L.)

25 (24). Thorax black with grey dusted shoulders, pleuræ spotted.

(953. *marginata*, L.)

26 (23). Third antennal joint with a terminal bristle (III. 19).

27 (28). Large bright coloured species, varying from brown to gold. **170. ASILUS, L.** (954. *crabroniformis*, L.)

28 (27). Grey, greyish yellow, or black species, not bright coloured.

29 (30). Dorsum covered in front as well as behind with equally long bristly hairs.

179. DYSMACHUS, Lw. (964. *trigonus*, Mg.)

30 (29). Front of the dorsum quite bare, or with much shorter hairs than behind.

31 (36). The eighth abdominal segment of the male produced in a point beneath, or furnished with a pointed tuft of hair. Ovipositor always compressed at the sides.

32 (33). Legs all black.

178. EUTOLMUS, Lw. (963. *rufibarbis*, Mg.)

33 (32). Legs partly orange.

177. MACHIMUS, Lw.

34 (35). The point on the under side of the eighth abdominal segment of the male divided at the end so as to appear two-horned. Dark grey species. Hind scutellar bristles black. (961. *atricapillus*, Fln.)

35 (34). The point under the eighth abdominal segment in the male not divided. Yellowish grey species. Hind scutellar bristles yellow.

(962. *rusticus*, Mg.)

36 (31). The eighth abdominal segment in the male not pointed beneath, at most with short hairs which do not appear pointed.

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37 (40). Facial knob small, scarcely taking up the lower half of the face.

38 (39). Abdomen grey.

174. PHILONICUS, Lw.

958. *Philonicus albiceps*, Mg.

It is common on the sandhills below Hart Station, where it lies in bare places among the bent grass, looking like a piece of broken twig, and so is easily overlooked. When disturbed it only flies a few yards and then settles again. The males are much commoner than the females.

39 (38). Abdomen black with white hind margins.

171. RHADIURGUS, Lw. (955. *variabilis*, Ztt.)

40 (37). Facial knob large, and always taking up more than the under half of the face, often three-quarters.

41 (42). Legs spotted or streaked with black and yellow.

175. EPITRIPTUS, Lw. (969. *cingulatus*, F.)

42 (41). Femora black, tibiæ bright yellow, not spotted.

43 (44). Wings brownish on the apical half, much lighter on the basal half; milk-white in the male.

172. PAMPONERUS, Lw. (956. *germanicus*, L.)

44 (43). Wings uniformly brown or yellow, sometimes clear.

45 (46). Dorsum not spotted.

173. ANTIPALPUS, Lw. (957. *varipes*, Mg.)

46 (45). Dorsum spotted.

176. NEOITAMUS, O-Sack. (960. *cyanurus*, Lw.)

FAMILY XIX.—BOMBYLIDÆ.

Mostly thick bodied, hairy, bee-like flies, with very large, extended, often beautifully marked wings, by means of which they hover, apparently motionless, in front of a flower into which the long proboscis is plunged in search of the nectar. In some genera the proboscis is short.

TABLE OF GENERA.

1 (2). Frons broad in both sexes. O.4² open. Proboscis short. ANTHRAX, Scop. (180)

- 2 (1). Eyes almost touching in the male. Proboscis long.
 3 (4). O.6. closed. **182.** PHTHIRIA, Mg. (973. *pulicaria*, Mik.)
 4 (3). O.6. open. O.4² closed. BOMBYLIUS, L. (**181**)

180. ANTHRAX, Scop.

Larvæ parasitic in caterpillars.

- 1 (2). Wings basal, two-thirds brown, with four clear spots.
 (967. *fenestratus*, Fln.)
 2 (1). Wings unmarked.
 3 (4). Abdomen all black in male, or with two light bands
 in the female. (965. *paniscus*, Rossi.)
 4 (3). Abdomen black with white rings on the hind margin
 of all segments. (966. *hottentota*, L.)

181. BOMBYLIUS, L.

Life history not certainly known, probably parasitic on other insects.

- 1 (4). Wings with the front half dark brown, sharply bounded.
 2 (3). Hinder half of the wings spotted. (968. *discolor*, Mik.)
 3 (2). Hinder half of the wings clear.
 969. *Bombylius major*, L.

Common on warm sunny days about the end of April at Gibside and Hesleden hovering over labiate flowers and primroses. It disappears instantly at the slightest movement, but if perfect stillness be observed it will often return to the same spot.

- 4 (1). Wings mostly all clear, or with only the base and front margin somewhat clouded, but not sharply bounded.
 5 (6). Back of the head long-haired. Posterior orbit with a row of black hairs. (971. *canescens*, Mik.)
 6 (5). Back of the head with short cropped hairs. Posterior orbit without black hairs.

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- 7 (8). Legs dark. Femora almost entirely black.
(970. *fugax*, W.)
- 8 (7). Legs light. Femora yellow, at most only black at
the base. (972. *minor*, L.)

FAMILY XX.—THEREVIDÆ.

TABLE OF GENERA.

- 1 (4). Face thickly haired.
- 2 (3). O.4.b.b. closed. THEREVA, Ltr. (183)
- 3 (2). O.4.b.b. open.
184. DIALINEURA, Rnd. (980. *anilis*, L.)
- 4 (1). Face bare. 185. PSILOCEPHALA, Ztt. (981. *ardea*, F.)

183. THEREVA, Ltr.

The wormlike larvæ live in slime and rotting tree trunks.

The specific characters given by Schiner are not very clear, but there seem to be three or four species among the long bent grass at Hart. One with V.4.b.b. open, which, according to Schiner, would be a *Dialineura*, is otherwise so exactly like another with the same cell closed that I doubt the worth of the character. There may be another which I cannot name, and two more which I take to be:

- 1 (2). A brownish species.
974. *Thereva nobilitata*, F.
2 ♂ and 4 ♀, Hart sands, August, 1902.
- 2 (1). A pale grey white-haired species.
979. *Thereva annulata*, F.
6 ♂ and 3 ♀, Hart sands, August, 1902.

FAMILY XXI.—SCENOPINIDÆ.

186. SCENOPINUS, Ltr.

Larvæ in tree fungi.

- 1 (2). Legs black, only the tarsi yellowish.
(983. *niger*, Deg.)
- 2 (1). Legs yellowish.

XXI. 186.

- 3 (4). Frons with a deeply impressed middle line, and in the female also with deep side lines.
(982. *fenestralis*, L.)
- 4 (3). Middle frontal line only slightly impressed, and only a trace of faint side lines in the female.
(984. *glabifrons*, Mg.)

FAMILY XXII.—CYRTIDÆ.

- 1 (2). Proboscis short and hidden; antennæ inserted nearer the vertex. 187. ONCODES, Ltr. (985. *gibbosus*, L.)
- 2 (1). Proboscis entirely wanting; antennæ inserted nearer the mouth.
188. ACROCERA, Mg. (986. *globulus*, Pz.)

FAMILY XXIII.—EMPIDÆ.

TABLE OF GENERA.

- 1 (20). V.3. forked (V. 10).
- 2 (3). Fore coxæ as long as, or longer than the much thickened fore femora.
HEMERODROMIA, Mg. (204)
- 3 (2). Fore coxæ not so long as the normal fore femora.
- 4 (7). Proboscis much longer than the head (VI. 19).
- 5 (6). Hind legs longer than the rest. Hind femora normal.
EMPIS, L. (192)
- 6 (5). All legs about the same length. Hind femora much thickened.
PACHYMERIA, Steph. (193)
- 7 (4). Proboscis not longer than the head.
- 8 (9). O.5¹ rather shorter than O.6¹. Wings spotted.
ARDOPTERA, Mcq. (205)
- 9 (8). O.5¹ longer than O.6¹. Wings generally not spotted.
- 10 (11). Third joint of antennæ lengthened, and terminating in a long bristle. Costa ending at the wing tip.
207. TRICHOPEZA, Rnd. (1108. *longicornis*, Mg.)
- 11 (10). Neither the third antennal joint nor its arista specially long. Costa produced beyond the tip of the wing.
- 12 (13). O.8. (anal angle of the wing) very small. Wings wedge-shaped.
CLINOCERA, Mg. (203)

XXIII.

- 13 (12). O.8. very prominent, springing from the base at almost a right angle.
- 14 (15). Proboscis the length of the head, conical, and pointing downwards (VI. 20). Fore metatarsi usually much thickened in the male. HILARA, Mg. (195)
- 15 (14). Proboscis much shorter than the head, horizontal, or incurved. Fore tarsi not thickened in the male.
- 16 (17). Antennæ ending with a bristle.
206. GLOMA, Mg. (1107. *fuscipennis*, Mg.)
- 17 (16). Antennæ ending with a two-jointed style.
- 18 (19). Proboscis incurved.
194. RAGAS, Mg. (1050. *unica*, Wlk.)
- 19 (18). Proboscis horizontal.
196. OREOGETON, Schin. (1075. *flavipes*, Mg.)
- 20 (1). V.3. not forked (V. 11, 12).
- 21 (22). Fore coxæ as long as the thickened fore femora.
{ 208. LEPIDOMYIA, Bigot.
{ 209. THAMNODROMIA, Mik.
- 22 (21). Fore coxæ shorter than the fore femora.
- 23 (36). O. absent (V. 12).
- 24 (33). O.6. absent.
- 25 (26). Fore femora very much thickened and thorny beneath.
Wings generally with dark bands.
{ TACHYPEZA, Mg. (213)
{ TACHISTA, Lw. (214)
- 26 (25). Fore femora not thickened. Wings without dark bands.
- 27 (28). O.4¹ as long as or longer than O.5¹.
CHERSODROMIA, Wlk. (217)
- 28 (27). O.4¹ shorter than O.5¹.
- 29 (30). Last antennal joint lengthened—conical.
216. ELAPHROPEZA, Mcq. (1129. *ephippiata*, Fln.)
- 30 (29). Last antennal joint short—oval or round.
- 31 (32). Arista terminal. DRAPETIS, Mg. (211)
- 32 (31). Arista dorsal (III. 27). STILPON, Lw. (212)
- 33 (24). O.6. present.
- 34 (35). Antennæ with a terminal bristle. Fore and mid femora much thickened, and generally thorny beneath, TACHYDROMIA, Mg. (218)

- 35 (34). Antennæ with a terminal style, which is two-jointed and bent downwards (III. 32). *CYRTOMA*, Mg. (190)
- 36 (23). O. present (V. 11).
- 37 (38). O.8. (anal angle of the wing) scarcely apparent.
210. SCIODROMIA, Hal. (1112. *immaculata*, Hal.)
- 38 (37). O.8. prominent.
- 39 (40). Proboscis long and perpendicular.
RHAMPHOMYIA, Mg. (191)
- 40 (39). Proboscis short, or, if long, then horizontal.
- 41 (42). O.6¹ longer than O.5¹. *HYBOS*, Mg. (189)
- 42 (41). O.6¹ shorter than O.5¹.
- 43 (50). Third joint of antennæ much lengthened, and terminating in a style.
- 44 (45). Hind femora thickened and thorny beneath. The tibiæ shorter than the femora and somewhat bent.
CEDALEA, Mg. (199)
- 45 (44). Hind femora not thickened and without thorns. The tibiæ as long as the femora, and straight.
- 46 (47). Proboscis longer than the head, and horizontally protruding (VI. 22). *EUTHYNEURA*, Mg. (202)
- 47 (46). Proboscis shorter than the head, scarcely protruding (VI. 21).
- 48 (49). Legs yellow. *TRICHINA*, Mg. (197)
- 49 (48). Legs black. *MICROPHORUS*, Mcq. (198)
- 50 (43). Third joint of antennæ short, and with a terminal bristle (III. 26).
- 51 (52). Third joint of antennæ conical. Bristle exactly terminal. *LEPTOPEZA*, Mcq. (201)
- 52 (51). Third joint of antennæ oval. Bristle inserted before the end, almost dorsal (III. 26). *OCYDROMIA*, Mg. (200)

TABLES OF SPECIES.

189. HYBOS, Mg.

Life history unknown.

- 1 (2). Fore and mid legs black, wings brown.

987. *Hybos grossipes*, L.

Males common. Hesleden, Shull, Wearhead, Bishop Auckland. I have not as yet taken the female.

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- 2 (1). At least the middle legs yellow
 988. *Hybos femoratus*, Mull.
 Wearhead, 3 ♂, August, 1901.

190. CYRTOMA, Mg.

Life history unknown.

- 1 (2). Hind metatarsi much thickened. (989. *nigra*, Mg.)
 2 (1). Hind metatarsi not thickened.
 3 (4). Wings blackish. Hind tibiæ rather dilated.
 990. *Cyrtoma spuria*, Fln.
 Harperley, 1 ♀, June, 1900; Bishop Auckland, 2 ♀,
 June–August, 1902.
 4 (3). Wings grey (♂) or colourless (♀). Hind tibiæ slender.
 Femora rather orange. (991. *melæna*, Hal.)

191. RAMPHOMYIA, Mg.

Life history not fully known. 998 has been found in earth.

- 1 (50). Grey or black species.
 2 (43). Halteres pale.
 3 (32). Legs dark, black or brown.
 4 (18). Large species, 4-6 mm. Thorax distinctly striped.
 5 (8) (11). Thorax with two stripes.
 6 (7). Hind tibiæ short haired or bare in the male. O. produced nearly to the wing margin in the female.
 (992. *spissirostris*, Fln.)
 7 (6). Hind tibiæ long haired in both sexes. O. in the middle of the wing in both sexes.
 (993. *dissimilis*, Ztt.)
 8 (5) (11). Thorax with four stripes.
 9 (10). Legs not feathered.
 994. *Ramphomyia nigripes*, F.
 Evenwood, 2 ♂, Harperley, 1 ♂, Wearhead, 1 ♀,
 June–August, 1900–1901.
 10 (9). Legs feathered in female. (1013. *cæsia*, Mg.)
 11 (5) (8). Thorax with three stripes.
 12 (17). Hind femora and tibiæ simple in both sexes.

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13 (16). Antennæ unicolorous, wings brownish in both sexes.

14 (15) (15½). Hind legs furrowed, wings uniformly brown.

995. *Ramphomyia sulcata*, Fln.

Common. Hesleden, Bishop Auckland, Escomb,
Waskerley, ♂ and ♀, June–July.

15 (14) (15½). Hind legs not furrowed, wings brown with a
black mark on the hind margin. 6 mm.

(996. *cinerascens*, Mg.)

15½ (14) (15). Hind legs not furrowed, wings dark brown,
darker on the costa. 4 mm. (*fuscipennis*, Ztt.)

In Verrall's list 1001 is given *fumipennis*, Ztt. There is no
such name in Zetterstedt, but there is *fuscipennis*, Ztt., and
fuscipennis, Ztt. See Nos. 15½ and 29 of this table.

16 (13). Antennæ with yellow base, wings of the male clear.

(997. *albosegmentata*, Ztt.)

17 (12). Male hind femora with thornlike processes beneath.

(998. *spinipes*, Fln.)

18 (4). Small species, 2–4 mm. Thorax grey, scarcely
marked, or, shining black.

19 (20). Wings with a dark streak in the middle.

(1006. *atra*, Mg.)

20 (19). Wings without a dark middle streak, milky or nearly
clear.

21 (28). Legs not plumed.

22 (23). Wings with O. open, a X-vein being wanting.

(1008. *anomalipennis*, Ztt.)

23 (22). Wings with O. complete.

24 (25). Male hind femora with two teeth, hind tibiæ with one
tooth.

999. *Ramphomyia dentipes*, Ztt.

Bishop Auckland, 4 ♂ and 1 ♀, June–July, 1901.

25 (24). Male hind legs normal.

26 (27). Stigma present. Legs all black. Anal thread in the
male absent. (1007. *simplex*, Ztt.)

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- 27 (26). Stigma absent. Knees white. Anal thread in the male present. (1000. *filata*, Ztt.)
- 28 (21). Legs plumed.
- 29 (30) (31). Female mid femora slightly ciliated on both sides; hind femora thickly plumed on both sides; hind tibiæ slightly ciliated on the outer side. (*fascipennis*, Ztt.)
- 30 (29) (31). Female hind femora thinly ciliated. Hind tibiæ with long dark plumes on the outer side, and shortly ciliated on the inner. (1004. *costata*, Ztt.)
- 31 (29) (30). Male fore metatarsi thickened. Female hind femora plumed. (1003. *tarsata*, Mg.)
- 32 (3). Legs yellow or orange, often with parts black.
- 33 (36). Legs simple, male anus not thickened.
- 34 (35). Thorax shining black. Proboscis very thin, as long as the head and breast. (1005. *hybotina*, Ztt.)
- 35 (34). Thorax grey. Proboscis about the length of the head, and thick.
1014. *Ramphomyia variabilis*, Fln.?
Shull, 1 ♂ and 3 ♀, Sept., 1900; Wearhead, 3 ♂, Aug., 1901.
- 36 (33). Legs feathered in female. Male anus much thickened.
- 37 (38). Antennæ black and yellow.
1012. *Ramphomyia pennata*, Mcq.
Bishop Auckland, 1 ♀, June, 1902.
- 38 (37). Antennæ all black.
- 39 (40). Dorsum with four stripes. (1013. *casia*, Mg.)
- 40 (39). Dorsum three with stripes.
- 41 (42). Female mid femora slightly ciliated, hind femora and tibiæ thickly plumed. Legs all black. (1009. *plumipes*, Fln.)
- 42 (41). Female mid femora bare, hind femora and tibiæ thickly plumed. Knees white. (1010. *geniculata*, Mg.)
- 43 (2). Halteres dark.
- 44 (47). Legs normal.

- 45 (46). Thorax grey. (1016. *sciarina*, Fln.)
 46 (45). Thorax shining black.

1017. *Ramphomyia umbripennis*, Mg.

Bishop Auckland, 2 ♂ and 3 ♀, June–July, 1901–02;
 Brancepeth, 2 ♂, June, 1902.

- 47 (44). Legs feathered.
 48 (49). Large species, 3 mm. Hind femora feathered; hind
 tibiæ ciliated. (1015. *æthiops*, Ztt.)
 49 (48). Small species, 1 mm. Female hind tibiæ ciliated on
 outer side. (1011. *gibba*, Fln.)
 50 (1). Yellow species.

1018. *Ramphomyia flava*, Fln.

Hesleden, 1 ♂ and 9 ♀, July–August, 1900.

192. EMPIS, L.

Life history not fully known.

- 1 (40). Thorax black or grey without a sign of yellow.
 2 (11). Large species, at least 6 mm., generally more.
 3 (8). Dorsum unstriped, or with two or three stripes.
 4 (7). Legs with at least the fore and mid femora dark.
 5 (6). Dorsum grey with three dark stripes, large species,
 10 mm.

1019. *Empis tessellata*, F.

Common everywhere.

- 6 (5). Dorsum shining black, with white reflections in certain
 lights. Small species, 6 mm. (1031. *lucida*, Ztt.)
 7 (4). Legs all yellow with dark tarsi and joints.

1020. *Empis livida*, L.

Hesleden, 2 ♂ and 9 ♀, August, 1899–1900.

- 8 (3). Dorsum with four stripes.
 9 (10). Male tibiæ ciliated outside. Wings of the female
 very broad. Brown species.

1022. *Empis borealis*, L

Wearhead, 1 ♀, June, 1901.

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- 10 (9). Male tibiæ with only a few bristles, not ciliated.
Wings of the female of normal shape. Grey-black species. (1021 *opaca*, F.)
- 11 (2). Small species, 5 mm., mostly 4 mm.
- 12 (19). V.4. not reaching the margin.
- 13 (14). Halteres black.
1039. *Empis vitripennis*, Mg.
Shull, 1 ♂, September, 1900.
- 14 (13). Halteres white or yellow.
- 15 (16). Fore metatarsus thickened in the male. Neither the tibiæ nor the femora feathered in the female.
(1038. *albinervis*, Mg.)
- 16 (15). Fore metatarsus not thickened in the male. Tibiæ or femora feathered in the female.
- 17 (18). Hind femora only, feathered in the female.
(*hyalipennis*, Fln.)
- 18 (17). Mid femora, hind femora, and hind tibiæ feathered in the female. (1037. *albipennis*, Mg.)
- 19 (12). V.4. quite reaching the margin.
- 20 (21). Halteres black. Fore and hind metatarsi thickened. Hind tibiæ dilated in the female, outer side ciliated.
1043. *Empis chioptera*, Fln.
Bishop Auckland, 2 ♂, May, 1900.
- 21 (20). Halteres pale.
- 22 (25). Legs yellow, or orange.
- 23 (24). Legs of the female not plumed. (1047. *grisea*, Fln.)
- 24 (23). Mid femora, hind femora, and hind tibiæ of the female plumed. (1034. *pennaria*, Fln.)
- 25 (22). Legs black or dark brown.
- 26 (29). Dorsum shining black, unstriped.
- 27 (28). Wings brown. Legs black, in the male feathered as in 31. (*pennipes*, L., 1033)
- 28 (27). Wings clear. Legs brown, tarsi and tips of tibiæ black. (1030. *nigritarsis*, Mg.)
- 29 (26). Dorsum grey or dark brown, traces of stripes.
- 30 (33). Legs with scale-like hairs, *i.e.*, feathered.

31 (32). The end of the fore tibiæ, the fore metatarsi, the inside of the mid femora, the outside of the mid tibiæ, and both sides of the hind femora and tibiæ feathered in the female. Wings brown. Male organ with an upward-bent thread.

1033. *Empis pennipes*, L.

Bishop Auckland, 1 ♀, June, 1900; Brancepeth, 3 ♀, June, 1902.

32 (31). All femora and tibiæ thickly feathered in the female.

(1036. *decora*, Mg., ♀)

33 (30). Legs with only ordinary hairs, not feathered.

34 (39). Wings brown.

35 (36). Stigma black. Femora and tibiæ deeply ciliated.

(1045. *lepidopus*, Mg.)

36 (35). Stigma absent. Male organ with an upward-bent hook.

37 (38). Mid femora and mid and hind tibiæ with a row of bristles above and beneath. (1036. *decora*, Mg., ♂)

38 (37). Legs hairy, but not ciliated. (1032. *brunnipennis*, Mg.)

39 (34). Wings clear. Stigma absent. Male organ short, without a thread. Mid and hind femora and hind tibiæ ciliated in the female.

1035. *Empis vernalis*, Mg.

Hesleden, Harperley, Bishop Auckland, 3 ♂ and 3 ♀, June, 1900.

40 (1). Species yellow, at least on the pleuræ and humeri.

41 (42). Thorax all yellow, unmarked.

1028. *Empis lutea*, Mg.

Hesleden, 3 ♀, August, 1902.

42 (41). Dorsum with a black line or lines.

43 (44) (47). Dorsum with one black line in the middle.

1023. *Empis stercorea*, L.

Harperley, 1 ♀, June, 1900, 1 ♀, June, 1902; Shipley, 1 ♂; Shull, 1 ♀, June, 1904; Hesleden, 1 ♀, June, 1902.

XXIII. 192.

44 (43) (47). Dorsum with two black lines.

45 (46). Pleuræ all yellow. (1026. *bilineata*, Lw.)

46 (45). Pleuræ with dark marks.

1025. *Empis punctata*.

Common. Bishop Auckland, Harperley, Escomb,
10 ♂ and 4 ♀, May-June, 1897-1900.

47 (43) (44). Dorsum with three black stripes, of which the
middle one is long, the side ones short.

1024. *Empis trigramma*, Mg.

Common everywhere, May-June.

193. PACHYMERIA, Steph.

1 (2). Palpi yellow, generally hidden, male organ orange
at the end. (1048. *femorata*, F.)

2 (1). Palpi black, hairy, and prominent; male organ all
black. (1049. *palparis*, Egg.)

195. HILARA, Mg.

Life history unknown.

TABLE OF SPECIES.

1 (31). Dorsum black or grey.

2 (5). Fore tibiæ and tarsi thickly fringed with long hairs
outside.

3 (4). Wings greyish. Legs orange with the tarsi and the
ends of the tibiæ black. (1051. *matrona*, Hal.)

4 (3). Wings yellowish, legs pale yellow with brown tarsi.
(1052. *cilipes*, Mg.)

5 (2). Fore tibiæ and tarsi with only a few, not specially
long hairs, or bare.

6 (13). Legs yellow or light brown.

7 (10). Halteres white or yellow.

8 (9). Dorsum unstriped (♀), or with one stripe (♂). Fore
metatarsi much thickened. (1067. *litorea*, Fln.)

9 (8). Dorsum with two stripes. Legs yellow, hind tibiæ
and all tarsi black. Size, 2 mm.

1066. *Hilara canescens*, Ztt.

Bishop Auckland, 1 ♂, 4 ♀, July, 1901; Harperley,
2 ♂, June, 1900; Hesleden, 1 ♀, August, 1902.

- 10 (7). Halteres black or brown.
- 11 (12). Dorsum with one stripe, or unstriped. Hind legs often dark. Tibiæ not bristly.
1060. *Hilara manicata*, Mg.
Bishop Auckland, 1 ♂, July, 1900.
(1058. *squalens*, Ztt.) seems to be a slightly less pubescent variety of this.
- 12 (11). Dorsum with two stripes, or unstriped. All legs yellow, tibiæ bristly. (1068. *lurida*, Fln.)
- 13 (6). Legs black or dark brown.
- 14 (24½) (25) (30). Dorsum unstriped.
- 15 (16). Dorsum slate-coloured. (1057. *niveipennis*, Ztt.)
- 16 (15). Dorsum black.
- 17 (20). Tibiæ bare.
- 18 (19). Hind femora thickened and curved.
(1056. *nitidula*, Ztt.)
- 19 (18). Hind femora normal. (1059. *pinetorum*, Ztt.)
- 20 (17). Tibiæ with bristles on the outer side.
- 21 (22). Wings quite clear. (1061. *clypeata*, Mg.)
- 22 (21). Wings darkish.
- 23 (24). Shining black. Female hind tibiæ not wedge-shaped.
1069. *Hilara chorica*, Fln.
Escomb, 3 ♂, May-June, 1899.
- 24 (23). Dull black. Female hind tibiæ wedge-shaped.
(1062. *nigrina*, Fln.)
- 24½ (14) (25) (30). Dorsum with two stripes. Legs dark brown. (1063. *fuscipes*, F.)
- 25 (14) (24½) (30). Dorsum with three stripes.
- 26 (27). Tibiæ nearly bare on the outer side.
1055. *Hilara maura*, F.
Common everywhere.
- 27 (26). Tibiæ with bristles on the outer side.
- 28 (29). Wings brownish in both sexes. Fore metatarsus very much thickened in the male.
(1053. *pilosa*, Ztt.)

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29 (28). Wings quite clear in the male. Brownish about the stigma in the female. Fore metatarsi scarcely thickened in the male. (1054. *interstincta*, Fln.)

30 (14) (24½) (25). Dorsum with four stripes.

1064. *Hilara quadrivittata*, Mg.

Bishop Auckland, 1 ♀, June, 1901.

31 (1). Dorsum yellow.

32 (33). Entirely yellow species with white dusting. Size, 2-2½ mm. (1072. *tenella*, Fln.)

33 (32). Thorax yellow with pale stripes. Abdomen dark brown.

1074. *Hilara thoracica*, Mcq.

Bishop Auckland, 2 ♀, June, 1901; Hesleden, 2 ♂, August, 1902.

197. TRICHINA, Mg.

1 (2). Wings brownish, hind tibiæ club-shaped.

(1076. *clavipes*, Mg.)

2 (1). Wings clear, hind tibiæ normal. (1077. *flavipes*, Mcq.)

198. MICROPHORUS, Mcq.

1 (2). Hind tibiæ and metatarsi much dilated.

(1079. *anomalus*, Mg.)

2 (1). Hind tibiæ and metatarsi normal.

1080. *Microphorus velutinus*, Mcq.

Wynyard, 1 ♂, May, 1902.

199. CEDALEA, Mg.

Life history unknown.

1 (4). Wings quite clear. Halteres pale yellow, at least the fore tibiæ yellow.

2 (3). Hind femora with the end portion black.

(1082. *stigmatella*, Ztt.)

3 (2). Hind femora entirely yellow. (1081. *flavipes*, Ztt.)

4 (1). Wings smoky, halteres dark, all tibiæ black.

1083. *Cedalea holmgreni*, Ztt.

Bishop Auckland, 2 ♀, June, 1901.

200. OXYDROMIA, Mg.

Life history unknown.

1084. *Oxydromia glabricula*, Mg.

Hesleden, 1 ♂; Bishop Auckland, 2 ♂, 2 ♀; Shull,
1 ♀; April–September, 1900–01.

201. LEPTOPEZA, Mcq.

1 (2). Thorax black, abdomen dark brown.

(1085. *flavipes*, Mg.)

2 (1). Thorax reddish yellow, abdomen yellowish beneath
on each side.

(1086. *ruficollis*, Mg.)

202. EUTHYNEURA, Mcq.

1 (2). Tip of the antennæ sharp-pointed, awl-shaped.

(1087. *myrtilli*, Mcq.)

2 (1). Tip of the antennæ blunt, obtuse.

(1088. *myricæ*, Wlk.)

203. CLINOCERA, Mg.

Life history unknown.

1 (2) (5). All black species.

(1092. *nigra*, Mg.)

2 (1) (5). All grey species.

3 (4). Wings grey with a round brown spot at the stigma.

1096. *Clinocera bistigma*, Curt.

Wearhead, 1 ♂, 3 ♀, August, 1901.

4 (3). Wings clear and unspotted.

(1095. *lota*, Hal.)

5 (1) (2). Species olive-brown above, grey beneath.

6 (7). Legs blackish, tips of the femora pale red, fore femora
not spined.

(1093. *stagnalis*, Hal.)

7 (6). Legs black, hind legs and fore femora reddish, fore
femora with three spines beneath.

1094. *Clinocera fontinalis*, Hal.

Bollihope, 1 ♀, June, 1901.

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204. HEMERODROMIA, Mg.

- 1 (4). O. present.
- 2 (3). Stigma present. (1099. *precatoria*, Fln.)
- 3 (2). Stigma absent, wings clear. (1100. *melanocephala*, Hal.)
- 4 (1). O. absent.
- 5 (6) (7). Dorsum black with brownish stripes. (1101. *albicornis*, Mg.)
- 6 (5) (7). Dorsum orange in the male, greyish in the female. (1102. *oratoria*, Fln.)
- 7 (5) (6). Dorsum orange with a black stripe extending to the scutellum. (1103. *unilineata*, Ztt.)

205. ARDOPTERA, Mcq.

Life history unknown.

- 1 (2). Wings grey with six colourless spots along the hind border and at the tips. (1105. *guttata*, Hal.)
- 2 (1). Wings grey, brownish along the fore border, chequered with white spots, which are largest and most distinct along the fore border. (1104. *Ardoptera irrorata*, Fln.)
Bollihope, 1 ♂, June, 1901.

209. THAMNODROMIA, Mik.

- 1 (2). Dorsum grey, abdomen all dark. (1110. *albiseta*, Ztt.)
- 2 (1). Thorax and abdomen reddish yellow, each with a dark central stripe. (1111. *vocatoria*, Fln.)

211. DRAPETIS, Mg.

Life history unknown.

- 1 (5). Halteres brownish.
- 2 (3) (4). Wings quite clear. $O.4^1$ distinctly shorter than $O.5^1$. (1113. *assimilis*, Fln.)
- 3 (2) (4). Wings quite clear. $O.4^1$ and $O.5^1$ nearly equal, $V.4^3$ somewhat looped. (1116. *pusilla*, Lw.)
- 4 (2) (3). Wings brownish. (1115. *exilis*, Mg.)
- 5 (1). Halteres whitish. Hind tibiæ elongated at the tips, spatula-like. (1114. *nervosa*, Lw.)

212. STILPON, Lw.

- 1 (2). Wings with only a slight shading. V.1. very short.
V.2. ending in the costa before the middle of the
wing. (1118. *graminum*, Fln.)
- 2 (1). Wings with a distinct brown band (V. 11).
(1119. *lunata*, Wlk.)

213. TACHYPEZA, Mg., and **214.** TACHISTA, Lw.

Life history unknown.

- 1 (2) (3). Wings clouded along the veins.
(1120. *Tachypeza nubila*, Mg.)
- 2 (1) (3). Wings with only one dark band, or all brownish
except the clear tip.
(1121. *Tachypeza fuscipennis*, Fln.)
- 3 (1) (2). Wings with two dark bands.
- 4 (9). Bands of the wings not united.
- 5 (8). Fore femora all yellow, or at most with a brown
mark above.
- 6 (7). Fore tibiæ orange; all the tarsi pale yellow with
brown rings. O.2., O.3., and O.4. about equally
broad. (1123. *Tachista arrogans*, L.)
- 7 (6). Fore tibiæ black; all tarsi black except the metatarsi,
which are orange. O.3. broader than O.2. or
O.4., the latter very narrow.
(*Tachista cimicoides*, F.)
- 8 (5). Fore femora yellow with a black ring near the base
and another near the tip. O.3. broader than O.2.
or O.4. (1125. *Tachista annulimana*, Mg.)
- 9 (4). Bands of the wings united at the fore margin. O.2.,
O.3., and O.4. about equally broad.
- 10 (11). Bands of the wings very broad. Larger species,
 $2\frac{1}{2}$ mm. (1124. *Tachista connexa*, Mg.)
- 11 (10). Clear space between the wing bands broader than
the dark bands. Small species, $1\frac{1}{2}$ mm.
(1127. *morio*, Ztt.)

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217. *CHERSODROMIA*, Wlk.

Life history unknown. Shore species.

- 1 (6). Black species.
- 2 (5). Small species, less than 2 mm.
- 3 (4). Wings very short, brownish white along hind border, veins black, legs stout.
1130. *Chersodromia arenaria*, Hal.
Hesleden, 2 ♂ and 2 ♀, August, 1900. Common, but very difficult to catch, as they run rapidly among the stones and sand.
- 4 (3). Wings clouded; veins brown; hind tibiæ bristly.
(1131. *cursitans*, Ztt.)
- 5 (2). Large species, 3½ mm. (1132. *hirta*, Wlk.)
- 6 (1). Hoary species.
- 7 (8). Legs brown; very small species, ⅔ mm.
(1133. *incana*, Wlk.)
- 8 (7). Legs yellow. Pleuræ with a black round shining spot above the middle coxæ. Larger species, 2 mm. (1134. *speculifera*, Wlk.)

218. *TACHYDROMIA*, Mg.

Life history unknown.

- 1 (9). Dorsum all yellow, or yellow with a black stripe.
- 2 (6). Dorsum and abdomen all yellow.
- 3 (4) (5). Head yellow, wing veins black. (1135. *lutea*, Fln.)
- 4 (3) (5). Head hoary, wings colourless, veins tawny, very pale species. (1136. *glabra*, Mg.)
- 5 (3) (4). Head hoary, silvery white in front; wings yellowish, especially along the fore margin; veins yellow.
(1138. *flavipennis*, Wlk.)
- 6 (2). Dorsum with a black stripe, abdomen dark.
- 7 (8). Abdomen brown or black, sometimes tawny beneath, but without hoary bands. (1137. *pectoralis*, Fln.)
- 8 (7). Abdomen black with four broad hoary bands.
(1140. *pulchella*, Wlk.)
- 9 (1). Dorsum not yellow.

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- 10 (68). Dorsum not shining black, mostly grey, or if black then with lighter dusting.
- 11 (57). Legs mostly orange or yellow, at most the tarsi dark, or a dark streak on the upper side of the femora.
- 12 (25). Antennæ entirely black.
- 13 (14). Antennæ rather longer than the head.
(1144. *longicornis*, Mg.)
- 14 (13). Antennæ shorter than the head.
- 15 (16). Last joint of the antennæ lengthened, nearly as long as the arista. Abdomen black with narrow grey borders to the segments; tarsi dark brown.
(1161. *maculipes*, Mg.)
- 16 (15). Last joint of the antennæ short; abdomen entirely black above without any grey incisions; tarsi black or brown ringed.
- 17 (18). Mid femora in the male, and all femora in the female with at least a dark stripe or spot.
(1153. *agilis*, Mg.)
- 18 (17). At least the fore and mid femora yellow.
- 19 (24). Large species, $2\frac{1}{2}$ –3 mm.
- 20 (23). Abdomen all shining black; mid knees dark.
- 21 (22). Wing-veins black; hind knees not dark; $2\frac{1}{2}$ mm.
(1159. *dichroa*, Mg.)
- 22 (21). Wing-veins brown; hind knees and tip of hind tibiæ dark; 3 mm.
(1162. *flavipes*, F.)
- 23 (20). Abdomen black above, tawny beneath; mid knees not dark.
(1160. *commiles*, Wlk.)
- 24 (19). Small species, 1 – $1\frac{1}{2}$ mm.; legs all yellow except the tips of the tarsi.
(1157. *cothurnata*, Mcq.)
- 25 (12). Antennæ at least partly yellow, white, or brown.
- 26 (31) (34). Antennæ all yellow or white, not more than the terminal arista dark.
- 27 (28). Antennæ white.
(1178. *albicornis*, Ztt.)
- 28 (27). Antennæ yellow.
- 29 (30). Abdomen black with grey incisions; tips of the last tarsal joints dark.
(1175. *flavicornis*, Mg.)

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- 30 (29). Abdomen shining black; tarsi entirely yellow, quite unmarked. (1171. *ecalceata*, Ztt.)
- 31 (26) (34). Antennæ brown.
- 32 (33). Antennæ longer than the head, first joint black, small species, 1 mm. (1145. *dissimilis*, Fln.)
- 33 (32). Antennæ shorter than the head, size 3 mm. (1163. *compungens*, Wlk.)
- 34 (26) (31). Antennæ yellow, with at least the end of the third joint brown or black.
- 35 (38). Abdomen partly yellow.
- 36 (37). Abdomen black above, yellow beneath. (1176. *pallidiventris*, Mg.)
- 37 (36). Abdomen yellow-brown with two rows of dark spots. (1167. *varia*, Wlk.)
- 38 (35). Abdomen all black or grey.
- 39 (48). Tarsi black or brown ringed.
- 40 (43). Wings grey at the tips, yellow at the base of the fore border.
- 41 (42). Wings brown-grey, yellow along the fore border, palpi yellow, third antennal joint all black. (1169. *infuscata*, Mg.)
- 42 (41). Wings pale yellow, grey at the tips, palpi white, only the tip of the third antennal joint black. (1168. *divisa*, Wlk.)
- 43 (40). Wings clear, or at most uniformly yellowish.
- 44 (45). V.3. and V.4. not parallel, but distinctly converging near the wing-tip. Palpi large. Abdomen with grey side-spots.
1170. *Tachydromia cursitans*, F.
Hesleden, 1 ♂, August, 1899; Bishop Auckland, 2 ♀, July, 1901-02.
- 45 (44). V.3. and V.4. parallel; palpi small.
- 46 (47). Palpi yellow; tip of the antennæ brown; base of the first abdominal segment grey.
1177. *Tachydromia bicolor*, F.
Hesleden, 1 ♂, August, 1899.

- 47 (46). Palpi white; tip of the antennæ black; abdomen all shining black. (1175. *articulata*, Mcq.)
- 48 (39). Tarsi all yellow, or only the last joints dark.
- 49 (50). V.3. and V.4. parallel; palpi white. (1174. *calceata*, Mg.)
- 50 (49). V.3. and V.4. converging, not quite parallel.
- 51 (52). Abdomen black with grey marks. (1166. *fasciata*, Mg.)
- 52 (51). Abdomen all black.
- 53 (54). Base of antennæ and legs pale yellow; palpi white; tarsi with brown ends; $2\frac{1}{2}$ –3 mm. (1173. *candicans*, Fln.)
- 54 (53). Base of antennæ and legs tawny.
- 55 (56). Size $3\frac{1}{2}$ mm. Palpi yellow; head shining white in front; tarsi with brown ends; femora brown, tawny at the base and tip. (1172. *laticincta*, Wlk.)
- 56 (55). Size 2 mm. Palpi whitish; head hoary; legs stout; ends of the tarsi not dark. (1164. *robusta*, Wlk.)
- 57 (11). Legs yellow or orange with sharply bounded black parts on the femora and tibiæ, or mostly black.
- 58 (65). All the femora broadly black, only the extreme base or tip yellow.
- 59 (64). Tibiæ mostly pale.
- 60 (63). All the tibiæ entirely pale except the tip of the hind tibiæ.
- 61 (62). Large species, $2\frac{1}{2}$ –3 mm.; tarsi ringed. (1165. *annulata*, Fln.)
- 62 (61). Small species, $1\frac{1}{2}$ mm. Tarsi orange with only the last joint black. (1156. *exigua*, Mg.)
- 63 (60). Mid and hind tibiæ black at the base and tip. (1151. *minuta*, Mg.)
- 64 (59). Legs all black except the fore and mid knees and the bases of the fore tibiæ and joints of fore tarsi. (1154. *dubia*, Mg.)
- 65 (58). Fore and hind femora yellow.

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- 66 (67). Thorax and scutellum dusted with orange.
(1158. *notata*, Mg.)
- 67 (66). Thorax grey with a light grey spot on the scutellum.
(1152. *fulvipes*, Mg.)
- 68 (10). Dorsum shining black.
- 69 (74). Antennæ shorter than the head.
- 70 (73). Legs with more than the joints and tarsi dark.
- 71 (72). Legs brown, the femora lighter.
(1155. *castanipes*, Mg.)
- 72 (71). Legs tawny, with the hind femora black.
(1141. *munda*, Wlk.)
- 73 (70). Legs nearly entirely yellow, only the last tarsal joint black. All femora equally thick, the mid femora ciliated below.
(1142. *ciliaris*, Fln.)
- 74 (69). Antennæ longer than the head.
- 75 (78). Legs entirely yellow or orange.
- 76 (77). Legs yellow, wings clear, veins pale, 3 mm.
(1150. *pallipes*, Fln.)
- 77 (76). Legs orange, wings greyish, veins dark, arista and halteres white, 2 mm.
(1149. *albisetæ*, Pz.)
- 78 (75). Legs with at least part of the tarsi black.
- 79 (82). Fore tibiæ yellow.
- 80 (81). Legs all yellow except the outer tarsal joints.
(1148. *pubicornis*, Ztt.)
- 81 (80). All tarsi wholly black, also a streak on the mid femora above, a ring on the tip of the hind femora, and the tip of the hind tibiæ dark. A dark mark on the costa at the end of V.1.a.
(1147. *stigmatella*, Ztt.)
- 82 (79). Fore tibiæ dark.
- 83 (84). Mid and hind tibiæ and metatarsi all pale.
(1143. *nigritarsis*, Fln.)
- 84 (83). Mid and hind tibiæ at the tip and the metatarsi dark.
(1146. *comptus*, Wlk.)

FAMILY XXIV.—DOLICHOPODIDÆ.

The life history of only a few species is known. The larvæ have been found in damp earth, under bark and leaves, &c.

Mr. Verrall has published a series of tables of the British genera in the Entomologist's Monthly Magazine, July, 1904, to October, 1905. I have added many particulars from them, especially in the females of Dolichopus, &c., but have also kept partly to the tables I had already prepared, taken from Schiner. Mr. Verrall follows a somewhat different order. Students should consult his tables, where further particulars will be found as to distribution, &c. The characters apply mostly to the males. It is often impossible to identify the female by herself.

TABLE OF GENERA.

- 1 (61). Arista dorsal, or at least not exactly terminal, that is, not exactly in the middle of the end of the third joint (III. 33, 34).
 - 2 (3). V.4. forked, V.4.a. bent upwards towards V.3., which it almost meets. PSILOPUS, Mg. (219)
 - 3 (2). V.4. neither forked nor bent upwards towards V.3., but straight, or at most bayonet-shaped (V. 14), or slightly bent towards V.3., but never like a X-vein.
 - 4 (56). X.5. about the middle of the wing, or not much beyond it, and always shorter than the last section of V.5., that is V.5⁴ (V. 14).
 - 5 (15). Yellow or grey species, not metallic green, or if partly metallic green, then the wings, and especially the veins, bright yellow.
 - 6 (11) (12). Acrostichal bristles present in two rows.
 - 7 (10). V.6. distinct to the margin, male organs usually prominent.
 - 8 (9). Male organs prominent, and bent hood-like under the abdomen. NEURIGONA, Rnd. (220)
 - 9 (8). Male organs small and hidden; hind metatarsus with a tuft of bristles and notched beneath in the male.
- 221. EUTARSUS, Lw. (1188. *aulicus*, Mg.)**

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- 10 (7). V.6. very faint, male organs not prominent, arista almost terminal. ACHALCUS, Lw. (241)
- 11 (6) (12). Acrostichal bristles in one row, or irregular; antennæ and abdomen mostly orange.
254. BATHYCRANIUM, Strobl. (1360. *bicolorellus*, Ztt.)
- 12 (6) (11). Acrostichal bristles absent.
- 13 (14). Bristles on the thorax and scutellum black, genital lamellæ concealed; very small species, scarcely 1 mm.
256. MICROMORPHUS, Mik. (1362. *albipes*, Ztt.)
- 14 (13). Bristles on the thorax and scutellum yellow, male organ a large swollen knob, dorsum with a deep impression in front of the scutellum; at least 2 mm. XANTHOCHLORUS, Lw. (253)
- 15 (5). Metallic green or black species, veins never yellow.
- 16 (43) (51). Acrostichal bristles in two rows.
- (NOTE.—Male organ prominent and bent under the abdomen (VI. 17) with scale-like lamellæ in paragraphs 17-34).
- 17 (20). Hind metatarsi with one or more bristles above in the male.
- 18 (19). Jowls below the eyes conspicuous.
HYGROCELEUTHES, Lw. (222)
- 19 (18). Jowls very small below the eyes, practically absent.
DOLICHOPUS, Ltr. (223)
- 20 (17). Hind metatarsi without any bristles above.
- 21 (22). Jowls conspicuous, hind femora with a row of erect bristles in front. TACHYTRECHUS, Stan. (224)
- 22 (21). Jowls very small below the eyes, hind femora without the erect bristles in front.
- 23 (40). Hind coxæ with only one erect bristle outside.
- 24 (35). Hind femora with a præapical bristle.
- 25 (32). $O.4^2$ narrowed towards its end.
- 26 (27). Arista distinctly hairy. PÆCILOBOTHRUS, Mik. (225)
- 27 (26). Arista with a leaf-like expansion at the middle or end. SYBISTROMA, Mg.
- 28 (31). Proboscis shorter than the head.
- 29 (30). Male organ not stalked. HERCOSTOMUS, Lw. (226)

30 (29). Male organ on a long stalk, basal joint of arista very long, abdomen very long and thin.

HYPOPHYLLUS, Lw. (227)

31 (28). Proboscis longer than the head.

228 ORTHOCHILE, Ltr. (1253. *nigrocærulea*, Ltr.)

32 (25). $O.4^2$ not narrowed towards its end.

33 (34). Thorax without distinct velvety spots, lower post-orbital bristles and squamal fringes black.

GYMNOPTERNUS, Lw. (229)

34 (33). Thorax with four black velvety spots, third antennal joint pointed and hairy.

251. LAMPROCHROMUS, Mik. (1355. *elegans*, Mg.)

(NOTE.—Male organ not prominent, appendage often thread-like in paragraphs 35-55).

35 (24). Hind femora without a præapical bristle.

36 (37). Arista nearly terminal (III. 35).

CHRYSOTUS, Mg. (230)

37 (36). Arista distinctly dorsal.

38 (39). Wings ovate, not narrowed at the base, eyes of the male wide apart on the frons.

231. MELANOSTOLUS, Kow. (1272. *melancholichus*, Lw.)

39 (38). Wings narrowed about the base, eyes of the male touching or nearly so on the frons, third antennal joint short and round. DIAPHORUS, Mg. (232)

40 (23). Hind coxæ with more than one erect bristle outside, third antennal joint very long and pointed. Body usually with a silver sheen.

41 (42). First antennal joint distinctly haired above.

ARGYRA, Mcq. (233)

42 (41). First antennal joint bare above.

234. LEUCOSTOLA, Lw. (1284. *vestita*, W.)

43 (16) (51). Acrostichal bristles in a single row or irregular.

44 (47) (48). Abdomen cylindrical, neither compressed (pressed together at the sides—section would be like \bigcirc) nor depressed (pressed together above and below—section would be like \ominus), third antennal joint long and pointed, body usually with silver sheen. Moderately large species, 4-6 mm.

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- 45 (46). First antennal joint distinctly haired above.
ARGYRA, Mcq. (233)
- 46 (45). First antennal joint bare above.
234. LEUCOSTOLA, Lw. (1284. *vestita*).
- 47 (44) (48). Abdomen depressed, face contracted below the antennæ, but widening towards the mouth, legs of the male often of peculiar build; small species, 1-3 mm.
CAMPSICNEMUS, Wlk. (247)
- 48 (44) (47). Abdomen compressed, face either equally wide, or narrowed towards the mouth; 1-2½ mm.
- 49 (50). Frons metallic, costa of the male with a long black swelling from the end of V.1.a. to V.1.b.
TEUCHOPHORUS, Lw. (249)
- 50 (49). Frons not metallic, male costa not thickened, third hind tarsal joint in the male with a brush of hairs.
SYMPYCNUS, Lw. (250)
- 51 (16) (43). Acrostichal bristles absent.
- 52 (55). Small species, 1½-2 mm; palpi not large.
- 53 (54). Abdomen yellow and black, male organ obvious, appendage thread-like.
255. ANEPSIOMYIA, Bezzi. (1361. *flaviventris*, Mg.)
- 54 (53). Body all olive green, male organ concealed, wings much narrowed at the base in the male.
248. ECTOMUS, Mik. (1347. *alpinus*, Hal.)
- 55 (52). Large species, 3-6 mm. Proboscis thick and prominent, and covered with the great broad palpi.
THINOPHILUS, Whlbg. (257)
- 56 (4). X.5. far beyond the middle of the wing, and so near the margin as to be as long as or longer than the last section of V.5.
- 57 (60). Fore femora thick and bearing spines at least in the male.
- 58 (59). First antennal joint long, fore tibiæ with a thorn-like process at the end, wings with a prominent dark mark on the fore margin, fore femora with long spines.
SCELLUS, Lw. (243)

59 (58). First antennal joint not long, fore and mid tibiæ simple, wings with at most some small dark spots, fore femora with short spines in the male.

HYDROPHORUS, Whlbg. (244)

60 (57). Fore femora neither thickened nor spined.

LIANCALUS, Lw. (245)

61 (1). Arista exactly terminal, that is exactly in the middle of the end of the third joint (III. 35-37).

62 (75). Third antennal joint long, often very long, at least always longer than broad, conical (III. 36).

63 (64). Proboscis bent in on the breast with a tooth at the end, acrostichal bristles absent.

APHROSYLUS, Wlk. (259)

64 (63). Proboscis not bent in nor toothed.

65 (66). Third antennal joint abruptly dilated at the base, then deeply cut out on the under side, palpi very broad, hind coxæ with a conspicuous blackish bristle, acrostichal bristles in two rows.

239. MACHÆRIUM, Hal. (1307. *maritimæ*, Hal.)

66 (65). Third antennal joint not cut out, but on both sides gradually narrowed to the point, palpi moderately broad.

67 (68). Abdomen compressed towards the tip, male organ long stalked and free. SYSTEMUS, Lw. (237½)

68 (67). Abdomen not compressed, male organ not stalked and usually half sunk or hidden, with at most the often thread-like lamellæ apparent.

69 (70). The second antennal joint produced thumb-like on the inside over the base of the third joint which it seems to clutch, first antennal joint hairy on the upper side (except in *S. pallipes*).

SYNTORMON, Lw. (238)

70 (69). The third antennal joint not produced thumb-like, first joint bare above.

71 (74). Large robust species, 4-6 mm. Under half of the posterior orbit thickly haired.

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- 72 (73). Antennæ as long or nearly as long as the body, first joint cylindrical, three times as long as broad, third joint exceedingly long and thin (III. 36), hind coxæ with two black bristles.

236. RAPHIUM, Mg. (1286. *longicorne*, Fln.)

- 73 (72). Antennæ moderately long, hind coxæ without any distinct black bristle (except in *P. micans*).

PORPHYROPS, Mg. (237)

- 74 (71). Small slender species, 2-3 mm. Under half of the posterior orbit thickly haired, third antennal joint very long, hind coxæ with one black bristle.

XIPHANDRIUM, Lw. (240)

- 75 (62). Third antennal joint short and broad, as broad or broader than long (III. 35, 37).

- 76 (79). Legs long and thin, almost bare, X.5. much beyond the middle of the wing (V. 15), V.6. absent or weak. Acrostichal bristles in two rows. Mostly greyish or yellow species.

- 77 (78). Third antennal joint ovate, pointed, arista subapical, hind femora with the præapical bristle distinct, male organ not prominent. ACHALCUS, Lh. (241)

- 78 (77). Third antennal joint short and rounded, arista apical (III. 37), præapical bristle absent on hind femora, male organ long, distinct, and free.

MEDETERUS, Fisch. (242)

- 79 (76). Legs short and rather strong, usually hairy. X.5. not beyond the middle of the wing. Metallic green or blue species, sometimes partly yellow.

- 80 (81). Acrostichal bristles absent, legs almost bare, a large impression in front of the scutellum, body partly yellow.

CHRYSOTIMUS, Lw. (252)

- 81 (80). Acrostichal bristles in two rows, no impression before the scutellum, body metallic green or blue.

- 82 (83). Thoracic bristles yellow, legs almost bare, male organ large and free, very small species.

235. THRYPTICUS, Gerst. (1285. *bellus*, Lw.)

- 83 (82). Thoracic bristles black, legs bristly, male organ small.

CHRYSOTUS, Mg. (230)

219. *PSILOPUS*, Mg.

- 1 (2). Antennæ all black. (1183. *lætus*, Mg.)
 2 (1). Antennæ yellow, at most the third joint black.
 3 (4). Hind metatarsus at least twice as long as the next joint. Mid tarsi with the third and fourth joints white in the male.

1180. *Psilopus platypterus*, F.

Bishop Auckland, 1 ♀, 20-7-00; Hesleden, 2 ♂, 8 ♀, August, 1902.

- 4 (3). Hind metatarsus only a little longer than the next joint.
 5 (6). Fourth tarsal joint of fore legs much enlarged in the male.

1181. *Psilopus wiedemanni*, Fln.?

Hesleden, 1 ♀, 18-8-02.

- 6 (5). Fourth tarsal joint of the fore legs not enlarged.
 7 (8). Abdomen with inconspicuous bands. (1182. *longulus*, Fln.)
 8 (7). Abdomen with broad dark bands. (1184. *contristans*, W.)

220. *NEURIGONA*, Rnd.

- 1 (2). Thorax and abdomen yellow. (1185. *pallida*, Fln.)
 2 (1). Thorax grey, abdomen yellow with dark bands.
 3 (4). Wings distinctly darkened on the fore margin. V.4. almost parallel with V.3. (1186. *suturalis*, Fln.)
 4 (3). Wings not darkened. V.4. distinctly converging towards V.3. Third and fourth fore tarsal joints black plumed in the male.

1187. *Neurigona quadrifasciata*, F.

Barnard Castle, 1 ♀, 20-6-00.

222. *HYGROCELEUTHUS*, Lw.

- 1 (2). Antennæ much longer than the head. Legs all yellow, except the last tarsal joint. V.4. bent obtusely. (1190. *latipennis*, Fln.)
 2 (1). Antennæ only rather longer than the head. The legs yellow, the tip of the hind tibiæ and all the tarsi, except the fore metatarsi, black. V.4. twice bent rectangularly (V. 14). (1189. *diadema*, Hal.)

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223. DOLICHOPUS, Ltr.

- 1 (38). Femora all black.
- 2 (9). Lower post-orbital bristles yellow.
- 3 (8). Antennæ all black.
- 4 (5). Legs all black, except the extreme tip of the femora.
Wings dusky.
1191. *Dolichopus atripes*, Mg.
Waskerley, 1 ♂, 1 ♀, July, 1901; Hesleden, 1 ♀,
August, 1901.
- 5 (4). Fore tibiæ pale.
- 6 (7). Hind tibiæ dark. Tarsi with only one bristle above.
Wings dusky. (1192. *phæopus*, Hal.)
- 7 (6). Hind tibiæ only dark at the tip. Wings clear.
1193. *Dolichopus vitripennis*, Mg.
Waskerley, 7 ♂, 5-7-01.
- 8 (3). Antennæ with the first joint pale beneath. Hind femora with a pale fringe beneath.
(1201. *clavipes*, Hal.)
- 9 (2). Lower post-orbital bristles black.
- 10 (18). Hind metatarsi very bristly.
- 11 (12). Wings blackish on the outer half.
1194. *Dolichopus atratus*, Mg.
Waskerley, 3 ♂, 4 ♀, July, 1901; Bedburn, 1 ♂, July,
1901.
- 12 (11). Wings all dusky, legs brownish. *picipes*, Mg. (1195).
- 13 (10). Hind metatarsi not very bristly.
- 14 (15). Legs entirely black except the pale knee joints.
(1199. *melanopus*, Mg.)
- 15 (14). Legs with more than the knee joints pale.
- 16 (29). It is a male. (The males in this genus are easily distinguished from the females by the strongly developed genitalia, bent under the abdomen).
- 17 (24). Fifth tarsal joints of neither the fore nor mid legs enlarged.

18 (19). Legs all, or nearly all, black, only a pale dot at the base of the fore tibiæ.

1195. *Dolichopus picipes*, Mg.

Bedburn, 5 ♂ and 2 ♀. I take these to be the species meant by *picipes* in the British list, but if that name is to be restricted to No. 12, flies with bristly hind metatarsus, then this fly would be *D. fastuosus*, Hal., and *picipes* would remain as at 12 above.

19 (18). Legs black with yellow fore and mid tibiæ.

20 (23). Hind tibiæ quite black, mid femora with only one præapical bristle. A wart-like thickening at the end of V.1.

21 (22). Face yellowish, hind femora with a long blackish fringe. (1196. *lepidus*, Stæg.)

22 (21). Face silvery white, hind femora without any fringe. (1196½. *laticola*, Verr.)

23 (20). Basal half of the hind tibiæ yellow, mid femora with two præapical bristles, no thickening at the end of V.1. (1197. *campestris*, Mg.)

24 (17). Fifth tarsal joint of the fore *or* mid legs enlarged.

25 (28). Fifth *fore* tarsal joint enlarged.

26 (27). Hind femora with a pale basal fringe beneath, fore and mid knees and middle joints of fore tarsi reddish. (1198. *falleni*, Lw.)

27 (26). Hind femora with short black fringe beneath, legs all black except the knee joints. (1199. *melanopus*, Mg.)

28 (25). Fifth *mid* tarsal joint enlarged. Fore and mid tibiæ pale. (1200. *planitarsis*, Fln.)

29 (16). It is a female.

30 (33). Fore tibiæ dark, not more than the base and tip pale.

31 (32). Fore tarsi all black, fore tibiæ very narrowly pale at the base and tip. *picipes*, Mg. (1195 back)

32 (31). Knees distinctly pale, fore tibiæ and middle joints of fore tarsi light brown. (1198. *falleni*, Lw.)

33 (30). Fore and mid tibiæ yellow.

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- 34 (35). Mid femora with two præapical bristles.
(1197. *campestris*, Mg.)
- 35 (34). Mid femora with only one præapical bristle.
- 36 (37). Third antennal joint short and blunt, arista distinctly dorsal.
(1196. *lepidus*, Stæg.)
- 37 (36). Third antennal joint pointed, arista almost apical.
(1200. *planitarsis*, Fln.)
- 38 (1). Femora yellow.
- 39 (159). Lower post-orbital bristles yellow.
- 40 (102). It is a male.
- 41 (46). Antennæ entirely black.
- 42 (43). Wings with a dark streak along the fore margin. Fringe of squamæ yellow.
(1203. *nubilus*, Mg.)
- 43 (42). Wings without a dark streak. Squamal fringe black.
- 44 (45). Fore tibiæ with a long thin apical hair. Fore coxæ all yellow.
(1204. *latilimbatus*, Mcq.)
- 45 (44). Fore tibiæ without the long thin apical hair, fore coxæ mostly grey.
(1219. *andalusiacus*, Strobl.)
- 46 (41). Antennæ at least partly yellow.
- 47 (60). Legs with some peculiar widening or feathering of some of the tarsal joints.
- 48 (53). Fore tarsi with the last joint dilated.
- 49 (50). Hind femora with three or four bristles at the upper tip. Squamæ yellow fringed.
(1205. *claviger*, Stan.)
- 0 (49). Hind femora with one bristle, or at most two at the upper tip. Squamæ black fringed.
- 51 (52). V.4. bayonet-shaped. The dilated fifth fore tarsal joint without any white spot, the fore metatarsus longer than the next three joints together.
(1206. *confusus*, Ztt.)
- 52 (51). V.4. gently bent towards V.3. Fifth fore tarsal joint with a white spot, fore metatarsus as long as the next two joints.
(1207. *discifer*, Stan.)
- 53 (48). Mid tarsi with some joints widened or thickly feathered.
- 54 (57). Mid metatarsus thickly feathered on both sides.

- 55 (56). Hind tibiæ black at the tip, hind tarsi all black.
 1208. *Dolichopus plumipes*, Scop.
 A common species. I have taken it at Bishop Auckland, Wearhead, Waskerley, and Hesleden.
- 56 (55). Hind tibiæ and the base of the hind tarsi pale.
 (1209. *wahlbergi*, Ztt.)
- 57 (54). Mid metatarsus simple, some of the other joints widened.
- 58 (59). Second and third mid tarsal joints widened, black, and black feathered, fourth and fifth silvered.
 1210. *Dolichopus pennatus*, Mg.
 Harperley, 1 ♂, 28-6-02.
- 59 (58). Third and fourth mid tarsal joints black, widened and feathered, only the fifth silvered.
 1211. *Dolichopus popularis*, W.
 Bishop Auckland, 1 ♂, 21-6-02; Bedburn, 2 ♂, and 3 ♀, 7-7-02.
- 60 (47). Tarsal joints neither widened nor feathered.
- 61 (62) (63). Fourth and fifth mid tarsal joints silvered. Hind tibiæ pale, with black tip. (1212. *signatus*, Mg.)
- 62 (61) (63). Fourth mid tarsal joint black, fifth silvered
 Hind tibiæ all black.
 1213. *Dolichopus urbanus*, Mg.
 Bedburn, 2 ♂, 7-7-02.
- 63 (61) (62). All tarsi normal, none silvered, nor widened, nor feathered.
- 64 (67). V.4. distinctly bayonet-shaped, twice bent at right angles (V. 14), and then running parallel with V.3. Fore tibiæ with a long thin hair at the tip.
- 65 (66). Hind metatarsus yellow at the base, and with two bristles above. Hind femora not fringed beneath.
 (1220. *nitidus*, Fln.)
- 66 (65). Hind metatarsus all black, and with only one bristle above. Hind femora black fringed beneath.
 1221. *Dolichopus griseipennis*, Stan.
 Hesleden, 1 ♂, 27-7-99, 1 ♂ and 1 ♀, 6-8-00; Bishop Auckland, 1 ♂, 5-7-01.

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- 67 (64). V.4. only indistinctly bayonet-shaped, the angles obtuse, and then gradually nearing V.3., not parallel with it.
- 68 (75). Mid metatarsi with one bristle above, hind femora with long yellow hairs beneath.
- 69 (72). Costa with a wart-like thickening at the end of V.1.
- 70 (71). Antennæ yellow with only the tip brown.
(1228. *festivus*, Hal.)
- 71 (70). Antennæ nearly all black, only yellow at the base beneath.
1229. *Dolichopus trivialis*, Hal.
A common species. Hesleden, Bishop Auckland, Waskerley, Bedburn, Wearhead, and Embleton (Northumberland).
- 72 (69). No thickening at the end of V.1.
- 73 (74). Fore tarsi with short erect bristles on the middle, hind tarsi pale at the base.
(1226. *virgultorum*, Hal.)
- 74 (73). Fore tarsi bare, hind tarsi all black.
(1227. *arbustorum*, Stan.)
- 75 (68). Mid metatarsi without any bristle above.
- 76 (79). Wings at the tip with a spot-like darkening.
- 77 (78). Hind femora with long bristles on the under side, hind metatarsi with one bristle above.
(1222. *signifer*, Hal.)
- 78 (77). Hind femora bare below, hind metatarsi with at least two bristles above. (1223. *sabinus*, Hal.)
- 79 (76). Wings evenly tinged or clear.
- 80 (81). Hind metatarsi with only one bristle above. Hind tibiæ dilated. (1201. *clavipes*, Hal.)
- 81 (80). Hind metatarsi with at least two bristles above.
- 82 (89). Wings with the costa thickened at the end of V.1. into a wart-like swelling.
- 83 (86). Third antennal joint much elongated, sharp pointed, turned up at the end and distinctly haired (III. 34a).

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- 84 (85). Antennæ nearly all black, tip of the tibiæ black.
(1214. *acuticornis*, W.)
- 85 (84). Antennæ nearly all yellow. Tibiæ all pale.
(1215. *longicornis*, Stan.)
- 86 (83). Third antennal joint short as usual.
- 87 (88). Face yellow. (1217. *puncticornis*, Ztt.)
- 88 (87). Face silvery white, fore coxæ bare.
(1218. *linearis*, Mg.)
- 89 (82). Costa without any wart-like thickening at the end of V.1.
- 90 (99). Antennæ almost entirely black, only slightly orange under the first joint.
- 91 (92). Squamæ with yellow fringes. (1203. *nubilus*, Mg.)
- 92 (91). Squamæ with black fringes.
- 93 (94). Fore tibiæ with a long thin hair at the tip, coxæ all yellow.
(1204. *latilimbatus*, Mcq.)
- 94 (93). Fore tibiæ without the long thin hair.
- 95 (96). Antennæ short as usual and all black. Fore femora mostly black, fore coxæ mostly grey.
(1219. *andalusiacus*, Strobl.)
- 96 (95). Antennæ rather long, and distinctly orange beneath the first joint. Fore femora and coxæ all yellow or orange.
- 97 (98). Mid-sized species, face pale yellow.
(1216. *mediicornis*, Verr.)
- 98 (97). Rather large species, nearly 4 mm. Face ochreous yellow.
(1216½. *lineaticornis*, Ztt.)
- 99 (90). Antennæ with the first and second joints orange, the third black.
- 100 (101). Squamæ with yellow fringes, femora with dark stripes, frons blue. (1225. *strigipes*, Verr.)
- 101 (100). Squamæ with black fringes, femora entirely yellow, frons greenish.
(1224. *simplex*, Mg.)
- 102 (40). It is a female.
- 103 (114). Mid metatarsi with a bristle above.
- 104 (105). Hind femora with more than one præapical bristle.
(1205. *claviger*, Stan.)

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- 105 (104). Hind femora with only one præapical bristle.
- 106 (109). Antennæ nearly all black.
- 107 (108). Fore tarsi pale, with only the last joint black.
(1206. *confusus*, Ztt.)
- 108 (107). Fore tarsi black, with only the metatarsus pale.
trivialis, Hal. (1229)
- 109 (106). Antennæ mostly orange.
- 110 (111). Hind tarsi pale at the base.
(1226. *virgultorum*, Wlk.)
- 111 (110). Hind tarsi entirely black.
- 112 (113). Hind tibiæ entirely yellow.
(1227. *arbustorum*, Stan.)
- 113 (112). Hind tibiæ darkened at the tip.
(1228. *festivus*, Hal.)
- 114 (103). Mid metatarsi without any bristle above.
- 115 (116). Mid tibiæ with two bristles beneath.
(1207. *discifer*, Stan.)
- 116 (115). Mid tibiæ with only one bristle beneath.
- 117 (120). Hind femora with more than one præapical bristle.
- 118 (119). Hind tibiæ all yellow. *popularis*, W. (1211)
- 119 (118). Hind tibiæ black, at least on the apical half.
urbanus, Mg. (1213)
- 120 (117). Hind femora with only one præapical bristle.
- 121 (124). V.4. distinctly bayonet-shaped, twice bent at right angles, and then running parallel with V.3.
- 122 (123). Hind metatarsi nearly all black, with only one bristle above. *griseipennis*, Stan. (1221)
- 123 (122). Hind metatarsi black only at the tip, and with two bristles above. (1220. *nitidus*, Fln.)
- 124 (121). V.4. only indistinctly bayonet-shaped, obtusely bent, and then gradually nearing V.3.
- 125 (128). Hind metatarsi with only one bristle above.
- 126 (127). Femora mostly blackish. (1201. *clavipes*, Hal.)
- 127 (126). Femora yellow. (1222. *signifer*, Hal.)
- 128 (125). Hind metatarsi with at least two bristles above.
- 129 (130). Hind tibiæ nearly all black. *urbanus*, Mg. (1213)
- 130 (129). Hind tibiæ yellow, unless at the tip.

- 131 (146). Antennæ with not more than the under side of the first joint and the basal under side of the second pale.
- 132 (137). Face with faint but distinct pale pubescence. Antennæ practically all black.
- 133 (136). Wings more or less tinged with brown.
- 134 (135). Hind tibiæ at tip, and metatarsus, blackish; hind femora with an obvious dark spot above near the tip. (1203. *nubilus*, Mg.)
- 135 (134). Hind tibiæ slightly blackish at tip. Hind metatarsi usually all black. (1204. *latilimbatus*, Mcq.)
- 136 (133). Wings clear. Hind tibiæ entirely yellow. (1219. *andulusiacus*, Strobe.)
- 137 (132). Face bare. Antennæ with at least the tip of the first joint yellow beneath.
- 138 (139). Hind coxæ entirely yellow; hind tibiæ black at the tip. (1214. *acuticornis*, W.)
- 139 (138). Hind coxæ mainly grey.
- 140 (141). Mid metatarsi, and even the tip of mid tibiæ black. (1216. *mediicornis*, Verr.)
- 141 (140). Mid metatarsi pale at the base.
- 142 (143). Hind tibiæ distinctly blackened at the tip. (1217. *puncticornis*, Ztt.)
- 143 (142). Hind tibiæ quite pale, or only slightly darkened at the tip.
- 144 (145). Hind tibiæ obscured at the tip. Mid tibiæ with 5-6 bristles on the fore side. (1212. *signatus*, Mg.)
- 145 (144). Hind tibiæ yellow to the tip. Mid tibiæ with 3-4 bristles on the fore side. *pennatus*, Mg. (1210)
- 146 (131). Antennæ with more than the under side of the first joint and the basal under side of the second pale.
- 147 (150). Third antennal joint entirely black.
- 148 (149). Hind coxæ pale yellow. (1218. *linearis*, Mg.)
- 149 (148). Hind coxæ grey. (1224. *simplex*, Mg.)

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150 (147). Third antennal joint partly yellow.

151 (152). Squamæ with yellow fringes.

(1225. *strigipes*, Verr.)

152 (151). Squamæ with black fringes.

153 (156). First antennal joint all yellow.

154 (155). Hind tibiæ black at tip. *plumipes*, Scop. (1208)

155 (154). Hind tibiæ at the tip and the base of hind tarsi
pale. (1209. *wahlbergi*, Ztt.)

156 (153). First antennal joint blackened above.

157 (158). Hind coxæ mostly pale yellow; hind tibiæ all
yellow. (1215. *longicornis*, Stan.)

158 (157). Hind coxæ mostly grey. (1223. *sabinus*, Hal.)

159 (39). Lower post-orbital bristles black.

160 (161). Hind femora with more than one præapical bristle
(three or more in the male).

1232. *Dolichopus ungulatus*, L. (*æneus*, Deg.)

A common species. Hesleden, Bishop Auckland,
Harperley, and Bedburn.

161 (160). Hind femora with only one præapical bristle.

162 (163) (164). Face white; frons green (♀); hind femora
fringed with black (♂); mid metatarsus with no
strong bristle above (♀).

(1231. *longitarsis*, Stan.)

163 (162) (164). Face yellow (♂); face and frons grey (♀);
fore tarsi normal; femora not fringed (♂); mid
metatarsi without a strong bristle (♂).

(1202. *rupestris*, Hal.)

164 (162) (163). Face yellow; femora pale fringed, and last
joint of fore tarsi dilated (♂). Mid metatarsi
with a strong bristle above.

(1230. *brevipennis*, Mg.)

224. TACHYTRECHUS, Stan.

- 1 (2). Fore tibiæ not bristly. Face white. Fore tarsal
joints 2-5 much dilated. Fore metatarsus thin,
and about as long as the other four joints together.
V.4^s with a dark spot. (1234. *consobrinus*, Wlk.)

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- 2 (1). Fore tibiæ bristly. Face yellow.
- 3 (4). Fore tarsal joints 2-5 scarcely dilated in the male.
Fore metatarsus not so long as the other joints
together. V.4³ with a dark spot.
(1233. *notatus*, Stan.)
- 4 (3). Fore tarsal joints 2-5 much dilated in the male, the
spot on V.4³ absent or very pale.
- 5 (6). Fore metatarsus nearly twice as long as the other
four joints together. Lamellæ with moderately
long hairs. (1235. *insignis*, Stan.)
- 6 (5). Fore metatarsus about as long as the other four
joints together. Lamellæ with very long and
abundant curved black hairs.
(1235½. *ripicola*, Lw.)

225. PÆCILOBOTHRUS, Mik.

- 1 (2). Wings with a brown dab in the middle, the tip snow-
white in the male, clear in the female.
(1236. *nobilitatus*, L.)
- 2 (1). Wings unmarked.
- 3 (4). Face yellow. Antennæ almost wholly black.
(1237. *ducalis*, Lw.)
- 4 (3). Face whitish. Antennæ almost wholly orange.
(1238. *principalis*, Lw.)

226. HERCOSTOMUS, Lw.

- 1 (18). Lower post-orbital bristles pale.
- 2 (13). Antennæ wholly black.
- 3 (10). Femora yellow.
- 4 (5). Squamæ pale fringed; large species, 4 mm.
(1241. *gracilis*, Stan.)
- 5 (4). Squamæ black fringed; small species, 2½-4 mm.
- 6 (7). Fore tarsi elongate, third and fourth joints deep black
and dilated. Wings clear. 3 mm.
(1240. *cretifer*, Wlk.)
- 7 (6). Fore tarsi simple; wings browned.

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- 8 (9). Larger species, 3-4 mm. Male organ of moderate size. (1244. *germanus*, W.)
- 9 (8). Smaller species, 2½-3 mm. Male organ very large, first joint much compressed and protruding above the back of the abdomen. (1243. *chærophylli*, Mg.)
- 10 (3). Femora black or blackish.
- 11 (12). Fifth mid tarsal joint dilated; large species, 5-6 mm. (1243. *nigriplantis*, Stan.)
- 12 (11). Fifth mid tarsal joint normal; small species, 3 mm. 1246. *Hercostomus nigripennis*, Fln.
Wearhead, 2 ♂, August 1, 1901.
- 13 (2). Antennæ mainly yellowish.
- 14 (15). Tip half of hind tibiæ black; fore tarsi black with white rings. (1242. *chrysozygos*, W.)
- 15 (14). Hind tibiæ all pale.
- 16 (17). Abdomen all metallic green; small species, 3 mm. (1247. *plagiatus*, Lw.)
- 17 (16). Abdomen reddish yellow at the base; a tiny species (Verrall), 3 mm. (Walker). (1239. *fulvicaudis*, Wlk.)
- 18 (1). Lower post-orbital bristles black.
- 19 (20). Legs wholly black. (1248. *atrovirens*, Lw.)
- 20 (19). Legs pale, at least on tibiæ.
- 21 (22). Femora and coxæ wholly blackish brown. (1250. *parvilamellatus*, Mcq.)
- 22 (21). Femora and fore coxæ wholly yellow. (1249. *nanus*, Mcq.)

227. HYPOPHYLLUS, Lw.

- 1 (2). Fifth fore tarsal joint broad, disc-like; large species, 5-5½ mm. (1251. *discipes*, Ahr.)
- 2 (1). Fifth fore tarsal joint not broad; small species, 3 mm. (1252. *obscurus*, Fln.)

229. GYMNOPTERNUS, Lw.

- 1 (2). Femora mostly blackish, mid tibiæ thickened and twisted at the tip in the male, and armed with short recurved thorns.
1254. *Gymnopternus cupreus*, Fln.
Bedburn, 1 ♂, August 7, 1902.
- 2 (1). Femora yellow, or almost so.
- 3 (4). Costa thickened from its base to the end of V.1.
(1255. *celer*, Mg.)
- 4 (3). Costa normal.
- 5 (6). Antennæ not wholly black, a little yellow at the base.
Steel-blue species, 5 mm. (1257. *chalybæus*, W.)
- 6 (5). Antennæ wholly black.
- 7 (8). Outer appendage of the hypopygium roundish, yellow, and yellow haired; blackish green species, 3 mm. (1256. *metallicus*, Stan.)
- 8 (7). Outer appendage of the hypopygium triangular, black, and short black haired.
- 9 (10). Wings clear, V.4. straight. Face black.
1258. *Gymnopternus ærosus*, Fln.
Waskerley, 8 ♂; Bishop Auckland, 1 ♂, July, 1900-01.
- 10 (9). Wings brownish, V.4. bent towards V.3. Face white.
(1259. *assimilis*, Stæg.)

230. CHRYSOTUS, Mg.

- 1 (4). Femora all or mostly yellow.
- 2 (3). Femora all yellow in the male, or with a central brown ring or cloud in the female; fore coxæ black haired; 2½ mm. (1261. *neglectus*, W.)
- 3 (2). Hind femora with the tip sharply black; fore coxæ yellow haired; 2 mm. (1262. *cilipes*, Mg.)
- 4 (1). Femora nearly all black.
- 5 (8). Hind trochanters and the base of the femora yellow.
- 6 (7). Small species; hind tibiæ moderately ciliated.
(1263. *pulchellus*, Kow.)
- 7 (6). Fair sized species, 2 mm.; hind tibiæ strongly ciliated.
(1263½. *femoratus*, Ztt.)

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- 8 (5). Hind trochanters black or brown; base of hind femora not yellow.
- 9 (12). Fore coxæ with only pale hairs.
- 10 (11). Face of male very narrow but continuous, silvery white; palpi small, whitish.
(1267. *palustris*, Verr.)
- 11 (10). Face of male broad, greenish grey; palpi large and black; acrostichal bristles almost absent.
(1268. *læsus*, W.)
- 12 (9). Fore coxæ with black hairs.
- 13 (18). Legs mainly black, *i.e.*, the tibiæ may be brownish, but never yellow.
- 14 (15). Usual bristles on the mid and hind tibiæ very faint; fore coxæ dirty whitish. (1265. *cupreus*, Mcq.)
- 15 (14). Usual bristles on mid and hind tibiæ conspicuous; fore coxæ not dirty whitish.
- 16 (17). Face of male dull pale green; eyes narrowly separated; antennæ large. (1269. *amplicornis*, Ztt.)
- 17 (16). Face concealed by the touching eyes; fore and hind tibiæ considerably ciliated.
(1264. *blepharosceles*, Kow.)
- 18 (13). Legs considerably yellow on at least the fore and mid tibiæ.
- 19 (20). Mid tibiæ with only one distinct bristle; very small species. (1271½. *monochætus*, Kow.)
- 20 (19). Mid tibiæ with the usual two bristles, the lower one being very small.
- 21 (22). Third antennal joint small and rounded; hind tibiæ reddish; small species. (1271. *microcerus*, Kow.)
- 22 (21). Third antennal joint not very small; hind tibiæ blackish in the male; not very small species.
- 23 (24). Third antennal joint moderately rounded, colour bright.
1270. *Chrysotus gramineus*, Fln.
Hesleden, 1 ♀, August, 1900.
- 24 (23). Third antennal joint angulated at the tip; colour dark. (1266. *angulicornis*, Kow.)

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232. DIAPHORUS, Mg.

- 1 (2). Metallic black species with blackish wings and black halteres. (1273. *nigricans*, Mg.)
- 2 (1). Metallic green species with grey or brownish wings.
- 3 (6). Base of the abdomen translucent yellow.
- 4 (5). Femora brownish black; hind femora thickly haired at the tip beneath. The whole of the first two abdominal segments translucent. (1274. *oculatus*, Fln.)
- 5 (4). Femora yellow, only the tip-third of the hind femora black. Only part of the second abdominal segment yellow. (1275. *hoffmanseggii*, Mg.)
- 6 (3). Base of the abdomen not translucent; halteres yellow. (1276. *winthemi*, Mg.)

233. ARGYRA, Mcq.

- 1 (8). When observed from the front only the abdomen silvered, the thorax with at most the shoulders shining white.
- 2 (3). Scutellum with short hairs on the disc besides the marginal bristles; legs mostly black or brown; abdomen yellow at the sides.

1278. *Argyra diaphana*, F.

Bedburn, 1 ♀, 1902.

- 3 (2). Scutellum bare on the disc, only the marginal bristles present.
- 4 (7). Hind metatarsus longer than the next joint; face black.
- 5 (6). Abdomen scarcely silvered at all; hind metatarsi not specially haired. (1277. *atriceps*, Lw.)
- 6 (5). Abdomen silvered; hind metatarsi with some rather long hairs; legs yellow. (1279. *confinis*, Ztt.)
- 7 (4). Hind metatarsus not longer than next joint; face white; hind tibiæ conspicuously bristly above. (1283. *elongata*, Ztt.)
- 8 (1). When observed in front both thorax and abdomen broadly silvered; scutellum bare on the disc.

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- 9 (10). Fore coxæ yellow ; third antennal joint twice as long as broad ; frons silvered.
 1280. *Argyra argentina*, Mg.
 Belburn, 1 ♂, July, 1897 ; Wearhead, 1 ♂, August, 1901.
- 10 (9). Fore coxæ grey ; third antennal joint at most one-and-a-half times as long as broad.
- 11 (12). Frons silvered, only the vertical triangle black ; dorsum broadly and brightly silvered.
 (1281. *argyria*, Mg.)
- 12 (11). Frons black, only silvered at the eye margins ; dorsum with only a very faint white shimmer.
 (1282. *leucocephala*, Mg.)

237. PORPHYROPS, Mg.

- 1 (2). Arista with a leaf-like knob at the end.
 (1287. *antennata*, Carl.)
- 2 (1). Arista not knobbed.
- 3 (14). Male mid coxæ with a strong black apical spine.
- 4 (7). Face black ; hind femora without any præapical bristle.
- 5 (6). Outer anal lamellæ of male forked ; fore metatarsi thin and as long as the next four joints together.
 (1288. *spinicoxa*, Lw.)
- 6 (5). Outer anal lamellæ simple ; fore metatarsi thin, but not longer than the next three joints together.
 (1289. *fascipes*, Mg.)
- 7 (4). Face white ; hind femora with at least one præapical bristle.
- 8 (9). Last abdominal segment purplish ; thorax brilliant green ; hind femora with two or more præapical bristles ; legs yellow. (1296. *elegantula*, Mg.)
- 9 (8). Last abdominal segment same colour as others ; hind femora with one præapical bristle.
- 10 (11). Third antennal joint longer than the arista ; legs black ; fore metatarsi not club-shaped.
 (1290. *nemorum*, Mg.)

- 11 (10). Third antennal joint shorter than the arista.
- 12 (13). Fifth fore tarsal joint with 4-5 remarkably long hairs; fore metatarsi not dilated at tip, and hardly longer than the next joint. (1290 $\frac{1}{2}$. *rivalis*, Lw.)
- 13 (12). Fifth fore tarsal joint with no long hairs; fore metatarsi clubbed at the tip, and twice as long as next joint. (1290 $\frac{3}{4}$. *patula*, Lw.)
- 14 (3). Male mid coxæ without an apical spine, but sometimes with a tuft of black bristly hairs.
- 15 (16). Abdomen distinctly silvered above. (1295. *micans*, Mg.)
- 16 (15). Abdomen not silvered above.
- 17 (18). Hind legs lengthened, thickened, and black; mid tarsi with the fourth and fifth joints dilated. (1297. *crassipes*, Mg.)
- 18 (17). Legs normal.
- 19 (20). Outer anal appendage of the male forked. (1292. *nasuta*, Fln.)
- 20 (19). Outer anal appendage of the male not forked, simple.
- 21 (22). Outer anal appendage of the male with a band-like tuft of hairs before the point. (1291. *pencillata*, Lw.)
- 22 (21). Outer appendage without the hair tuft.
- 23 (26). Fore femora with a row of strong hairs beneath.
- 24 (25). Face black in the male; fore coxæ black haired. (1293. *pectinata*, Lw.)
- 25 (24). Face whitish in both sexes; fore coxæ white haired. (1294. *consobrina*, Ztt.)
- 26 (23). Fore femora without a row of strong hairs beneath; outer lamellæ of the male broadened out like a fan at the end, pointed above, and all bitten out and ciliated. (1299. *riparia*, Mg.=*prærosa*, Lw.)

237 $\frac{1}{2}$. SYSTEMENUS, Lw.

All at present considered very rare. They live on the ulcerative sap from trees.

- 1 (4). V.3. and V.4. strongly approximating before the tip.

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- 2 (3). Tip of the wing with a conspicuous black spot.
(*scholtzii*, Lw.)
- 3 (2). Tip of the wing uncoloured. (*adpropinquans*, Lw.)
- 4 (1). V.3. and V.4. almost parallel. (*bipartitus*, Lw.)

238. SYNTORNUM, Lw.

- 1 (10). Last two or three joints of the mid tarsi not dilated.
- 2 (3). Fore and mid femora with three bristles beneath near the base; squamæ with dark fringes; hind metatarsi unarmed (without spines or processes) beneath. (1302. *pumilus*, Mg.)
- 3 (2). Fore and mid femora without bristles beneath; squamæ pale haired.
- 4 (5). Hind tibiæ not ciliated nor dilated towards the tip; mid femora with about twelve minute bristles beneath; hind metatarsus with two small curved spines near the base. (*denticulatus*, Ztt.)
(Dark brown legs=var. *denticulatus*, Ztt.; yellow legs=var. *biseriatus*, Lw.)
- 5 (4). Hind tibiæ distinctly ciliated or dilated towards the tip, or if ciliation indistinct then mid femora without the minute bristles beneath.
- 6 (7). Femora mostly black; fore metatarsi with a short blunt prolongation at the tip; hind metatarsi with a hooked tooth at the base beneath and two leafy appendages. (1300. *zelleri*, Lw.)
- 7 (6). Femora all yellow except hind tip; fore metatarsi simple.
- 8 (9). Hind metatarsi at the base beneath, with a hooked tooth divided at the tip; hind tibiæ scarcely dilated; abdomen often yellow at base.
1306. *Syntorum pallipes*, F.
Hesleden, Brancepeth, June–August, 1901–02.
- 9 (8). Hind metatarsi with two long bristly hairs beneath; hind tibiæ blackened, dilated, flattened, and channelled. (1304. *sulcipes*, Mg.)

- 10 (1). Last two or three joints of the mid tarsi dilated.
- 11 (12). Third, fourth, and fifth joints of mid tarsi as well as the tip of second dilated; hind metatarsus rather broad, with two spines beyond the middle beneath, one of which is the longer and bent. Coxæ all yellow. (1303. *tarsatus*, Fln.)
- 12 (11). Fourth and fifth joints of mid tarsi dilated; hind metatarsus at the base beneath with a hooked tooth, which is fringed with short curved bristles; coxæ grey. (1305. *monilis*, Wlk.)

240. XIPHANDRIUM, Lw.

- 1 (12). Frons glossed with blue; at least the mid and hind coxæ with black bristles.
- 2 (3). Coxæ all yellow; abdomen with the second and third segments yellow. (1314. *fasciatum*, Mg.)
- 3 (2). Mid and hind coxæ blackish grey; abdomen without yellow markings.
- 4 (9). Hind femora with a præapical bristle.
- 5 (6). Outer lamellæ (♂) ending in a long single hair; fore coxæ without any black bristles.
1310. *Xiphandrium monotrichum*, Lw.
Bedburn, 1 ♂ and 1 ♀, July.
- 6 (5). Outer lamellæ (♂) without any long terminal hair; fore coxæ with three or four black bristles.
- 7 (8). Outer lamellæ (♂) elongate lancet-shaped, with long pale pubescence; antennæ long.
(1313. *auctum*, Lw.)
- 8 (7). Outer lamellæ (♂) broad lancet-shaped, with short black pubescence; antennæ comparatively short.
(1313½. *lanceolatum*, Lw.)
- 9 (4). Hind femora without a præapical bristle.
- 10 (11). Inner lamellæ ending in a long simple curved pale hair.
1309. *Xiphandrium caliginosum*, Mg.
Bishop Auckland, 1 ♂, May, 1900.

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- 11 (10). Inner lamellæ ending in a long, compressed, slightly curved thread, which breaks into ciliation at its tip. (1311. *appendiculatum*, Ztt.)
- 12 (1). Frons glossed with white; coxæ without any black bristles; hind femora with a præapical bristle.
- 13 (14). Fore tibiæ with a bristle and a tiny ciliation beneath, the bristle being just below the middle and rather turned back; outer lamellæ short. (1312. *brevicorne*, Curt.)
- 14 (13). Fore tibiæ almost bare beneath, and at any rate with no distinct bristle; outer lamellæ long, hairy, and ciliated at the base. (1308. *fissum*, Lw.)

241. ACHALCUS, Lw.

- 1 (2). Grey species. (1315. *cinereus*, Wlk.)
- 2 (1). Orange species. (1316. *flavicollis*, Mg.)

242. MEDETERUS, Fisch.

- 1 (6). Legs entirely black or dark.
- 2 (3). Mid tibiæ with no bristle near the base; very small species, 1-1½ mm. (1318. *muralis*, Mg.)
- 3 (2). Mid tibiæ with a bristle near the base.
- 4 (5). V.5⁴ longer than X.5. Halteres with the knob darkened. Small species, not more than 2 mm. (1319. *tristis*, Ztt.)
- 5 (4). V.5⁴ not longer than X.5. Halteres pale. Large species, 4-5 mm. (1321½. *obscurus*, Ztt.)
- 6 (1). Legs with at least the knees pale.
- 7 (16). Legs yellow, at most the bases of the femora brown.
- 8 (9). Scutellum with only two bristles. (1317. *micaceus*, Lw.)
- 9 (8). Scutellum with four bristles, as usual.
- 10 (11). Mid tibiæ with no bristle near the base. (1318. *muralis*, Mg.)
- 11 (10). Mid tibiæ with a bristle near the base.

- 12 (13). Face all golden green, with the exception of the grey cross-band. Large species, 3-4 mm.
(1322. *diadema*, L.)
- 13 (12). Face wholly dusted, or at least on the upper half.
Small species.
- 14 (15). Acrostichal bristles very short. (1323. *flavipes*, Mg.)
- 15 (14). Acrostichal bristles fairly large and distinct. $1\frac{1}{2}$ mm.
(1321. *pallipes*, Ztt.)
- 16 (7). Legs black with yellow knees.
- 17 (18). Face all dusted whitish grey. (1324. *jaculus*, Mg.)
- 18 (17). Face metallic, at least on the lower part.
- 19 (20). Acrostichal bristles fairly large and distinct. Lower part of the face green. (1320. *apicalis*, Ztt.)
- 20 (19). Acrostichal bristles very short. Lower part of the face blue-green.
- 21 (22). V.5⁴ longer than X.5. Small species, 2 mm.
(1325. *truncorum*, Mg.)
- 22 (21). V.5⁴ at least not longer than X.5.
- 23 (24). V.4¹ and V.4² about equal. Small species.
(1326. *dendrobænus*, Kow.)
- 24 (23). V.4¹ distinctly longer than V.4². Largish species with handsomely striped thorax.
(1327. *petrophilus*, Kow.)

243. SCELLUS, LW.1328. *Scellus notatus*, F.

Bishop Auckland, 1 ♂, June, 1900; Hesleden, 4 ♀, August, 1900-01.

244. HYDROPHORUS, Whlbg.

- 1 (2) (6). Wings with many brown points, especially near the fore margin.

1329. *Hydrophorus nebulosus*, Fln.

Waskerley, 3 ♂, 23-5-03.

- 2 (1) (6). Wings with only two rather faint dark spots on V.4³ and X.5.

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- 3 (4) (5). Face burnished blue-green on the upper half.
(1330. *bipunctatus*, Lehm.)
- 4 (3) (5). Face (♂) silvery whitish. (1331. *borealis*, Lw.)
- 5 (3) (4). Face orange. (1331½. *rufibarbis*, Gerst.)
- 6 (1) (2). Wings not spotted, at most a X-vein a little clouded.
- 7 (12). Grey-green species.
- 8 (9). Scutellum with only two bristles.
1336. *Hydrophorus bisetus*, Lw.
Hesleden, 1 ♂ and 4 ♀, June–August, 1900; Wearhead, 1 ♂, August, 1901.
- 9 (8). Scutellum with four bristles as usual.
- 10 (11). Face whitish. (1334. *præcox*, Mg.)
- 11 (10). Face all orange. (1335. *viridis*, Mg.)
- 12 (7). Olive brown species.
- 13 (14). Face entirely dull. (1333. *litoreus*, Fln.)
- 14 (13). Face silver white below, and shining green above in the male, all shining green in the female.
(1332. *balticus*, Mg.)

245. LIANCALUS, Lw.

- 1 (2). Legs all black, scutellum with six bristles, wing of the male snow-white at the tip.
1337. *Liancalus virens*, Scop.
Wearhead, 1 ♀, August, 1901.
- 2 (1). Legs black with yellow knees and joints, scutellum with four bristles. (1338. *lacustris*, Scop.)
“The genus *Alleoneurus* is not worth adoption.”—Verrall.

247. CAMPSICNEMUS, Wlk.

- 1 (8). Fore or mid legs in some way thickened or twisted; antennæ not pale at the base.
- 2 (5). Fore tarsi dilated or peculiar; mid tibiæ not thickened.
- 3 (4). Fore tarsi of male with long flap-like appendages as if slit; fore tibiæ and fore femora dilated; other legs simple; face yellow or pale. (1339. *magius*, Lw.)

- 4 (3). Tip of the fore tarsi dilated, but without lappets; face black; mid femora and tibiæ with a row of bristles and finely haired. (1344. *pusillus*, Mg.)
- 5 (2). Fore tarsi simple; mid tibiæ twisted and thickened at the end.
- 6 (7). Third antennal joint long, thin, and pointed, but not sharply so; hind femora with a row of bristles beneath; fore femora bare beneath.
1341. *Campsicnemus curvipes*, Fln.
Hesleden, 1 ♂, August, 1900.
- 7 (6). Third antennal joint moderately long, the end distinctly blunt; fore and mid femora with a row of bristles beneath. (1340. *scambus*, Fln.)
- 8 (1). Fore and mid legs not dilated.
- 9 (14). Antennæ black, not yellow at the base.
- 10 (11). Mid metatarsus shorter than the next joint; mid femora of the male with an interrupted row of bristles beneath, 10-11 on the basal half, 4-6 before the tip. (1342. *loripes*, Hal.)
- 11 (10). Mid metatarsus much longer than next joint.
- 12 (13). Mid femora and tibiæ of the male with a continuous row of long bristles beneath. (1343. *armatus*, Ztt.)
- 13 (12). Mid femora and tibiæ with only very small bristles. (1345. *pectinulatus*, Lw.)
- 14 (9). Antennæ yellow at base; legs quite simple. (1346. *picticornis*, Ztt.)

250. SYMPYCNUS, Lw.

- 1 (2). Legs black. (1352. *cirrhipes*, Wlk.)
- 2 (1). Legs mostly yellow.
- 3 (4). Fore coxæ black, only the extreme point yellow; fore femora with a dark ring; third antennal joint sharply pointed. (1353. *annulipes*, Mg.)
- 4 (3). Fore coxæ yellow, only the extreme base dark.
- 5 (6). Third joint of the hind tarsi with a depressed thorn-like bristle beneath at the tip; hind femora with a brown streak on upper side. (1353½. *spiculatus*, Gerst.)

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- 6 (5). Third joint of the hind tarsi clothed behind with stiff bristly hairs, like the fourth joint; hind femora at most black at the tip. (1354. *æneicoxa*, Mg.)

252. CHRYSOTIMUS, Lw.

- 1 (2). Antennæ black. (1356. *molliculus*, Fln.)
2 (1). Antennæ yellow. (1357. *concinus*, Ztt.)

253. XANTHOCHLORUS.

- 1 (2). Dorsum yellow with a green patch behind; frons grey. (1359. *tenellus*, W.)
2 (1). Dorsum and frons metallic grey-green, shimmering. (1358. *ornatus*, Hal.)

257. THINOPHILUS, Whlbg.

- 1 (2). Femora with the exception of the tip black. (1363. *flavipalpis*, Ztt.)
2 (1). Femora with the exception of the tip yellow. (1364. *ruficornis*, Hal.)

259. APHROSYLUS.

Frequent the verge of the sea.

- 1 (4). Antennæ all black; size, 5 mm.
2 (3). Hind femora with 3-4 small but distinct bristles above near the base; normally slaty-grey. (1366. *celtiber*, Hal.)
3 (2). Hind femora without any distinct bristles above near the base; normally ochreous-grey. (1367. *raptor*, Hal.)
4 (1). Antennæ with the first two joints reddish; size, 2 mm. (1368. *ferox*, Hal.)

FAMILY XXV.—LONCHOPTERIDÆ.

260. LONCHOPTERA, Mg.

TABLE OF SPECIES.

Life history unknown.

- 1 (8). Dorsum yellow with or without dark stripes

- 2 (3). Back of the head yellow. Yellow species, with sometimes a streak on the dorsum. Last joint of the antennæ, the vertical spot, and the last tarsal joint, black. (1369. *lutea*, Pz.)
- 3 (2). Back of the head all black, or at least black above. Antennæ, vertical spot, and last tarsal joint black or dark brown.
- 4 (5). Dorsum with three stripes. Yellow species with brown abdomen.

Lonchoptera trilineata, Ztt.

Gibside, 1 ♀, April; Bishop Auckland, 1 ♀, March, 1898; Harperley, 1 ♀, April, 1900.

- 5 (4). Dorsum with only one stripe.
- 6 (7). Abdomen all dark brown, at most the tip yellow.

1370. *Lonchoptera punctum*, Mg.

Bishop Auckland, 1 ♂, March, 1898; Harperley, 2 ♀, April, 1900; Belburn, 1 ♂, May, 1900.

- 7 (6). Abdomen yellow at the sides and behind.

(1371. *flavicauda*, Mg.)

- 8 (1). Dorsum grey or grey-brown, with or without stripes.
- 9 (10). Frons whitish yellow. A dirty brown species, with yellow legs and halteres, and brown tinged wings.

1372. *Lonchoptera lacustris*, Mg.

Gibside, 1 ♂ and 1 ♀, April, 1898; Harperley, 2 ♀, April, 1900; Bishop Auckland, 2 ♀, February-March, 1898.

- 10 (9). Frons shining dark brown. Brown species with brown halteres and dirty yellow legs. Upper side of the femora and tibiæ with a brown streak near the tip. Wings tinged brown.

1373. *Lonchoptera tristis*, Mg.

Bishop Auckland, 3 ♀, January, 1902.

SUB-ORDER II.—CYCLORRHAPHA.

Flies with barrel-shaped pupæ.

SECTION III.—PROBOSCIDEA.

A full and exact description of every British species in the first three families will be found in Mr. Verrall's "British Syrphidæ," from which the tables of these families are almost entirely extracted. Mr. Verrall deserves the warmest thanks of all lovers of flies for his splendid work. May he be spared to complete his gigantic undertaking.

FAMILY XXVI.—PLATYPEZIDÆ.

The larvæ of *Platypeza* have been found in fungi, the life history of the rest is unknown.

TABLE OF GENERA AND SPECIES.

- 1 (4). X.5² absent; humeral bristle conspicuous.
2 (3). V.4. forked.

261. OPETIA, Mg.

1375. *Opetia nigra*, Mg.

Hesleden, 2 ♂, 5-8-02; Craster, Northumberland,
1 ♂, 2-8-05.

- 3 (2). V.4. not forked.

262. PLATYCHEMA, Ztt.

1376. *Platycnema pulicaria*, Fln.

Bishop Auckland, 1 ♂, 11-7-00.

- 4 (1). X.5² present (V. 17); humeral bristle absent.
5 (12). V.4. not forked.
6 (9). V.1.b. spinose; third antennal joint short.

263. CALLIMYIA, Mg.

- 7 (8). Halteres of the male blackish; female with four yellow or silvery bands on the abdomen.

1377. *Callimyia speciosa*, Mg.

Bishop Auckland, 1 ♂, 21-6-01, 1 ♂, 24-6-02.

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- 8 (7). Halteres of the male orange; female with the basal half of the abdomen orange.

1378. *Callimyia amœna*, Mg.

Bishop Auckland, 1 ♂, 24-6-02, 1 ♀, 8-9-02, 1 ♂,
31-7-04; Hesleden, 1 ♂, 9-8-02.

- 9 (6). V.1.b. not spinose; third antennal joint long.

264. AGATHOMYIA, Verr.

- 10 (11). Mid tibiæ with a bristle near the middle of the upper side. (1380. *antennata*, Ztt.)

- 11 (10). Mid tibiæ without any bristle on the upper side. (1381. *collini*, Verr.)

- 12 (5). V.4. forked (V. 17).

265. PLATYPEZA, Mg.

- 13 (24). O.6. short, V.6¹ being equal to or shorter than V.6².

- 14 (21). X.5² longer than V.5⁵.

- 15 (16). X.4. almost in a line below the end of V.1.a. V.4¹ shorter than V.4². (1382. *consobrina*, Ztt.)

- 16 (15). X.4. before the end of V.1.a. V.4¹ longer than V.4².

- 17 (20). Legs, and usually the antennæ and abdomen, partly reddish or yellowish; frons of the male bare.

- 18 (19). Darker species, V.4.b. incomplete, abdomen of the female not reddish. (1383. *modesta*, Ztt.)

- 19 (18). Paler species, V.4.b. almost or quite complete, abdomen of the female reddish with narrow black bands. (1384. *rufa*, Mg.)

- 20 (17). Legs, antennæ, and abdomen all black or blackish, frons of the male tufted, wings clear in both sexes. (1385. *atra*, Mg.)

- 21 (14). X.5² much shorter than V.5⁵.

- 22 (23). V.4.a. short and strongly arched. (1387. *dorsalis*, Mg.)

- 23 (22). V.4.a. long and almost straight. (1386. *furcata*, Fln.)

- 24 (13). O.6. long, V.6¹ being distinctly, or at least slightly longer than V.6².

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- 25 (26). X.5² much shorter than V.5⁵, V.4.a. almost straight, O.6¹ rather short, female blackish.
(1386. *furcata*, Fln.)
- 26 (25). X.5² much longer than V.5⁵, V.4.a. arched, O.6¹ long, female with whitish markings.
- 27 (30). X.4. nearly in a line below the end of V.1.a., O.6¹ moderately long.
- 28 (29). Face and basal joints of the antennæ in the male moderately bristly; thorax of the female mainly brownish.
(1388. *fasciata*, Mg.)
- 29 (28). Face and basal joints of the antennæ in the male remarkably bristly; thorax of the female striped.
(1389. *hirticeps*, Verr.)
- 30 (27). X.4. much before the end of V.1.a.
- 31 (32). V.4.b. usually incomplete, O.6¹ not very long.
(1390. *infumata*, Hal.)
- 32 (31). V.4.b. usually complete, O.6¹ very long.
(1391. *picta*, Mg.)

FAMILY XXVII.—PIPUNCULIDÆ.

TABLE OF GENERA AND SPECIES.

- 1 (2). X.5² absent. Third antennal joint rounded in front (III. 41).
266. CHALARUS, Wlk. (1392. *spurius*, Fln.)
- 2 (1). X.5² present (V. 18).
- 3 (75). Humeri and scutellum not inflated.
- 4 (9). Ocellar bristles distinct. Rather hairy species, with the back of the head not appearing behind the eyes when viewed from the side. Third antennal joint rounded like (III. 41).

267. VERRALLIA, Mik.

- 5 (8). V.4⁴ not forked.
- 6 (7). Fore and mid femora with a wart beneath near the middle.
1393. *Verrallia pilosa*, Ztt.
Harperley, 1 ♀, 4-6-00.

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- 7 (6). Femora without any trace of a wart beneath.
(1394. *villosa*, v. Ros.)
- 8 (5). V.4⁴ forked (V. 18), no wart beneath the femora.
(1395. *aucta*, Fln.)
- 9 (4). Ocellar bristles absent. Pubescence very faint, head very large, and puffed out at the back. Third antennal joint usually with a pointed beak (III. 42).

269. PIPUNCULUS, Ltr.

The specific differences are very slight, but the following is from Verrall's table, whose minute descriptions should be consulted.

- 10 (58). Wings with the stigma distinct, C³ darkened and nearly as long as or longer than C⁴.
- 11 (12). V.4⁴ forked, scutellar bristles distinct.
1397. *Pipunculus furcatus*, Egg.
Barnard Castle, 1 ♀, 26-6-01.
- 12 (11). V.4⁴ not forked, scutellar bristles faint or absent.
- 13 (40). Abdomen entirely dull (except in *P. obtusinervis*, ♀).
All femora entirely bare.
- 14 (39). Fore and mid femora not shining behind or beneath, unless occasionally in a female.
- 15 (28). It is a male.
- 16 (23). Depression on the hypopygium (the last segment bending under the abdomen=the anus) large.
- 17 (20). Large species, 4-4 $\frac{1}{4}$ mm.
- 18 (19). Humeri blackish brown, as well as the halteres and tarsi.
(1398. *zonatus*, Ztt.)
- 19 (18). Humeri and tarsi yellowish, halteres brownish yellow or even darker.
(1399. *fascipes*, Ztt.)
- 20 (17). Not large species, 3-3 $\frac{3}{4}$ mm.
- 21 (22). Moderate sized species, 3 $\frac{3}{4}$ mm.
(1400. *modestus*, Hal.)
- 22 (21). Small species, 3 mm. Tibiæ and tarsi mainly dark.
(1401. *fuscipes*, Ztt.)
- 23 (16). Anal depression small.

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- 24 (25). Anus exceedingly inflated and rather shining.
(1402. *ruralis*, Mg.)
- 25 (24). Anus moderately large.
- 26 (27). Legs nearly all black, anal depression distinct,
though small. (1403. *unicolor*, Ztt.)
- 27 (26). Tibiæ and tarsi nearly all orange, practically no anal
depression. *terminalis*, Thoms. (1404)
- 28 (15). It is a female.
- 29 (32). Large species, 4-4 $\frac{1}{4}$ mm. Anal depression con-
spicuous.
- 30 (31). Humeri, tibiæ, and tarsi blackish brown.
(1398. *zonatus*, Ztt.)
- 31 (30). Humeri, tibiæ, and tarsi yellowish.
(1399. *fascipes*, Ztt.)
- 32 (29). Not large species, 3-3 $\frac{3}{4}$ mm.
- 33 (38). Tibiæ and tarsi mainly darkened.
- 34 (35). Moderate sized species, 3 $\frac{3}{4}$ mm.; anus with a de-
pression. (1400. *modestus*, Hal.)
- 35 (34). Small species, 3 mm.
- 36 (37). Abdominal side spots distinct, large, and coalescing;
anus without any middle channel; humeri dark.
(1401. *fuscipes*, Ztt.)
- 37 (36). Abdominal side spots indistinct, small, and not
coalescing; anus with a small middle channel;
humeri yellowish. (1403. *unicolor*, Ztt.)
- 38 (33). Tibiæ and tarsi mainly yellowish, anal channel dis-
tinct, frons all grey, size 3 mm.
1404. *Pipunculus terminalis*, Thoms.
Bedburn, 1 ♀, 7-7-02.
- 39 (14). All femora shining behind, tibiæ and tarsi orange,
abdomen moderately shining about the tip in the
female. (1405. *obtusinervis*, Ztt.)
- 40 (13). Abdomen more or less shining, at least narrowly but
brilliantly on the hind margins of segments.
- 41 (42). Stigma not reaching the tip of V.1.a.; mid femora
with slight ciliation about the tip of the hinder
side; legs mainly black. (1406. *halteratus*, Mg.)

- 42 (41). Stigma fully reaching V.1.a.
- 43 (50). Thorax pubescent, mid femora with pale pubescence behind, legs dark.
- 44 (45). Thorax shining; under and hinder side of all femora shining. (1407. *varipes*, Mg.)
- 45 (44). Thorax dull.
- 46 (47). Small species, $3\frac{1}{2}$ – $4\frac{1}{2}$ mm. Legs dark, under side of fore and mid femora and hinder side of hind femora shining.
1408. *Pipunculus campestris*, Ltr.
Hesleden, 1 ♂ and 1 ♀, August, 1900; Bishop Auckland, 1 ♀, 9–9–02.
- 47 (46). Larger species, $4\frac{1}{2}$ – $5\frac{1}{2}$ mm. Legs often paler.
- 48 (49). Under side of all femora shining; male genitalia almost normal.
1409. *Pipunculus pratorum*, Fln.
Hesleden, 2 ♀, August, 1902.
- 49 (48). Femora all grey-dusted, not shining beneath; male genitalia with an extraordinary keel.
(1410. *carinatus*, Verr.)
- 50 (43). Thorax bare, mid femora almost bare behind, legs mainly yellow.
- 51 (54). Large species, $3\frac{3}{4}$ –4 mm., with long wings.
- 52 (53). Fore femora partly dark, wings very long.
(1411. *vittipes*, Ztt.)
- 53 (52). Fore femora all yellow, wings rather shorter, hind tibiæ with 2–3 conspicuous black bristly hairs about the middle. (1412. *flavipes*, Mg.)
- 54 (51). Small species, $3\frac{1}{4}$ mm., with moderately long wings.
- 55 (56) (57). Femora of the female with a short incomplete dark ring. (1413. *strobbli*, Verr.)
- 56 (55) (57). All femora with a black streak above, and the hind femora with another behind.
(1414. *strigulipes*, Verr.)
- 57 (55) (56). Legs entirely yellow. (1415. *seminitidus*, Beck.)

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- 58 (10). Wings with the stigma absent or indistinct, C^3 not darkened, and only about one-fourth of the length of C^4 .
- 59 (70). X.4. much before the middle of O.
- 60 (69). Eyes of the male not touching. Legs of the female not entirely yellow.
- 61 (62). Legs black, only the knees yellow; male with a depression on the anus. (1416. *incognitus*, Verr.)
- 62 (61). Legs with considerably more than the knees yellow.
- 63 (66). Anus of the male without any depression.
- 64 (65). Tibiæ considerably darkened.
1417. *Pipunculus confusus*, Verr.
Harperley, 1 ♂, 14-6-04.
- 65 (64). Tibiæ all yellow. (1418. *rufipes*, Mg.)
- 66 (63). Male anus with a depression.
- 67 (68). Femora black with only the tip orange, antennæ with a long beak. (1419. *hæmorrhoidalis*, Ztt.)
- 68 (67). Femora yellow with only a blackish ring, antennæ not beaked. (1420. *xanthopus*, Thoms.)
- 69 (60). Eyes of the male touching, legs of the female entirely yellow, abdomen in both sexes with yellow side markings. (1421. *maculatus*, Wlk.)
- 70 (59). X.4. at about or after the middle of O., eyes of the male touching.
- 71 (72). Tarsi nearly all blackish, frons of the female all dull greyish, eyes of the male touching for a long space. (1423. *geniculatus*, Mg.)
- 72 (71). Tarsi nearly all yellowish, female frons shining black on the upper half.
- 73 (74). Abdomen without distinct black bristles, eyes of the male barely touching. (1424. *littoralis*, Beck.)
- 74 (73). Abdomen with distinct black bristles on at least the last segments, eyes of the male touching for a long space. (1425. *sylvaticus*, Mg.)
- 75 (3). Humeri and scutellum inflated, ocellar bristles absent, V.4⁴ forked.
268. NEPHROCERUS, Ztt. (1396. *flavicornis*, Ztt.)

FAMILY XXVIII.—SYRPHIDÆ.

TABLE OF SUB-FAMILIES AND GENERA.

- 1 (97). Antennæ of moderate length, and more or less drooping (III. 43, 44); or if rather long and horizontal (Paragus) then not on a produced or prominent frons.
- 2 (62). X.4. before the middle of O. (discal cell), *i.e.*, V.4² shorter than V.4³ (V. 21).
- 3 (61). O.2. open. Arista bare, or at most pubescent.

Sub-Family SYRPHINÆ.

- 4 (11). Face flat or retreating without a central knob. Eyes and face always hairy.
- 5 (10). Upper mouth-edge not produced.
- 6 (7). Third antennal joint elongate. PIPIZELLA, Rnd.(271)
- 7 (6). Third antennal joint not elongate.
- 8 (9). Male hind trochanters spurred.
273. CNEMODON, Egg. (1440. *vitripennis*, Mg.)
- 9 (8). Male hind trochanters not spurred. Female frons with grey side dust-spots. PIPIZA, Fln. (272)
- 10 (5). Face flat, but upper mouth-edge produced.
274. PSILOTA, Mg. (1441. *anthracina*, Mg.)
- 11 (4). Face knobbed or arched in the centre, or with a cone-like snout. In doubtful species the face and eyes are always almost bare.
- 12 (13). Face arched, but not hollowed out beneath the antennæ. PARAGUS, Ltr. (270)
- 13 (12). Face hollowed beneath the antennæ, and with a central knob, or produced mouth edge.
- 14 (21) (22). Dark species without light abdominal spots, and either with eye margins (VII. 5) or furrowed female frons.
- 15 (16). Cheeks with a long furrow producing distinct eye margins (VII. 5). CHILOSIA, Mg. (278)
- 16 (15). Cheeks not so furrowed. Female frons furrowed across.

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- 17 (18). Third antennal joint long. Upper outer angle of
O.4² rectangular. ORTHONEURA, Mcq. (275)
- 18 (17). Third antennal joint short. Upper outer angle of
O.4² acute.
- 19 (20). Abdomen all shining. Male eyes distant.
LIOGASTER, Rnd. (276)
- 20 (19). Abdomen dull on its disc. Male eyes touching.
CHRYSOGASTER, Mg. (277)
- 21 (14) (22). Species with abdomen all orange.
BRACHYOPA, Mg. (297)
- 22 (14) (21). Species with pale abdominal markings, or if
unicolorous or all dark, then without eye margins
on furrowed frons.
- 23 (30). Abdomen narrow at the base, club-shaped.
- 24 (25). Abdomen very long and narrow. BACCHA, F. (292)
- 25 (24). Abdomen only moderately long.
- 26 (27). Hind femora simple.
291. DOROS, Mg. (1451. *conopseus*, F.)
- 27 (26). Hind femora much thickened.
- 28 (29). Lower outer corner of O.4² rounded.
SPHEGINA, Mg. (295)
- 29 (28). Lower outer corner of O.4² almost a right angle.
ASCIA, Mg. (296)
- 30 (23). Abdomen only slightly narrow at the base, ovate, or
oblong.
- 31 (32). Hind femora much thickened.
306. MYIOLEPTA, Newm. (Milesinæ).
(1591. *luteola*, Gmel.)
- 32 (31). Hind femora normal.
- 33 (34). Face without a central knob, and the mouth produced
snout-like (VI. 16). RHINGIA, Scop. (295)
- 34 (33). Face with a central knob, and seldom with a much
produced mouth edge.
- 35 (44). Face all dark without any yellow.
- 36 (37). Abdomen somewhat club-shaped with red blotches.
Wings shorter than the abdomen.
PYROPHÆNA, Schin. (280)

- 37 (36). Abdomen not flat nor clubbed, and usually with pale or yellow spots or bands. Wings not shorter than the abdomen.
- 38 (39). Front tibiæ or tarsi of the male dilated (VII. 6-10), of the female short and broad. Abdominal spots in female quadrate (VII. 11).

PLATYCHIRUS, St. Farg. (279)

- 39 (38). Front tibiæ and tarsi simple in both sexes.
- 40 (43). Abdomen narrow with parallel sides.
- 41 (42). Eyes slightly hairy; female without yellow markings.
282. MELANGYNA, Verr. (1500. *quadrimaculata*, Verr.)
- 42 (41). Eyes quite bare; female with yellow triangular marks (VII. 12), or steel-blue cross bands.

MELANOSTOMA, Schin. (281)

- 43 (40). Abdomen broad, flat, ovate.
283. XANTHANDRUS, Verr. (1501. *comtus*, Harr.)
- 44 (35). Face partly yellow.
- 45 (48). Eyes separate in both sexes; third antennal joint very large; arista thick and almost terminal.
- 46 (47). Third antennal joint with pointed upper fore corner.

293. PELEOCERA, Mg. (1554. *tricincta*, Mg.)

- 47 (46). Third antennal joint with rounded upper fore corner.
294. CHAMÆSYRPHUS, Mik. (1555. *scævoides*, Fln.)
- 48 (45). Male eyes touching. Antennæ normal.
- 49 (52). Thorax with yellow side lines. Pleuræ yellow marked.

50 (51) Broad flat species. XANTHOGRAMMA, Schin. (290)

- 51 (50). Narrow elongate species.
- SPHÆROPHORIA, St. Farg. (289)

52 (49). Thorax without conspicuous side lines. Pleuræ unspotted.

- 53 (56). Abdomen with a broad transparent whitish basal band, sometimes divided in the middle.

54 (55). Wings with a dark middle band.

LEUCOZONA, Schin. (284)

- 55 (54). Wings without a band. ISCHYROSYPHUS, Big. (285)
- 56 (53). Abdomen without the broad basal band.

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- 57 (58). Frons inflated. CATABOMBA, O.-S. (287)
 58 (57). Frons not inflated.
 59 (60). V.3² much looped, as in (V. 20). DIDEA, Mcq. (286)
 60 (59). V.3² not, or not much looped. SYRPHUS (288)
 61 (3). O.2. closed. Arista very plumose (III. 43). Profile
 (VI. 15).

Sub-Family VOLUCELLINÆ.

299. VOLUCELLA, Geoff.

- 62 (2). X.4. at or after the middle of O., *i.e.*, V.4² as long as,
 or longer than V.4³ (V. 19, 20).
 63 (74). V.3² bent in a distinct loop (V. 20).

Sub-Family ERISTALINÆ.

- 64 (65). O.2. closed (V. 20). ERISTALIS, Ltr. (300)
 65 (64). O.2. open.
 66 (71). Hind femora without any tooth-like process beneath
 near the tip.
 67 (68). Eyes hairy. MYIATROPA, Rnd. (301)
 68 (67). Eyes bare.
 69 (70). Thorax very hairy.
 303. MALOTTA, Mg. (1588. *cimbiciformis*, Fln.)
 70 (69). Thorax almost bare. HELOPHILUS, Mg. (302)
 71 (66). Hind femora with a distinct tooth-like process.
 72 (73). Eyes hairy. Very hairy species.
 MERODON, Mg. (304)
 73 (72). Eyes bare. Body almost bare.
 305. TROPIDIA, Mg. (1590. *scita*, Harr.)
 74 (63). V.3² not, or not much looped.

Sub-Family MILESINÆ.

- 75 (78). Arista plumose.
 76 (77). Very hairy species, without yellow abdominal bands.
 ARCTOPHILA, Schin. (316)
 77 (76). Thinly hairy species, with yellow abdominal bands.
 SERICOMYIA, Mg. (317)
 78 (75). Arista bare.
 79 (86). Very hairy species.

- 80 (85). Hind femora without spines or tooth-like process beneath.
- 81 (84). Facial profile pointed like a Roman nose.
- 82 (83). Eyes separate in the male. CRIORRHINA, Mg. (307)
- 83 (82). Eyes touching in the male.
309. CYNORRHINA, Willist. (1598. *fallax*, L.)
- 84 (81). Facial profile blunt, snub-nosed.
308. POCOTA, St. Farg. (1597. *apiformis*, Schrk.)
- 85 (80). Hind femora spinose beneath.
310. BRACHYPALPUS, Mcq. (1599. *bimaculatus*, Mcq.)
- 86 (79). Species not very hairy.
- 87 (94). Hind femora thick and spinose, or with tooth-like process beneath.
- 88 (89). $X.4^2$ doubly bent, like two sides of a hexagon, with usually a hang-vein from its outer point (V. $19\frac{1}{2}$), the outermost tip of $O.4^2$ being at the bend of $X.4^2$. Profile (VI. 12). EUMERUS, Mg. (313)
- 89 (88). $X.4^2$ normal (V. 19), outermost tip of $O.4^2$ being where $X.4^2$ joins V.3.
- 90 (91). $V.3^2$ somewhat looped.
305. TROPIDIA, Mg. (1590. *scita*, Harr.)
- 91 (90). $V.3^2$ straight, or only gently and regularly bent.
- 92 (93). Small species, with $X.4^1$ at right angles to V.4. (V. 19), and with the hind femora extraordinarily thick. Profile (VI. 13). SYRITTA, St. Farg. (312)
- 93 (92). Larger species, with the lower fore corner of $O.4^1$ an acute angle, X.4. as in (V. $19\frac{1}{2}$). Hind femora thick and long. XYLOTA, Mg. (311)
- 94 (87). Hind femora neither thick nor spinose.
- 95 (96). Thorax and scutellum margined with strong black bristly hairs. CHRYSOCHLAMYS, Rnd. (314)
- 96 (95). Thorax without any strong bristles.
315. CALLIPROBOLA, Rnd. (1613. *speciosa*, Rossi.)
- 97 (1). Antennæ long, extended horizontally, and proceeding from a produced or prominent frons.
- 98 (105). $V.3^2$ without any loop or veinlet on its underside.

Sub-Family CHRYSOTOXINÆ.

- 99 (104). Arista dorsal.
100 (101). X.4. beyond the middle of O., third antennal joint very short. SPHECOMYIA, Ltr. (*vitatta*, Wd.)
101 (100). X.4. before or at the middle of O., third antennal joint usually the longest.
102 (103). Antennæ placed on a long stalk (VI. 18), abdomen with a broad orange band.
PSARUS, Ltr. (*abdominalis*, F.)
103 (102). Antennæ placed on a prominent frons (III. 46), abdomen with "golden bows."
CHRYSOTOXUM, Mg. (318)
104 (99). Style terminal. CALLICERA, Mg. (1624. *ænea*, F.)
105 (98). V.3. with a veinlet on its under side almost dividing O.4².

Sub-Family MICRODONTINÆ.

MICRODON, Mg. (320)

TABLES OF SPECIES.

270. PARAGUS, Ltr.

Larvæ feed on Aphides.

- 1 (2). Scutellum entirely black, and the face with a black middle line in both sexes. (1426. *tibialis*, Fln.)
2 (1). Scutellum with at least the tip pale in female, and face entirely yellow in male. (1427. *bicolor*, F.)

271. PIPIZELLA, Rnd.

Larvæ aphidiphagous.

- 1 (6). Upper outer corner of O.4² almost a right angle.
2 (5). Pubescence on hind tibiæ pale. Abdomen unspotted.
3 (4). Short, brassy, greenish-black species.

1428. *Pipizella virens*, F.

Hesleden, 1 ♀, August, 1902.

- 4 (3). Rather long bluish-black species.

(1429. *maculipennis*, Mg.)

- 5 (2). Pubescence on the hind tibiæ of the male all black.
Abdomen of female with a pair of round reddish spots. (1430. *flavitar sis*, Mg.)
- 6 (1). Upper outer corner of $O.4^2$ very distinctly acute.
(1431. *heringi*, Ztt.)

272. PIPIZA, Fln.

The distinction of many of the species is very uncertain.

- 1 (2). Fore and mid tarsi all yellow; pubescence all yellow on both thorax and abdomen.
(1432. *luteitarsis*, Ztt.)
- 2 (1). Fore and mid tarsi blackened, at least at the tip; pubescence not all yellow.
- 3 (4). Abdomen normally with four yellow spots.
(1433. *quadr maculata*, Pz.)
- 4 (3). Abdomen normally with two pale spots, or streaked, or unspotted.
- 5 (8). Legs very yellow about the knees and the base of tarsi (moderately shining, coarsely punctate species).
- 6 (7). Size $6\frac{1}{2}$ –9 mm.
1434. *Pipiza noctiluca*, L.
Belburn, 1 ♂, June, 1898; Bishop Auckland, 3 ♀, June–July, 1901; "Killingworth," C. Robson.
- 7 (6). Size 10 mm. Pale abdominal spots, in the female very conspicuous. (1435. *fenestrata*, Mg.)
- 8 (5). Legs not very yellow about the knees and tarsi.
- 9 (12). Shining black species, moderately punctate.
- 10 (11). Size about 8 mm. (1436. *bimaculata*, Mg.)
- 11 (10). Size about 6 mm., and more oblong.
(1437. *signata*, Mg.)
- 12 (9). Duller species, coarsely punctate.
- 13 (14). Very small, 5 mm. Abdomen distinctly spotted.
(1438. *notata*, Mg.)
- 14 (13). Larger, about 9 mm. Wings strongly clouded.
(1439. *lugubris*, F.)

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275. ORTHONEURA, Mcq.

Life history unknown.

- 1 (2). Legs partly yellowish. (1442. *elegans*, Mg.)
- 2 (1). Legs all black.
- 3 (4). Third antennal joint nearly as broad as long. (1443. *brevicornis*, Lw.)
- 4 (3). Third antennal joint nearly three times as long as broad. (1444. *nobilis*, Fln.)

276. LIOGASTER, Rnd.

Larvæ have been found in mud in a ditch.

- 1 (2). Third antennal joint reddish orange beneath. (1445. *splendida*, Mg.)
- 2 (1). Third antennal joint all black.
1446. *Liogaster metallina*, F.
Bollihope, 1 ♀, June, 1901.

277. CHRYSOGASTER, Mg.

Larvæ of one species have been found in mud.

- 1 (2). Thorax bright brassy with two faint dark stripes in front. (1447. *splendens*, Mg.)
- 2 (1). Thorax dark bronze, unstriped.
- 3 (6). Antennæ all blackish brown. Size 6½ mm.
- 4 (5). Pubescence of thorax mostly pale brownish yellow.
1448. *Chrysogaster hirtella*, Lw.
Harperley, 2 ♀, 26th June; Bedburn, 3 ♀, 7th July;
Hesleden, 1 ♀, 5th August; all in 1902.
- 5 (4). Pubescence of thorax all black. (1449. *macquarti*, Lw.)
- 6 (3). Antennæ with third joint reddish brown. Size 7 mm.
- 7 (8). Coppery black species, wings not yellowish about the base. (1450. *virescens*, Lw.)
- 8 (7). Dull black species.
- 9 (10). Wings yellowish about base. (1451. *chaybeata*, Mg.)
- 10 (9). Wings all blackish, even to the base. (1452. *solstitialis*, Fln.)

278. CHILOSIA, Mg.

Larvæ have been reared from fungi, also from stems and roots of plants.

Males (Eyes touching).

- 1 (14). Eyes bare.
- 2 (7). Legs black, at most the knees narrowly yellow.
- 3 (4). Third antennal joint pale reddish yellow; abdomen with grey spots.

1453. *Chilosia maculata*, Fln.

Belburn, 5 ♂, 9-6-98, 3 ♂, 12-6-99.

- 4 (3). Third antennal joint blackish.
- 5 (6). Thorax with fine sparse punctuation; hairs on the thorax uniform and all black.

1454. *Chilosia sparsa*, Lw.

Hesleden, 1 ♂, 29-5-99.

- 6 (5). Thorax coarsely punctate, and with long black and short yellow hairs. (1455. *antiqua*, Mg.)
- 7 (2). Legs partly yellow, at least the base and tip of the tibiæ orange.
- 8 (13). Arista distinctly pubescent.
- 9 (10). Legs black, except the base and tip of the tibiæ.

(1456. *longula*, Ztt.)

- 10 (9). Tibiæ orange with black rings; fore and mid tarsi largely orange.
- 11 (12). Third antennal joint dull brownish; punctuation of thorax fine. (1457. *scutellata*, Fln.)
- 12 (11). Third antennal joint bright orange; thorax coarsely punctate. (1458. *soror*, Ztt.)

- 13 (8). Arista almost bare; tarsi mostly orange.

1459. *Chilosia pulchripes*, Lw.

Hesleden, 1 ♀, 18-8-99; Harperley, 1 ♀, 24-4-00;
Wynyard, 1 ♀, 23-5-02.

- 14 (1). Eyes hairy.
- 15 (26). Face bearing hairs on the slopes (VII. 5), distinct from any pubescence on the eye margins.

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16 (23). Edge of scutellum with black bristly hairs.

17 (18). Legs entirely black.

1460. *Chilosia variabilis*, Pz.

Harperley, 1 ♀, 24-4-00; Hesleden, 1 ♂, 20-8-02.

18 (17). Legs partly orange.

19 (20) Scutellar bristles short; tibiæ pale at the base only.

(1461. *honesta*, Rnd.)

20 (19). Scutellar bristles long; tibiæ pale at both ends.

21 (22). Antennæ blackish; legs considerably orange.

(1462. *vulpina*, Mg.)

22 (21). Antennæ reddish; legs but little orange.

(1463. *barbata*, Lw.)

23 (16). Edge of scutellum without any black bristles; legs partly orange.

24 (25). Wings without conspicuous markings; hairs all pale brown.

1464. *Chilosia intonsa*, Lw.

Hesleden, 1 ♀, 18-8-99.

25 (24). Wings darkened across the middle. Hairs of three colours; very hairy, bee-like species.

1465. *Chilosia illustrata*, Harr.

Hesleden, 3 ♂, 1 ♀, August, 1899, 7 ♂, 4 ♀, August, 1902; "Killingworth," C. Robson.

26 (15). Face, apart from woolly tomentum, with no trace of hairs, except on the eye margins.

27 (36). Edge of the scutellum without black bristles.

28 (29). Third antennal joint brownish black.

(1466. *grossa*, Fln.)

29 (28). Third antennal joint orange.

30 (31). Pubescence bright foxy; third antennal joint rather angular at its upper tip. (1467. *chrysocoma*, Mg.)

31 (30). Pubescence orange or greyish yellow; third antennal joint rounded above at the tip.

32 (35). Wings not at all clouded.

33 (34). Pubescence on the thorax very long, and all greyish yellow. (1468. *albipila*, Mg.)

- 34 (33). Pubescence on the thorax moderately short. (May be *fraterna* or *bergenstammi*, 43 below, in which the scutellar bristles are not very conspicuous).
- 35 (32). Wings clouded, especially about the X-veins.
(1469. *nebulosa*, Verr.)
- 36 (27). Edge of scutellum with long black bristles.
- 37 (40). Legs black, at most the middle joints of the fore and mid tarsi pale.
- 38 (39). Legs entirely black.
1470. *Chilosia impressa*, Lw.
Hesleden, 1 ♀, 21-8-99.
- 39 (38). Fore tarsi with the middle joints pale.
1471. *Chilosia albitarsis*, Mg.
Common everywhere in spring on *Ranunculus*, &c.
- 40 (37). Legs with at least the tibiæ pale at both ends.
- 41 (46). Tibiæ and tarsi more orange than black.
- 42 (45). Size 8-10 mm. Basal joints of fore tarsi pale.
- 43 (44). Hind tibiæ all orange; tarsi darkened above.
1472. *Chilosia fraterna*, Mg.
Gibbsnees, 1 ♂, 4-6-97.
- 44 (43). Hind tibiæ with distinct blackish ring; tarsi considerably orange. (1473. *bergenstammi*, Beck.)
- 45 (42). Size 7 mm. Basal joint of fore and mid tarsi dark, the three middle joints pale. (1474. *præcox*, Ztt.)
- 46 (41). Tibiæ more black than orange.
- 47 (48). Fore and mid tarsi orange on the middle joints.
Size 6 mm. (1475. *mutabilis*, Fln.)
- 48 (47). Fore and mid tarsi blackish, unless at the base.
- 49 (50). Size 5½ mm.
1476. *Chilosia vernalis*, Fln.
Hesleden, 3 ♂, 4-8-99.
- 50 (49). Size 8 mm.
- 51 (52). Abdomen with a distinct patch of black hairs at the hind corners of the fourth segment.
1477. *Chilosia proxima*, Ztt.
Hesleden, 1 ♂, 18-8-99.

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52 (51). Abdomen without this patch.

53 (54). Legs with distinct orange markings.

(1478. *cynocephala*, Lw.)

54 (53). Legs almost all black.

(1478½. *carbonaria*, Lw.)

Females (Eyes widely separated).

Figures after the name refer back to the table of males.

- 1 (20). Eyes bare.
- 2 (9). Legs black, with not more than the extreme knees, or the middle joints of the fore tarsi pale.
- 3 (4). Third antennal joint orange. *maculata*, Fln. (1453)
- 4 (3). Third antennal joint dark.
- 5 (6). Middle joints of fore tarsi pale. *albitarsis*, Mg. (1471)
- 6 (5). Fore tarsi entirely blackish.
- 7 (8). Punctuation fine. Pubescence on the thorax somewhat erect and golden. *sparsa*, Lw. (1454)
- 8 (7). Punctuation coarse. Pubescence on the thorax depressed and greyish.
- 9 (2). Legs with at least both ends of the tibiæ pale.
- 10 (11). Scutellar bristles absent. *intonsa*, Lw. (1464)
- 11 (10). Scutellar bristles present.
- 12 (17). Arista pubescent; tip of the scutellum yellowish.
- 13 (16). Central knob of the face very wide, so as to encroach on the eye margins; legs extensively pale.
- 14 (15). Third antennal joint small and brownish; thorax finely punctate. (1457. *scutellata*, Fln.)
- 15 (14). Third antennal joint large and orange; thorax coarsely punctate. (1458. *soror*, Ztt.)
- 16 (13). Central knob of the face moderate; legs and antennæ nearly all dark. (1455. *longula*, Ztt.)
- 17 (12). Arista almost bare; tip of scutellum not in the least yellowish.
- 18 (19). Third antennal joint blackish and moderate in size. (1475. *mutabilis*, Fln.)
- 19 (18). Third antennal joint orange and very large. *pulchripes*, Lw. (1459)

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- 20 (1). Eyes bearing obvious, even though short, pubescence.
- 21 (30). Face bearing hairs, even though short and very inconspicuous, on the slopes (VII. 5), distinct from any which may be on the eye margins.
- 22 (23). Legs all black, at most dark brown at the knees.
variabilis, Pz. (1460)
- 23 (22). Legs partly pale, at least yellowish about the knees.
- 24 (29). Wings without any conspicuous markings.
- 25 (28). Antennæ dark.
- 26 (27). Arista and the scutellar bristles long.
(1462. *vulpina*, Mg.)
- 27 (26). Arista and the scutellar bristles remarkably short.
(1461. *honesta*, Rnd.)
- 28 (25). Antennæ pale. (1463. *barbata*, Lw.)
- 29 (24). Wings darkened across the middle. Hairs of three colours.
illustrata, Harr. (1465)
- 30 (21). Face absolutely without hairs, except on the eye margins.
- 31 (38). The black scutellar bristles absent.
- 32 (33). Antennæ blackish. (1466. *grossa*, Fln.)
- 33 (32). Antennæ yellowish.
- 34 (37). Wings not clouded about the X-veins.
- 35 (36). Femora almost all black. (1467. *chrysocoma*, Mg.)
- 36 (35). Femora all orange. (1468. *albipila*, Mg.)
- 37 (34). Wings clouded, at least about the X-veins.
(1469. *nebulosa*, Verr.)
- 38 (31). The black scutellar bristles present, at least traces.
- 39 (40). Legs entirely black. *impressa*, Lw. (1470)
- 40 (39). Legs with at least the base of the tibiæ pale.
- 41 (50). Tibiæ and tarsi mostly black.
- 42 (45). Tarsi almost all black.
- 43 (44). Scutellar bristles rather long. (1478½. *carbonaria*, Lw.)
- 44 (43). Scutellar bristles short. Outer half of the wing darkened. (1478. *cynocephala*, Lw.)
- 45 (42). Fore and mid tarsi distinctly pale on either the basal or middle joints.

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- 46 (47). Middle joints of the fore and mid tarsi pale; a small narrow species. (1475. *mutabilis*, Fln.)
- 47 (46). Basal joints of the fore and mid tarsi pale.
- 48 (49). Eye hairs pale. Size 8 mm. Antennæ blackish.
proxima, Ztt. (1477)
- 49 (48). Eye-hairs short and mostly blackish. Size $5\frac{1}{2}$ mm.
Antennæ often brown. *vernalis*, Fln. (1476)
- 50 (41). Tibiæ and tarsi mostly yellow.
- 51 (52). Small narrow species. Size 7 mm.
(1474. *præcox*, Ztt.)
- 52 (51). Size 8-10 mm.
- 53 (54). Thorax with depressed hairs; hind tibiæ not banded.
fraterna, Mg. (1472)
- 54 (53). Thorax with nearly erect hairs.
(1473. *bergenstammi*, Beck.)

279. PLATYCHIRUS, St. Farg.

Life history unknown. No. 1484 is said to have been bred from rotten fungi.

Males.

- 1 (8) (26). Fore tarsi only dilated; fore tibiæ normal (VII. 6).
- 2 (7). Fore tarsi with only the first and second joints dilated (VII. 6), and pale.
- 3 (6). Abdominal spots orange. Size 8-8 $\frac{1}{2}$ mm.
- 4 (5). Dull species; mouth much produced beyond the facial knob.
1479. *Platychirus manicatus*, Mg.
Common everywhere. May till August.
- 5 (4). Shining species; mouth not much produced.
(1480. *tarsalis*, Schum.)
- 6 (3). Abdominal spots hoary bronze. Size 7 mm.
(1481. *discimanus*, Lw.)
- 7 (2). Fore tarsi with the first, second, and third joints dilated and pale. (1482. *melanopsis*, Lw.)
- 8 (1) (26). Fore tibiæ and fore tarsi dilated (VII. 7-10), sometimes only slightly.

- 9 (13). Third antennal joint pale beneath.
- 10 (11) (12). First fore tarsal joint very large; other joints small (VII. 7).
 1483. *Platychirus peltatus*, Mg.
 Wearhead, 1 ♂, 19-7-97; Belburn, 2 ♀, 3-7-97, 1 ♂, 9-6-98; Escomb, 1 ♀, 24-4-98.
- 11 (10) (12). First fore tarsal joint broad and long, second broad, but very short (VII. 8).
 1484. *Platychirus scutatus*, Mg.
 Common everywhere. June till September.
- 12 (10) (11). First fore tarsal joint broad and long, others gradually decreasing in length and breadth (VII. 9-10); a long recurved hair under the tip of the mid femora.
 1485. *Platychirus albimanus*, F.
 Common everywhere. May till September.
- 13 (9). Third antennal joint all black.
- 14 (15). Fore tibiæ abruptly dilated at the tip. Legs mostly black. (1486. *podagratus*, Ztt.)
- 15 (14). Fore tibiæ gradually dilated. Legs mostly yellow.
- 16 (19). Fore femora with a row of isolated black hairs behind.
- 17 (18). Fore femora with no long twisted white hair at the base behind.
 1486. *Platychirus scambus*, Stæg.
 Bedburn, 1 ♂, 7-7-02.
- 18 (17). Fore femora with a long white hair at the base behind. (1488. *immarginatus*, Ztt.)
- 19 (16). Fore femora without any row of isolated long black hairs behind.
- 20 (23). Femora all orange.
- 21 (22). Fore femora with very dense blackish pubescence behind. (1489. *fulviventris*, Mcq.)
- 22 (21). Fore femora with moderate pale pubescence behind. (1490. *perpallidus*, Verr.)

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23 (20). Hind femora partly blackish.

24 (25). Middle pair of abdominal spots not much longer than broad.

1491. *Platychirus clypeatus*, Mg.

Common in meadows and marshes among rushes.

25 (24). Middle pair of abdominal spots twice as long as broad. Narrow species.

1492. *Platychirus angustatus*, Ztt.

Bishop Auckland, 1 ♂, 4-7-01; Hesleden, common at rushes.

26 (1) (8). Fore tibiæ and tarsi scarcely at all dilated. Smallest species, size $5\frac{1}{2}$ mm. Fore femora with two peculiar long black hairs, one at the middle and one near the tip of the upper hind side.

(1493. *sticticus*, Mg.)

Females (Platychirus, etc.).

The females are very difficult to distinguish. The following is from Mr. Verrall's table of the British species of *Platychirus*, *Melanostoma*, *Melangyna*, and *Pyrophæna*, to which he adds the following note: "This table is bound to be an imperfect one at present, as it is impossible to cope with the various melanoid females which occur in many species."

(Figures after a *Platychirus* refer back to the table of males, after other genera forward).

1 (4). Abdomen all black without any pale or even bluish markings.

2 (3). Size about 9 mm.

(1500. *Melangyna 4-maculata*, Verr.)

3 (2). Size 7 mm.

(1497. *Melanostoma dubium*, Ztt.)

4 (1). Abdomen with pale or bluish spots or markings.

5 (8). Abdomen nearly all indeterminately orange, or with only one pair of yellow spots, which are placed on the third segment. PYROPHÆNA, Schin. (280)

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- 6 (7). Abdomen nearly all indeterminately orange.
Py. granditarsa, Forst. (1494)
- 7 (6). Abdomen with only one pair of yellow spots placed
 on the third segment. *Py. rosarum*, F. (1495)
- 8 (5). Abdomen with three or four pairs of reddish,
 yellowish, or bluish spots.
- 9 (10). Thorax very dull; front mouth edge very much pro-
 duced. *Pl. manicatus*, Mg. (1479)
- 10 (9). Thorax shining.
- 11 (32). Antennæ absolutely without yellowish markings
 beneath the base of the third joint. Abdominal
 spots quadrate (VII. 11).
- 12 (15). Abdominal markings bluish quadrate spots, not
 bands.
- 13 (14). Fourth pair of abdominal spots visible; shorter
 species (7 mm.) with a broader head.
 (1481. *Pl. discimanus*, Lw.)
- 14 (13). Only three pairs of spots visible; longer species
 (8½ mm.) with average head.
Pl. albimanus, F. (1485)
- 15 (12). Abdominal markings yellowish.
- 16 (29). Hind legs with at least a dark band on the femora
 and tibiæ.
- 17 (18). Hind legs almost all black.
 (1486. *Pl. podagratus*, Ztt.)
- 18 (17). Hind legs with conspicuous pale knees, as well as
 the tip of the tibiæ, &c.
- 19 (22). Face considerably produced at the mouth.
- 20 (21). Abdomen nearly linear. (1480. *Pl. tarsalis*, Schum.)
- 21 (20). Abdomen ovate. (1482. *Pl. melanopsis*, Lw.)
- 22 (19). Face not much produced at the mouth.
- 23 (26). Paler species, with usually only a slight dark ring on
 the hind femora and tibiæ.
- 24 (25). Larger species (9 mm.). The dust spots on the side
 of the frons golden and well defined.
Pl. scambus, Stæg. (1487)

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- 25 (24). Smaller species (8 mm.). The dust spots on the side of the frons grey and ill-defined.
(1488. *Pl. immarginatus*, Ztt.)
- 26 (23). Darker species, with usually conspicuous blackish markings on the hind femora and tibiæ, but this character is not a very safe one.
- 27 (28). Larger species (8 mm.). The dust spots on the side of the frons moderately large.
Pl. clypeatus, Mg. (1491)
- 28 (27). Smaller species ($7\frac{1}{4}$ mm.). The dust spots on the side of the frons small. *Pl. angustatus*, Ztt. (1492)
- 29 (16). Hind legs entirely orange, without the faintest trace of any dark markings on at least the hind femora.
- 30 (31). Side of the frons with fairly well defined golden dust spots.
(1489. *Pl. fulviventris*, Mcq.)
- 31 (30). Side of the frons with undefined greyish dust spots.
(1490. *Pl. perpallidus*, Verr.)
- 32 (11). Antennæ partly yellow, at least at the base of the third joint beneath.
- 33 (36). Abdominal spots bluish.
- 34 (35). Abdominal markings resolved into spots.
Pl. albimanus, Mg. (1485)
- 35 (34). Abdominal markings forming cross bands, the second and third pair of spots meeting broadly in the centre.
(1496. *Melanostoma ambiguum*, Fln.)
- 36 (33). Abdominal spots yellowish.
- 37 (42). Abdominal spots tending to being quadrate (VII. 11).
- 38 (39). Size $9\frac{1}{2}$ mm. Abdomen with four pairs of sharply defined pinkish-yellow subquadrate spots, the pair on the fifth segment being very distinct; face considerably produced at the mouth.
Pl. peltatus, Mg. (1483)
- 39 (38). Size $6\frac{1}{2}$ –8 mm. Only three pairs of abdominal spots distinct, the pair on the fifth segment being indistinct or absent. Face rather flat.

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40 (41). Size 8 mm. The basal pair of spots on the second segment rather small, and the pair on the fifth segment hardly, if at all, visible.

Pl. scutatus, Mg. (1484)

41 (40). Size $6\frac{1}{2}$ mm. (1493. *Pl. sticticus*, Mg., but it is doubtful if the female has ever been taken).

42 (37). Abdominal spots tending to triangles (VII. 12).

43 (44). Face all shining, arista almost bare.

M. mellinum, L. (1498)

44 (43). Face partly dulled, arista slightly pubescent.

M. scalare, F. (1499)

280. PYROPHÆNA, Schin.

Life history unknown.

1 (2). Abdomen mostly orange, except at the base and tip. Male fore and mid metatarsus broad.

1494. *Pyrophæna granditarsa*, Forst.

Hesleden, 1 ♀, 21-8-02.

2 (1). Abdomen mostly black, except two yellow spots. Male tarsi simple.

1195. *Pyrophæna rosarum*, F.

Harperley, 1 ♀, 28-6-02.

281. MELANOSTOMA, Schin.

Life history doubtful. Larvæ have been found attacking the housefly, lepidopterous larvæ, &c. See interesting account of *Syrphus* larvæ preying on lepidoptera, E.M.M., July, 1905, page 150.

1 (4). Abdominal marks faint or absent, not yellow. Male fore femora with a curled bristle near the tip.

2 (3). Abdomen spotted. (1496. *ambiguum*, Fln.)

3 (2). Abdomen almost without marks. (1497. *dubium*, Ztt.)

4 (1). Abdominal marks distinctly yellow. Curled bristle absent in the male.

5 (6). Face and frons brilliantly shining; arista almost bare.

1498. *Melanostoma mellinum*, L.

Common everywhere.

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- 6 (5). Face and frons moderately dusted; arista slightly pubescent.

1499. *Melanostoma scalare*, F.

Common everywhere with *mellinum*. The females of the last two occur in a melanoid form, of which the first and last of the *mellinum* females in the museum case are examples.

284. LEUCOZONA, Schin.

1502. *Leucozona lucorum*, L.

Gibbsnees, 1 ♂, 4-8-97; Bishop Auckland, 1 ♀; Belburn, 2 ♀, 9-6-98; Hesleden, 1 ♀, 20-8-00; "Killingworth," C. Robson.

285. ISCHYROSYPHUS, Big.

- 1 (2). Fore legs all orange except base of femora. Length, 11 mm.

1503. *Ischyrosyrphus glaucius*, L.

It was abundant at Gibside on 12th August, 1896, especially females. Since then I have only come across it now and again at Hesleden and Shipley in July and August.

- 2 (1). Fore legs blackish, except the knees. Length, 10 mm.
(1504. *laternarius*, Müll.)

286. DIDÆA, Mcq.

- 1 (2) (3). Scutellum almost entirely yellow haired. Abdominal yellow bands large and conspicuous, the second and third not interrupted. Size 12 mm.

(1506. *fasciata*, Mcq.)

- 2 (1) (3). Scutellum nearly all black haired. Abdominal markings greenish, and all interrupted in the middle except the second in the male. Size 12 mm.

(1505. *alneti*, Fln.)

- 3 (1) (2). Scutellum yellow haired on the base, black haired on the tip half. Two abdominal bands entire and yellow. Rather small size, 10 mm.

(1507. *intermedia*, Lw.)

287. CATABOMBA, O.-S.

- 1 (2). Abdominal lunules curved upwards from the sides, so that their inner ends are nearer the fore margins of the segments than their outer ends.

1508. *Catabomba pyrastris*, L.

Fairly common everywhere.

- 2 (1). Abdominal lunules level.

1509. *Catabomba selenitica*, Mg.

Wearhead, in a fir plantation, 19-8-01. I believe I saw another at the same place, but failed to catch it.

288. SYRPHUS, F.

- 1 (14). Eyes distinctly hairy. (Only slightly hairy in 1516, 1538, and 1543).

- 2 (3). Thorax with two distinct grey lines.

1510. *Syrphus albostrigatus*, Fln.

Hesleden, 1 ♂, 12-8-99, 1 ♀, 23-8-99; Gibside, 1 ♀, 22-8-96; Bishop Auckland, 1 ♀, 11-7-99.

- 3 (2). Thorax not more than indistinctly striped.

- 4 (5). Band on the third abdominal segment the broadest.

1511. *Syrphus tricinctus*, Fln.

Gibside, 1 ♀, 22-8-96; Hesleden, 1 ♂, 1 ♀, 11-8-99; Harperley, 1 ♂, 4-6-00.

- 5 (4). Bands on the abdomen about equal.

- 6 (11). Bands on the abdomen all broken at the middle.

- 7 (8). Antennæ partly reddish.

- 7a (7b). Abdomen oval. Abdominal lunules extended over the side margins. Scutellum generally yellow haired.

1512. *Syrphus venustus*, Mg.

Not common in June.

- 7b (7a). Abdomen with almost parallel sides. Eyes very slightly hairy. Scutellum black haired.

(1538. *punctulatus*, Verr.)

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- 8 (7). Antennæ black; lunules not reaching the side margins.
- 9 (10). Abdomen ovate.
 1513. *Syrphus lunulatus*, Mg.
 Hesleden, 1 ♀, 16-8-02.
- 10 (9). Abdomen narrow.
- 10a (10b). Eyes distinctly hairy; abdominal spots curved.
 (1514. *nigricornis*, Verr.)
- 10b (10a). Eyes very slightly hairy; abdominal spots oblong.
 (1543. *lasiophthalmus*, Ztt.)
- 11 (6). At least two abdominal bands entire.
- 12 (13). V.3² somewhat looped.
 1515. *Syrphus annulipes*, Ztt.
 Harperley, 1 ♀, June 1st, 1903.
- 13 (12). V.3² nearly straight; very like *ribesii*.
 (1516. *torvus*, O.-S.)
- 14 (1). Eyes bare (slightly hairy in males of 1538 and 1543, but if it be a female and the eyes are slightly hairy, then it is in the first section).
- 15 (46). Abdomen oval; sides not parallel.
- 16 (45). The third and fourth abdominal segments each with a single band or pair of spots.
- 17 (44). Abdomen with a pair of basal spots, and at least two other bands, or pairs of spots.
- 18 (37). At least two abdominal pairs of spots meeting in the centre to form a band.
- 19 (24). Face with a distinct central black line, more than a dark knob.
- 20 (21). Antennæ orange.
 1517. *Syrphus annulatus*, Ztt.
 Harperley, 1 ♂, June 1st, 1903.
- 21 (20). Antennæ all black.
- 22 (23). Stigma blackish; thorax almost dull; legs nearly all black.
 (1518. *lineola*, Ztt.)

23 (22). Stigma yellowish; thorax shining blue-black; legs mostly orange; base of femora and ring on hind tibiæ dark.

1519. *Syrphus vittiger*, Ztt.

Gibside, 1 ♀, 22-8-96; Shipley, 1 ♀, 27-8-98; Hesleden, 1 ♂, 4-8-99, 1 ♀, 15-8-99; Harperley, 1 ♀, 4-8-00; Wearhead, 1 ♀, 20-8-01.

24 (19). Face without any distinct black line, at most a darkish knob.

25 (28). Antennæ all black; third joint not paler beneath.

26 (27). Pubescence on the frons black; femora black about the base.

1520. *Syrphus grossulariæ*, Mg.

Gibside, 3 ♀, August, 1896; Hesleden, 11 ♀, August, 1899; Howick, Northumberland, 2 ♀, August, 1905. It is generally considered a somewhat rare species, but it was common at Hesleden in 1899.

27 (26). Pubescence on the frons yellow; femora entirely yellow. (1521. *diaphanus*, Ztt.)

28 (25). Antennæ partly yellow, at least beneath the third joint.

29 (32). Thorax dullish; pubescence on scutellum black.

30 (31). Large species, 11 mm. Female hind femora all yellow. Numerous tiny black bristles on the upper tip half of the hind femora in both sexes.

1522. *Syrphus ribesii*, L.

Very common everywhere.

31 (30). Small species, 10 mm. Female hind femora broadly black at base, very few tiny black bristles on the upper tip half of hind femora.

1523. *Syrphus vitripennis*, Mg.

Said to be equally as common as *ribesii*, but I have not found it so here, although I may possibly have overlooked it. Harperley, 1 ♂, 27-5-98; Hesleden, 3 ♀, 23, 30, 31-8-99, 1 ♂, 23-8-00; Wearhead, 21-8-01.

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- 32 (29). Thorax brightly shining.
- 33 (34). Scutellar pubescence all yellow.
 1524. *Syrphus latifasciatus*, Mcq.
 Wearhead, 3 ♂, 1 ♀, 21-8-01.
- 34 (33). Scutellar pubescence partly black.
- 35 (36). Abdominal bands straight, and going almost their full width over the side margins.
 (1525. *nitidicollis*, Mg.)
- 36 (35). Abdominal bands undulated, and only reaching the side margins at upper corners. (1526. *nitens*, Ztt.)
- 37 (18). Abdominal bands broken at the middle.
- 38 (41). V.3² somewhat looped.
- 39 (40). Hind femora all yellow. Size 10 mm.
 (1527. *arcuatus*, Fln.)
- 40 (39). Hind femora black on the basal half. Size 12 mm.
 (1528. *lapponicus*, Ztt.)
- 41 (38). V.3² only gently undulated.
- 42 (43). Abdominal spots touching the side margins; scutellum yellow haired.
 1529. *Syrphus corollæ*, F.
 Common everywhere.
- 43 (42). Abdominal spots not touching the side margins; scutellum black haired.
 1530. *Syrphus luniger*, Mg.
 Common everywhere.
- 44 (17). Abdomen with a pair of basal spots and one band.
 1531. *Syrphus bifasciatus*, F.
 Evenwood, 3 ♂, 5-6-97; Bishop Auckland, 3 ♀,
 June, 1897-99.
- 45 (16). The bands on the third and fourth segments double, a narrow one in front, a broader behind.
 1532. *Syrphus balteatus*, Deg.
 Common everywhere.
- 46 (15). Abdomen with almost parallel sides.
- 47 (48). Abdominal bands duplicated. *balteatus*, above (1532)

- 48 (47). Abdominal bands not duplicated.
 49 (50). Abdomen with a pair of basal spots and one band.
bifasciatus, above (1531)
 50 (49). Abdomen with a pair of basal spots, and at least two
 other yellow bands, or pairs of spots.
 51 (56). At least two abdominal bands entire.
 52 (55). Bands only slightly emarginate (nicked in the middle).
 53 (54). Third joint of the antennæ darkened above; scutellum
 dark haired; frons with a black spot.

1533. *Syrphus cinctellus*, Ztt.

Gibside, 1 ♂, 21-8-96; Hesleden, 1 ♂, 9 ♀, August,
 1898-99; Shipley, 1 ♀, 17-7-00; Shull, 1 ♂, 1 ♀,
 5-9-00, 1 ♀, 7-7-02. The three males differ
 peculiarly in the shape of the abdomen. In the
 Gibside male the sides are parallel, and the
 abdomen is widest at the base. In the Shull male
 it is somewhat oval, being broadest at the third
 segment; while in the Hesleden male it is strongly
 club-shaped, being unusually narrow at the first
 and second segments and fore part of the third,
 and almost doubling its width rather suddenly at the
 hind part of the third segment. It proves, as Mr.
 Verrall observes, how unreliable as a character is
 the shape of the abdomen.

- 54 (53). Third joint of the antennæ, frons, and scutellar hairs
 all yellow.

1534. *Syrphus cinctus*, Fln.

Bishop Auckland, 1 ♂, 21-6-01, 1 ♀, 3-7-01.

- 55 (52). Bands deeply emarginate.

1535. *Syrphus auricollis*, Mg.

Bishop Auckland, 1 ♂, 26-7-97.

- 56 (51). Abdominal bands all broken in the middle.
 57 (64). Antennæ at least partly orange.
 58 (61). Antennæ with the third joint all, or almost all, orange;
 scutellum pale haired.
 59 (60). Abdominal spots not reaching the side margins.
 (1536. *euchromus*, Kow.)

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- 60 (59). Abdominal spots reaching the side margins.
(1537. *triangulifer*, Ztt.)
- 61 (58). Antennæ with the third joint blackish, except at the base ; scutellum black haired.
- 62 (63). Abdominal spots triangular ; eyes bare.
1535. *Syrphus auricollis*, Mg., var. *maculicornis*, Ztt.
Hesleden, 1 ♂, 1 ♀, 31-8-98.
- 63 (62). Abdominal spots semicircular ; eyes slightly hairy.
(1538. *punctulatus*, Verr.)
- 64 (57). Antennæ entirely blackish.
- 65 (66). Face and frons entirely yellow. (1539. *guttatus*, Fln.)
- 66 (65). Face with a black middle line ; frons partly black.
- 67 (72). Jowls yellowish, the dark middle facial line short, not extending beyond the facial knob.
- 68 (69). Thorax shining ; fore and mid tibiæ all yellow except a slight dark ring ; vertex deep blue in the female.
1540. *Syrphus umbellatarum*, F.
Hesleden, 1 ♀, 28-8-99.
- 69 (68). Thorax dull ; legs black with yellowish knees.
- 70 (71). Thorax dullish ; female frons and vertex black.
1541. *Syrphus compositarum*, Verr.
Hesleden, 3 ♀, August, 1899 ; locality uncertain, 1 ♀.
- 71 (70). Thorax very dull ; female frons and vertex grey ; wings brownish.
1542. *Syrphus labiatarum*, Verr.
Hesleden, 1 ♂, 18-8-02.
- 72 (67). Jowls blackish ; dark middle facial line extending to antennæ.
- 73 (74). Eyes slightly hairy ; male abdominal basal spots not extra small. (1543. *lasiophthalmus*, Ztt.)
- 74 (73). Eyes bare ; male abdominal spots small or absent ; face in male almost all black.
- 75 (76). Abdominal spots very small ; halteres dark.
(1544. *arcticus*, Ztt.)
- 76 (75). Abdominal spots absent ; halteres yellow.
(1545. *barbifrons*, Fln.)

289. SPHÆROPHORIA, St. Farg.

The members of this family shew a great tendency to run into varieties, and at present it is hard to say how many species we have. Mr. Verrall recognised only three as British, but his specific marks are not very definite. The following is his table of species and varieties.

1 (4). Thorax moderately shining, with its yellow side-margins continuous. 8-10 mm.

2 (3). Abdomen very elongate. Largest species, 10 mm. Scutellum usually yellow haired.

1546. *Sphærophoria scripta*, L.

a (b). Legs all orange, including coxæ and trochanters.
var. *scripta*, L.

Common at Hesleden in August, but I do not seem to have met with it elsewhere.

b (a). Legs orange, but coxæ mainly blackish.

c (d). Fore and mid coxæ all blackish, and hind coxæ partly so. (var. *dispar*, Lw.)

d (c). All coxæ and trochanters blackish.

e (f). Abdominal spots sloped off, but reaching the hind-margins.

var. *nigricoxa*, Ztt.

Hesleden, 2 ♂, 9 & 26-8-99; 1 ♂, 1-8-00.

f (e). Abdominal spots not reaching the side-margins.
(var. *strigata*, Stæg.)

3 (2). Abdomen moderately long. Moderately small species, 8 mm. Scutellum usually black haired.

1547. *Sphærophoria menthastris*, L.

a (d). Pubescence of scutellum black.

b (c). Abdominal bands all entire.

var. *menthastris*, L.

Hesleden, 3 ♂, 9-8-99, 1 ♂, 23-8-00; Wearhead, 2 ♂, 21-8-01; Wynyard, 1 ♀, 28-5-02.

c (b). Abdominal bands all separated into spots.

var. *picta*, Mg.

Common at Hesleden in August. Also Escomb, 1 ♀, 27-5-99; Barnard Castle, 1 ♀, 20-6-00; Bishop Auckland, 1 ♀, 1-7-97; Wearhead, 1 ♀, 18-8-01.

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d (a). Pubescence of scutellum yellow.

var. *tæniata*, Mg.

Wearhead, 1 ♂, 2-8-01; Hesleden, 1 ♂, 7-8-02.

4 (1). Thorax brightly shining, with its side-margins usually interrupted about the suture. Small species, $6\frac{1}{2}$ mm. Scutellum usually yellow haired.

(1548. *flavicauda*, Ztt.)

a (b). Femora yellow. (var. *flavicauda*, Ztt.)

b (a). Femora considerably blackish.

(var. *nitidicollis*, Ztt.)

290. XANTHOGRAMMA, Schin.

1 (2). Basal abdominal spots broad and triangular; hind femora and tibiæ with dark rings.

(1549. *ornatum*, Mg.)

2 (1). Basal abdominal spots narrow and linear; hind legs all orange.

(1550. *citrofasciatum*, Deg.)

292. BACCHA, F.

1 (2). Male frons very shining; female frons shining above the antennæ.

(1552. *obscuripennis*, Mg.)

2 (1). Male frons dusted; female frons dusted above antennæ.

Baccha elongata, F.

Hesleden, 2 ♂, 7 ♀, August, 1899-00; Bishop Auckland, 3 ♀, 19-8-97, 11-6-00, 24-6-02.

295. SPHEGINA, Mg.

1556. *Sphegina clunipes*, Fln.

Shipley, 1 ♀, 17-7-00.

296. ASCIA, Mg.

1 (2). Wings with a darkish band and the X-veins clouded lower outer angle of O.4² almost a right angle.

1557. *Ascia podagrica*, F.

Common everywhere.

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2 (1). Wings and X-veins almost clear; lower outer corner of O.4² much rounded.

3 (4). Fore femora mainly yellowish. (1558. *dispar*, Mg.)

4 (3). Fore femora mainly blackish.

5 (6). Antennæ moderately long.

1559. *Ascia floralis*, Mg.

Bedburn, 2 ♂, 3 ♀, 7-7-02.

6 (5). Antennæ short. (1560. *geniculata*, Mg.)

297. BRACHYOPA, Mg.

1561. *Brachyopa bicolor*, Fln.

Bishop Auckland, 1 ♂, 31-5-01.

298. RHINGIA, Scop.

1 (2). Thorax slaty blue-black. (1562. *rostrata*, L.)

2 (1). Thorax blackish æneous.

1563. *Rhingia campestris*, Mg.

Common everywhere. It roams about among the stalks of the herbage below the leaves.

299. VOLUCELLA, Geoff.

"Essentially a tropical genus." Its members act as scavengers during the larval stage in the nests of the larger Hymenoptera.

1 (2). Body very hairy. Humble bee like. Scutellum with marginal black bristles.

1564. *Volucella bombylans*, L.

a (b). All black haired except the third and fourth abdominal segments, which are red.

var. *bombylans*, L.

Witton, 1 ♂, 12-7-97; Bishop Auckland, 1 ♀;

Shull, 1 ♀, 17-6-00. This variety mimics

Bombus lapidarius.

b (a). Thorax yellow haired.

c (f). Base of abdomen black.

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d (e). Third and fourth segments pale haired.

var. *plumata*, de Geer.

Wearhead, 1 ♀, 1-8-01. "Birtley common, Killingworth, Harnham," C. Robson. This mimics *Bombus terrestris*.

Mr. C. Robson, of Birtley, sends me the following interesting note regarding the larva of this species, which shows that it is something more than a scavenger as has been suggested.

Mr. Robson writes, "In September, 1889, I took the full fed larvæ of *Volucella plumata* from a nest of *Bombus agrorum*, F., at Killingworth. Of this larva I secured seven specimens, and from these were reared the imago. That these larvæ had fed upon the brood of this humble bee there was proof sufficient, in the fact that at least four cocoons of the perfect female, or queen brood, had had the nymph, or pupa, less or more or entirely consumed, leaving only the shell or pupal pellicle. From each of three of these large cocoons I abstracted an immature queen bee, the contents of whose abdomen alone had been entirely consumed, the remainder of the body having been left apparently untouched; whilst in a fourth similar cocoon, the only one preserved, there is little more of the inmate left than the pupal pellicle. This last cell or cocoon has a single hole in its walls in the upper region, this hole having obviously been bitten and bored out from within. The other three infested cocoons had a similar hole or holes in the upper region.

"In the summer of 1887 I took a nest of *Bombus venustus*, Smith, in which were many *Volucella*-like larvæ, three of which

were being actually enclosed within its cocoon by the full-fed spinning-up of the larva of the bee.

“On one occasion, in July, 1877, I took a dead female of *Volucella bombylans* from a nest of *Bombus latreillellus*, Kirb., var. *distinguendus*, Mar. In this nest there were *Volucella* larvæ not full grown. I think it very probable that this insect had paid the penalty of death at the hands, or rather stings, of its would-be hosts for its intrusion into their home for the purpose of oviposition, and that the dipterous larvæ present were its offspring.”

e (d). Last abdominal segments reddish haired.

(var. *hæmorrhoidalis*, var. b, Ztt.)

f (c). Pale haired all over.

var. *hæmorrhoidalis*, var. a, Ztt.

Wearhead, 1 ♀, 4-8-97. This variety mimics *Bombus agrorum*.

- 2 (1). Body almost bare; scutellum with conspicuous black marginal bristles.
- 3 (4). Abdomen with yellow cross bands. (1565. *inanis*, L.)
- 4 (3). Abdomen shining black, but with conspicuous pale markings on the second segment.
- 5 (6). Abdomen with a pair of large orange spots on the second segment. Hairs on the thorax almost all pale. (1566. *inflata*, F.)
- 6 (5). Abdomen with the second segment nearly all whitish translucent. Hairs on the thorax all black.

1567. *Volucella pellucens*, L.

Fairly common everywhere. Acts as a scavenger in the nests of *Vespa vulgaris*, according to Dr. P. B. Mason.

Mr. Robson, of Birtley, writes me that he has seen one resting on the footboard of a weak hive of bees.

300. ERISTALIS, Ltr.

Larvæ (Rat-tailed Maggots) live in liquid putrifying mud, &c.

- 1 (8). Arista bare.
 2 (5). Scutellum æneous, like the thorax; eyes spotted.
 3 (4). Eyes separated in the male, and obviously hairy; a small crumpled-looking species, $8\frac{1}{2}$ mm.

(1568. *sepulchralis*, L.)

- 4 (3). Eyes touching in the male, and almost bare; a neat moderate sized species, 11 mm.

1569. *Eristalis æneus*, Scop.

Hesleden, 1 ♀, 31-8-98.

- 5 (2). Scutellum yellowish, at least when looked through.
 6 (7). Antennæ orange. (1570. *cryptarum*, F.)
 7 (6). Antennæ blackish.

1571. *Eristalis tenax*, L.

Very common everywhere.

- 8 (1). Arista plumose on at least the basal half.
 9 (10). Very hairy species.

1572. *Eristalis intricarius*, L.

Hesleden, common. "Killingworth," C. Robson.

- 10 (9). Slightly hairy, ground colour shewing distinctly.
 11 (18). Hind femora of the male all black, but sometimes pale at the extreme base in the female.
 12 (13). Face in good specimens entirely covered with pale dust; fore and mid tibiæ unusually ciliated.

1573. *Eristalis arbustorum*, L.

Common everywhere.

- 13 (12). Face always with a shining black central line or knob.
 14 (15). Fore and mid tarsi all yellow, hind tarsi all blackish.

1575. *Eristalis pertinax*, Scop.

Common everywhere.

- 15 (14). Fore and mid tarsi blackish, or with at the most only the base pale.

16 (17). Wings very clear; abdomen pale haired.

1574. *Eristalis nemorum*, L.

Hesleden, 1 ♂, 26-8-99; Wearhead, 1 ♀, 21-8-01.

17 (16). Wings with a distinct dark blotch about the middle; abdomen black haired; mid and hind tarsi whitish at the base.

1576. *Eristalis rupium*, F.

Gibside, 1 ♀, Gibbsnees, 1 ♀, 4-8-97; Hesleden, 1 ♂, 15-8-00, 1 ♀, 31-8-98; Wearhead, 6 ♀, 16, 22-8-01.

18 (11). Hind femora of the male pale at the base, and of the female at least the basal half pale.

1577. *Eristalis horticola*, Deg.

Gibbsnees, 1 ♂, 4-8-97; Hesleden, 1 ♂, 1 ♀, 29-7-99, 1 ♀, 31-8-98.

301. MYIATROPA, Rnd.

Myiatropa florea, L.

Gibbsnees, 1 ♀, 4-8-97; Hesleden, 1 ♂, 16-9-99; Bishop Auckland, 2 ♀, 19-4, 23-5-99. "Killingworth and Harnham," C. Robson. There is a remarkable difference in the size of the female specimens. The two from Bishop Auckland were caught on the window of a greenhouse in which there were no plants received from abroad. The April specimen measures 14 mm., the May specimen 16 mm. The Gibbsnees August specimen only measures 9 mm.

302. HELOPHILUS, Mg.

1 (10). Abdomen ovate; large or medium species, 10-15 mm.

2 (7). Antennæ dark; abdomen semi-transparent orange; large species, 12-15 mm.

3 (4). Face with the middle line yellow to orange red.

(1579. *trivittatus*, F.)

4 (3). Face with the middle line black.

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- 5 (6). Hind tibiæ with only the basal third orange.
(1580. *hybridus*, Lw.)
- 6 (5). Hind tibiæ with the basal two-thirds orange.
1581. *Helophilus pendulus*, L.
Gibside, 1 ♂, 1896; Hesleden, 3 ♂, 2 ♀, August,
1898-99; Wearhead, 1 ♀, 21-8-00. "Killing-
worth," C. Robson.
- 7 (2). Antennæ bright orange red; abdomen by no means
transparent; moderately large species, 10 mm.
- 8 (9). Paler species; male with a remarkable tuft of hairs
on a produced wart beneath the base of the hind
femora; back of the head with long black hairs
overhanging the eyes. (1582. *fruteorum*, F.)
- 9 (8). Darker species; male with only an inconspicuous
tuft; back of the head without any long black
hairs overhanging the eyes. (1583. *versicolor*, F.)
- 10 (1). Abdomen linear; species generally rather small, 9 mm.
- 11 (16). Third antennal joint normal; abdomen with con-
spicuous lunules; face produced.
- 12 (15). Upper mouth edge produced, but blunt at its tip.
- 13 (14). Abdominal markings moderately lunulate; back of
the head without any dark streak behind each
eye. (1584. *lunulatus*, Mg.)
- 14 (13). Abdominal lunules very much bent; back of the head
with a dark streak behind each eye.
(1585. *transfugus*, L.)
- 15 (12). Upper mouth edge extremely produced and pointed
at its tip. (1586. *lineatus*, F.)
- 16 (11). Third antennal joint angulated about its tip on the
upper side; abdomen with longitudinal markings;
face scarcely at all produced; long and narrow,
12 mm. (1587. *vittatus*, Mg.)

304. MERODON, Mg.1589. *Merodon equestris*, F.

(a). Thorax grey or tawny in front, black behind; abdomen pale tawny at base, rich tawny behind. (var. *equestris*, F.)

(b). All pale haired.

var. *narcissi*, F.

Bishop Auckland, 2 ♂, 4-7-01.

(c). All pale haired except the third abdominal segment, which is black. (var. *transversalis*, Mg.)

(d). All black haired except the end of the abdomen.

var. *validus*, Mg.

Bishop Auckland, 2 ♀, 16-6, 2-7-00.

307. CRIORRHINA, Mg.

1 (2). Large black species, 16 mm., with the end of the abdomen reddish or whitish.

1592. *Criorrhina ranunculi*, Pz.

Mr. C. Robson has taken a single specimen at Winlaton.

2 (1). Pale species, 11-14 mm.

3 (4). Scutellum black haired. (1593. *berberina*, F.)

4 (3). Scutellum tawny haired.

5 (8). Abdomen roundish or oval without any pale bands; fore and mid tibiæ usually blackish.

6 (7). Abdomen entirely covered with nearly equal dense tawny pubescence, which is paler along the hind margins of the segments. (1594. *oxyacanthæ*, Mg.)

7 (6). Abdomen with a tuft of long pale hairs at each basal corner, but otherwise clothed with short tawny pubescence, which allows the dull black ground colour to be clearly visible.

1595. *Criorrhina floccosa*, Mg.

Bishop Auckland, 1 ♀, 14-6-99, 1 ♀, 10-6-01.

8 (5). Abdomen narrowish, black, with inconspicuous yellow bands; fore and mid tibiæ yellowish.

(1596. *asilica*, Fln.)

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311. XYLOTA, Mg.

- 1 (6). Abdomen with conspicuous reddish markings.
 2 (5). Legs partly yellowish.
 3 (4). Hind femora equally and obviously spinose; hind trochanters of the male with a long spine.
 1600. *Xylota segnis*, L.
 Fairly common everywhere.
- 4 (3). Hind femora scarcely spinose at all; male hind trochanters almost unarmed. (1601. *tarda*, Mg.)
 5 (2). Legs all black; male hind trochanters quite simple.
 1602. *Xylota lenta*, Mg.
 Bishop Auckland, 1 ♂, 21-6-99.
- 6 (1). Abdomen without any reddish markings, but usually with yellow or orange spots.
 7 (8). End of the abdomen entirely covered with golden pile.
 1603. *Xylota sylvarum*, L.
 Bishop Auckland, 1 ♂, 4-7-01; Harperley, 1 ♀, 17-7-00; Hesleden, 1 ♀, 13-8-00.
- 8 (7). End of the abdomen in no way conspicuous.
 9 (10). Knees only very narrowly pale; abdomen with distinct quadrate yellow marks; hind trochanters of the male unarmed; size 8 mm.
 (1604. *nemorum*, F.)
- 10 (9). Basal third of fore tibiæ pale; hind trochanters of the male with a short spur.
 11 (12). Abdomen with yellowish subquadrate markings; size 10 mm. (1605. *florum*, F.)
 12 (11). Abdomen with small partly yellowish or bluish markings; size 9 mm.
 1606. *Xylota abiens*, W.
 Gibbsnees, 1 ♀, 4-8-97.

312. SYRITTA, St. Farg.

1607. *Syritta pipiens*, L.

Common everywhere.

313. EUMERUS, Mg.

- 1 (2). Abdomen considerably red. (1608. *sabulonum*, Fln.)
- 2 (1). Abdomen with pale spots, but no red markings.
- 3 (4). Stigma black; head large, nearly round; eyes of male touching for a considerable space.
(1609. *ornatus*, Mg.)
- 4 (3). Stigma pale brown; head rather small, semicircular; eyes of male touching for a very short space.
(1610. *strigatus*, Fln.)

314. CHRYSOCHLAMYS, Rnd.

- 1 (2). Arista blackish; abdomen shining, with dull bands on the hind margins of the segments.
1611. *Chrysochlamys cuprea*, Scop.
Hesleden, 5 ♀, August, 1899; Brancepeth, 1 ♀, 18-6-02.
- 2 (1). Arista dull reddish or yellow, the dull abdominal bands before the hind margins of the segments.
(1612. *ruficornis*, Ztt.)

316. ARCTOPHILA, Schin.

1614. *Arctophila mussitans*, F.

Hesleden, 5 ♂, 1 ♀, August, 1898-99; Shull, 1 ♂, 5-9-00. With the exception of Shull, I have only seen this species on a few yards of waste ground at the corner of a wood at Hesleden, and there only during the last five days of August in two successive years. It was fairly common on the one spot, but I saw it nowhere else, except at Shull, where I saw a pair, of which I secured the male. "A few specimens at Harnham," C. Robson.

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317. SERICOMYIA, Mg.

- 1 (2). Abdominal bands dark yellow, and widened at the sides; scutellum blackish.

1615. *Sericomyia borealis*, Fln.

The males are common among the heather, but I have never seen a female. "Killingworth and Harnham," C. Robson.

- 2 (1). Abdominal bands whitish yellow and narrow at the sides; scutellum reddish.

1616. *Sericomyia lappona*, L.

Waskerley, 1 ♂, 4-6-01. "Killingworth or Harnham, one specimen," C. Robson.

318. CHRYSOTOXUM, Mg.

- 1 (4). Third antennal joint nearly as long, or longer than the two basal joints together, measured on the inside (III. 46).

- 2 (3). Rather large species, 13 mm. Male genitalia large and unsymmetrical. (1617. *cautum*, Harr.)

- 3 (2). Smaller species, 9½ mm. Male genitalia inconspicuous.

1718. *Chrysotoxum arcuatum*, L.

Hesleden, 2 ♂, 11, 12-8-99. "Killingworth and Harnham," C. Robson.

- 4 (1). Third antennal joint conspicuously shorter than the two basal joints together.

- 5 (12). Abdomen with four fairly equal "golden bows."

- 6 (9). Abdominal bows extending over the side margins; wings with no conspicuous dark splash near the costa, after the middle.

- 7 (8). Short plump species; usually the yellow colour predominates on the abdomen.

(1619. *octomaculatum*, Curt.)

- 8 (7). Long elegant species; usually the black colour on the abdomen is conspicuous. (1620. *elegans*, Lw.)

- 9 (6). Abdominal bows isolated and not extending over the side margins; wings usually with a dark splash near the costa after the middle.
- 10 (11). All legs entirely yellow. (1621. *festivum*, L.)
- 11 (10). Fore femora black about the base.
(1622. *vernale*, Lw.)
- 12 (5). Abdomen with two "golden bows" more conspicuous than the others.
1623. *Chrysotoxum bicinctum*, L.
Hesleden, 2 ♀, 2, 30-8-99.

320. MICRODON, Mg.

The larvæ of this genus are extraordinary slug-like creatures (VII. 13). They have been found in colonies of *Formica fusca* and under loose willow bark. The flies frequent damp places, under leaves and in grass.

- 1 (2). Scutellum orange. (1525. *mutabilis*, L.)
- 2 (1). Scutellum blackish green.
- 3 (4). Legs mostly yellow; frons narrow; thorax with a patch of black hairs between the wings.
(1626. *devius*, L.)
- 4 (3). Legs mostly dark brown; frons broad; thoracic patch of black hairs absent. (1627. *latifrons*, Lw.)

FAMILY XXIX.—CONOPIDÆ.

The known larvæ are parasitic on Hymenoptera and Orthoptera.

TABLE OF GENERA AND SPECIES.

- 1 (14). Third antennal joint with a short terminal style; ocelli absent.

Sub-Family CONOPINÆ.

- 2 (11). Femora not abnormally thickened at the base; second abdominal segment not remarkably narrower and longer than the others.

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321. CONOPS, L.

- 3 (4). Scutellum yellow or red-brown. (1628. *vesicularis*, L.)
 4 (3). Scutellum black, with at most the extreme edge yellow.
 5 (6). Hind femora yellow, at most slightly brown on the middle. (1629. *quadrifasciata*, Deg.)
 6 (5). Hind femora black; the base, and sometimes the tip, yellow.
 7 (8). Frons wholly black. (1630. *ceriiformis*, Mg.)
 8 (7). Frons black and yellow.
 9 (10). Face yellow, with black spots on the jowls. (1624. *strigata*, Mg.)
 10 (9). Face and jowls all yellow, at most a black centre stripe. (1632. *flavipes*, L.)
 11 (2). Femora abnormally thickened at the upper side base as if swollen; second abdominal ring much narrower and longer than the others.

322. PHYSOCEPHALA, Schin.

- 12 (13). Ground colour of the abdomen all yellow. (1633. *nigra*, Deg.)
 13 (12). Ground colour of the abdomen black, and partly orange, at least on the second segment. (1634. *rufipes*, F.)
 14 (1). Third antennal joint with a short two-jointed style-like dorsal arista (III. 47); ocelli present.

Sub-Family MYOPINÆ.

- 15 (16). Proboscis only elbowed at the base. (1635. *cinereum*, F.)
 16 (15). Proboscis elbowed at the base and at the middle, the front portion shutting back like a pocket-knife (VI. 27).
 17 (22). Face only moderately lengthened; jowls at most as long as the diameter of the eye, generally shorter.
 18 (21). Antennæ longer than the frons; frons yellow in front, black behind.

324. ONCOMYIA, Dsv.

- 19 (20). Second antennal joint much longer than the third.
(1636. *atra*, F.)
- 20 (19). Second antennal joint scarcely longer than the third.
(1637. *pusilla*, Mg.)
- 21 (18). Antennæ shorter than the frons; frons wholly yellow,
not black behind.
- 325.** SICUS, Scop. (1638. *ferrugineus*, L.)
- 22 (17). Face much lengthened; jowls at least twice as long
as the diameter of the eyes.

326. MYOPA, F.

- 23 (28). Jowls hairy.
- 24 (25). Jowls with two black dots behind; X.4. not clouded.
1639. *Myopa buccata*, L.
Harperley, 2 ♂ and 2 ♀, June, 1900; Bollihope, 1 ♂,
June, 1901.
- 25 (24). Jowls unspotted; X.4. clouded.
- 26 (27). Wings unspotted beyond the clouded X.4.
(1640. *testacea*, L.)
- 27 (26). Wings with several brown spots.
(1641. *polystigma*, Rnd.)
- 28 (23). Jowls bare.
- 29 (30). Scutellum black. (1642. *fasciata*, Mg.)
- 30 (29). Scutellum red-brown. (1643. *dorsalis*, F.)

FAMILY XXX.—CESTRIDÆ.

TABLE OF GENERA AND SPECIES.

- 1 (6). V.4. straight, not bent towards V.3. (V. 22).

327. GASTROPHILUS, Leach.

Larvæ parasitic in the stomach of the horse.

- 2 (3). Wings with pale brown washed-out looking spots;
X.5² almost in a line with X.4. (V. 22).
(1644. *equi*, F.)

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- 3 (2). Wings clear, quite unspotted.
- 4 (5). X.5² some distance beyond X.4.
(1645. *hæmorrhoidalis*, L.)
- 5 (4). X.5² almost in a line with X.4. (1646. *nasalis*, L.)
- 6 (1). V.4. bent towards V.3. (V. 23).
- 7 (16). O.4² open, though much narrowed.
- 8 (11). The facial pit, in which are the antennæ, not divided into two; lower part of the face without a shield.
- 9 (10). Hairy species.
328. CEPHENOMYIA, Ltr. (1647. *rufibarbis*, Mg.)
Larvæ live in the nostrils of deer.
- 10 (9). Almost bare species.
331. PHARYNGOMYIA, Schin. (1653. *picta*, Mg.)
Larvæ in the throat and nostrils of the red deer.
- 11 (8). The facial antennal pit divided into two parts by a prominent partition, which on the lower part spreads out into a facial shield.

329. HYPODERMA, Ltr.

Larvæ live under the skin of cattle, deer, &c.

- 12 (15). The hind metatarsi three times as long as the next tarsal joint.
- 13 (14). Hairs on the dorsum, when viewed on a level from behind, almost uniformly greyish-yellow or dark brown.
(1648. *lineatum*, Vill.)
- 14 (13). Hairs on the dorsum, when viewed from a level from behind, yellow on the front half, black on the hinder half, sharply contrasted. (1649. *bovis*, Deg.)
- 15 (12). Hind metatarsi at most twice as long as the next tarsal joint. (1650. *diana*, Brau.)
- 16 (7). O.4² closed and stalked (V. 23).

330. CESTRUS, L. (1651. *ovis*, L.)

Larvæ live in the nostrils of sheep.

XXXI.

- 14 (8) (13). Abdomen with four segments, short, oval, or conical, seldom cylindrical, but in the latter case not bent inwards behind, and the genitalia not prominent.
- 15 (72). $O.4^2$ ending very far before, or rather far before, the tip of the wing, generally open and never long stalked; or, if $O.4^2$ ends rather near the tip, and so this character is doubtful, then either $X.5^2$ is much nearer to the bend of $V.4.$ than to $X.4.$; or, the arista is almost quite bare; or, $V.3.$ is either straight or bent upwards to the fore margin, so that $O.3.$ is not widened out at the end, and is throughout always narrow.
- 16 (65). Facial bristles absent, at most a few near the mouth, but not reaching up beyond half-way to the base of the antennæ.
- 17 (42). Eyes bare. $O.4^2$ open.
- 18 (19). The third antennal joint shorter than the much lengthened second. ECHINOMYIA, Dum. (380)
- 19 (18). The third antennal joint as long as, or longer than, the second.
- 20 (23). Arista three-jointed and geniculated, each joint is therefore very distinct.
- 21 (22). Head, and especially the frons, inflated, and very large. GONIA, Mg. (353)
- 22 (21). Head not inflated.
352. GERMARIA, Dsv. (1726. *ruficeps*, Fln.)
- 23 (20). Arista two-jointed, or, if three-jointed, then not geniculated.
- 24 (25). $X.5^2$ much inclined outwards, its base below $X.4.$ and its end slightly nearer to the bend of $V.4.$ than to $X.4.$ PLAGIA, Mg. (384)
- 25 (24). $X.5^2$ never very much inclined, its base always beyond $X.4.,$ and its end distinctly nearer to the $V.4.$ bend than to $X.4.$
- 26 (35). The third antennal joint as long, or at most twice as long as the second.

27 (28). The second-last aristal joint much lengthened, and much longer than broad; wings blunt at the tip, or the proboscis long and far protruding.

DEMOTICUS, Mcq. (370)

28 (27). The second-last aristal joint not lengthened, and scarcely longer than broad; proboscis normal.

29 (30). Antennæ almost as long as the face, the second joint much lengthened. TACHINA, Mg. (349)

30 (29). Antennæ scarcely reaching the middle of the face, second joint not lengthened.

31 (32). Frons broad and inflated, with very short weak bristles; wings comparatively short, scarcely reaching beyond the end of the abdomen.

422. MILTOGRAMMA, Mg. (1884. *punctatum*, Mg.)

32 (31). Frons not inflated, bearing long and strong bristles; wings comparatively long, and reaching far over the end of the abdomen.

33 (34). Arista bent; abdomen much arched.

TRIXA, Mg. (403)

34 (33). Arista straight; abdomen scarcely arched, often pressed flat.

427. MACRONYCHYIA, Rnd. (1894. *agrestis*, Fln.)

35 (26). The third antennal joint at least three times as long as the second.

36 (41). Abdomen oval; the longest facial bristles close to the upper edge of the mouth; wings not blunt at the tip; the second-last aristal joint not lengthened.

37 (38). Hind tibiæ with an even row of short bristles on the outer side.

346. BLEPHARIPODA, Rnd. (1704. *scutellata*, Dsv.)

38 (37). Hind tibiæ with bristles of unequal length, among which a few long bristles are specially prominent.

39 (40). Discal bristles absent on the middle abdominal segments. MASICERA, Mcq. (335)

40 (39). Both discal and marginal bristles present on the middle abdominal segments.

CEROMASIA, Rnd. (336)

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- 41 (36). Abdomen conical; the longest facial bristles nearly on the middle of the facialia.
 MEIGENIA, Dsv. (332)
- 42 (17). Eyes hairy.
- 43 (44). O.4² closed. OLIVIERIA, Dsv. (374)
- 44 (43). O.4² open.
- 45 (62). Third antennal joint as long as, or at most twice as long as the second.
- 46 (47). Shining gold green species.
 GYMNOCHÆTA, Dsv. (337)
- 47 (46). Species otherwise coloured.
- 48 (49). V.4. with a hang-vein at the bend; palpi small, almost rudimentary. MICROPALPUS, Mcq. (378)
- 49 (48). V.4. without a hang-vein; palpi distinctly present.
- 50 (59). Abdomen broadly oval; the portion of V.4. beyond the angle usually curved; the costal spine absent.
- 51 (54). Lower facial bristles reaching to about the middle of the facialia.
- 52 (53). The largest facial bristles situated about the middle of the facialia.
 MEIGENIA (332)
- 53 (52). The largest facial bristles situated close to the mouth.
 EXORISTA (338)
- 54 (51). Lower facial bristles absent, or at most only a few close to the mouth.
- 55 (58). Discal abdominal bristles absent from the middle segments.
- 56 (57). Cheeks with short but distinct hairs near and below the invading fronto-orbital bristles; jowls deep.
 334. MERIANA, Dsv. (1600. *puparum*, F.)
- 57 (56). Cheeks bare; jowls not deep.
 CHÆTOLYGA, Rnd. (348)
- 58 (55). Discal abdominal bristles present on the middle segments; jowls deep, nearly as deep as the long diameter of the eye. VARICHÆTA, Speis (379)
- 59 (50). Abdomen cylindrical; the portion of V.4. beyond the angle always quite straight; the costal spine present.

- 60 (61). Abdomen wholly black; $O.4^2$ always open.
373. ZOPHOMYIA, Mcq. (1772. *temula*, Scop.)
- 61 (60). Abdomen black and red; $O.4^2$ closed.
 OLIVIERIA, Dsv. (**374**)
- 62 (45). Third antennal joint always more than twice as long as the second.
- 63 (64). Third antennal joint bow-shaped, *i.e.*, strongly convex in front, concave behind.
339. EPICAMPOCERA, Mcq. (1686. *succincta*, Mg.)
- 64 (63). Third antennal joint straight in front, not bow-shaped.
 EXORISTA (**338**)
- 65 (16). Facial bristles often very large, and present on the whole length of the facialia.
- 66 (71). Eyes bare.
- 67 (68). $O.4^2$ closed. BAUMHAUERIA (**349 $\frac{1}{2}$**)
- 68 (67). $O.4^2$ open.
- 69 (70). Frons only slightly prominent; $O.4^2$ ending rather near the point of the wing; abdomen elliptical, rather plump; V.4. without a hang-vein.
 FRONTINA (**342**)
- 70 (69). Frons very prominent, conically protruding; $O.4^2$ ending long before the wing tip; abdomen conical, slim; V.4. with a hang-vein. METOPIA, Mg. (**424**)
- 71 (66). Eyes hairy; $O.4^2$ open. PHOROCERA, Dsv. (**344**)
- 72 (15). $O.4^2$ ending at the wing tip, or close before it, or both closed and long stalked; or, if $O.4^2$ ends rather before the wing tip, and so this character is doubtful, then either X.5² is placed at, or nearly at, the middle between X.4. and the bend of V.4.; or the arista is distinctly pubescent; or V.3. is bent downwards in front, so that O.3. is widened out at its end, and throughout is, as a rule, rather broad.
- 73 (74). The bend of V.4. with a hang-vein; abdomen without central bristles.
387. PTYCHONEURA, B. & B. (1805. *rufitarsis*, Mg.)
- 74 (73). The bend of V.4. without a hang-vein.

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75 (102). O.4² open, or just closed at the margin, not stalked.

76 (97). Eyes bare.

77 (78). Proboscis bristle-like, far protruding, and doubly geniculated, the front part shutting back like a pocket-knife on the second. SIPHONA, Mg. (396)

78 (77). Proboscis not bristle-like, nor far protruding, once bent, the front part not shutting downwards and backwards.

79 (84). V.3. bearing bristles at least as far as X.4.

80 (81). Arista apparently two-jointed, the second joint being very small; mouth bristles extended upwards on the facialia. ROESELIA, Dsv. (390)

81 (80). Arista distinctly three-jointed and bent; mouth bristles not extending upwards; facial bristles absent.

82 (83). X.5² much nearer to X.4. than to the bend of V.4.; cheeks bristly; discal abdominal bristles present on the middle segments.

DIGONCHÆTA, Rnd. (392)

83 (82). X.5² about the middle between X.4. and the bend of V.4.; cheeks bare; discal abdominal bristles generally absent (present in *latifrons*).

THRYPTOCERA, Mcq. (393)

84 (79). V.3. not bearing bristles, or only just at its base.

85 (86). Arista distinctly three-jointed, the second joint being long; abdominal discal bristles absent.

CRASPEDOTHRIX, B. & B. (293½)

86 (85). Arista apparently two-jointed, the second joint being very short.

87 (88). Arista equally thick to the tip, and often as if broken over at its base; V.3. with two or three thorns at its base; face in profile almost perpendicular.

388. DISCOCHÆTA, B. & B. (1806. *muscaria*, Fln.)

88 (87). Arista tapering, thickest at its base, or equally thick for half its length, and always straight.

89 (90). Face in profile retreating; arista equally thick for half its length. DEGEERIA, Mg. (368)

- 90 (89). Face perpendicular, or very slightly retreating; arista tapering.
- 91 (92). Third antennal joint generally four times, and always more than three times the length of the second.
- 395.** HYPOSTENA, Mg. (1820. *procera*, Mg.)
- 92 (91). Third antennal joint at most three times the length of the second, but generally shorter.
- 93 (94). Fore tarsi more than twice as long as the tibiæ; legs much lengthened. MYOBIA, Dsv. (**371**)
- 94 (93). Fore tarsi as long as, or only slightly longer than the tibiæ; legs moderately long.
- 95 (96). Wings as long as, or only slightly longer than the almost spherical abdomen. CLYTIA, Dsv. (**402**)
- 96 (95). Wings considerably longer than the conical or elliptical abdomen.
- 405.** REDTENBACHERIA, Schin. (1837. *insignis*, Egg.)
- 97 (76). Eyes hairy.
- 98 (101). Facial bristles not reaching beyond the middle of the facialia.
- 99 (100). Third antennal joint as long as, or only a little longer than the second; arista pubescent, and apparently two-jointed. MACQUARTIA, Dsv. (**363**)
- 100 (99). Third antennal joint at least twice as long as the second; arista quite bare, distinctly three-jointed. SOMOLIA, Rnd. (**358**)
- 101 (98). Facial bristles present on the whole length of the facialia. PHOROCERA, Dsv. (**344**)
- 102 (75). $O.4^2$ closed, and mostly long-stalked.
- 103 (104). Eyes hairy.
- 365.** LOEWIA, Egg. (1751. *setibarba*, Egg.)
- 104 (103). Eyes bare.
- 105 (108). $O.4^2$ short-stalked.
- 106 (107). Upper mouth edge bare.
- 404.** FORTISIA, Rnd. (1836. *fæda*, Mg.)
- 107 (106). Face with very long bristles.
- 412.** CLISTA, Mg. (1853. *lepida*, Mg.)
- 108 (105). $O.4^2$ long-stalked.

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- 109 (110). Cheeks below, near the eye margins, with a few large bristles. RHINOPHORA, Dsv. (409)
- 110 (109). Cheeks without these bristles.
- 111 (114). Third antennal joint at least twice as long as the second, but generally many times longer.
- 112 (113). Facial bristles placed on the facialia.
385. ANACHÆTOPSIS, Br. & Berg.
 (1801. *ocypterina*, Ztt.)
- 113 (112). Facialia bare, the row of bristles placed on the cheeks continuing the fronto-orbital row.
 PHORICHÆTA, Rnd. (386)
- 114 (111). Third antennal joint scarcely longer than the second.
- 115 (116) (117). X.5² very near to X.4. STEVENIA, Dsv. (407)
- 116 (115) (117). X.5² at the middle between X.4. and the bend of V.4.
399. PSALIDA, Rnd. (1825. *simplex*, Fln.)
- 117 (115) (116). X.5² nearer to the bend of V.4. than to X.4.
 PHYTO, Dsv. (406)
- 118 (1). Arista distinctly hairy, and mostly plumose (III. 50).
- 119 (128). Arista bare on the tip half (III. 50); abdominal bristles (macrochætæ) present at least on the two last segments.
- 120 (121). Outer side of the tibiæ with a row of regular and very strong bristles.
418. THERIA, Dsv. (1880. *muscaria*, Mg.)
- 121 (120). Outer side of the tibiæ with at most long thin hairs, or with isolated bristles, but not a regular row.
- 122 (123). Frons very broad, and nearly equally so in both sexes; arista generally short plumed.
417. SARCOPHILA, Rnd. (1879. *latifrons*, Fln.)
- 123 (122). Frons of the male always smaller than that of the female; arista long plumed.
- 124 (125). Grey species; cheeks below near the eye-margins with a row of distinct little bristles; facialia, above the strong mouth-bristles, with at most two or three little bristles, but as a rule bare.
 SARCOPHAGA, Mg. (416)

- 125 (124). Shining metallic blue or green species ; cheeks with at most a few scattered hairs near the antennæ, usually quite bare ; facialia, above the strong mouth-bristles, with a row of short little bristles, which reaches almost to the middle of the face.
- 126 (127). V.4., beyond the angle, scarcely bent inwards, and then nearly straight ; dorsum scarcely longer than broad. ONESIA, Dsv. (415)
- 127 (126). V.4., beyond the angle, very much bent inwards, and then bent outwards ; dorsum much longer than broad. CYNOMYIA, Dsv. (414)
- 128 (119). Arista plumose to the tip ; abdominal bristles present.
- 129 (140). O.4² closed.
- 130 (133). V.4. with a hang-vein at the angle.
- 131 (132). Third antennal joint many times longer than the second. MINTHO, Dsv. (360)
- 132 (131). Third antennal joint scarcely longer than the second.
420. NYCTIA, Dsv. (1882. *halterata*, Pz.)
- 133 (130). V.4. without a hang-vein.
- 134 (135). Cheeks with bristles below near the eye-edges.
RHINOPHORA, Dsv. (409)
- 135 (134). Cheeks bare.
- 136 (137). X.5² nearer to X.4. than to the bend of V.4.
MELANOPHORA, Mg. (408)
- 137 (136). X.5² nearer to the bend of V.4. than to X.4.
- 138 (139). O.4² closed at the margin, or very short stalked ; legs chiefly orange.
432. DIXERA, Mcq. (1901. *gricescens*, Fln.)
- 139 (138). O.4² stalked ; legs chiefly black with orange tibiæ.
429. MYIOSTOMA, Dsv. (1897. *cristatum*, Rnd.)
- 140 (129). O.4² open.
- 141 (142). Proboscis bristle-like, far and horizontally protruding.
431. PROSENA, St. Farg. (1900. *sybarita*, F.)
- 142 (141). Proboscis neither bristle-like nor far protruding.
- 143 (146). O.4² ending at the wing tip.

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- 144 (145). Third antennal joint at least three times as long as the second. MELANOTA, Rnd. (361)
- 145 (144). Third antennal joint at most twice as long as the second. ANTHRACOMYIA, Rnd. (367)
- 146 (143). $O.4^2$ ending in the fore margin, generally far before the wing tip.
- 147 (148). Cheeks and jowls very broad, the latter as broad as the long-diameter of the eye.
DEXIA, Mg. (430)
- 148 (147). Cheeks and jowls narrow, the latter only reaching a little below the eyes.
- 149 (150). V.1. and V.3. bearing thorns.
369. THELAIRA, Dsv. (1760. *leucozona*, Pz.)
- 150 (149). V.1. and V.3. not thorned, or at most V.3. with two or three thorns at the base.
- 151 (152). V.4. with a hang-vein at the bend.
420. NYCTIA, Pz. (1882. *halterata*, Pz.)
- 152 (151). V.4. without a hang-vein.
ANTHRACOMYIA, Rnd. (367)

TABLES OF SPECIES.

Sub-Family TACHININÆ.

The larvæ are parasitic in the larvæ of Lepidoptera.

332. MEIGENIA, Dsv.

- 1 (4). Eyes very indistinctly haired, often appearing bare.
- 2 (3). Third antennal joint four times as long as the second.
(1655. *bisignata*, Mg.)
- 3 (2). Third antennal joint at most three times as long as the second, generally shorter. (1657. *floralis*, Mg.)
- 4 (1). Eyes very distinctly hairy. (1658. *majuscula*, Rnd.)

335. MASICERA, Mcq.

- 1 (2). Lower fronto-orbital bristles invading the cheeks in a single regular row. (1662. *pratensis*, Mg.)
- 2 (1). Lower fronto-orbital bristles invading the cheeks in a double row or irregularly. (1661. *sylvatica*, Fln.)

336. CEROMASIA, Rnd.

- 1 (9). Tibiæ black.
 2 (5). Arista thickened nearly to the end.
 3 (4). Thoracic stripes of unequal width; V.4. beyond the angle curved. (1666. *senilis*, Mg.)
 4 (3). Thoracic stripes of equal width; V.4. beyond the angle straight. (1665. *juvenilis*, Rnd.)
 5 (2). Arista only thickened for half its length or less.
 6 (7) (8). Abdomen grey and unmarked.

332. MEIGENIA, Dsv. (1654. *egens*, Egg.)

- 7 (6) (8). Abdomen spotted. (1668. *parva*, Mcq.)
 8 (6) (7). Abdomen with white fore marginal bands.
 1670. *Dexodes (Ceromasia) spectabilis*, Mg.
 Bishop Auckland, 1 ♂, July, 1901.

- 9 (1). Tibiæ yellow. (1664. *florum*, Mcq.)

337. GYMNOCHÆTA, Dsv.

1671. *Gymnochæta viridis*.

Escomb, 1 ♂, May, 1897; Bishop Auckland, 2 ♂, May, 1902.

338. EXORISTA, Mg., and others.

They are all Exorista except where another generic name is noted.

- 1 (10). Palpi black.
 2 (5). Scutellum at least partly red or orange.
 3 (4). Lower facial bristles reaching the middle of the face.

340. BLEPHARIDEA, Rnd. 1688. *vulgaris*, Fln.

Bishop Auckland, 2 ♀, Harperley, 1 ♀, May–August, 1900–01.

- 4 (3). Lower facial bristles not reaching nearly half-way up the face. (1674. *agnata*, Rnd.)
 5 (2). Scutellum entirely black or grey.
 6 (7). V.4. beyond the angle very much bent; O.4² almost or entirely closed.

357. APOROMYIA, Rnd. 1735. *dubia*, Fln.

Bishop Auckland, 1 ♂, May, 1901.

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- 7 (6). V.4. beyond the angle straight; $O.4^2$ always quite open.
- 8 (9). Arista thickened to its middle. (1676. *fmbrata*, Mg.)
- 9 (8). Arista long, slender, and only thickened at the base.
(1680. *mutabilis*, Fln.)
- 10 (1). Palpi orange, at least at the tip.
- 11 (26). Legs wholly or partly red or yellow.
- 12 (13). Legs wholly yellow. (1672. *vetula*, Mg.)
- 13 (12). Femora black, tibiæ yellow.
- 14 (15). Lower fronto-orbital bristles invading the cheek in a double row, or irregularly. (1677. *biserialis*, Mcq.)
- 15 (14). Lower fronto-orbital bristles invading the cheeks in a single regular row.
- 16 (21). Yellowish grey species; abdomen without, or with very faint reddish marks at the sides.
- 17 (20). Scutellum all red.
- 18 (19). Discal abdominal bristles absent from the middle segments.
347. SISYROPA, Br. & Berg. (1710. *excisa*, Fln.)
- 19 (18). Discal abdominal bristles present on the middle segments.
356. MONOCHÆTA, Br. & Berg (1734. *leucophæa*, Mg., or with the scutellum only red at the tip, var. *albicans*, Fln.)
- 20 (17). Scutellum all black. (1681. *perturbans*, Ztt.)
- 21 (16). Blackish grey species with distinct red marks at the sides of the abdomen.
- 22 (25). Discal abdominal bristles absent from the middle segments.
- 23 (24). Abdomen with orange side marks on only the first two segments; frontal stripe as broad as the frontal orbits, or broader. (1685. *lucorum*, Mg.)
- 24 (23). Abdomen with orange side marks on the first three segments; frontal stripe narrower than the orbits.
347. SISYROPA, Br. & Berg. (1708. *lucorum*, Rnd.)
- 25 (22). Discal abdominal bristles present on the middle segments. (1673. *chelonis*, Rnd.)

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- 26 (11). Legs entirely black, or at most the tibiæ dark brown.
- 27 (28). Lower fronto-orbital bristles invading the cheeks in a double row, or irregularly.
Aporomyia dubia (1735, page 219)
- 28 (27). Lower fronto-orbital bristles invading the cheeks in a single regular row.
- 29 (32). Lower facial bristles reaching the middle of the facialia.
- 30 (31). Discal abdominal bristles absent from the middle segments.
341. MYXEXORISTA, Br. & Berg. (1689. *fauna*, Mg.)
- 31 (30). Discal abdominal bristles present on the middle segments.
341. MYXEXORISTA (1691. *libatrix*, Mg.)
- 32 (29). Lower facial bristles not nearly reaching the middle of the facialia.
- 33 (42). Scutellum wholly red, or at least at the sides broadly red brown.
- 34 (37). Abdomen red at the apex.
- 35 (36). Wings with the X-veins clouded.
(1682. *ruficauda*, Ztt.)
- 36 (35). Wings with the X-veins clear.
348. CHÆTOLYGA, Rnd. (1713. *apicalis*, Mg.)
- 37 (34). Abdomen black or grey at the apex.
- 38 (39). Palpi with only the tips red.
347. SISYROPA (1709. *lota*, Mg.)
- 39 (38). Palpi wholly orange.
- 40 (41). V.4. beyond the angle, curved. (1675. *affinis*, Mg.)
- 41 (40). V.4. beyond the angle, straight.
(1683. *noctuidica*, Rnd.)
- 42 (33). Scutellum wholly black or grey, at most with the tip a little reddish.
- 43 (44). Discal abdominal bristles present on the middle segments.
(1684. *jucunda*, Mg.)
- 44 (43). Discal abdominal bristles absent from the middle segments.

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338¹/₂. PAREXORISTA, Br. & Berg.

45 (46). V.4. beyond the angle straight.

Parexorista fugax, Rnd.?

Bishop Auckland, 2 ♂ (bred), October, 1899.

46 (45). V.4. beyond the angle curved.

Parexorista grossa, Br. & Berg.

Waskerley, 1 ♂, July, 1901.

342. FRONTINA, Mg.

1 (2). Abdomen black with white shimmering fore marginal bands. (1692. *nigricans*, Egg.)

2 (1). Abdomen translucent yellow with black central stripe. (1693. *læta*, Egg.)

344. PHOROCERA, Dsv., and others.

1 (16). Palpi at least yellow at the tip.

2 (3). V.4. bent in a curve. (1696. *serriventris*, Rnd.)

3 (2). V.4. bent at an angle.

4 (7). Scutellum all black, or at most with the tip a little orange.

5 (6). Tibiæ black. **345**. BOTHRIA (1701. *cæsifrons*, Mcq.)

6 (5). Tibiæ pale.

343. CAMPYLOCHÆTA, Rnd. (1695. *obscura*, Fln.)

7 (4). Scutellum wholly or chiefly orange.

8 (9). Palpi unusually narrow and comparatively short.

350. STOMATOMYIA, Br. & Berg. (1724. *filipalpis*, Rnd.)

9 (8). Palpi normal.

10 (11). X.5² in the middle between X.4. and the bend of V.4.

343. CAMPYLOCHÆTA (1695. *obscura*, Fln.)

11 (10). X.5² nearer to the bend of V.4. than to X.4.

12 (13). Discal abdominal bristles absent from the middle segments.

345. BOTHRIA, Rnd. (1702. *segregata*, Rnd.)

13 (12). Discal abdominal bristles present on the middle segments.

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14 (15). Legs all black; abdomen conical, rather narrow.

345. BOTHRIA (1700. *assimilis*, Fln.)

15 (14). Legs black with orange or light brown tibiæ; abdomen oval, broad, and much arched.

345. BOTHRIA (1703. *pascuorum*, Rnd.)

16 (1). Palpi black.

17 (18). Ashen grey species.

345. BOTHRIA (1703. *frontosa*, Mg.)

18 (17). Blue-black species.

19 (20). V.4. bent in a curve.

351. PERICHÆTA, Br. & Berg. (1725. *unicolor*, Fln.)

20 (19). V.4. bent at an angle.

21 (22). Hind tibiæ evenly ciliated with only one or two longer bristles near the middle.

1697. *Phorocera cilipeda*, Rnd.

Bishop Auckland, 1 ♂ and 1 ♀, August, 1901.

22 (21). Hind tibiæ furnished with long and short bristles, not evenly ciliated. (1698. *P. pumicata*, Mg.)

348. CHÆTOLYGA, Rnd.

1 (2). Anus black. (1712. *amæna*, Mg.)

2 (1). Anus broadly red.

3 (4). Third antennal joint remarkably broader than the second. (1711. *analís*, Mcq.)

4 (3). Third antennal joint not strikingly broader than the second.

5 (6). Dorsum shining black-blue, stripes indistinct, palpi brown. (1715. *nigrithorax*, Egg.)

6 (5). Dorsum black, dusted with whitish grey; stripes very distinct; palpi yellow. (1714. *quadripustulata*, F.)

349. TACHINA, Mg.

1 (2). Scutellum wholly, or at least at the sides orange.

(1716. *larvarum*, L.)

2 (1). Scutellum black or grey.

3 (4). Discal abdominal bristles absent from the middle segments. (1718. *erucarum*, Rnd.)

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- 4 (3). Discal abdominal bristles present on the middle segments.
 5 (6). Lower fronto-orbital bristles extending over the cheeks beyond the middle to near the mouth.
 (1719. *rustica*, Mg.)
 6 (5). Lower fronto-orbital bristles not extending beyond the middle of the cheeks. (1722. *nigricans*, Egg.)

349 $\frac{1}{2}$. (BAUMHAUERIA, Mg.).

- 1 (2). Discal abdominal bristles absent from the middle segments. 349. TACHINA (1717. *grandis*, Egg.)
 2 (1). Discal abdominal bristles present on the middle segments.
 3 (4). Scutellum wholly or partly yellow.
 352. THELYMORPHA, Br. & Berg. (1732. *vertiginosa*, Fln.)
 4 (3). Scutellum wholly black.
 344. PHOROCERA (1699. *gracilis*, Egg.)

353. GONIA.

- (4). Abdomen black or grey, at most with red-brown sides at the base.
 2 (3). Abdomen shining black without white shimmering bands. (1730. *foersteri*, Mg.)
 3 (2). Abdomen black with white shimmering bands.
 (1727. *fasciata*, Mg.)
 4 (1). Abdomen orange, mostly translucent, with a black stripe and sometimes black anus.
 5 (6). Head throughout, and especially above the antennæ, without any silvery shimmer, dull.
 (1728. *divisa*, Mg.)
 6 (5). Head throughout, and always over the antennæ, with a silvery or yellowish shimmer.
 (8). Fore margin of the second and third abdominal segments each with a narrow yellowish white shimmer; fourth segment broadly so.
 (1730. *ornata*, Mg.)

- 8 (7). Fore margin of the second, third, and fourth segments each with a broad silvery white shimmer.

(1729. *capitata*, Deg.)

358. SOMOLIA, Rnd.

1736. *Somolia simplicitarsis*, Ztt. (*rebaptizata*, Rnd.)

Hesleden, 2 ♀, August, 1900.

360. MINTHO, Dsv.

- 1 (2). Abdomen only yellow at the sides; costal spine present.

(1738. *præceps*, Scop.)

- 2 (1). Abdomen chiefly yellow; costal spine absent.

(1739. *compressa*, F.)

361. MELANOTA, Rnd.

1740. *Melanota volvulus*, F.

Hesleden, 7 ♂ and 1 ♀; Gibside, 1 ♂, July-August, 1896-1901.

363. MACQUARTIA, Dsv.

- 1 (8). Palpi yellow, the tip sometimes blackish.
- 2 (5). Legs yellow.
- 3 (4). V.4. beyond the bend, somewhat outward bent; arista almost quite bare. (1742. *dispar*, Fln.)
- 4 (3). V.4. beyond the bend, quite straight; arista distinctly pubescent. (1748. *flavipes*, Mg.)
- 5 (2). Legs black.
- 6 (7). X.5² rather near the bend of V.4.; frontal stripe of the female brown. (1743. *tenebricosa*, Mg.)
- 7 (6). X.5² nearly in the middle between X.4. and the bend of V.4.; female frontal stripe black. (1744. *affinis*, Schin.)
- 8 (1). Palpi black, the extreme base sometimes brown.
- 9 (12). Grey species.
- 10 (11). Abdomen dark brown with grey dusting and brown spots. (1745. *grisea*, Fln.)

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- 11 (10). Abdomen black with red sides, and the two middle segments with light fore marginal bands.

372. RHYNCHISTA, Rnd. (1771. *prolixa*, Mg.)

- 12 (9). Shining black species.

- 13 (14). Wings orange at the base, with a dark brown stripe on the fore margin.

364. MACROPROSOPA, Br. & Berg. (1750. *atrata*, Mg.)

- 14 (13). Wings not orange at the base and evenly clouded.

366. PTILOPS, Rnd. (1752. *chalybeata*, Mg.)

367. ANTHRACOMYIA, Rnd.

- 1 (2). X.5² very near X.4. (1754. *nana*, Mg.)

- 2 (1). X.5² at the middle between X.4. and the bend of V.4., or nearer the latter.

- 3 (4). Wings darkened; abdominal bristles very fine, the middle segments almost bare.

(1753. *melanoptera*, Mg.)

- 4 (3). Wings clear, or nearly so; abdominal bristles strong, and present on middle segments.

(1755. *anthracina*, Mg.)

368. DEGEERIA, Mg.

- 1 (2). V.4. bent at an angle. (1759. *grandicornis*, Ztt.)

- 2 (1). V.4. bent in a curve.

- 3 (4). Dorsum before the suture white with black marks, quite black behind, the division sharp.

(1756. *ornata*, Mg.)

- 4 (3). Dorsum all black with white shoulders or pale dusting, which is not sharply bounded with black.

389. TRICHOPAREIA, Br. & Berg.

- 5 (6). Grey species, dorsum with four brownish stripes.

1808. *Trichopareia seria*, Mg.

Bishop Auckland, 1 ♀, July, 1902.

- 6 (5). Shining black species, dorsum bright, dusted with white, and with two broad stripes.

(1807. *blanda*, Fln.)

370. DEMOTICUS, Mcq.

- 1 (2). Proboscis very long and far protruding, horizontal, the second part bristle-like and longer than the first. (1763. *longirostris*, Mg.)
- 2 (1). Proboscis long, the second part moderately thick, and the suckers fairly broad.
- 3 (6). Palpi orange.
- 4 (5). Long veins all bare, or at most 3-6 bristles at the base of V.3. (1762. *plebeius*, Fln.)
- 5 (4). V.1., V.3., and V.5. bristly. (1764. *frontatus*, Boh.)
- 6 (3). Palpi black; V.1. and V.3. bristly. (1765. *spretus*, Mg.)

371. MYOBIA, Dsv.

- 1 (2). Third antennal joint three times as long as the second. (1766. *aurea*, Fln.)
- 2 (1). Third antennal joint only twice as long as the second.
- 3 (4). Fore femora yellow below, and with a dark brown stripe above. (1767. *fenestrata*, Mg.)
- 4 (3). Fore femora all yellow.
- 5 (6). Hind femora as long as the abdomen. (1768. *longipes*, Mg.)
- 6 (5). Hind femora shorter than the abdomen.
- 7 (8). Abdomen mostly yellow. (1769. *inanis*, Fln.)
- 8 (7). Abdomen grey, at most yellow at the base. (1770. *pacifica*, Mg.)

374. OLIVIERIA, Dsv.

1773. *Olivieria lateralis*, F.

Hesleden, 2 ♂ and 6 ♀, July-August, 1899-1900.

375. OCYPTERA, Ltr.

- 1 (2). Abdomen black, second and fifth segments orange, the second broadly so at the sides, more narrowly in the centre. (1774. *brassicaria*, F.)
- 2 (1). Abdomen black, except the second and third segments, which are orange at the sides and broadly black in the centre. (1775. *cylindrica*, F.)

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378. MICROPALPUS, Mcq.

- 1 (2). Legs orange; frontal stripe orange.
 1778. *Micropalpus vulpinus*, Fln.
 Hesleden, 1 ♀, July, 1899.
- 2 (1). Legs black, at most the tibiæ brownish.
- 3 (4). Frontal stripe bright orange; jowls bare.
 (1779. *comptus*, Fln.)
- 4 (3). Frontal stripe darkish grey, shimmering, or brown,
 sometimes brown-red; jowls with bristles.
- 5 (6). Male genitalia red; V.3¹ with seven bristles near the
 base; cheeks bristly.
 1780. *Micropalpus hæmorrhoidalis*, Fln.
 Shull, 1 ♂, July, 1900.
- 6 (5). Male genitalia black; V.3¹ with thirteen bristles;
 cheeks with long fine hairs, not bristly.
 (1781. *puddicus*, Rnd.)

379. VARICHÆTA, Speis. (ERIGONE, Dsv.)

- 1 (4). Palpi black, or at most the extreme tip brownish
 yellow.
- 2 (3). Wings brownish, the base yellow, and the veins
 slightly clouded. (1782. *radicum*, F.)
- 3 (2). Wings clear, not yellow at the base, and the veins not
 clouded. (1785. *cæsia*, Fln.)
- 4 (1). Palpi yellow.
- 5 (6). Antennæ orange; third joint dark brown, except at
 the base; dorsum four-striped, the two inner
 stripes approximate.
 1783. *Varichæta strenua*, F.
 Bishop Auckland, 1 ♂ and 1 ♀, June, 1901, bred by
 Mr. Greenwell.
- 6 (5). Antennæ black, at least always at the base.
- 7 (12). Dorsum with the beginnings of three black stripes,
 the centre one very broad.
- 8 (9). Scutellum with the apex red. (1784. *vagans*, Mg.)

- 9 (8). Scutellum black.
- 10 (11). V.4. with a hang-vein. (1789. *appendiculata*, Mcq.)
- 11 (10). V.4. without a hang-vein. (1784. *nemorum*, Mg.)
- 12 (7). Dorsum with four stripes, or almost unstriped.
- 13 (14). Dorsum bluish black; abdomen black, only slightly shimmering at the sides. (1791. *vivida*, Ztt.)
- 14 (13). Dorsum black, with four almost complete stripes; abdomen with distinct central tessellations.
- 15 (16). Wings brown at the base.
 1786. *Varichæta rudis*, Flin.
 Hesleden, 2 ♂ and 1 ♀, June–August, 1899–1900.
 It was swarming on fir trees at one spot near Shull in July, 1902, but nearly all males.
- 16 (15). Wings not brown at the base.
 1788. *Varichæta consobrina*, Mg.
 Hesleden, 2 ♂, August, 1900.

380. ECHINOMYIA, Dum.

- 1 (8). Abdomen, in addition to the usual bristles, with only short close-lying hairs, but not thickly covered with long silky hairs.
- 2 (7). Palpi not greatly widened at the end.
- 3 (6). Antennæ yellow; third joint dark; lower cheeks near the eye-margin bare.
- 4 (5). All black except the palpi and antennæ; abdomen sub-globose. (1792. *grossa*, L.)
- 5 (4). All orange except the dorsum and a stripe on the abdomen. (1793. *fera*, L.)
- 6 (3). Antennæ black; lower cheeks near the eye-margin with two or three long bristles.

382. PELETERIA, Dsv. (1795. *tesselata*, F.)

- 7 (2). Palpi claviform, narrow at the base, and suddenly much thickened at the ends.

381. FABRICIA, Dsv. (1794. *ferox*, L.)

- 8 (1). Abdomen, in addition to the usual bristles, thickly covered with long silky hairs.

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383. SERVILLIA, Dsv.

- 9 (10). Abdomen black with orange sides. (1796. *lurida*, F.)
 10 (9). Abdomen black without orange sides.
 (1797. *ursina*, Mg.)

384. PLAGIA, Mg.

- 1 (4). Lower fronto-orbital bristles extending over the cheeks
 to about their middle.
 2 (3). V.1. and V.3. both bearing bristles; palpi black with
 yellow tips.
 1798. *Plagia ruralis*, Fln.
 Hesleden, 1 ♂ and 1 ♀, August, 1900.
 3 (2). V.1. bare; V.3. with bristles; palpi yellow.
 (1799. *curvinervis*, Ztt.)
 4 (1). Lower fronto-orbital bristles extending over the
 cheeks almost to the mouth; palpi black.
 (1800. *trepida*, Mg.)

Sub-Family THRYPTOCERINÆ.

386. PHORICHÆTA, Rnd.

- 1 (4). Palpi yellow or orange.
 2 (3). Third antennal joint broad and plump, entirely dark.
 (1802. *lugens*, Mg.)
 3 (2). Third antennal joint narrow, and pale at the base.
 (1803. *carbonaria*, Pz.)
 4 (1). Palpi black. (1804. *tricincta*, Rnd.)

390. ROESSELIA, Dsv.

- 1 (2). V.4. incomplete, broken off at the bend; third
 antennal joint black in both sexes; base of the
 wing yellow. (1809. *antigua*, Mg.)
 2 (1). V.4. complete; antennæ all yellow in the female;
 wings not yellow at the base.
 (1809½. *pallipes*, Fln.)

392. DIGONCHÆTA, Rnd.

1 (2). Palpi orange. (1812. *spinipennis*, Mg.)

2 (1). Palpi black.

1813. *Digonochæta setipennis*, Fln.

Bishop Auckland, 3 ♂ and 1 ♀, May–July, 1899–1902.

393. THRYPTOCERA, Mcq.

1 (4). Wings with generally V.1., V.3., and V.5. bearing bristles, at least with more than V.3. bristly.

2 (3). Third antennal joint moderately broad.

(1814. *pilipennis*, Mg.)

3 (2). Third antennal joint unusually broad and plump.

1815. *Thryptocera crassicornis*, Mg.

Bishop Auckland, 1 ♀, Wearhead, 1 ♀, July–August, 1900–1901.

4 (1). Wings with not more than V.3. bristly.

5 (8). Legs yellow.

6 (7). Abdomen orange with black central stripe.

(1816. *bicolor*, Mg.)

7 (6). Abdomen grey with white incisions.

(1818. *latifrons*, Mg.)

8 (5). Legs black or dark brown, at most the tibiæ orange.

9 (10). Very small species, 2 mm.; V.4. beyond the bend, almost obsolete. (1817. *minutissima*, Ztt.)

10 (9). Larger species, 4–5 mm.; arista apparently two-jointed; V.4. complete.

388. DISCOCHÆTA, Br. & Berg. (1806. *muscaria*, Fln.)

393½. CRASPEDOTHRIX, Br. & Berg.

1818½. *Craspedothrix vivipara*.

Bishop Auckland, 1 ♂, 20-7-00.

396. SIPHONA, Mg.

1 (2). First abdominal segment without bristles.

1821. *Siphona cristata*, F.

Belburn Wood, 2 ♂ and 1 ♀, Bishop Auckland, 1 ♂, Evenwood, 1 ♀, May–July, 1897–1900.

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- 2 (1). First abdominal segment with bristles.

1822. *Siphona geniculata*, Deg.

Marley Hill, 2 ♂, Wearhead, 1 ♂, Hesleden, 2 ♀,
Gibside, 1 ♀, August–September, 1896–1901, &c.

Sub-Family GYMNOSOMINÆ.

398. CERCOMYIA, Br. & Berg.

- 1 (2). Thorax shining black, hoary in front on each side,
and with two hoary stripes. 4 mm.

(1824. *curvicauda*, Fln.)

- 2 (1). Thorax with hoary tomentum, which encloses four
slender black stripes. 6–8 mm.

(1824½. *thoracica*, Mg.)

Sub-Family PHASINÆ.

401. ALOPHORA, Dsv.

- 1 (2). X.5² nearer to the bend of V.4, than to X.4. ; stalk of
O.4², i.e., V.3³, rather short. (1828. *hemiptera*, F.)

- 2 (1). X.5² at the middle between X.4. and the bend of V.4.;
stalk of O.4², i.e., V.3³, long.

- 3 (4). Dorsum striped. (1829. *obesa*, F.)

- 4 (3). Dorsum entirely unstriped. (1830. *pusilla*, Mg.)

402. CLYTIA, Dsv.

- 1 (2). Antennæ black. (1831. *continua*, Pz.)

- 2 (1). Antennæ yellow. (1832. *rotundiventris*, Fln.)

Sub-Family TRIXINÆ.

403. TRIXA, Mg.

- 1 (2). X-veins clear. (1833. *alpina*, Mg.)

- 2 (1). X-veins clouded. (1834. *astroidea*, Dsv.)

406. PHYTO, Dsv.

- 1 (2). Palpi black. (1840. *parvicornis*, Mg.)

- 2 (1). Palpi yellow, the tips often brown.

- 3 (4). Abdomen with grey bands.
(1839. *melanocephala*, Mg.)

- 4 (3). Abdomen all shining black. (1841. *nigra*, Dsv.)

407. STEVENIA, Dsv.

1842. *Stevenia maculata*, Fln.

Hesleden, 1 ♂, August, 1900.

408. MELANOPHORA, Mg.

- 1 (2). V.4. bent at an angle. (1843. *roralis*, L.)
 2 (1). V.4. bent in a curve. (1844. *atra*, Mcq.)

409. RHINOPHORA, Dsv.

- 1 (2). Discal abdominal bristles absent.
 (1847. *simplicissima*, Lw.)
 2 (1). Discal abdominal bristles present.
 3 (4). Dorsum grey-dusted throughout; abdomen with white
 shimmering bands. (1845. *atramentaria*, Mg.)
 4 (3). Dorsum only dusted in front; abdomen without
 bands. (1846. *melania*, Mg.)

411. BRACHYCOMA, Rnd.

1850. *Brachycoma devia*, Fln.

Hesleden, 1 ♀, August, 1900.

Sub-Family SARCOPHAGINÆ.

414. CYNOMYIA, Dsv.

Larvæ in putrifying flesh.

- 1 (2). Cheeks yellow; jowls blackish; abdomen shining
 metallic with distinct white reflections.
 1855. *Cynomyia alpina*, Ztt.
 Harperley, 1 ♂, May, 1902.
 2 (1). Cheeks and jowls brilliant orange; abdomen shining
 metallic without white reflections.
 1856. *Cynomyia mortuorum*, L.
 Harperley, 1 ♂, Harperley, 1 ♀, June-July, 1899-
 1900.

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415. ONESIA, Dsv.

Ovo-viviparous. Larvæ in putrifying flesh.

- 1 (2). Palpi yellow, or at most only brownish in places.

1857. *Onesia sepulchralis*, L.

Hesleden, 5 ♂ and 6 ♀, Wearhead, 1 ♀, Bishop
Auckland, 1 ♂, May–August, 1899–1901.

- 2 (1). Palpi wholly and intensely black.

1858. *Onesia cognata*, Mg.

Hesleden, 2 ♂ and 1 ♀, August, 1900.

416. SARCOPHAGA, Mg.

Ovo-viviparous. Larvæ in putrifying flesh and dead animal matter. Grey checkered flies very much alike in general appearance. It is almost impossible to identify females by themselves.

- 1 (30). Apex of the abdomen black or grey in both sexes.

- 2 (25). V.1.b. without bristles.

- 3 (14). Male hind tibiæ long and thickly haired on the inner side.

- 4 (9). The second segment of the abdomen with two central hind marginal bristles.

- 5 (6). Dorsum with four post-sutural central bristles.

1859. *Sarcophaga carnaria*, L.

Very common, and by far the commonest of the genus.

- 6 (5). Dorsum with only three central post-sutural bristles.

- 7 (8). Anus of the male wholly shining black.

(1860. *albiceps*, Mg.)

- 8 (7). Anus of the male with the first segment grey.

1861. *Sarcophaga atropos*, Mg.

Hesleden, 2 ♂ and 2 ♀, August, 1900.

- 9 (4). The second segment of the abdomen without any central hind marginal bristles.

- 10 (11). Dorsum with four central post-sutural bristles.

(1859. *carnaria*, var. *similis*, Mde.)

- 11 (10). Dorsum with only three central post-sutural bristles.
- 12 (13). Male anus with both the anal segments shining black and exposed. (1862. *melanura*, Mg.)
- 13 (12). First segment of the male anus generally concealed, and, when exposed, grey, not black. (1863. *agricola*, Mg.)
- 14 (3). Male hind tibiæ not thickly haired on the inner side.
- 15 (22). The second abdominal segment with two central hind marginal bristles.
- 16 (19). Arista short haired.
- 17 (18). Arista almost bare; third antennal joint thickened. (1864. *laticornis*, Mg.)
- 18 (17). Arista with short but distinct hairs at the base; antennæ normal. (1865. *nigriventris*, Mg.)
- 19 (16). Arista long haired.
- 20 (21). Abdomen tessellated. (1866. *juvenis*, Rnd.)
- 21 (20). Abdomen with three black stripes. (1867. *clathrata*, Mg.)
- 22 (15). The second abdominal segment without central hind marginal bristles.
- 23 (24). Abdomen normally tessellated; male hind tibiæ with short soft hairs. (1868. *adolescens*, Rnd.)
- 24 (23). Abdomen with central stripe and side spots; male hind tibiæ bare. (1869. *affinis*, Fln.)
- 25 (2). V.1.b. with bristles.
- 26 (27). Abdomen tessellated. (1877. *hæmorrhœa*, Mg., var. *setipennis*, Rnd.)
- 27 (26). Abdomen spotted or striped.
- 28 (29). Eyes of the male approximate. (1870. *dissimilis*, Mg.)
- 29 (28). Eyes of the male wide apart. (1871. *infantula*, Rnd.)
- 30 (1). Apex of the abdomen red in both sexes.
- 31 (32) V.1.b. and V.3. with bristles. (1877. *hæmorrhœa*, Mg.)
- 32 (31). V.1.b. bare, only V.3. with bristles.
- 33 (34). Hind tibiæ of the male bare on the inner side. (1876. *hæmatodes*, Mg.)
- 34 (33). Hind tibiæ of the male long, and thickly haired on the inner side.

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- 35 (36). The second abdominal segment with two central hind marginal bristles. (1873. *hæmorrhoidalis*, Mg.)
- 36 (35). The second abdominal without the two central hind marginal bristles.
- 37 (38). The black frontal stripe wider than one of the frontal orbits. (1874. *nurus*, Rnd.)
- 38 (37). The black frontal stripe equal in width to one of the frontal orbits.

1875. *Sarcophaga cruentata*, Mg.
Hesleden, 2 ♂ and 1 ♀, August, 1900.

424. METOPIA, Mg.

The known larvæ are parasitic in the larvæ of sand-wasps.

- 1 (10). Legs black.
- 2 (3). Frons silvery in front, black behind; abdomen spotted. (1888. *leucocephala*, Rossi.)
- 3 (2). Frons silvery in front and behind.
- 4 (7). Abdomen with black central stripe and black bands.
- 5 (6). Abdominal bands notched. (1886. *campestris*, Fln.)
- 6 (5). Abdominal bands straight. (1889. *amabilis*, Mg.)
- 7 (4). Abdomen spotted.
- 8 (9). Abdominal spots distinct, three each on the second and third segments. (1887. *argyrocephala*, Mg.)
- 9 (8). Abdominal spots indistinct. (1890. *argentata*, Mcq.)
- 10 (1). Femora orange. (1891. *forficula*, Newp.)

Sub-Family DEXINÆ.

Life history unknown.

430. DEXIA, Mg.

- 1 (6). The keeled ridge in the middle of the face very prominent, reaching to the base of the antennæ and slightly dividing them.
- 2 (5). Legs wholly or mostly yellow.
- 3 (4). Abdomen translucent orange with black bands, and, in the male, with an interrupted central stripe. (1899. *vacua*, Fln.)

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- 4 (3). Abdomen translucent orange without bands, and, in the male, with a continuous black central stripe.
(1898. *rustica*, F.)
- 5 (2). Legs black.
433. MYIOCERA, Dsv. (1902. *carinifrons*, Fln.)
- 6 (1). The keeled ridge in the middle of the face not prominent.
428. DEXIOSOMA, Rnd. (1896. *caninum*, F.)

FAMILY XXXII.—MUSCIDÆ.

TABLE OF GENERA.

- 1 (6). Arista plumed on the upper side only.
- 2 (3). Proboscis not much protruding.
434. IDIA, F. (1904. *lunata*, Mg.)
- 3 (2). Proboscis protruding far in front of the head (VI. 30).
- 4 (5). Palpi short. STOMOXYS, Geoff. (**435**)
- 5 (4). Palpi long, nearly as long as the proboscis.
HÆMATOBIA, Dsv. (**436**)
- 6 (1). Arista thickly plumed on both sides (III. 51).
- 7 (16). Mid tibiæ without any erect bristles or shaggy hairs on the inside. (The inside is that which would touch the femora if the legs were closed up). (VII. 15, 16).
- 8 (15). V.4⁴ gently bent up towards V.3., but not nearly touching it at the wing margin, separated by at least the length of X.4.
- 9 (12). Eyes bare.
- 10 (11). V.3. separated from V.4. at the wing tip by about the length of X.4. MORELLIA, Dsv. (**442**)
- 11 (10). V.3. widely separated from V.4. at the wing tip, by much more than the length of X.4.
CYRTONEURA, Mcq. (**441**)
- 12 (9). Eyes hairy.
- 13 (14). V.4⁴ only slightly bent upwards close to its end; abdomen with four dull brown spots on a grey ground. MYIOSPILA, Rnd. (**438**)

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- 14 (13). V.4⁴ much bent upwards at half its length ; abdomen with many black spots on a light grey or orange ground. GRAPHOMYIA, Dsv. (439)
- 15 (8). V.4⁴ sharply bent up towards V.3., very nearly touching it at the wing margin, separated by much less than the length of X.4. MUSCA, L. (440)
- 16 (7). Mid tibiæ with one or more erect bristles, or with shaggy hairs on the inner side.
- 17 (20). V.4⁴ bent upwards in a bow-shaped curve (V. 29).
- 18 (19). V.1.b. ending in the costa much beyond the middle of the wing, and almost above the point where X.5² meets V.4. MESEMBRINA, Mg. (443)
- 19 (18). V.1.b. ending about the middle of the wing, and almost above X.4. PYRELLIA, Dsv. (444)
- 20 (17). V.4⁴ sharply bent upwards, almost at a right angle (V. 28).
- 21 (22). Thorax, besides the ordinary bristles and side hairs, with somewhat matted golden hairs, which are very long on the pleuræ. POLLENIA, Dsv. (437)
- 22 (21). Thorax without the above golden hairs.
- 23 (26). Thorax and abdomen brilliantly metallic, the ground colour not concealed by light dusting.
- 24 (25). Frons and jowls shining metallic. EUPHORIA, Dsv. (447)
- 25 (24). Frons and jowls not metallic. LUCILIA, Dsv. (448)
- 26 (23). Thorax and abdomen not brilliantly metallic, but either dull metallic blue, or with the ground colour partly concealed by light dusting.
- 27 (28). Jowls black with black hairs ; thorax and abdomen with scarcely any dusting ; wings, at rest, held parallel to the body. PROTOCOLIPHORA, Hough. (445)
- 28 (27). Either the jowls or their hairs orange ; thorax dusted ; abdomen with light reflections ; wings, at rest, held at an angle to the body. CALLIPHORA, Dsv. (446)

TABLES OF SPECIES.

435. STOMOXYS, Geoff.

Larvæ in horse dung.

1905. *Stomoxys calcitrans*, L.

A sharp biter, much resembling the harmless house fly, which is therefore often blamed for biting, of which it is incapable. *Stomoxys* is very common everywhere, especially in the vicinity of stables.

436. HÆMATOBIA, Dsv.

1 (2). Dorsum striped; palpi orange.

1906. *Hæmatobia stimulans*, Mg.

Hesleden, 1 ♂, August, 1900; Bishop Auckland, 2 ♂, June, 1902.

2 (1). Dorsum almost unstriped; palpi dark.

(1907. *irritans*, L.)

437. POLLENIA, Dsv.

Life history apparently unknown?

1 (2). Abdomen shining black, without reflections.

1908. *Pollenia vespillo*, F.

Wearhead, 1 ♂ and 1 ♀, August, 1901.

2 (1). Abdomen with brown reflections.

1909. *Pollenia rudis*, F.

Very common everywhere, and one of the earliest flies to appear.

438. MYSOPILA, Rnd.

Life history unknown.

1910. *Mysopila meditabunda*, F.

Stanhope, 1 ♂, Hesleden, 1 ♂ and 2 ♀, April–May, 1900.

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439. GRAPHOMYIA, DSV.

Larvæ in dung.

- 1 (2). Male abdomen orange with black spots ; female grey with black spots.

1911. *Graphomyia maculata*, Scop.

Hesleden, 4 ♂ and 2 ♀, July-August, 1899-1900.

- 2 (1). Male abdomen grey with black spots.

(1912. *picta*, Ztt.)

440. MUSCA, L.

Larvæ in dung and in decaying animal and vegetable matter.

- 1 (2). Eyes of the male separated by about the fourth of the width of the head. In the female the frontal stripe narrow in front, but widening out on the vertex, so as to blot out the white eye borders.

1913. *Musca domestica*, L.

Very common in houses.

- 2 (1). Eyes of the male almost touching ; frontal stripe in the female rather narrow, with parallel sides, which do not blot out the white eye margins on the vertex.

1914. *Musca corvina*, F.

I have only noticed this in Darlington Park, where the males were abundant on the seats near the pond on 19th May, 1903.

441. CYRTONEURA, Mcq.

Larvæ of this and the next genus in fungi and cow-dung ; also parasitic in larvæ of Lepidoptera and Hymenoptera.

- 1 (2). Legs all or partly orange.

1915. *Cyrtoneura stabulans*, Fln.

Hesleden, common. Bishop Auckland, 3 ♂, 6 ♀.

- 2 (1). Legs all black.

- 3 (6). V.4, somewhat sharply bent upwards ; palpi yellow.

- 4 (5). Abdomen with brown reflections.
 1916. *Cyrtoneura pabulorum*, Fln.
 Wearhead, 1 ♂, August, 1901.
- 5 (4). Abdomen blue-black with white shimmer, but no
 brown reflections. (1917. *pascuorum*, Mg.)
- 6 (3). V.4. almost straight, only a little bent towards the
 end; palpi black. (1918. *cæsia*, Mg.)

442. MORELLIA, Dsv.

- 1 (2). Male mid tibiæ very short and evenly haired on the
 upper side.
 1919. *Morellia simplex*, Lw.
 Common everywhere.
- 2 (1). Male mid tibiæ with hairs of unequal length, and
 peculiarly arranged on the upper side.
- 3 (4). Male hind tibiæ only slightly bent, and with a row of
 eight to ten bristles on the inner side.
 1920. *Morellia hortorum*, Fln.
 Hesleden, 3 ♂ and 2 ♀, Wearhead, 1 ♀, July–August,
 1899–1901.
- 4 (3). Male hind tibiæ much bent, and bearing only two
 bristles. (1921. *curvipes*, Mcq.)

443. MESEMBRINA, Mg.

Larvæ in cow-dung.

1922. *Mesembrina meridiana*, L.

Common throughout the summer. It is often to
 be seen sitting on footpaths, flying off as one
 approaches, and alighting a few yards further on.

444. PYRELLIA, Dsv.

Larvæ in putrifying animal matter.

- 1 (6). Eyes bare.
- 2 (3). Thorax metallic green, without the faintest trace of
 white dusting. (1923. *cadaverina*, L.)

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- 3 (2). Thorax with faint whitish lines.
 4 (5). Wings greyish. (1927. *serena*, Mg.)
 5 (4). Wings quite clear.

1924. *Pyrellia cyanicolor*, Ztt.

I took two females at Marley Hill in 1896, which I take for this species, but the specific characters in *Pyrellia* and *Lucilia* are not satisfactory, and the identifications very uncertain.

- 6 (1). Eyes pubescent.
 7 (8). Wings brownish at the base in the male; squamæ yellowish.

1925. *Pyrellia lasiophthalma*, Mcq.

Bishop Auckland, 6 ♂ and 4 ♀; Harperley, 1 ♂, April, 1900-01; Marley Hill, 1 ♀.

- 8 (7). Wings quite clear in the male; squamæ white.
 (1926. *eriphthalma*, Mcq.)

445. PROTOCOLLIPHORA, Hough.

Larvæ of this and the next in putrifying animal matter.

1929. *Protocalliphora grœnlandica*, Ztt.

This fly was exceedingly common about Bishop Auckland while a small bone-manure factory was going at South Church. I have seen them clinging to the wall of the Clergy House and to the tombstones in the churchyard in solid masses of thousands. Since the factory was closed, they have to a large extent disappeared. It is a shining blackish blue fly, while (1928. *azurea*, Fln.) seems to be of a brighter blue or gold green.

446. CALLIPHORA, Dsv.

- 1 (2). Jowls red with black hairs.

1930. *Calliphora erythrocephala*, Mg.

The commoner bluebottle. Abundant everywhere.

- 2 (1). Jowls black with red hairs.

1931. *Calliphora vomitoria*, L.

Common, but not nearly so abundant as the preceding.

447. EUPHORIA, Dsv.

1932. *Euphoria cornicina*, F.

Not uncommon, and generally distributed.

448. LUCILIA, Dsv.

Larvæ in animal matter, fresh or putrifying. Too common as maggots on sheep.

- 1 (10). Palpi yellow or orange.

- 2 (3). Third antennal joint only about three times as long as the second; facial bristles extending the whole length of facialia; general colour, blackish green; trace of a dark thoracic stripe. (1942. *regina*, Mg.)

- 3 (2). Third antennal joint four times as long as the second; facial bristles only extending half way up the facialia; general colour, gold or blue-green, without a trace of a dark thoracic stripe.

- 4 (9). Male frons very narrow, eyes touching behind.

- 5 (6). Thorax with white dusting in front; abdomen shimmering white in certain lights.

(1939. *nobilis*, Mg.)

- 6 (5). Thorax very slightly dusted; abdomen without any white shimmer.

- 7 (8). Face only red in the middle and about the mouth.

1933. *Lucilia cæsar*, L.

Abundant everywhere. It is the commonest of the bright metallic flies, and varies much in colour.

- 8 (7). The red extending over the cheeks.

1936. *Lucilia ruficeps*, Mg.

Bishop Auckland, 1 ♂ and 1 ♀, June, 1900.

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- 9 (4). Male frons not very narrow. The eyes always separated.

1935. *Lucilia sericata*, Mg.

Hesleden, 1 ♂ and 1 ♀, August, 1900.

- 10 (1). Palpi black; eyes separated in the male.
 11 (12). Shining gold-green species. (1937. *illustris*, Mg.)
 12 (11). Shining blue-green species.
 13 (14). Second abdominal segment with two hind marginal bristles (the only Muscid with abdominal bristles).
 (1934. *sylvarum*, Mg.)
 14 (13). No abdominal bristles. (1940. *splendida*, Mg.)

FAMILY XXXIII.—ANTHOMYIDÆ.

TABLE OF GENERA.

- 1 (45). Eyes of the male touching, or separated by not more than one-fifth of the breadth of the head.

(NOTE.—In very many cases it is impossible to identify females apart from the males).

- 2 (24) (39). V.6. long, but not reaching the margin; V.7. gently bent.

- 3 (4). Male fore femora with a tooth beneath near the tip.

HYDROTÆA, Dsv. (459)

This character distinguishes *males* of *Hydrotæa* from all other Anthomyids. For the *females*, Herr Stein gives the following characters, *when all taken together*, as marking them off from all other female Anthomyids, except *Ophyra*:

The frontal stripe exceedingly broad, the orbits therefore extraordinarily narrow; frontal bristles present, and crossed; four post-sutural dorso-central bristles; sternopleural bristles, 1, 1, that is two strong bristles, one near the upper fore corner and one near the upper hind corner; fore tibiæ without bristles; the arrangement of bristles (*chætotaxy*) on the hind tibiæ simple; abdomen never spotted.

- 4 (3). Male fore femora not toothed; at least one of the foregoing characters absent in the female.
- 5 (12). Eyes hairy.
- 6 (7). *Facialia* ciliated. POLIETES, Rnd. (449)
- 7 (6). *Facialia* bare.
- 8 (9). Arista plumose, or if very short haired, then the abdomen spotted. HYEDOTESIA, Rnd. (450)
- 9 (8). Arista pubescent, or if short haired, then the abdomen not spotted.
- 10 (11). Legs black. TRICHOPTICUS, Rnd. (463)
- 11 (10). Legs pale. ALLŒOSTYLUS, Schnbl. (451)
- 12 (5). Eyes bare, or slightly pubescent.
- 13 (14). Proboscis with a moveable hook-like point bent backwards (VI. 29). DRYMIA, Mg. (461)
- 14 (13). Lobes of proboscis broad, not moveable or hook-like.
- 15 (16). Sides of the mouth thickly bearded with bristles.
462. POGONOMYIA, Rnd. (2038. *alpicola*, Rnd.)
- 16 (15). Mouth normally haired.
- 17 (20). Arista plumose or subplumose; thorax four-striped (occasionally the two centre stripes are run together: *S. platyptera* and *halterata*) or all black.
- 18 (19). Abdomen not spotted. MYDÆA, Dsv. (452)
- 19 (18). Abdomen spotted. SPILOGASTER, Mcq. (454)
- 20 (17). Arista pubescent.
- 21 (22) (23). Colour entirely yellow; V.1.a. bristly.
SPHECOLYMA, Perr. (453)
- 22 (21) (23). Colour shining blue-black, unspotted; hind tibiæ curved and ciliated. OPHYRA, Dsv. (460)
- 23 (21) (22). Colour grey, abdomen spotted; thorax with three stripes. LIMNOPHORA, Dsv. (455)
- 24 (2) (39). V.6. reaching the margin; V.7. gently bent.
- 25 (38). Eyes bare.
- 26 (31). Arista plumose or subplumose.
- 27 (28). Squamæ moderate size, inner scale projecting behind the outer. HYDROPHORIA, Dsv. (464)
- 28 (27). Squamæ small; scales equal or nearly so.
- 29 (30). Body grey, marked or striped in the ordinary way.
HYLEMYIA, Dsv. (465)

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- 30 (29). Body white, marked with shining black spots and stripes. EUSTALOMYIA, Kow. (466)
- 31 (26). Arista bare, or nearly so.
- 32 (33). Squamæ with the inner scale slightly longer than the outer. ANTHOMYIA, Mg. (469)
- 33 (32). Squamæ with the scales equal.
- 34 (37). Legs black.
- 35 (36). Abdomen subcylindrical. CHORTOPHILA, Mcq. (470)
- 36 (35). Abdomen narrow, depressed. PHORBIA, Dsv. (471)
- 37 (34). Legs reddish, or yellow. PEGOMYIA, Mcq. (472)
- 38 (25). Eyes hairy or downy. LASIOPS, Mg. (468)
- 39 (2) (24). V.6. short; V.7. bent sharply upwards beyond the end of V.6.
- 40 (41). Arista plumose.
475. PIEZURA, Rnd. (2162. *pardalina*, Rnd.)
- 41 (40). Arista pubescent or bare.
- 42 (43) (44). Abdomen of the usual shape, the second segment shorter than the third.
HOMALOMYIA, Bouché. (474)

Herr Stein gives the following as distinguishing *Homalomyia* from all other Anthomyids:

The presence of a more or less long and thick pubescence on the inner side of the mid tibiæ in the *males*, that is of fine somewhat shaggy hairs as distinguished from the short flat-lying orderly bristles of other families; and in the *female* the absence of the crossed frontal bristles, and the presence of two upper and outer fronto-orbital bristles in addition to the usual row of fronto-orbital ones, namely, one strong bristle about on a line with the front ocellus near the middle of the orbit and pointing backwards over the vertex, and another beneath it, nearly half-way down, and pointing outwards over the eye.

- 43 (42) (44). Abdomen narrow at the base and broader towards the end, the second segment longer than the third. CÆLOMYIA, Hal. (477)

- 44 (42) (43). Abdomen narrow, sub-cylindrical, and mostly spotted. AZELIA, Dsv. (476)
- 45 (1). Eyes of the male separated by at least one-third of the head.
- 46 (59). Squamæ of moderate size, with unequal scales.
- 47 (48). Palpi with very broad ends, spoonshaped (VI. 24½). LISPE, Ltr. (483,
- 48 (47). Palpi normal.
- 49 (50). X.4. about in a line with the end of V.1.a.
481. ATHERIGONA, Rnd. (2185. *varia*, Mg.)
- 50 (49). X.4. in a line with the end of V.1.b., or nearer the wing tip.
- 51 (52). Arista subplumose. CARICEA, Dsv. (478)
- 52 (51). Arista pubescent or bare.
- 53 (54). Male abdomen narrow and sub-cylindrical, with projecting subanal appendages. MACHORCHIS, Rnd. (457)
- 54 (53). Male abdomen clubbed at the end, without projecting appendages, or oval.
- 55 (58). Male abdomen oval.
- 56 (57). Forehead and epistome prominent; abdomen dark grey with conspicuous pale triangular marks on the outer fronts of segments two, three, and four. MELANOCHILA, Rnd. (456)
- 57 (56). Forehead and epistome flat; abdomen spotted. LISPOREPHELA (480½)
- 58 (55). Abdomen of the male sub-cylindrical and clubbed, generally spotted. CÆNOSIA, Mg. (480)
- 59 (46). Squamæ small, with equal scales, the under one not extending beyond the upper.
- 60 (64). V.6. prolonged to the margin of the wing.
- 61 (62) (63). Arista thickly plumose to the tip. MYCOPHAGA, Rnd. (467)
- 62 (61) (63). Arista pubescent; dorsum unstriped. 473. CHIROSIA, Rnd. (2135. *albitarsis*, Ztt.)
- 63 (61) (62). Arista bare; dorsum striped. FUCELLIA, Dsv. (484)
- 64 (60). V.6. short.

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- 65 (66). Male with large subanal processes. V.6. very short.
482. HOPLOGASTER, Rnd. (2186. *mollicula*, Fln.)
- 66 (65). Male without large subanal processes.
- 67 (68). Antennæ narrow. V.6. somewhat elongated.
458. CHELISIA, Rnd. (2018. *monilis*, Mg.)
- 68 (67). Antennæ broad and thick. V.6. very short.
 (Agromyzidæ) SCHÆNOMYZA, Hal. (651)

TABLES OF SPECIES.

Sub-Family MYDÆINÆ.

449. POLIETES, Rnd.

- 1 (4). Squamæ white.
- 2 (3). Dorsum with four black stripes and white spots between them in front.
 1943. *Polietes lardaria*, F.
 Very common everywhere, often confounded with the bluebottle by superficial observers.
- 3 (2). Dorsum with two broad black stripes, and one white spot on the middle in front.
 1945. *Polietes albolineata*, Fln.
 Evenwood, 1 ♂ and 2 ♀, June, 1897; Hesleden, 8 ♂ and 5 ♀, August, 1899; Wearhead, 1 ♀, August, 1901.
- 4 (1). Squamæ yellow. (1944. *hirticrura*, Mde.)

450. HYEDOTESIA, Rnd.

- 1 (24). Legs black.
- 2 (14). Dorsum distinctly striped.
- 3 (11). Arista long-haired.
- 4 (5) (8). Abdomen marked with a central line.
- 4a (4b). Squamæ yellow; wings with yellow bases and unclouded X-veins. (1952. *consobrina*, Ztt.)
- 4b (4a). Squamæ white; wings with the bases and X-veins clouded.
 1946. *Hyedotesia incana*, W.
 Bishop Auckland, 3 ♂, May, 1897; Wearhead, 2 ♂ and 3 ♀, August, 1901.

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- 5 (4) (8). Abdomen with well defined black or brown dorso-lateral spots.
- 6 (7). Spots rounded; X.4. and X.5² clouded.
 1947. *Hyedotesia lucorum*, Fln.
 Escomb, 3 ♂ and 1 ♀, Bishop Auckland, 1 ♂, Gibside, 1 ♀, Stanhope, 1 ♂, Hesleden, 1 ♂, March-May, 1898-1901.
- 7 (6). Spots angular; X-veins only slightly clouded.
 1953. *Hyedotesia obscurata*, Mg.
 Wynyard, 1 ♂, May, 1902.
- 8 (4) (5). Abdomen with indefinite spots and reflections.
- 9 (10). Thorax with four post-sutural bristles.
 1948. *Hyedotesia marmorata*, Ztt.
 Wearhead, 1 ♀, August, 1901.
- 10 (9). Thorax with three post-sutural bristles.
 1949. *Hyedotesia serva*, Mg.
 Escomb, 1 ♂, Evenwood, 1 ♀, May, 1897-1899;
 Bishop Auckland, 2 ♂ and 2 ♀, June, 1902.
- 11 (3). Arista rather short haired (subplumose).
- 12 (13). Abdomen marked with subquadrangular spots; wings blackish. (1950. *dispar*, Fln.)
 (NOTE.—Herr Stein writes me that *dispar*, Fln., is not a *Hyedotesia* but a *Spilogaster*, or better a *Limnophora*).
- 13 (12). Abdomen with reflections; wings clear. (1951. *goberti*, Mik.)
- 14 (2). Thorax indistinctly striped or unstriped.
- 15 (23). Abdomen grey.
- 16 (20). Abdomen oval, or nearly so.
- 17 (18) (19). Abdomen spotted.
 1950½. *Hyedotesia nivalis*, Rnd.
 Wearhead, 1 ♂, August, 1901.
 This is the fly described by Schiner as *dispar*, which, Herr Stein writes me, is identical with *H. nivalis*, Rnd., and is very common about Genthin. Whether, he adds, it agrees with *nivalis*, Ztt., or not, cannot be ascertained, as the type is very badly preserved.

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- 18 (17) (19). Abdomen with reflections, rather indistinct.
8 mm. (*lugubris*, Mg.)
- 19 (17) (18). Abdomen with only a central stripe; small
species. 4-5 mm.
1956. *Hyedotesia umbratica*, Mg.
Belburn, 1 ♂, May; Bishop Auckland, 1 ♀, June,
1900; Wearhead, 2 ♂, June, 1901.
(NOTE.—*Mydea nigrifella* has the eyes slightly hairy; a small black
species with very dark wings).
- 20 (16). Abdomen oblongo-conical.
- 21 (22). Hind femora elongated; abdomen with a central
stripe.
1955. *Hyedotesia longipes*, Ztt.
Wynyard, 1 ♂, June, 1902.
- 22 (21). Hind femora of ordinary length; abdomen without
marks, immaculate.
1954. *Hyedotesia variabilis*, Fln.
Harperley, 1 ♂, June, 1902.
- 23 (15). Abdomen partly yellow; arista only subplumose at
the base.
1957. *Hyedotesia semicinerea*, W.
Bedburn, 1 ♂, June, 1905.
- 24 (1). Legs partly pale yellow or orange.
- 25 (50). Thorax and abdomen black or grey.
- 26 (49). Arista with long hairs.
- 27 (35). Abdomen with distinct spots or stripes.
- 28 (33) (34). Abdomen with a central row of triangular spots.
- 29 (32). Tibiæ only testaceous.
- 30 (31). Dorsum with four post-sutural bristles.
(1958. *læta*, Fln.)
- 31 (30). Dorsum with three post-sutural bristles.
(2005. *Spilogaster trigonalis*, Mg.)
- 32 (29). Legs all pale except the fore femora and the tarsi.
(2004. *Spilogaster fuscata*, Fln.)
- 33 (28) (34). Abdomen with wide interrupted central stripe.
(1959. *perdita*).

- 34 (28) (33). Abdomen with four lateral angular spots.
(1965. *quadrinotata*, Mg.)
- 35 (27). Abdomen with only undefined spots and reflections.
- 36 (41). Scutellum partly orange.
- 37 (40). Antennal basal joints yellow.
- 38 (39). Femora and tibiæ all pale; X-veins distinctly clouded.
(1963. *erratica*, Fln.)
- 39 (38). Fore femora with the base dark; X-veins not or scarcely clouded.
1961. *Hyedotesia signata*, Mg.
Harperley, 1 ♂, June, 1902.
- 40 (37). Antennæ entirely black.
1960. *Hyedotesia errans*, Mg.
Hesleden, 1 ♀, August, 1902; Bedburn, 1 ♀, June, 1905. In the latter the humeri are orange.
- 41 (36). Scutellum entirely black or grey.
- 42 (48). Abdomen with a dark central stripe only.
- 43 (44). Palpi pale.
1967. *Hyedotesia rufipalpis*, Mcq.
South Durham, 1 ♂.
- 44 (43). Palpi black.
- 45 (46). Dorsum unstriped. (1966. *boleticola*, Rnd.)
- 46 (45). Dorsum with black stripes.
- 47 (48). Eyes of the male touching; femora and tibiæ all pale.
(1964. *basalis*, Ztt.)
- 48 (42) (47). Abdomen with dark tessellations besides the dark stripe; eyes of the male slightly separated; fore femora partly dark. (*vagans*, Fln.)
- 49 (26). Arista short haired, pubescent; abdomen spotted.
1962. *Hyedotesia lasiophthalma*, Mcq.
Hesleden, 2 ♀, Shipley, 1 ♀, May–August, 1900.
- 50 (25). At least the abdomen wholly or partly pale.
- 51 (56). Abdomen only pale; thorax grey, at most the humeri yellow.
- 52 (55). Arista plumose.
- 53 (54). Hinderside of mid tibiæ with three bristles.
(1969. *scutellaris*, Fln.)

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54 (53). Hinderside of mid tibiæ with only two bristles.

1970. *Hyedotesia variegata*, Mg.

Hesleden, Bishop Auckland, 3 ♂ and 7 ♀, June–September, 1897–1902. Dr. Meade in his list gives *scutellaris*, Fln., as identical with *populi*, Mg., and says it is very common, *variegata*, Mg., being very rare; and gives the colour of antennæ, &c., as character marks. Mr. Verrall gives *scutellaris*, Fln., and *populi*, Mg., as distinct, and omits *variegata*, Mg. Herr Stein writes me that the above specimens are certainly *variegata*, Mg., the type of which he knows. He adds, *populi*, Mg., is identical with *scutellaris*, Fln., the colour of the antennæ and shoulders is quite immaterial; and he then gives the characters used above. So that apparently the common yellow *Hyedotesia*, here at least, is *variegata* and not *scutellaris-populi*.

55 (52). Arista short haired; abdomen spotted.

(1968. *abdominalis*, Ztt.)

56 (51). Thorax as well as abdomen pale; arista with long hairs.

1971. *Hyedotesia pallida*, F.

Shiple, 3 ♂, July, 1900. They belong to the variety, if it be a variety, with four broad black stripes on the dorsum, and the last two abdominal segments darkened. I found them in a wooded glen resting on *Pteris aquilina*.

451. ALLÆOSTYLUS, Schnbl.

1 (2). Arista short haired. (1972. *simplex*, W.)

2 (1). Arista pubescent.

3 (4). Dorsum striped; fore femora nigrescent.

(1973. *sudeticus*, Schnbl.)

4 (3). Dorsum plain; all femora pale.

1974. *Allæostylus flaveola*, Fln.

Bishop Auckland, 2 ♀, July, 1902.

452. MYDÆA, Dsv. (see also page 256).

- 1 (8). Legs wholly black.
- 2 (5). Arista long haired.
- 3 (4). Colour grey; large species, 8 mm.
(1977. *allotalla*, Mg.)
- 4 (3). Colour black; small species, 4-5 mm.
1975. *Mydæa vespertina*, Fln.
Bishop Auckland, 1 ♂, May, 1902.
- 5 (2). Arista short haired.
- 6 (7). Hind tibiæ with a strong erect blunt spine on the
inner side near the tip. (1976. *nigritella*, Ztt.)
- 7 (6). No blunt spine on hind tibiæ; abdomen with rather
obscure dark spots.
Spilogaster nigrinervis, Ztt. (1987)
- 8 (1). Legs partly pale.
- 9 (10). Thorax black. (1983. *nigricolor*, Fln.)
- 10 (9). Thorax grey.
- 11 (20). Dorsum distinctly striped.
- 12 (15). Scutellum wholly or partly yellow.
- 13 (14). Scutellum entirely yellow, as well as all the femora.
1981. *Mydæa pagana*, F.
Wearhead, 1 ♂ and 1 ♀, August, 1901.
- 14 (13). Bases of fore femora and base of scutellum black.
1980. *Mydæa tinctoria*, Ztt.
Shull, 1 ♂, July, 1902.
- 15 (12). Scutellum grey.
- 16 (19). Fore femora partly nigrescent.
- 17 (18). Tarsi of ordinary length; third abdominal segment
without bristles on the disc.
1978. *Mydæa urbana*, Mg.
Hesleden, 1 ♂ and 1 ♀, August, 1900; Bishop Auckland,
3 ♀, June, 1897-1901.
- 18 (17). Tarsi very long; third abdominal segment with
numerous discal bristles. (*longitarsis*, Mde.)
- 19 (16). Femora all pale.

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- 19a (19b). Abdomen grey; thorax with four distinct black stripes. *urbana*, Mg. ♀ (1978)
- 19b (19a). Abdomen with dark tessellations; thorax less distinctly striped. (1982. *affinis*, Mde.)
- 20 (11). Thorax indistinctly striped, or unstriped.
- 21 (22). Palpi yellow.

1984. *Mydæa impuncta*, Fln.

Bishop Auckland, 6 ♂ and 6 ♀, May-September.
Common.

- 22 (21). Palpi black.

1985. *Mydæa separata*, Mg.

Harperley, 2 ♂, June; Brancepeth, 1 ♂, June; Shull,
1 ♂, July, 1902.

453. SPHECOLYMA, Perr.

1986. *Sphocolyma inanis*, Fln.

Bishop Auckland, 1 ♀, July, 1902.

454. SPILOGASTER, Mcq. (see also page 256).

- 1 (24). Arista plumose.
- 2 (13). Legs black, or nearly black in the male.
- 3 (4) (10). Thorax black and unstriped; wings nigrescent.
1987. *Spilogaster nigrinervis*, Ztt.
Bedburn, 1 ♂, July, 1897; Harperley, 1 ♀, June, 1902;
Bishop Auckland, 4 ♂, July, 1897.
- 4 (3) (10). Thorax with distinct black stripes.
- 5 (6). Hind tibiæ hairy on the inner side.
(1990. *quadrinaculata*, Fln.)
- 6 (5). Hind tibiæ almost bare on the inner side.
- 7 (8) (9). Legs quite black; three post-sutural bristles.
(1993. *duplaris*, Stein)
- 8 (7) (9). Knees pale; four post-sutural bristles.
1991. *Spilogaster duplicata*, Mg.
Hesleden, 6 ♂ and 5 ♀; Wearhead, Shull, Shipley,
7 ♂ and 5 ♀, May-August, 1899-1901.

9 (7) (8). Hind tibiæ more or less rufous.

1992. *Spilogaster communis*, Dsv.

Hesleden, 1 ♂, August, 1900; Shull, 1 ♀, Sept., 1900.

10 (3) (4). Thorax marked with large spots.

11 (12). Scutellum with two side spots. (1988. *maculosa*, Mg.)

12 (11). Scutellum with one central spot. (1989. *notata*, Fln.)

13 (2). Legs more or less pale in the male.

14 (15). Abdomen yellow and translucent at the base.

(2000. *uliginosa*, Fln.)

15 (14). Abdomen grey.

16 (21). Dorsum indistinctly striped.

17 (18). Four post-sutural bristles. (1994. *quadrum*, Fln.)

18 (17). Three post-sutural bristles.

19 (20). Eyes touching in the male; base of antennæ pale.

(1996. *depuncta*, Fln.)

20 (19). Eyes of the male slightly separate; antennæ quite black.

(1997. *testrastigma*, Mg.)

21 (16). Dorsum distinctly striped; four post-sutural bristles.

22 (23). Hind tibiæ with very long bristles on the outer side; eyes of the male nearly touching.

(1998. *flagripes*, Rnd.)

23 (22). Tibiæ with four or five spines at the tips; eyes of the male rather widely separated; costa strongly ciliated at the base.

2006. *Spilogaster ciliatocosta*, Ztt.

Shull, 1 ♂, April, 1900.

24 (1). Arista rather short haired.

25 (29). Scutellum with a dark basal mark.

26 (30). Hind femora entirely orange.

27 (28). Eyes of the male not quite touching; base of antennæ pale.

(2002. *consimilis*, Fln.)

28 (27). Eyes of the male touching. (2003. *pertusa*, Mg.)

29 (25). Scutellum unmarked.

30 (26). Hind femora partly dark.

31 (32). Frons prominent; eyes of the male not nearly touching.

(1999. *protuberans*, Ztt.)

32 (31). Frons not prominent; eyes of the male nearly touching; hind tibiæ hairy. (2003. *spinifemorata*, Mde.)

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As some of Meade's characters are not very satisfactory, and some do not apply to the female, I give Stein's tables for his *Spilogaster*, which includes *Mydæa* and one or two species given under other genera in Verrall's list. The generic names are altered to correspond with this list. Those without numbers are not British. Numbers which follow refer back to local species.

Spilogaster-Mydæa, &c. (Males).

- 1 (32). Legs quite black.
- 2 (11). Dorsum black, without a trace of stripes or spots.
- 3 (6). Abdomen without spots arranged in pairs.
- 4 (5). Hind tibiæ with a strong erect spine on the inner side before the tip. (1976. *M. nigritella*, Ztt.)
- 5 (4). Hind tibiæ without the above spine. *M. vespertina*, Fln. (1975)
- 6 (8). Abdomen with spots arranged in pairs.
- 7 (8). Mid tibiæ with a strong bristle on the inner side. (1950. *Hyedotesia dispar*, Fln.)
- 8 (7). Mid tibiæ without an inner bristle.
- 9 (10). Halteres black; wings very dark at the base; largish species. 4-6 mm. *S. nigrinervis*, Ztt. (1987)
- 10 (9). Halteres brownish; wings not remarkably dark at the base; smaller species. 3 mm. (*S. carbonella*, Ztt.)
- 11 (2). Dorsum more or less distinctly striped or spotted.
- 12 (15). Dorsum spotted.
- 13 (14). Dorsum with three spots; scutellum grey, black at the base. (1989. *S. notata*, Fln.)
- 14 (13). Dorsum with four spots; scutellum grey with a black spot on each side of the base. (1986. *S. maculosa*, Mg.)
- 15 (12). Dorsum striped.
- 16 (19). Dorsum indistinctly three-striped, *i.e.*, the two centre stripes appear as if run together.
- 17 (18). The whole length of the hind tibiæ remarkably bristly. (*S. platyptera*, Ztt.)
- 18 (17). Hind tibiæ not remarkably bristly. (*S. halterata*, Stein)

- 19 (16). Dorsum four-striped.
- 20 (25). Abdomen with distinct spots arranged in pairs.
- 21 (22). Inner side of hind tibiæ remarkably bristly.
(1990. *S. quadrimaculata*, Fln.)
- 22 (21). Hind tibiæ with only the usual bristles.
- 23 (24). Three post-sutural bristles. The part of the genitalia bent under the abdomen shining black.
(1993. *S. duplaris*, Stein [*atripes*, Mde?])
- 24 (23). Four post-sutural bristles. Genitalia not shining black. *S. duplicata*, Mg. (1991)
- 25 (20). Abdomen without distinct paired spots.
- 26 (27). Abdomen with a triangular spot on the middle of each segment. (*S. steinii*, Schnbl.)
- 27 (26). Abdomen with a central stripe or unmarked.
- 28 (29). Three post-sutural bristles. Abdomen almost uniform grey. (1977. *M. allotalla*, Mg.)
- 29 (28). Four post-sutural bristles. Abdomen with a distinct central line.
- 30 (31). Thoracic stripes distinct, but only quite in front, and only the two centre ones. Abdomen unmarked, except a fine central stripe. (*M. nebulosa*, Stein)
- 31 (30). Dorsum distinctly and fully four-striped. Abdomen with a central stripe and reflections. (*M. ancilla*, Mg.)
- 32 (1). Legs wholly or partly yellow.
- 33 (64). Legs with at least the base of the fore femora black.
- 34 (35). Scutellum translucent yellow, at least at the point. *M. tincta*, Ztt. (1980)
- 35 (34). Scutellum not translucent yellow.
- 36 (37). Abdomen with a triangular spot on the middle of each segment. (2004. *S. fuscata*, Fln.)
- 37 (36). Abdominal segments without central spots.
- 38 (43). Abdomen with a more or less distinct central line, at least on the first segment, when viewed from behind.
- 39 (40). Hind femora black. (*M. sundewalli*, Ztt.)
- 40 (39). Hind femora yellow.

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- 41 (42). Second abdominal segment without hind-marginal bristles ; inner side of hind femora with scattered strong bristles. *M. urbana*, Mg. (1978)
- 42 (41). Second abdominal segment with hind-marginal bristles ; inner side of hind femora with fine, almost shaggy hairs. (1979. *M. angelicæ*, Scop.)
- 43 (38). Abdomen unmarked, or with paired spots.
- 44 (47). Hind femora entirely yellow.
- 45 (46). Four post-sutural bristles. (*S. pubescens*, Stein)
- 46 (45). Three post-sutural bristles. (*S. demigrans*, Ztt.)
- 47 (44). Hind femora wholly or partly black.
- 48 (55). Arista distinctly long haired.
- 49 (52). All tibiæ orange.
- 50 (51). Fore tibiæ with one, or at most two bristles on the middle ; wings yellow at the base ; abdominal spots longish, generally only one pair ; large pale grey species. (1994. *S. quadrum*, F.)
- 51 (50). Fore tibiæ with two or three bristles ; wings nearly quite clear ; abdominal spots round, generally three pairs ; small dark grey species. (*S. calceata*, Rnd.)
- 52 (49). Fore tibiæ partly or wholly dark.
- 53 (54). Fore tibiæ with one long bristle on the middle.
(*S. cæsia*, Mcq.) *S. communis*, Dsv. (1992)
- 54 (53). Fore tibiæ without bristles. *S. duplicata*, Mg. (1991)
- 55 (48). Arista short haired or pubescent.
- 56 (61). Hind femora wholly or mostly black.
- 57 (58). X-veins very broadly clouded. (*S. cothurnata*, Rnd.)
- 58 (57). X-veins not at all, or only slightly clouded.
- 59 (60). Eyes almost touching ; hind tibiæ remarkably bristly.
(1995. *S. fratercula*, Ztt.)
- 60 (59). Eyes rather broadly separated ; hind tibiæ with the usual bristles. (2171. *Caricea exsul*, Ztt.)
- 61 (56). Hind femora entirely yellow.
- 62 (63). Four post-sutural bristles. (2003. *S. pertusa*, Mg.)
- 63 (62). Three post-sutural bristles. (2002. *S. consimilis*, Fln.)
- 64 (33). Legs entirely yellow.

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- 65 (66). Scutellum with a black spot on either side of the base. (2000. *S. uliginosa*, Fln.)
- 66 (65). Scutellum without such spots.
- 67 (68). Scutellum translucent yellow. *M. pagana*, F. (1981)
- 68 (67). Scutellum not translucent yellow.
- 69 (72). Three post-sutural bristles.
- 70 (71). Abdomen partly translucent yellow. (1972. *Allæostylus simplex*, W.)
- 71 (70). Abdomen nowhere translucent yellow. (*S. demigrans*, Ztt.)
- 72 (69). Four post-sutural bristles.
- 73 (74). Arista pubescent. *M. separata*, Ztt. (1985)
- 74 (73). Arista distinctly plumose.
- 75 (76). Dorsum yellowish grey, stripes very indistinct; palpi yellow. *M. impuncta*, Fln. (1984)
- 76 (75). Dorsum blackish grey, distinctly striped; palpi black. *M. urbana*, Mg. (1978)

Spilogaster-Mydæa, &c. (Females).

- 1 (24). Legs all black.
- 2 (13). Four post-sutural bristles.
- 3 (4). Dorsum uniform black. *M. vespertina*, Fln. (1975)
- 4 (3). Dorsum spotted or striped.
- 5 (8). Dorsum spotted.
- 6 (7). Scutellum grey, on the base black. (1989. *S. notata*, Fln.)
- 7 (6). Scutellum grey with a black spot on each side of the base. (1988. *S. maculosa*, Mg.)
- 8 (5). Dorsum more or less distinctly striped.
- 9 (10). Crossed frontal bristles present. (*S. platyptera*, Ztt.)
- 10 (9). Frontal bristles absent.
- 11 (12). Fore tibiæ without bristles; abdomen with reflections, the four thoracic stripes all equally distinct. (*S. ancilla*, Mg.)
- 12 (11). Fore tibiæ with one bristle on the middle; abdomen without reflections, only the two middle stripes distinct. (*S. nebulosa*, Stein)

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- 13 (2). Three post-sutural bristles.
- 14 (15). Mid tibiæ inner side with strong erect bristles.
(1950. *Hyedotesia dispar*, Fln.)
- 15 (14). Mid tibiæ inner side without bristles.
- 16 (19). Halteres black.
- 17 (18). Abdomen dark grey, only slightly shining.
(*S. halterata*, Stein)
- 18 (17). Abdomen deep purple-black, very shining.
(*M. steinii*, Schnbl.)
- 19 (16). Halteres pale, at most brownish yellow.
- 20 (21). Dorsum grey, distinctly striped. (1977. *M. allotalla*.)
- 21 (20). Dorsum uniform black or dark grey, unstriped.
- 22 (23). Abdomen without a trace of paired spots; large species 6-7 mm. (1987. *S. nigrinervis*, Ztt.)
- 23 (22). Abdomen, viewed from behind and from the side, with large triangular indistinct paired spots. 5 mm.
(*S. carbonella*, Ztt.)
- 24 (1). Legs all or partly yellow.
- 25 (46). Legs with at least the base of the fore femora dark.
- 26 (35). All femora wholly or for the most part dark.
- 27 (32). Four post-sutural bristles.
- 28 (29). Fore tibiæ wholly or for the most part black, and without bristles. (*S. duplicata*, Mg. (1991)
- 29 (28). Fore tibiæ yellow, and with bristles on the middle.
- 30 (31). Wings tinged with yellow; abdominal spots usually wanting or small; large species.
(1994. *S. quadrum*, F.)
- 31 (30). Wings almost clear; abdominal spots distinct; smaller species.
(*S. calceata*, Rnd.)
- 32 (27). Three post-sutural bristles.
- 33 (34). X-veins very distinctly clouded. (*S. cothurnata*, Rnd.)
- 34 (33). X-veins only slightly clouded.
(*S. duplaris*, Stein [1993. *atripes*, Mde?])
- 35 (26). The hind femora wholly, or almost wholly yellow.
- 36 (41). Abdomen with paired spots, which are very seldom wanting, in which case the abdomen is uniform grey.

- 37 (38). Arista distinctly plumed.
S. communis, Dsv. [*caesia*, Mcq.] (1992)
- 38 (37). Arista pubescent.
- 39 (40). Four post-sutural bristles. (2003. *S. pertusa*, Mg.)
- 40 (39). Three post-sutural bristles.
 (1995. *S. fratercula*, Ztt.), or (2002. *S. consimilis*, Fln.)
- 41 (36). Abdomen without paired spots, usually with a central line, but never wholly unicolorous.
- 42 (43). Scutellum, at least at the point, translucent yellow.
M. tincta, Ztt. (1980)
- 43 (42). Scutellum nowhere translucent yellow.
- 44 (45). Three post-sutural bristles; X-veins distinctly brown clouded. (2004. *S. fuscata*, Fln.)
- 45 (44). Four post-sutural bristles; X-veins at most slightly tinged with yellow. (1979. *M. angelicæ*, Scop.)
- 46 (25). Legs wholly yellow.
- 47 (48). Frontal crossed bristles present.
 (1972. *Allæostylus simplex*, W.)
- 48 (47). Frontal bristles absent.
- 49 (50). Scutellum translucent yellow. *M. pagana*, F. (1981)
- 50 (49). Scutellum not translucent yellow.
- 51 (52). Scutellum with a black spot on each side at the base.
 (2000. *S. uliginosa*, Fln.)
- 52 (51). Scutellum unicolorous.
- 53 (56). Three post-sutural bristles.
- 54 (55). Arista very long haired. (*M. demigrans*, Ztt.)
- 55 (54). Arista pubescent. (1995. *S. fratercula*, Ztt.)
- 56 (53). Four post-sutural bristles.
- 57 (58). Palpi yellow. *M. impuncta*, Fln. (1984)
- 58 (57). Palpi black.
- 59 (62). Arista distinctly plumose.
- 60 (61). Dorsum distinctly striped; fore tibiæ without bristles on the middle. *S. urbana*, Mg. (1978)
- 61 (60). Dorsum indistinctly striped; fore tibiæ with distinct bristles on the middle. (*S. pubescens*, Stein)
- 62 (59). Arista pubescent. *M. separata*, Ztt. (1985)

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455. LIMNOPHORA, Dsv.

- 1 (4). Wings blackish.
 2 (3). Dorsum with four stripes.
 2008. *Limnophora compuncta*, W.
 Wearhead, 2 ♂, June, 1901.
- 3 (2). Dorsum with three stripes. (2009. *sororcula*, Ztt.)
 4 (1). Wings clear.
 5 (8) (9). Dorsum with three stripes.
 6 (7). Eyes widely separated in both sexes.
 (2015. *triangula*, Fln.)
 7 (6). Eyes nearly touching in the male.
 (2014. *litorea*, Fln.)
 8 (5) (9). Dorsum hoary, almost unmarked.
 2013. *Limnophora solitaria*, Ztt.
 Bollihope, 1 ♂, June; Wearhead, 1 ♂, August, 1901.
- 9 (5) (8). Dorsum black, unstriped or obscurely striped.
 10 (11) (12). Eyes of the male moderately widely separated;
 three post-sutural bristles.
 (2010. *trianguligera*, Ztt.)
 11 (10) (12). Eyes of the male quite touching; abdomen
 ovate, with three pairs of spots, and also a single
 spot on the fourth segment; four post-sutural
 bristles. (2012. *septemnotata*, Ztt.)
 12 (10) (11). Eyes of the male nearly touching; abdomen
 somewhat cylindrical. (2011. *contractifrons*, Ztt.)

456. MELANOCHILA, Rnd.

2016. *Melanochila riparia*, Fln.
 Wearhead, 1 ♂, August, 1901.

457. MACRORCHIS, Rnd.

2017. *Macrorchis meditata*, Fln.
 Wearhead, 1 ♂, August, 1901; Bishop Auckland, 1 ♂
 and 2 ♀, June, 1901.

459. HYDROTÆA, DSV.

Full descriptions of the British species by Mr. Percy H. Grimshaw will be found in the E.M.M., Oct.–Nov., &c., 1905.

Table of European males according to Herr P. Stein, 1903.

- 1 (49). Large species, at least 5 mm.
- 2 (44). Abdomen nowhere translucent yellow.
- 3 (12). Eyes thickly hairy.
- 4 (7). Hind femora beneath with a thorn formed of two bristles pointing straight downwards.
- 5 (6). The thorn at the middle of the hind femora.
(2019. *ciliata*, F.)
- 6 (5). The thorn near the base of the hind femora.
2020. *Hydrotæa occulta*, Mg.
Bishop Auckland, 6 ♂, May–August, 1900.
- 7 (4). Hind femora without any thorn beneath.
- 8 (9). The inner side of the hind tibiæ with an erect tuft of long hairs; halteres yellow. (*penicillata*, Rnd.)
- 9 (8). Inner side of hind tibiæ without tuft; halteres black.
- 10 (11). Outer fore side of mid tibiæ with two strong bristles; hinder side with a row of bristles. (*bezzi*, Stein)
- 11 (10). Outer fore side of mid tibiæ without bristles; hinder side with two bristles. (2022. *cyrtoneurina*, Ztt.)
- 12 (3). Eyes bare, or at most pubescent.
- 13 (20). Eyes more or less distinctly separated on the vertex.
- 14 (17). Outer fore side of mid tibiæ with one or two prominent bristles.
- 15 (16). Hinder side of mid coxæ with three close-lying depressed bristles, which together appear like a strong thorn.
(2027. *palæstrica*, Mg.=*rondanii*, Mde.)
- 16 (15). Mid coxæ without bristles. (*bispinosa*, Ztt.)
- 17 (14). Outer fore side of mid tibiæ without bristles, at most with fine hairs.

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18 (19). Eyes distinctly separated; hinder side of mid tibiæ with usually only two bristles; inner fore side of hind tibiæ with from two to three bristles; squamæ whitish.

2025. *Hydrotæa dentipes*, F.

Very common.

19 (18). Eyes only divided by a very fine line; mid tibiæ usually with four bristles behind; inner fore side of hind tibiæ, from middle to tip, with a row of long bristles; squamæ yellowish. (2026. *similis*, Mde.)

20 (13). Eyes narrowly touching.

21 (22) (25). Middle of the hind femora beneath with two erect bristles. (2032. *albipuncta*, Ztt.)

22 (21) (25). Hind femora beneath with one bristle.

23 (24). Hind tibiæ inner side with one strong bristle, which is bent at the point. (*scambus*, Ztt.)

24 (23). Hind tibiæ inner side with a tuft of numerous bristles. (2031. *armipes*, Fln.)

25 (21) (22). Hind femora beneath without bristles.

26 (27). Hind femora much bent; hind tibiæ middle of inner side with a tuft of several close-lying bristles.

(*pandellei*, Stein)

27 (26). Hind femora straight, or only slightly bent; hind tibiæ without a tuft on inner side.

28 (29). Mid tibiæ, besides the hinder bristles, with an inner hind bristle; V.4⁴ at most only a little longer than V.4³. (2028. *militaris*, Mg.=*impexa*, Lw.)

29 (28). Mid tibiæ without inner bristles; V.4⁴ nearly twice as long as V.4³.

30 (33). Outer fore side of mid tibiæ about the beginning of the last third with distinct bristles.

31 (32). Abdomen shining blue, with a narrow dorsal line when viewed from behind. (*bispinosa*, Ztt.)

32 (31). Abdomen black, with a broad dorsal line and broad hind-marginal bands on segments two and three.

(2027½. *pilipes*, Stein)

- 33 (30). Outer fore side of mid tibiæ without strong bristles.
- 34 (35). Præsutural acrostichal bristles distinct and strong.
(2026. *similis*, Mde.)
- 35 (34). Præsutural acrostichal bristles absent, or scarcely distinguishable from the fine hairs.
- 36 (37). Abdomen partly shining dark blue ; the whole length of the fore and hind side of mid tibiæ shaggy haired.
(2028½. *tuberculata*, Rnd.)
- 37 (36). Abdomen otherwise coloured ; mid tibiæ not shaggy haired.
- 38 (39). Mid metatarsus padded with hairs.
2023. *Hydrotæa irritans*, F. (= *dentimana*, Mg.)
Very common.
- 39 (38). Mid metatarsus simple.
- 40 (41). Fore femora beneath, near the tip, with short blunt teeth.
(2029. *velutina*, Dsv.)
- 41 (40). Fore femora beneath with long and sharp teeth.
- 42 (43). Squamæ brownish yellow ; abdomen rather dark, with a scarcely perceptible dorsal stripe.
(2030. *meteorica*, L.)
- 43 (42). Squamæ whitish ; abdomen bluish or greenish-grey dusted, with a distinct dorsal stripe.
(2030½. *cinerea*, Dsv.)
- 44 (2). Abdomen distinctly translucent yellow at the base.
- 45 (46). Mid femora beneath with four distant bristles.
(2021. *curvipes*, Fln.)
- 46 (45). Mid femora beneath near the base with tuft-like crowded strong bristles.
- 47 (48). Hind tibiæ inner side near the tip with a tuft of about five strong hairs.
(*pellucens*, Ports.)
- 48 (47). The tuft on the inner side of the hind tibiæ placed about the middle, and forming a band of numerous strong hairs.
(*borussica*, Stein)
- 49 (1). Small species, at most 3 mm.
- 50 (51). Shining black ; abdomen scarcely dusted ; fore femora beneath very fine haired. (2034. *glabricula*, Fln.)

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- 51 (50). Abdomen dusted; fore femora beneath, besides the fine hairs, with two rather long and strong bristles near the base. (2033. *parva*, Mde.)

Hydrotea.—Table of European females (Stein).

- 0 (36). Large species, at least 5 mm.
- 1 (2). Hinder side of mid tibiæ all bristly; eyes thickly and long haired. (*bezzii*, Stein)
- 2 (1). Hinder side of mid tibiæ with at most 3-4 bristles; eyes bare, or quite short haired.
- 3 (25). Knob of halteres black.
- 4 (7). Hinder side of mid tibiæ, besides the usual bristles, with others directed inwards.
- 5 (6). Mid tibiæ fore side with distinct bristles, the inward pointing bristles of the hinder side placed at the beginning of the last third. (2028. *militaris*, Mg.=*impexa*, Lw.)
- 6 (5). Mid tibiæ fore side without bristles, the inward pointing bristles of the hinder side placed on or before the middle. (*scambus*, Ztt.)
- 7 (4). Hinder side of mid tibiæ with only the usual bristles or none.
- 8 (14). Mid tibiæ outer fore side with at least one distinct strong bristle.
- 8a (8b). Fore tibiæ outer side without a bristle at the middle. (2027½. *pilipes*, Stein)
- 8b (8a). Fore tibiæ outer side with a bristle at the middle.
- 9 (10) (11). Thorax and abdomen shining blue, scarcely dusted. (*bispinosa*, Ztt.)
- 10 (9) (11). Thorax yellow-grey with undefined dorsal stripe when viewed from behind. (2027. *palæstrica*, Mg.=*rondanii*, Mde.)
- 11 (9) (10). Thorax black, grey dusted, with the beginning of two central dorsal stripes in front.
- 12 (13). Squamæ whitish; hind tibiæ inner side with two or three bristles. (*dentipes*, F. (2025))

- 13 (12). Squamæ yellow ; hind tibiæ inner side with 4-6 bristles. (2026. *similis*, Mde.)
- 14 (8). Mid tibiæ outer fore side without bristles.
- 15 (18). Ocellar triangle shining black.
- 16 (17). Thorax shining blue-black. (*tuberculata*, Rnd.)
- 17 (16). Thorax grey-black, dull. (*occulta*, Mg. (2020)
- 18 (15). Ocellar triangle thickly grey dusted, at least not conspicuously shining.
- 19 (20). Hind tibiæ inner fore side with 4-5 bristles ; large species. (2022. *cyrtoneurina*, Ztt.)
- 20 (19). Hind tibiæ inner fore side with at most two bristles.
- 21 (22). Thorax black, scarcely dusted ; frons above the antennæ narrower than the diameter of the eyes at the same place ; præalar bristles small but distinct. (2029. *velutina*, Dsv.)
- 22 (21). Thorax thickly grey dusted ; frons above the antennæ as broad or broader than the diameter of the eyes ; præalar bristles absent or scarcely visible.
- 23 (24). Arista distinctly pubescent where thickest ; hind tibiæ with three bristles, one directed inwards, one large and one smaller outwards. (2030. *meteorica*, L.)
- 24 (23). Arista entirely bare. The bristles on the outer side of the hind tibiæ absent. (2031. *armipes*, Fln.)
- 25 (3). Knob of halteres yellow, sometimes brown, but never black.
- 26 (27). Shining black thorax, except for the strong bristles almost entirely bare. (2019. *ciliata*, F.)
- 27 (26). Colour not shining blue-black ; thorax distinctly short haired in addition to the strong bristles.
- 28 (29). Hind tibiæ with two outer bristles ; abdomen with two shining spots on the second ring. (*pandelli*, Stein)
- 29 (28). Hind tibiæ with one outer bristle ; abdomen without any shining spots.
- 30 (31). Abdomen more or less yellow at the base ; præsutural acrostichal bristles absent. (2021. *curvipes*, Fln.)

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- 31 (30). Abdomen nowhere translucent yellow; præsutural acrostichal bristles usually distinctly present.
- 32 (33). Arista bare; X.5² strongly bent, and not more than its own length from X.4. (2032. *albipuncta*, Ztt.)
- 33 (32). Arista distinctly pubescent; X.5² straight, and more than its own length from X.4.
- 34 (35). At most one pair of acrostichal præsutural bristles present; eyes bare. (*irritans*, Fln. (2023))
- 35 (34). Two pairs of acrostichal præsutural bristles; eyes very short haired. (*pencillata*, Rnd.)
- 36 (0). Small shining black species, 3 mm.
- 37 (38). Mid tibiæ with a bristle on the fore side. (2033. *parva*, Mde.)
- 38 (37). Mid tibiæ without a bristle on the fore side. (2034. *glabricula*, Fln.)

460. OPHYRA, DSV.

- 1 (2). Squamæ dark.

2035. *Ophyra leucostoma*, W.

Hesleden, 6 ♂, August, 1899; Bishop Auckland, 1 ♀, July, 1900.

- 2 (1). Squamæ pale. (2036. *anthrax*, Mg.)

461. DRYMIA, Mg.

2037. *Drymia hamata*, Fln.

Hesleden, 12 ♂ and 5 ♀, July–August, 1899–1900.

463. TRICHOPTICUS, Rnd.

- 1 (11). Abdomen black or grey.
- 2 (10). Epistome slightly prominent or flat.
- 3 (9). Halteres black or brown.
- 4 (5) (6). Hind tibiæ with the inner sides bare. (2039. *cunctans*, Mg.)
- 5 (4) (6). Hind tibiæ with a very long bristle before the inner middle. (2042. *aculeipes*, Ztt.)

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- 6 (4) (5). Hind tibiæ thickly clothed with hairs on both sides.
 7 (8). Hind tibiæ with a long blunt spur at the end.
 2043. *Trichopticus hirsutulus*, Ztt.
 Wearhead, 5 ♂ and 2 ♀, August, 1901.
- 8 (7). Hind tibiæ without spurs. (2044. *innocuus*, Ztt.)
 9 (3). Halteres yellow.
 2045. *Trichopticus pulcher*, Mde.
 Wearhead, 2 ♂ and 1 ♀, July-August, 1901.
- 10 (2). Epistome with projecting beak. (2041. *rostratus*, Mde.)
 11 (1). Abdomen yellow. (2040. *semipellucidus*, Ztt.)

Sub-Family ANTHOMYINÆ.

464. HYDROPHORIA, DSV.

- 1 (8). Legs black.
 2 (7). Dorsum with three stripes.
 3 (4). Subanal processes furnished with a tuft of long hairs
 at each side. (2048. *caudata*, Ztt.)
 4 (3). Subanal processes without the tufts of long hairs.
 5 (6). Scutellum grey with the point black, and the
 abdominal stripe of uniform width.
 (2046. *ambigua*, Fln.)
 6 (5). Scutellum quite grey; abdominal stripe tapering.
 (2047. *divisa*, Mg.)
 7 (2). Dorsum with four stripes. (*fusca*, Mde.)
 8 (1). Legs partly yellow.
 9 (10). Femora and tibiæ all pale.
 2051. *Hydrophoria linogrisea*, Mg.
 Bishop Auckland, 4 ♂ and 1 ♀, April-June, 1897-
 1902.
- 10 (9). Tibiæ only pale.
 11 (16). Arista plumose with long hairs.
 12 (15). Tibiæ entirely pale.
 13 (14). Abdomen with the basal segment partly pale and
 translucent. (2052. *anthomyia*, Rnd.)

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- 14 (13). Abdomen with all the segments grey.
 2049. *Hydrophoria conica*, W.
 Bishop Auckland, 5 ♂ and 3 ♀, June, 1897.
- 15 (12). Front half of the fore tibiæ dark.
 (2050. *brunneifrons*, Ztt.)
- 16 (11). Arista with short hairs. (2053. *socia*, Fln.)

465. HYLEMYIA, DSV.

- 1 (26). Legs black.
- 2 (9). Arista with long hairs.
- 3 (4). Dorsum with two black stripes. (2054. *virginea*, Mg.)
- 4 (3). Dorsum indistinctly striped.
- 5 (6). Proboscis very thick. (2058. *flavipennis*, Fln.)
- 6 (5). Proboscis of ordinary shape.
- 7 (8). Thorax dark grey; abdomen conico-cylindrical, with minute hairs; size 5 mm.
 2055. *Hylemyia variata*, Fln.
 Hesleden, 2 ♂ and 6 ♀, August, 1899-1900; Shull,
 1 ♂ and 3 ♀, September, 1900.
- 8 (7). Thorax dark brown; abdomen depressed and oblong, hairy; smaller species, 4-5 mm.
 (2057. *lasciva*, Ztt.)
- 9 (2). Arista short haired or pubescent.
- 10 (11). Hind tibiæ very bristly.
 2059. *Hylemyia seticrura*, Rnd.
 Hesleden, 3 ♂ and 1 ♀, August, 1899-1900.
- 11 (10). Hind tibiæ with few bristles.
- 12 (21). Abdomen flat and depressed.
- 13 (14). Small species, 3 mm. Abdomen with four central triangular spots. (2064. *cinerosa*, Ztt.)
- 14 (13). Larger species, 6 mm. Abdomen with an interrupted central stripe.
- 15 (20). Eyes of the male slightly separated.
- 16 (17). Dorsum distinctly striped, the middle of the under side of the abdomen with a short tuft of hairs.
 (2060. *cardui*, Mg.)

- 17 (16). Dorsum indistinctly striped or unstriped.
- 18 (19). The middle of the under side of the abdomen with a long tuft of hairs. (2073. *penicillaris*, Rnd.)
- 19 (18). Ventral surface without tuft. (2065. *antiqua*, Mg.)
- 20 (15). Eyes of the male quite touching. (2061. *nigrescens*, Rnd.)
- 21 (12). Abdomen narrow and conical.
- 22 (25). Large species, 6 mm. X-veins not clouded.
- 23 (24). Dorsum brownish black, with an indistinct black central stripe; wings clear. (2063. *cinerella*, Mg.)
- 24 (23). Dorsum yellow-grey with five stripes; wings darkish. (2056. *spinosa*, Rnd.?)
- 25 (22). Smaller species, 3-4 mm. X-veins slightly clouded. 2062. *Hylemyia pullula*, Ztt.
Hesleden, 3 ♂, August, 1900.
- 26 (1). Legs pale, or partly pale.
- 27 (37). Arista with long hairs.
- 28 (36). Dorsum distinctly striped.
- 29 (30) (33). Dorsum with two stripes. (2070. *puella*, Mg.)
- 30 (29) (33). Dorsum with three stripes.
- 31 (32). Legs with only the tibiæ pale. 2067. *Hylemyia strigosa*, F.
Common everywhere. 12 ♂ and 8 ♀.
- 32 (31). Legs with the mid and hind femora, as well as all the tibiæ, pale. 2068. *Hylemyia nigrimana*, Mg.
Stanhope, 2 ♂, May, 1900; Bishop Auckland, 1 ♂ and 1 ♀, June, 1900.
- 33 (29) (30). Dorsum with four stripes.
- 34 (35). Femora and tibiæ all pale. (2069. *præpotens*, W.)
- 35 (34). Only the tibiæ pale. (2071. *operosa*, Mg.)
- 36 (28). Dorsum indistinctly striped. 2072. *Hylemyia coarctata*, Fln.
Hesleden, 3 ♂, August, 1900.
- 37 (27). Arista short haired. (2074. *criniventris*, Ztt.)

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466. EUSTALOMYIA.

- 1 (2) (3). Arista long haired. (2075. *hilaris*, Fln.)
 2 (1) (3). Arista short haired. (2076. *festiva*, Ztt.)
 3 (1) (2). Arista pubescent. (2109. *Phorbia histrio*, Ztt.)

467. MYCOPHAGA, Rnd.

2077. *Mycophaga fungorum*, Dsv.

Bishop Auckland, 1 ♂ and 1 ♀, August.

468. LASIOPS, Mg.

- 1 (4). Hinder side of hind tibiæ with an even row of short bristles.
 2 (3). Thorax black and indistinctly striped.
 2079. *Lasiops ctenocnema*, Kow.
 Bishop Auckland, 8 ♂ and 1 ♀, May, 1897-1902.
 3 (2). Thorax grey and distinctly striped.
 (2078. *roederi*, Kow.)
 4 (1). Hinder side of hind tibiæ with only a few bristles.
 (2080. *meadii*, Kow.)

Lasiops adelphe, Kow.?

Bishop Auckland, 1 ♂ and 1 ♀, May, 1902.

These two specimens were so named with a ? by Herr Stein, to whom they were sent. I do not know the characteristic difference between *adelphæ* and *ctenocnema*.

469. ANTHOMYIA, Mg.

- 1 (5). Abdomen with prominent black triangular spots on a pale grey ground.
 2 (3) (4). Thorax with several large spots.
 2081. *Anthomyia pluvialis*, L.
 Bishop Auckland, 2 ♀; Hesleden, 1 ♀, June-July, 1900.
 3 (2) (4). Thorax with two small spots; scutellum black.
 (2082. *albicincta*, Fln.)

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- 4 (2) (3). Thorax with one central rhomboidal spot; scutellum black with white edges. (2083. *pratricula*, Pz.)
- 5 (1). Abdomen windowed with 6–8 small grey rectangular patches on a black ground in the male; plain grey, or with black centre line, in the female.
- 6 (7). Abdomen in the male with the black bands even and flat; in the female grey, with a long black line; thorax indistinctly striped.

2084. *Anthomyia radicum*, L.

Very common everywhere.

- 7 (6). Abdomen in the male with the black bands depressed, forming four transverse grooves; female grey and unmarked.

2085. *Anthomyia sulciventris*, Ztt.

Bedburn, 1 ♂, May; Bishop Auckland, 1 ♂, July, 1900.

470. CHORTOPHILA, Mcq.

- 1 (10). Forehead and face very prominent.
- 2 (7). Arista nearly bare.
- 3 (6). X.5² nearly straight.
- 4 (5). Large species, 7–8 mm. Abdomen not flattened. (2086. *buccata*, Fln.)
- 5 (4). Small species, 4 mm. Abdomen flattened. (2089. *arenosa*, Ztt.)
- 6 (3). X.5² bent. (2087. *unilineata*, Ztt.)
- 7 (2). Arista pubescent or short haired.
- 8 (9). Subanal process in the male small. (2088. *albescens*, Ztt.)
- 9 (8). Subanal process in the male lobular and large. 2094. *Chortophila trapezina*, Ztt. Harperley, 1 ♂, June, 1900.
- 10 (1). Forehead and face but slightly prominent.
- 11 (12). X-veins clouded. (2098. *longula*, Fln.)
- 12 (11). X-veins clear.
- 13 (16). Abdomen with a row of central somewhat triangular spots.

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- 14 (15). X.5² straight and upright. (2090. *striolata*, Fln.)
 15 (14). X.5² oblique. (2092. *cinerella*, Fln.)
 16 (13). Abdomen without a row of triangular spots.
 17 (20). Anal abdominal segment large and bent inwards.
 18 (19). Costa ciliated along its whole length with short
 spines. (2093. *curvicauda*, Ztt.)
 19 (18). Costa with a large costal spine and a few short hairs
 along the basal third.
 2095. *Chortophila sepia*, Mg.
 Bishop Auckland, 1 ♂, April, 1900.
- 20 (17). Abdomen long, conical, and pointed in both sexes.
 21 (22). Thorax striped. (2097. *sylvestris*, Fln.)
 22 (21). Thorax unstriped. (2096. *billbergi*, Ztt.)

471. PHORBIA, Dsv.

- 1 (2). Forehead and face very prominent; pale whitish grey
 species. (2089. *Chortophila arenosa*, Ztt.)
 2 (1). Forehead and face only slightly prominent.
 3 (17) (20). Thorax marked with three stripes.
 4 (5). Hind femora tufted with hair at the base beneath.
 2099. *Phorbia floccosa*, Mcq.
 Bishop Auckland, 2 ♂, May, 1900-02.
- 5 (4). Hind femora not tufted.
 6 (9) (16). Abdomen oblong.
 7 (8). Abdomen with a rather long interrupted central
 stripe. (2100. *transversalis*, Ztt.)
 8 (7). Abdomen with a slender continuous stripe.
 2102. *Phorbia pudica*, Rnd.
 Belburn, 1 ♂, May, 1900.
- 9 (6) (16). Abdomen narrow, flat, tapering.
 10 (13). Hind tibiæ with a row of short even bristles on the
 whole length of the inner side.
 11 (12). Mid metatarsi with long hairs on the upper side.
 2111. *Phorbia trichodactyla*, Rnd.
 Bishop Auckland, 1 ♂, May, 1902.

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- 12 (11). Mid metatarsi simple. (2110. *cilicrura*, Rnd.)
- 13 (10). Hind tibiæ without the long even row of bristles.
- 14 (15). Abdomen with a straight nearly continuous stripe and small subanal processes. (2112. *florilega*, Ztt.)
- 15 (14). Abdominal stripe consisting of small triangular spots. (2105. *seneciella*, Mde.)
- 16 (6) (9). Abdomen short and flat; legs dark brown. (2106. *intersecta*, Mg.)
- 17 (3) (20). Thorax with five stripes.
- 18 (19). Eyes of the male a little separate. (2101. *discreta*, Mg.)
- 19 (18). Eyes of the male touching. (2116. *neglecta*, Mde.)
- 20 (3) (17). Thorax indistinctly striped or unstriped.
- 21 (32) (33). Thorax black or dark brown.
- 22 (25). Antennæ very short.
- 23 (24). Costa and V.1. thick and dark. (*humerala*, Ztt.)
- 24 (23). Costa and V.1. normal; abdomen narrow and hairy.
- 24a (24b). Dark grey species; abdomen with a black central stripe and transverse bands. (2108. *muscaria*, Mg.)
- 24b (24a). Light grey species; central abdominal line disappearing in segments 3 and 4. (2113. *vetula*, Ztt.)
- 25 (22). Antennæ of moderate length.
- 26 (29). Wings blackish or brownish.
- 27 (28). Abdomen dark and indistinctly striped. (2104. *lactuæ*, Bouché.)
- 28 (27). Abdomen grey with a line of triangular spots. (2103. *dissecta*, Mg.)
- 29 (26). Wings yellow or pale brown.
- 30 (31). Hind tibiæ with the inner sides bare.
2114. *Phorbia ignota*.
Bishop Auckland, 8 ♂ and 1 ♀, March–May, 1902.
- 31 (30). Hind tibiæ with bristles on the inner side. (2117. *exigua*, Mde.)
- 32 (21) (33). Thorax with short white spot-like stripes. (2107. *obscura*, Mcq.)

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- 33 (21) (32). Thorax grey.
 34 (35). Abdomen with a central row of small triangular spots. (2115. *cepetorum*, Mde.)
 35 (34). Abdomen with a row of large subquadrangular spots. (*trapezoides*, Ztt.)

472. PEGOMYIA, Dsv.

- 1 (20). Abdomen wholly or chiefly black or grey.
 2 (10). It is a male.
 3 (4) (9). Legs all pale except the tarsi; palpi and antennæ black. (*setaria*, W.)
 4 (3) (9). Fore femora at least partly dark.
 5 (6). Palpi and antennæ black; abdomen grey with reflections, and two subanal black processes. (2121. *hæmorrhoum*, Ztt.)
 6 (5). Palpi yellow with black tips.
 7 (8). Antennæ all black; abdomen light grey with large reddish subanal appendages. (2119. *conformis*, Fln.)
 8 (7). Antennæ with the basal joints yellow; abdomen grey with a row of triangular spots; anal segment yellow. (*hyoscyami*, Pz.)
 9 (3) (4). All femora dark; antennæ black; palpi yellow with black tips; abdomen grey with row of black spots. (2118. *betæ*, Curt.)
 10 (2). It is a female.
 11 (16). Legs all pale except the tarsi.
 12 (13). Palpi and antennæ all black. (*setaria*, W.)
 13 (12). Palpi and antennæ yellow at the base, black at the tip.
 14 (15). Abdomen light grey and unmarked. (2119. *conformis*, Fln.)
 15 (14). Abdomen grey with a row of small black spots; anal segment yellowish. (*hyoscyami*, Pz.)
 16 (11). At least fore femora partly dark.
 17 (18) (19). Abdomen grey with the anal segments red or yellow. (2121. *hæmorrhoum*, Ztt.)

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- 18 (17) (19). Abdomen entirely grey. (2120. *palliceps*, Ztt.)
- 19 (17) (18). Abdomen grey with a row of small black triangular spots. (2118. *betæ*, Curt.)
- 20 (1). Abdomen red or yellow.
- 21 (34). Squamæ of moderate size, with the scales unequal; legs yellow, with black tarsi.
- 22 (33). Thorax principally black or grey.
- 23 (30). Scutellum black, or nearly black.
- 24 (25). Palpi black; abdomen oblong and thick.
2022. *Pegomyia rufipes*, Fln.
Bishop Auckland, 2 ♂ and 2 ♀, April–May, 1902.
- 25 (24). Palpi yellow; abdomen linear, and marked with black transverse lines.
- 26 (27). Abdomen cylindrical in the male, last three joints of mid and hind tarsi dilated in the female.
(2025. *latitarsis*, Ztt.)
- 27 (26). Abdomen narrow, depressed; female tarsi not dilated.
- 28 (29). Wings with the outer X-veins straight.
2023. *Pegomyia transversa*, Fln.
South Durham, 1 ♀.
- 29 (28). Wings with the outer X-veins sinuous. (*winthemi*, Mg.)
- 30 (23). Scutellum red or yellow.
- 31 (32). Palpi yellow with black tips. (2028. *fulgens*, Mg.)
- 32 (31). Palpi quite yellow. (2030. *ephippium*, Ztt.)
- 33 (22). Thorax pale. (2034. *silacea*, Mg.)
- 34 (21). Squamæ small with equal sized scales.
- 35 (48). Thorax more or less black or grey.
- 36 (42) (45). Palpi and scutellum black.
- 37 (41). Antennæ with all the joints black.
- 38 (39) (40). Eyes of the male touching; base of fore femora black. (2024. *transgressa*, Ztt.)
- 39 (38) (40). Eyes of the male slightly separated; fore femora all yellow. (2131. *versicolor*, Mg.)
- 40 (38) (39). Eyes remote in both sexes. (*rotundicornis*, Ztt.)
- 41 (37). Antennæ with the basal joints pale; upper side of fore femora grey. (2129. *exilis*, Mg.)

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- 42 (36) (45). Palpi yellow with black ends.
 43 (44). Scutellum partly or wholly yellow. (*tenera*, Ztt.)
 44 (43). Scutellum grey; upperside of fore femora grey.
 2127. *Pegomyia nigratarsis*, Ztt.
 Bishop Auckland, 4 ♂ and 5 ♀, May-June, 1900-01.
- 45 (36) (42). Palpi wholly yellow.
 46 (47). Abdomen cylindrical; scutellum grey; legs yellow with black tarsi; the male fore femora black.
 2126. *Pegomyia bicolor*, W.
 Bishop Auckland, 1 ♂ and 4 ♀, May-July, 1897-1901.
- 47 (46). Abdomen depressed; scutellum yellow; mid and hind femora with black rings.
 (2132. *flavipes*, Fln.)
- 48 (35). Thorax and abdomen yellow; mid and hind femora ringed.
 (2133. *vittigera*, Ztt.)

Sub-Family HOMALOMYINÆ.

474. HOMALOMYIA, Bouché.

Herr Stein's analytical tables of the European species.

Full descriptions of each species in his monograph of Homalomyia, Berliner Entomlog. Zeitschrift, 1895.

Males (Females, page 283).

- 1 (14). Legs all yellow, or at least the hind tibiæ translucent yellow.
 2 (7). Mid coxæ with a distinct thorn, pointing downwards.
 3 (4). Mid and hind femora yellow.
 2136. *Homalomyia hamata*, Mcq.
 Brancepeth, 1 ♀, June, 1902.
- 4 (3). Mid and hind femora black.
 5 (6). Mid tibiæ distinctly and abruptly thickened on the inner end-half. (*insignis*, Stein)
 6 (5). Mid tibiæ gradually thickened towards the end.
 (2137. *fuscula*, Fln.)
 7 (2). Mid coxæ without a thorn.

- 8 (11). Abdomen partly translucent yellow.
- 9 (10). Hind tibiæ remarkably bristly. (*ornata*, Mg.)
- 10 (9). Hind tibiæ with the usual bristles.
(2138. *pretiosa*, Schin.)
- 11 (8). Abdomen nowhere translucent yellow.
- 12 (13). Thorax black; abdomen with a rather distinct central stripe.
(2139. *pallitibia*, Rnd.)
- 13 (12). Thorax and abdomen uniform light grey, the latter usually unmarked. (*grisea*, Stein)
- 14 (1). Legs all black, at most the knees more or less yellow.
- 15 (22). Mid coxæ with a thorn.
- 16 (19). Fore tibiæ towards the end with a remarkable tuft of bristles.
- 17 (18). Mid tibiæ, inner side, second half suddenly enlarged, forming a thick tubercle.
2140. *Homalomyia manicata*, Mg.
Bishop Auckland, 2 ♂, May, 1900, April, 1902.
This species was breeding abundantly in the museum macerating tub along with *Scatopse notata* and another species of *Homalomyia* in the autumn of 1904.
- 18 (17). Mid tibiæ becoming gradually thicker.
(2141. *monilis*, Hal.)
- 19 (16). Fore tibiæ without unusual bristles.
- 20 (21). Whole length of the hind tibiæ remarkably shaggily haired.
(*ciliata*, Stein)
- 21 (20). Hind tibiæ not remarkably hairy.
2142. *Homalomyia scalaris*, F.
Common. Bishop Auckland, 8 ♂, May–October.
- 22 (15). Mid coxæ without a thorn.
- 23 (24). Abdomen shining black, unmarked; pubescence on the inner side of the mid tibiæ very thin and indistinct. (*stroblüi*, Stein)
- 24 (23). Abdomen otherwise coloured, or if shining black then the pubescence on the inner side of the mid tibiæ distinct and thick.

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- 25 (26). The second and third segments of the abdomen each with three black spots, the two side ones round, the middle one long. (*brevis*, Rnd.)
- 26 (25). Abdomen otherwise marked.
- 27 (32). Abdomen partly translucent yellow; when not so, then the mid tibiæ inner side with the pubescence scarcely visible.
- 28 (29). Hind femora under side near the tip with a tuft of long hairs. (*fasciculata*, Lw.)
- 29 (28). Hind femora without the tuft of hairs.
- 30 (31). Mid tibiæ inner side with very short pubescence; thorax rather pale brown.
2143. *Homalomyia canicularis*, L.
This is the very abundant small house fly, the commonest victim of the sticky fly-papers.
- 31 (30). Mid tibiæ inner side with longer pubescence; thorax blackish brown. (*difficilis*, Stein)
- 32 (27). Abdomen nowhere translucent; pubescence of the mid tibiæ distinct.
- 33 (44). Mid metatarsus inner side with a thorn at the base.
- 34 (35). Genitalia with a remarkable tuft of bristles pointing downwards. (*barbata*, Stein)
- 35 (34). Genitalia simple.
- 36 (37). Eyes remarkably hairy. (*hirticeps*, Stein)
- 37 (36). Eyes at most slightly pubescent.
- 38 (39). Whole length of hind tibiæ inner side long haired.
(2144. *armata*, Mg.)
- 39 (38). Inner side of hind tibiæ with only the usual bristles.
- 40 (41). Squamæ and halteres black; small species, 3-4 mm.
2145. *Homalomyia aërea*, Ztt.
Wynyard, 1 ♂, May, 1902.
- 41 (40). Squamæ and halteres lighter, at most brownish; mid sized species, $4\frac{1}{2}$ -5 mm.
- 42 (43). Eyes slightly separated; hind under side of hind femora quite bare. (*cothurnata*, Lw.)

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- 43 (42). Eyes touching; hind under side of hind femora with a row of long bristles before the tip; squamæ and halteres sometimes dark.
(2146. *umbrosa*, Stein)
- 44 (33). Mid metatarsus without a thorn.
- 45 (48). Mid tibiæ inner side with a distinct tubercle.
- 46 (47). Tubercle before the middle of the mid tibiæ.
(*tuberculata*, Ztt.)
- 47 (46). Tubercle beyond the middle.
2147. *Homalomyia coracina*, Lw.
Shull, 1 ♂, September, 1900.
- 48 (45). Mid tibiæ without a tubercle, at most the end somewhat thickened.
- 49 (50). Hind femora beneath immediately before the tip with an isolated tuft of hairs.
(2148. *kowarzii*, Verr.)
- 50 (49). Hind femora without any hair tuft.
- 51 (52). The last third of the mid tibiæ inner side distinctly, though not greatly thickened.
(2149. *verrallii*, Stein)
- 52 (51). The mid tibiæ quite straight on the inner side, or more than the last third slightly thickened.
- 53 (64). Squamæ rather small; scales of equal size.
- 54 (55). Hind tibiæ outer side without a præapical bristle.
(2151. *sociella*, Ztt.)
- 55 (54). Hind tibiæ with præapical bristle.
- 56 (57). Hind femora front under side from middle to tip with a row of long hairs, increasing in length towards the tip.
(2150. *postica*, Stein)
- 57 (56). Hind femora either quite bare at this place, or with two or three long bristles just before the tip.
- 58 (59). Squamæ entirely pale yellow; abdominal centre line only slightly triangularly thickened on each segment.
(2152. *similis*, Stein)
- 59 (58). Squamæ deep black, or at least brownish yellow; abdominal central spots triangular.
- 60 (61). Squamæ and halteres deep black. (*carbonella*, Stein)

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- 61 (60). At least the halteres brownish yellow.
- 62 (63). Last abdominal segment on the under side with two small black shining knobs; matt-black species.
(2153. *parva*, Stein)
- 63 (62). Last abdominal segment without these knobs; abdomen lead coloured, somewhat shining.
2154. *Homalomyia serena*, Flin.
Bishop Auckland, 3 ♂ and 1 ♀, May, 1900-02.
- 64 (53). The under scale of the squamæ distinctly protruding.
- 65 (70). Mid tibiæ front outer side with at least two bristles.
- 66 (67). Body blue-black, distinctly shining.
(2155. *corvina*, Verr.)
- 67 (66). Body otherwise coloured.
- 68 (69). Mid tibiæ front outer side with at least three bristles; palpi prominent.
(2156. *polychæta*, Stein)
- 69 (68). Mid tibiæ front outer side with only two bristles; palpi very small.
(*minutipalpis*, Stein)
- 70 (65). Mid tibiæ front outer side with only one bristle.
- 71 (80). The whole inner side of the mid tibiæ covered with very short, but thick and even pubescence.
- 72 (73). Genitalia remarkably large and strong.
(2157. *glaucescens*, Ztt.)
- 73 (72). Genitalia of the usual shape.
- 74 (75). Hind tibiæ somewhat remarkably bristled, in addition to the usual bristles; abdomen with central line and distinct cross bands.
(2158. *incisurata*, Ztt.)
- 75 (74). Hind tibiæ with only the usual bristles; abdominal segments without, or with very indistinct bands.
- 76 (77). Palpi much broadened in front, almost spoon-shaped, nearly the whole hind underside of the hind femora with a row of long hairs.
(*latipalpis*, Stein)
- 77 (76). Palpi not enlarged; hind femora at the above place short haired, and only long haired near the tip.
- 78 (79). The row of bristles on the hind underside of the mid femora composed of comparatively few bristles; pubescence on the inner side of the mid tibiæ exceedingly short.
canicularis, L. (2143 above)

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- 79 (78). The row of bristles on the hind underside of the mid femora composed of closely packed almost shaggy hairs ; pubescence of mid tibiæ distinct if short.
(*lineata*, Stein)
- 80 (71). Pubescence of mid tibiæ looser, and becoming longer towards the point.
- 81 (82). Outer foreside of hind tibiæ with a regular row of equally long little bristles. (2160. *mutica*, Ztt.)
- 82 (81). Hind tibiæ with only the usual bristles.
- 83 (84). Squamæ black ; halteres yellow ; knees not yellow.
(*atra*, Stein)
- 84 (83). Squamæ and halteres yellow ; knees rather widely yellow. (2161. *genualis*, Stein)

Homolomyia.—*Females*.

(Numbers which follow refer back to table of males).

- 1 (10). Legs entirely, or at least the hind tibiæ, translucent yellow.
- 2 (7). Femora and tibiæ almost entirely yellow.
- 3 (4). Scutellum for the most part, or wholly, orange.
(2138. *pretiosa*, Schin.)
- 4 (3). Scutellum all black or grey, at most the extreme point yellow.
- 5 (6). Fore tibiæ front inner side with a distinct bristle before the point. (*ornata*, Mg.)
- 6 (5). Fore tibiæ inner side without bristles.
hamata, Mcq. (2136)
- 7 (2). Femora black, or at least darker coloured.
- 8 (9). Hind tibiæ inner side with 3-4 bristles.
(2137. *fuscata*, Fln.)
- 9 (8). Hind tibiæ inner side with one bristle.
(2139. *pallitibia*, Rnd.) or (*grisea*, Stein)
- 10 (1). Legs entirely black, or at most the knees more or less yellow.
- 11 (22). Mid tibiæ inner side with a distinct bristle.
- 12 (13). Orbits shining black, without a sign of dusting.
(2155. *corvina*, Verr.)
- 13 (12). Orbits otherwise coloured.

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- 14 (17). Mid tibiæ outer front side with several bristles.
- 15 (16). Orbits in spite of the dusting very distinctly shining ;
mid tibiæ inner side with only one fine bristle.
(*nitida*, Stein)
- 16 (15). Orbits not shining ; mid tibiæ inner side with two
strong bristles. (2156. *polychæta*, Stein)
- 17 (14). Mid tibiæ outer front side with only one bristle.
- 18 (19). Legs entirely black ; hind tibiæ outer front side with
a row of equally long little bristles.
coracina, Lw. (2147)
- 19 (18). Knees more or less yellow.
- 20 (21). Fore tibiæ outer side with one fine bristle ; mid
femora beneath at the base with a remarkably
long hair-like bristle. (2161. *genualis*, Stein)
- 21 (20). Fore tibiæ without bristles ; mid femora without the
above bristle. (*tuberculata*, Ztt.)
- 22 (11). Mid tibiæ inner side without any bristle.
- 23 (34). Squamæ rather small ; scales of equal size.
- 24 (25). Eyes shortly but thickly and distinctly haired.
(*hirticeps*, Stein)
- 25 (24). Eyes bare, or at most pubescent.
- 26 (27). Orbits lead-grey, faintly but perceptibly shining.
serena, Fln. (2154)
- 27 (26). Orbits not in the least shining.
- 28 (31). All knees, especially the fore knees, distinctly yellow ;
mid sized species, $4\frac{1}{2}$ - $5\frac{1}{2}$ mm.
- 29 (30). Mid tibiæ outer front side with two bristles.
(2148. *kowarzii*, Verr.)
- 30 (29). Mid tibiæ outer front side with one bristle.
(2151. *sociella*, Ztt.) or (2152. *similis*, Stein)
- 31 (28). At most the fore knees indistinctly yellow ; smaller
species, 3-4 mm.
- 32 (33). Frontal stripe at its smallest place always somewhat
wider than the orbits ; mid femora beneath at the
base with a fine bristle ; dark grey species.
aërea, Ztt. (2145)
- 33 (32). Frontal stripe at its smallest place at most as wide as
the orbits ; mid femora beneath at the base without
bristles ; brown-grey species. (2153. *parva*, Stein)

- 34 (23). Squamæ with the under scale protruding.
- 35 (38). Abdomen translucent at the base; if not, then the dorsum more or less distinctly three-striped.
- 36 (37). Dorsum more or less distinctly striped; fore knees distinctly yellow. *canicularis*, L. (2143)
- 37 (36). Dorsum uniform grey; fore knees black. (*difficilis*, Stein)
- 38 (35). Abdomen nowhere translucent yellow; dorsum never three-striped.
- 39 (44). Mid tibiæ outer front side with at least two bristles.
- 40 (41). Hind tibiæ inner side with only one bristle; costal spine distinct. (*barbata*, Stein)
- 41 (40). Hind tibiæ inner side with several bristles; costal spine absent.
- 42 (43). Hind tibiæ inner side with usually three or four bristles; orbits not shining; fore orbital bristle nearer to the frontal stripe than to the eye margin; palpi normal. (2144. *armata*, Mg.)
- 43 (42). Hind tibiæ inner side with two fine bristles; orbits faintly but perceptibly shining; fore orbital bristle nearer the eye margin than the frontal stripe; palpi small. (*minutipalpis*, Stein)
- 44 (39). Mid tibiæ outer front side with only one bristle.
- 45 (46). Hind tibiæ inner side with only one bristle, the fore orbital bristle nearer the frontal stripe than the eye margin. (2157. *glaucescens*, Ztt.)
- 46 (45). Hind tibiæ inner side with several bristles; fore orbital bristle nearer to the eye margin than to the frontal stripe.
- 47 (48). Fore tibiæ outer side with only the præapical bristle; dorsum dark grey with very indistinct stripes. *manicata*, Mg. (2140)
- 48 (47). Fore tibiæ outer side with a bristle in addition to the præapical bristle.
- 49 (50). Mid femora beneath at the base with a remarkably long hair-like bristle. *scalaris*, F. (2142)
- 50 (49). Mid femora beneath at the base, without this bristle. *incisurata*, Ztt. (2158)

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476. AZELIA, Dsv.

1 (6). Halteres yellow; abdomen spotted.

2 (3) (4) (5). Hind tibiæ of the male with long hairs on both sides.

2163. *Azelia macquarti*, Stæg.

Bishop Auckland, 3 ♂ and 1 ♀, May, 1902.

3 (2) (4) (5). Hind tibiæ in the male with long hairs on the inner side only.

2164. *Azelia zetterstedti*, Rnd.

Hesleden, 1 ♂ and 1 ♀, August; Bishop Auckland,
1 ♂, May, 1900.

4 (2) (3) (5). Hind tibiæ in the male with long hairs on the outer sides only. (2165. *cilipes*, Hal.)

5 (2) (3) (4). Hind tibiæ in the male without long hairs.

2166. *Azelia triquetra*, W.

Stanhope, 1 ♂, May, 1900.

6 (1). Halteres black.

7 (8). Abdomen spotted. (2167. *gibbera*, Mg.)

8 (7). Abdomen unspotted.

2168. *Azelia aterrима*, Mg.

Bishop Auckland, 1 ♂, May, 1902.

477. CÆLOMYIA, Hal.

2169. *Cælomyia mollissima*, Hal.

Bedburn, 1 ♂, May, 1902.

Sub-Family CÆNOSINÆ.

478. CARICEA, Dsv.

1 (6). Abdomen spotted.

2 (3) (4) (5). All the tibiæ as well as the ends of the femora orange.

2170. *Caricea tigrina*, F.

Shull, 5 ♂ and 2 ♀, September, 1900.

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3 (2) (4) (5). The mid and hind tibiæ and the fore knees orange; fore tibiæ, except the base, dark.

2171. *Caricea exsul*, Ztt.

Redcar, 1 ♂, 7-6-02.

4 (2) (3) (5). The tibiæ only reddish. (2172. *humilis*, Mg.)

5 (2) (3) (4). Only the base of the fore tibiæ reddish.

(2172. *sexmaculata*, Mg.)

6 (1). Abdomen unspotted.

7 (8). Legs for the most part pale; large species, 5-7 mm.

2173. *Caricea intermedia*, Fln.

Bishop Auckland, Harperley, Shull, Bedburn, 5 ♂ and 1 ♀, June-July, 1902.

8 (7). Legs for the greater part black; smaller species, 4 mm. (2174. *means*, Mg.)

480. CENOSIA, Mg.

1 (6). Legs black.

2 (5). Abdomen spotted.

3 (4). Thorax with three more or less confluent stripes; three post-sutural bristles.

(2015. *Limnophora triangula*, Fln.)

4 (3). Thorax with one central stripe; four post-sutural bristles. (2007. *Spilogaster scrupulosa*, Ztt.)

5 (2). Abdomen unspotted; very small all black species, 2 mm.

479. ALLOGNOTA, Pok. (2175. *agromyzella*, Rnd.)

6 (1). Legs more or less yellow.

7 (15). Abdomen partly yellow.

8 (9). Palpi pale with dark tips; very small species, 2 mm.

(2176. *infantula*, Rnd.)

9 (8). Palpi quite pale.

10 (14). Abdomen with the basal segments entirely pale, without a grey central stripe; hind segments dark and spotted.

11 (12) (13). Antennæ with all the joints black or grey.

(2177. *elegantula*, Rnd.)

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12 (11) (13). Antennæ with all the joints pale.

(2178. *pallicornis*, Ztt.)

13 (11) (12). Antennæ with the basal joints reddish ; femora grey.

(2001. *Spilogaster ungulata*, Rnd.)

14 (10). Abdomen with the sides of the basal segments pale, but with a broad grey central stripe ; hind segments dark and spotted.

Cænosiâ tricolor, Ztt.

Bishop Auckland, Hesleden, 3 ♂ and 2 ♀, July-August, 1900.

15 (7). Abdomen grey.

16 (25). Abdomen spotted.

17 (22). Antennæ with all the joints black or grey.

18 (19). Mid and hind femora and all the tibiæ pale.

2179. *Cænosiâ sexnotata*, Mg.

Hesleden, 2 ♂ and 1 ♀, August, 1900 ; Waskerley, 1 ♂ ; Bishop Auckland, 1 ♂, July, 1901.

19 (18). Hind femora with the apex black.

20 (21). Tibiæ all pale. (2180. *genualis*, Rnd.)

21 (20). Mid and hind tibiæ more or less darkened.

(2181. *geniculata*, Fln.)

22 (17). Antennæ with the basal joints rufous.

23 (24). Wings clear. (2182. *verna*, F.)

24 (23). Wings partly nigrescent. (2184. *costata*, Mg.)

25 (16). Abdomen unspotted. (2183. *pedella*, Ztt.)

480½. LISPOREPHELA.

Lisporephela alma, Mg.

Escomb, 1 ♂, April, 1898. This is an addition to the British list. The identification is Herr Stein's.

483. LISPE, Ltr.

1 (6). Palpi pale.

2 (3). Tibiæ black. (2187. *tentaculata*, Deg.)

3 (2). Tibiæ yellow.

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- 4 (5). Abdomen with dark tessellations.
(2191. *uliginosa*, Fln.)
- 5 (4). Abdomen with white spots. (2192. *pulchella*, Lw.)
- 6 (1). Palpi black, or with the extremity only white.
- 7 (8). Hind metatarsus of male thick, and scarcely longer than the second tarsal joint.
(2190. *crassiuscula*, Lw.)
- 8 (7). Hind metatarsus of male not much thickened, and more than twice as long as the next joint.
(2188. *litorea*, Fln.)

484. FUCELLIA, Dsv.

- 1 (4). Legs entirely black.
- 2 (3). Costa spined ; setula large and distinct.
2193. *Fucellia fucorum*, Fln.
Abundant on the shore about high-water mark.
- 3 (2). Costa without spines ; setula absent.
(2195. *muscaria*, Ztt.)
- 4 (1). Legs with the tibiæ pale or brownish ; costal spines few and small ; setula present.
2194. *Fucellia maritima*, Hal.
Hesleden shore, 2 ♂ and 4 ♀, June–August, 1900.

FAMILY XXXIV.—CORDYLURIDÆ.

As this family seems to be specially strongly represented in the north of Europe, we have probably many more species than those as yet recorded for Britain. The following tables are taken chiefly from Th. Becker's Scatomyzidæ, which is almost the same as Cordyluridæ in Verrall's list, but contains in addition a number of Continental genera and species not yet recorded in this country. Those who read German should get Becker's monograph, published in the Berlin Entomological Journal for 1894, but which can be had separately from W. Junk.

TABLE OF GENERA.

- 1 (38). Prothoracic bristle, and generally also the stigmatal bristle distinctly present, seldom only represented by fine hairs or absent, in which case the dorsum is also almost without bristles, though with short stubby hairs. 1-3 sternopleural bristles present; 1-5 dorso-central bristles; 2-4 scutellar bristles; wings generally short, and rounded off in front.
- 2 (35). Under side of the fore femora and tibiæ with, at most, a single row of bristles.
- 3 (31). Face long; palpi slender (filiform), with or without long end bristles, seldom much widened; antennæ of varying length and breadth; arista plumose to bare; mostly very bristly species.

Sub-Family I.—CORDYLURINÆ.

- 4 (28). Palpi small, filiform.
- 5 (12). Palpi with one long end bristle; only one sternopleural bristle.
- 6 (11). Third antennal joint short, the second extending more or less cap-like over the third.
- 7 (10). Arista plumose, short haired, or strongly pubescent; costa strongly ciliated; V.3. straight or only slightly bent.
- 8 (9). Arista much thickened at the base, becoming suddenly thinner, plumose to the middle, rarely pubescent; femora and tibiæ strongly bristled; five dorso-central bristles; face narrowed at the antennæ; black species, seldom yellow, shining and but slightly dusted. CORDYLURA, Flin. (485)
- 9 (8). Arista very thin, and scarcely thickened at the base, from shortly and thinly haired to long haired; femora and tibiæ very slender and long, only slightly bristled; only from one to three distinct dorso-central bristles, seldom five; face and frons nearly of equal breadth; yellow and black coloured species. PARALLELOMMA, Beck. (486)

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- 10 (7). Arista bare; costa only slightly haired; V.3. distinctly bent at X.4. SCOLIAPHLEPS, Beck. (*ustulata*, Ztt., with four scutellar bristles, and *melanacra*, Lw., with six scutellar bristles).
- 11 (6). Third antennal joint as long as the face; second joint not cap-like over the third; arista not thickened at the base, long, thinly and short haired to the tip; shining black species.

PHROSIA, Dsv. (*albilabris*, F.)

- 12 (5). Palpi without a long end bristle; from one to three sternopleural bristles.
- 13 (20) (23). Three sternopleural bristles.
- 14 (17). Arista of the male distinctly bent over, kneed.
- 15 (16). Third antennal joint long and thin with rounded upper corner; arista fine haired; two scutellar bristles; black shining very bristly species.

487. CNEMOPOGON, Rnd. (2206. *apicalis*, Mg.)

- 16 (15). Third antennal joint long and broad with pointed upper corner; arista short and bare; four scutellar bristles; dark grey bristly species, not shining. GONARCTICUS, Beck. (*antennatus*, Ztt., with oval eyes and a grey abdomen, *abdominalis*, Ztt., with quite round eyes and a yellow abdomen).
- 17 (14). In neither sex is the arista bent.
- 18 (19). Arista distinctly haired; five dorso-central and four scutellar bristles; mouth bristles distinct; hind tibiæ with three pairs of bristles on the outer side; mid sized species, thickly dusted with light grey.

ORTHACHETA, Beck. (*pilosa*, Ztt.)

- 19 (18). Arista bare; antennæ long; third joint usually with a sharp upper corner; five dorso-central and two scutellar bristles; mouth bristles distinct; hind tibiæ with two pairs of bristles on the outside; slender blackish species, more or less dusted.

AMAUROSOMA, Beck. (489)

- 20 (13) (23). Two sternopleural bristles.

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- 21 (22). Antennæ as long as the face; third joint with a sharp upper corner; arista kneed in both sexes; five dorso-central bristles (two præ- and three post-sutural) and four scutellar; hind tibiæ with three pairs of outer bristles; small species, grey dusted.

GONATHERUS, Rnd. (*planiceps*, Fln.)

- 22 (21). Antennæ as long as the face; third joint strongly pubescent and rounded at its upper corner; four dorso-central (two prae- and two post-sutural) and two scutellar bristles; hind tibiæ with two pairs of outer bristles; very slender shining black species.

HEXAMITOCERA, Beck. (*loxocerata*, Ztt.)

- 23 (13) (20). Only one sternopleural bristle.

- 24 (25). Eyes nearly twice as long (deep) as broad, concave behind; frons convex in profile; antennæ short; mouth and jowls each with a tuft of four or five black bristles, which are directed almost straight downwards; pale yellow species.

488. LEPTOPA, Ztt. (2207. *filiformis*, Ztt.)

- 25 (24). Eyes nearly as broad as long (deep); antennæ as long as the face; mouth with only a single forward directed strong bristle on each side.

- 26 (27). Third antennal joint broad; frons convex in profile; arista distinctly haired; five dorso-central bristles; mid sized shining yellow species. MEGAPHTHALMA, Beck. (*pallida*, Fln., with two scutellar and a stigmatal bristle, and four thoracic stripes so run together as to make them appear nearly all brown; *unilineata*, Ztt., with no stigmatal bristle and four scutellar bristles, and a single brown stripe on the dorsum).

- 27 (26). Third antennal joint very long and thin; frons flat; arista bare; four dorso-central bristles; slender shining black species.

MICROPSELAPHA, Beck. (*filiformis*, Ztt.)

- 28 (4). Palpi long, broad, leaf-like.

29 (30). Eyes round; antennæ long, rounded in front; palpi of the usual length, dilated in front, spatulate; abdomen very short.

SPATHEPHILUS, Beck. (*breviventris*, Lw.)

30 (29). Eyes rather long; antennæ with sharp upper corner; palpi dilated through their whole length; abdomen not unusually short.

PSELAPHEPHILA, Beck. (*loewi*, Beck.)

31 (3). Face short; palpi small, filiform, never with long hairs or bristles; antennæ short; arista bare, or at most pubescent.

Sub-Family V.—CLIDOGASTRINÆ.

32 (33) (34). Five dorso-central bristles, two humeral, two to three sternopleural, one stigmatical bristle.

CLIDOGASTRA, Mcq. (499)

33 (32) (34). Two to three dorso-central bristles, one humeral, one sternopleural, no stigmatical.

GYMNOMERA, Rnd. (500)

34 (32) (33). One pair dorso-central (præscutellar) bristles, no humeral or an extremely weak one, but there is a row of short thickly set black hairs on the fore side of the humerus which is characteristic of this genus; one sternopleural, and no stigmatical bristle.

COCHLIARIUM, Beck. (500½)

35 (2). Underside of the fore femora with a double row of bristles, of the fore tibiæ with a single or double row.

Sub-Family II.—NORELLINÆ.

36 (37). Five dorso-central (some of them sometimes rather weak), and a humeral bristle present; the dorsum on the whole well supplied with bristles.

NORELLIA, Dsv. (490)

37 (36). Only one or two pair of dorso-central bristles and no humeral bristle; the dorsum on the whole very poorly supplied with bristles.

ACHANTHOLENA, Rnd. (*spinipes*, Mg.)

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- 38 (1). Prothoracic and stigmatal bristles absent, seldom represented by fine hairs. Only one sternopleural bristle, which is wanting in one genus, and there replaced by long fine hairs. Five dorso-central bristles, if fewer than the palpi broad. At least four scutellar bristles. Wings long, seldom short; if comparatively short then the abdomen unusually long.
- 39 (64). Head broad; palpi broad, spoon-shaped in front, or altogether broad and leaf-like.

Sub-Family III.—HYDROMYZINÆ.

- 40 (41). Eyes and head from vertex to jowls longer than broad; only one pair of dorso-central bristles (præ-scutellar); jowls broad; proboscis thick, short; mouth with short bristles; antennæ short, rounded in front; abdomen flat; hypopygium only slightly protruding; V.3. and V.4. converging a little; large bare species with grey dusting.

491. HYDROMYZA, Flin. (2213. *livens*, F.)

- 41 (40). Eyes and head round; five dorso-central bristles.
- 42 (43). Sternopleuræ without bristles, only haired; wings with round brown spots, which have dark central dots. ERNONEURA, Beck. (*argus*, Ztt.)
- 43 (42). One sternopleural bristle; wings not spotted.
- 44 (45). Inner side of the fore tibiæ at the tip with a short porrected (horizontally extended) thorn in addition to the usual end bristles.

ACANTHOCNEMA, Beck. (*nigrimana*, Ztt., *glaucescens*, Lw., *latipennis*, Beck.)

- 45 (44). Inner tip of fore tibiæ without this thorn.
- 46 (51). Genitalia of the male with long tufts of hair.
- 47 (50). Third antennal joint rather long with sharp upper corner; mouth with numerous crowded bristles.
- 48 (49). Dorsum long; jowls very long-haired; on either side of the male genitalia, closely approximated skein-like tufts of long orange hairs; wings of the male with two additional X-veins.

492. POGONOTA, Ztt. (2214. *hircus*, Ztt.)

- 49 (48). Dorsum short; jowls almost bare; male genitalia with two large oval lamellæ, whose margin bears long frizzled bristles which stand up over the back of the abdomen; wings with the usual X-veins. OKENIA, Ztt. (*caudata*, Ztt., with V.3. and V.4. bent but parallel, and *dasyprocta*, Lw., with V.3. and V.4. distinctly diverging).
- 50 (47). Third antennal joint short, rounded in front; mouth with two distant bristles; femora thick in the middle; fore and hind femora bent; anal lamellæ of the male with short downward directed hair-tufts; third abdominal segment longer than the rest. BOSTRICHOPYGA, Beck. (*crassipes*, Ztt.)
- 51 (46). Genitalia of the male without long hair-tufts.
- 52 (53). V.4. near the margin bent up to V.3., and touching it at the wing tip.
LASIOSCELLUS, Beck. (*clavatus*, Ztt.)
So Becker; but Zetterstedt says "♂ ♀ nervis longitudinalibus 3 et 4 summo apice levissime subconvergentibus."
- 53 (52). V.4. parallel to V.3., or nearly so.
- 54 (57). Very long bodied species; abdomen extending far beyond the tip of the hind femora.
- 55 (56). Mid and hind femora of the male much thickened mid tibiæ with four long black bristles; V.3. and V.4. parallel but much bent downward, and V.3. ending below or beyond the wing tip; abdomen flat, with lamellæ beneath the fourth segment and a short hair tuft at the anus.
STÆGERIA, Rnd. (*kunzei*, Ztt.)
- 56 (55). Legs, including the femora, long and thin; V.3. and V.4. almost straight, diverging in the male, parallel in the female; fore femora and fore tibiæ with teeth; male abdomen somewhat thickened at the end, in the female with a shining black sheath, hooked and pointing up; each side of the mouth with a pair of distant bristles.
COSMETOPUS, Beck. (*dentimanus*, Ztt.)

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- 57 (54). Shorter built species, not unusually long bodied; abdomen not extending much beyond the tip of the hind femora.
- 58 (59). Third antennal joint rounded in front; mouth with one strong bristle on each side.
MICROPROSOPA, Beck. (493)
- 59 (58). Third antennal joint with a sharp upper corner.
- 60 (63). Acrostichal bristles in two rows; dorsum and legs thinly and not long haired.
- 61 (62). Antennæ small with very sharp points; jowls not broad; two bristles on each side of the mouth; arista normal, only thickened at the base; small, short, grey dusted species. TRICHOPALPUS, Rnd. (494)
- 62 (61). Antennæ large and broad, rounded in front; jowls broad; only one bristle on each side of the mouth; arista thickened almost to the tip. ACEROCNEMA, Beck. (*breviseta*, Ztt., with a grey dorsum and two dark lines, grey orbits, short haired abdomen, and bristly legs; *tiefi*, Beck., with a shining black dorsum, black orbits, shorter haired abdomen and legs not bristly; and both of them with a bare arista, and palpi very broad at the ends; *pokornii*, Beck., with the palpi more dilated throughout, and the arista distinctly haired).
- 63 (60). Acrostichal bristles in several irregular rows; dorsum and legs strongly haired; mouth bristles numerous; abdomen flat; genitalia not much protruding; femora strong, finely haired and weakly bristled; jowls broad. SPATHIOPHORA, Rnd. (495)
- 64 (39). Head round, not specially broad; palpi filiform, seldom strap-shaped.

Sub-Family IV.—SCATOPHAGINÆ.

- 65 (66). Abdomen in the male cylindrical, and with erect, usually thickly set hairs, the end not much bent inwards, and the segments without marginal bristles; flat, with short depressed hairs and with marginal bristles in the female. SCATOPHAGA, Mg. (496)

- 66 (65). Abdomen flat and much bent inwards, the segments standing out like steps, with short soft hair and fine marginal bristles. CONIOSTERNUM, Beck. (498)

TABLES OF SPECIES.

485. CORDYLURA, Fln.

- 1 (22). Four scutellar bristles.
 2 (3). Palpi yellow. (*picticornis*, Lw., ♀)
 3 (2). Palpi black.
 4 (13). All tibiæ and tarsi orange.
 5 (6). Shining black species without dusting; third antennal joint black with rounded end; frons pale red; wings yellow base. (*rubifrontata*, Beck., ♀)
 6 (5). Species more or less distinctly dusted.
 7 (8). Tarsi spotted with black on the under side; strongly dusted species. (2198. *pubera*, F.)
 8 (7). Tarsi on the under side not spotted with black.
 9 (10). Third antennal joint with rounded upper corner; arista rather short haired; femora with long white hairs on the under side; wings distinctly yellow; V.3. and V.4. diverging. (*socialis*, Beck.)
 10 (9). Third antennal joint with a sharp upper corner.
 11 (12). Arista distinctly long haired. (2196. *judica*, Mg.)
 12 (11). Arista almost bare. (*flavovenosa*, Beck., ♀)
 13 (4). Tibiæ either entirely or mostly black.
 14 (19). Tibiæ all black.
 15 (16). Fore femora and tibiæ in both sexes without long white hairs; a small species with distinct light grey dusting, with rather brown wings, and six supra-alar bristles. (*atrata*, Ztt.)
 16 (15). Under side of the fore femora and tibiæ of the male with long white to black hairs.
 17 (18). Large shining black species, without the little acrostichal bristles; third antennal joint rounded in front; frons black; abdomen with short depressed hairs and long bristles. (2199. *ciliata*, Mg.)

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- 18 (17). Large grey dusted species, with the little acrostichal bristles long; third antennal joint with a sharp upper corner; arista very shortly plumose; abdomen with long black erect hairs.
(*proboscidea*, Ztt.)
- 19 (14). Tibiæ only partly black.
- 20 (21). Thorax distinctly dusted; frons red-brown; femora black, except at the tip; fore and mid tibiæ orange; hind tibiæ dark brown; tarsi orange; wings at the base and at the fore margin somewhat browned.
(2197. *rufimana*, Mg.)
- 21 (20). Thorax only slightly dusted; frons black, scarcely red over the antennæ; femora black, only the base and tip of the tibiæ orange; tarsi reddish brown; lamellæ of the male strongly bristly; wings at the base and fore margin distinctly brown.
(*aberrans*, Beck.)
- 22 (1). Two scutellar bristles.
- 23 (26). Species with the thorax and abdomen entirely black.
- 24 (25). Tip of the wing in the male distinctly clouded. The under side of the hind femora with fine long black ciliation, tibiæ and tarsi entirely orange.
(2200. *umbrosa*, Lw.)
- 25 (24). Tip of the wing not clouded; hind femora without long ciliation; tibiæ black, base and tip red-brown; tarsi black, the last joint red-brown.
(2201. *biseta*, Lw.)
- 26 (23). The whole body shining yellow with clear yellow wings.
(*unicolor*, Lw., ♀)

486. PARALLELOMMA, Beck.

- 1 (6). Arista long haired to the middle.
- 2 (3) (4) (5). Thorax yellow below, black above, occasionally the pleuræ blackish; abdomen black, somewhat grey-dusted; hypopygium yellow; lamellæ yellow with black tips, or all black.
(*dispar*, Ztt., ♂)

- 3 (2) (4) (5). Dorsum, pleuræ, and abdomen shining yellow, sometimes the dorsum black streaked; margins of the abdominal segments and the triangular ovipositor black; abdomen with white hairs in front and black behind. (*dispar*, Ztt., ♀)
- 4 (2) (3) (5). Dorsum entirely black, or at least with two black stripes; pleuræ yellow without a black stripe; abdomen black to black-brown, not dusted, black haired; male lamellæ all yellow; antennæ and all the tibiæ entirely yellow.
2204. *Parallelomma albipes*, Fln.
Bedburn, 1 ♀, July, 1902.
- 5 (2) (3) (4). Dorsum entirely black; pleuræ yellow with a black horizontal stripe under the wings; hind tibiæ and the tip of the third joint of the antennæ black-brown. (*fuscitibia*, Rnd., ♀)
- 6 (1). Arista evenly and shortly and thinly haired.
- 7 (8). Thorax with fine bristles; pleuræ with a black stripe below the wings; legs and feet very slender, pale yellow, without prominent bristles.
(2205. *vittata*, Mg.)
- 8 (7). Thorax normally bristled; no black stripe below the wings; legs distinctly bristled, and not specially slender. (*media*, Beck., ♀)

489. AMAUROSOMA, Beck.

- 1 (16). Legs yellow, at most the tarsi darkened, and the fore femora with a dark stripe on the upper side.
- 2 (9). Dorsum slightly dusted with two shining stripes; scutellum somewhat shining.
- 3 (4). Fore femora on the inner side with 8-10 bristles which point forward. (*puberula*, Beck., ♂)
- 4 (3). Fore femora not bristled on the inner side.
- 5 (6). Pleuræ shining black. (*brevifrons*, Ztt.)
- 6 (5). Pleuræ not shining, dusted blackish grey.

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- 7 (8). Blue-grey dusted species with distinct middle stripes on the dorsum; frons entirely orange; femora strongly bristled. (*nigriventris*, Lw., ♀)
- 8 (7). Yellow-grey to grey dusted species, with indistinct middle stripes; frons yellow in front, blackish behind; femora weakly bristled. (*longicornis*, Rossi., ♀)
- 9 (2). Dorsum and scutellum entirely matt-dusted, without shining middle stripes.
- 10 (13). Fore femora with a black stripe on the upper side.
- 11 (12). Arista thick to the middle, and gradually thinning; frons all orange, or shading into the dark vertex; large species. (*flavipes*, Fln.)
- 12 (11). Only the first third of the arista thick, then suddenly thinning; frons nearly black, with a sharply bounded red spot in front; small species. (*minuta*, Beck., ♂)
- 13 (10). Fore femora without a dark stripe.
- 14 (15). Frons black, much protruding, with only a narrow orange stripe over the antennæ. (*articulata*, Beck., ♂)
- 15 (14). Frons yellow, little protruding, only darkened on the vertex. (*leucostoma*, Ztt.)
- 16 (1). Legs with at least the femora black.
- 17 (18). Third antennal joint almost rectangularly cut short, under corner not rounded, upper corner not sharp. (*nigripes*, Ztt.)
- 18 (17). Front of the third antennal joint with a sharp upper and a rounded under corner.
- 19 (26). All femora, or at least the hind femora, with the extreme base orange.
- 20 (23). Fore femora on the inner side with stiff bristles, which point forward.
- 21 (22). Fore femora on the inner side with a tuft of from 15-24 bristles. (2208. *fasciata*, Mg.)
- 22 (21). Fore femora inner side with only 4-5 bristles. (*cinerella*, Ztt.)

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- 23 (20). Fore femora without the stiff bristles on the inner side.
- 24 (25). The extreme base of the hind femora, the tip quarter of all femora, all tibiæ, and the fore and mid metatarsi yellow. (*mesurata*, Beck., ♂)
- 25 (24). Femora black except the extreme base and tip; tibiæ and tarsi all orange except the end joints of the tarsi and the tip of the hind tibiæ in the female. (*inermis*, Beck.)
- 26 (19). The extreme base of all femora black; inner side of the fore femora with black bristles.
- 27 (28). Mid and hind legs all black. (*nigrifrontata*, Beck.)
- 28 (27). Mid and hind legs not all black, at least the tibiæ orange or red-brown.
- 29 (30). Femora broadly orange at their tips. (*armillata*, Ztt.)
- 30 (29). Femora only orange at their extreme tips.
- 31 (32). Frons protruding; arista but little thickened, kneed; fore tibiæ orange. (*nutans*, Beck., ♂)
- 32 (31). Frons not protruding; basal half of arista much thickened, not kneed; all tibiæ orange.
2209. *Amaurosoma tibiella*, Ztt.
Bishop Auckland, 1 ♂, May, 1901.

490. NORELLIA, Dsv.

- 1 (14). Arista plumose.
- 2 (3). Femora black; small grey-brown species without dorsal stripes; tip of the wing slightly clouded. (*femoralis*, Lw.)
- 3 (2). Femora all orange, or at most with dark dashes.
- 4 (9). Dorsum chiefly grey or grey-brown dusted.
- 5 (6). Veins of the wing thick and bordered with brown; four distinct dorso-central bristles; anus of the male yellow and black; lamellæ always black. (*nervosa*, Mg.)
- 6 (5). Veins of the usual strength, not dark brown and not brown bordered; five dorso-central bristles.

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- 7 (8). Abdomen strongly orange dusted; anus of the male orange; dorsum with two dark lines; no stripe on the hind femora. (*armipes*, Mg.)
- 8 (7). Abdomen somewhat grey dusted; dorsum unstriped hind femora with a sharply bounded black stripe on the upper side. (*striolata*, Mg.)
- 9 (4). Dorsum orange, sometimes with black stripes.
- 10 (13). Dorsum striped.
- 11 (12). Dorsum with two very broad central stripes and two side stripes; dorso-central bristles 3-4; wings clouded at the tip. (*alpestris*, Schin.)
- 12 (11). Dorsum with two very narrow central stripes; dorso-central bristles five; tip of the wing not clouded.
2210. *Norellia spinimana*, Flin.
Hesleden, 2 ♂, 3 ♀, August, 1900; Wearhead, 1 ♂, August, 1901.
- 13 (10). Dorsum unstriped; mid femora and mid tibiæ with unusually long white hairs. (2210. *flavicauda*, Mg.)
- 14 (1). Arista slightly pubescent.
- 15 (16) (17). Thorax and abdomen blackish with brown-grey dusting; face white; frons and antennæ and legs orange; fore apical region of the wing clouded. (2211. *liturata*, Mg.)
- 16 (15) (17). Thorax and scutellum blue-grey dusted; abdomen shining black; head, proboscis, palpi, antennæ, and legs light yellow; wings and veins yellowish. (2212. *spinigera*, Ztt.)
- 17 (15) (16). Thorax and abdomen mouse coloured; humeri and tip of scutellum yellowish; head, antennæ, palpi, proboscis, and legs yellow; wings yellowish. (*lesgia*, Beck.)

493. MICROPROSOPA, Beck.

- 1 (2) (3). Abdomen shining yellow. (2216. *heteromyzina*, Ztt.)
- 2 (1) (3). Abdomen brown with black hairs. (*frontata*, Ztt., ♀)

- 3 (1) (2). Abdomen black, grey dusted.
 4 (7). Palpi black, or black at the tip.
 5 (6). Antennæ black. (*strigifrons*, Ztt., ♀)
 6 (5). Antennæ orange; third joint darkened at the tip.
 (*fulvipes*, Ztt., ♀)
 7 (4). Palpi entirely yellow.
 8 (9) (12). Legs entirely black. (*obscura*, Ztt.)
 9 (8) (12). Legs only partly black.
 10 (11). Legs orange, femora till near the tip black-brown;
 bristles of the head and thorax black.
 (*albipennis*, Ztt.)
 11 (10). Legs shining orange, upper side of fore femora with
 a brown stripe, upper side of hind femora dark at
 the base; bristles of the head and thorax pale
 yellow. (*lineata*, Ztt.)
 12 (8) (9). Legs entirely yellow.
 13 (14). Face, cheeks, and jowls of the male partly black;
 face of the female yellow; palpi but little broadened;
 antennæ black with the second joint grey dusted;
 small species.
 (2215. *hæmorrhoidalis*, Mg.=*pallipes*, Ztt.)
 14 (13). Face, cheeks, and jowls of both sexes yellowish;
 palpi considerably broadened at the end; antennæ
 entirely black; large or middle sized species.
 (*pallicauda*, Ztt.)

494. TRICHOPALPUS, Rnd.

- 1 (2). Antennæ dark brown in both sexes; third joint red at
 the base; femora mostly dark grey.
 (2217. *fraternus*, Mg.)
 2 (1). Antennæ all orange in the male, partly brown in the
 female; femora all orange. (2218. *punctipes*, Mg.)

495. SPATHIOPHORA, Rnd.

- 1 (2). Femora nearly entirely grey, at most orange at the
 tip and base. (2219. *hydromyzina*, Fln.)
 2 (1). Femora orange with brown rings, whose breadth is
 one-third of the fore femora, one quarter of the
 mid, and one half of the hind femora, so that at
 least the tip half is orange. (*fascipes*, Beck.)

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496. SCATOPHAGA, Mg.

- 1 (33). Antennæ distinctly plumose.
- 2 (24). Third antennal joint red-brown or orange.
- 3 (4). V.3. and V.4. distinctly converging; antennæ and legs orange. (2220. *scybalaria*, L.)
- 4 (3). V.3. and V.4. parallel.
- 5 (14). Upper side of the femora with a dark stripe, at least the fore femora.
- 6 (9). Hind femora without rows of bristles.
- 7 (8). Fore and mid femora, and generally also the hind femora, with a distinct stripe on the outer side; tip of the hind femora with only one bristle. (2221. *tæniopa*, Rnd., ♂)
- 8 (7). Fore femora only with a brown stripe; seldom the mid femora with a brown streak; generally two distinct bristles at the tip of the hind femora. (2226. *ordinata*, Beck., ♂)
- 9 (6). Hind femora with rows of bristles.
- 10 (11). The fore and mid femora always, and often also the hind femora, distinctly striped. (2221. *tæniopa*, Rnd., ♀)
- 11 (10). Only the fore femora with a dark stripe; seldom the mid femora with a dark streak.
- 12 (13). Yellowish grey species with fine pale-brown dorsal stripes; acrostichal bristles more than two-rowed, indistinctly arranged; hind femora with a row of about eight bristles. (2226. *ordinata*, Beck., ♀)
- 13 (12). Yellowish brown species, partly blue-grey dusted; dorsal stripes dark brown; acrostichal bristles in both sexes distinctly two rowed; hind femora with a row of 4-5 bristles. (2225. *maculipes*, Ztt.)
- 14 (5). Femora without dark stripes.
- 15 (18). Hind femora without rows of bristles.
- 16 (17). X.4. and X.5² distinctly clouded. (2222. *suilla*, F., ♂)
- 17 (16). X-veins not clouded. (*scatomyzoides*, Ztt., ♂)
- 18 (15). Hind femora with rows of bristles.

19 (20) (21). Both X-veins distinctly clouded. (*suilla*, F., ♀)

20 (19) (21). Only X.4. clouded; antennæ orange with the upper edge and tip brown; abdomen of the male mostly all yellow and chiefly yellow haired; little slender species. (2227. *analis*, Mg.)

21 (19) (20). Neither X.4. nor X.5² clouded.

22 (23). Humeri and scutellum of the same colour as the thorax; abdomen of the male yellow at the tip and long brown haired, of the female yellow with black incisions; a little dark brown-grey species, sometimes with bluish grey dusting.

2224. *Scatophaga inquinata*, Mg.

Bishop Auckland, 3 ♂ and 3 ♀, May-July, 1900.

23 (22). Humeri yellow; scutellum always in the male, and generally in the female yellow; femora very strong; wings bright orange at the base; large species, generally yellow-grey dusted.

2228. *Scatophaga lutaria*, F.

Common everywhere.

24 (2). Third antennal joint black.

25 (28). Hind tibiæ with from 11-13 bristles on the outer side; X.4. distinctly clouded.

26 (27). Hairs of the legs and abdomen in the male pale yellow, and not very long; acrostichal bristles distinctly two-rowed; face in both sexes dirty yellow; wings evenly coloured dirty yellow-brown.

2229. *Scatophaga merdaria*, F.

Common.

27 (26). Hairs of the legs and abdomen of the male long and woolly, and generally golden yellow; acrostichal bristles in the male more than two-rowed; head in both sexes orange or golden yellow; wings with the base and fore margin bright orange.

Mr. Verrall considers this and the foregoing (*merdaria*, F.) to be the same species.

2229. *Scatophaga stercoraria*, L.

Very common everywhere.

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- 28 (25). Hind tibiæ with only 5-6 bristles; X.4. not clouded.
- 29 (30). Legs all black; hind femora dusted, matt.
(*oceanæ*, Mcq.)
- 30 (29). Legs not all black; hind femora shining.
- 31 (32). The tip third of all femora orange in the male, in the female all the femora orange, with a stripe on the upper side; frons purple-red, with, in the male, a black band above the antennæ; base of the wing strongly yellow. (*lurida*, Schin.)
- 32 (31). Femora orange with stripes in both sexes; frons in both sexes bright yellow without any band; wing base not brightly coloured. (*cineraria*, Mg.)
- 33 (1). Arista bare, or nearly so.
- 34 (42a). X-veins darker than the other veins and clouded, at least X.4.
- 35 (38). Third antennal joint black.
- 36 (37). Thorax and legs with long soft hairs; femora without bristles; acrostichal bristles irregular, long and fine; palpi broadly black-brown; X.4. distinctly clouded. (*mollis*, Beck.)
- 37 (36). Thorax and legs only sparingly clothed with fine hairs; femora with bristles; acrostichal bristles two-rowed, very short and fine; palpi orange; X.4. darker than the other veins, but not clouded.
(2238. *decipiens*, Hal.)
- 38 (35). Third antennal joint orange or red brown.
- 39 (42). Both X-veins distinctly clouded; scutellum yellowish brown to yellowish grey dusted of the same colour as the dorsum.
- 40 (41). Legs yellow with a black streak on the fore femora.
2230. *Scatophaga squalida*, Mg.
Belburn, 1 ♂, Bishop Auckland, 1 ♂ and 4 ♀, Stanhope, 1 ♂, Harperley, 3 ♀, Gibside, 1 ♀, April-June, 1900-01.
- 41 (40). Base of the fore and mid femora black.
(2235. *arrogans*, Hal.)

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- 42 (39). Only X.4. clouded; scutellum yellow; thorax grey; legs yellow; tip of the fore and mid tibiæ and the four last joints of the fore and mid tarsi as well as the last joints of the hind tarsi black-brown.
(*lateralis*, Mg.)
- 42a (34). X-veins not clouded.
- 43 (46). Hind tibiæ without bristles on the outer side.
- 44 (45). Legs orange; femora black-grey dusted, except the base of the mid, and the tips of all, but sometimes they are all orange. (2232. *villipes*, Ztt., ♂)
- 45 (44). Legs all black, dark grey dusted; hairs of the legs and abdomen exceedingly long. (*dasythrix*, Beck.)
- 46 (43). Hind tibiæ with bristles on the outside.
- 47 (50). Hairs of the whole body, especially the legs and pleuræ, very long and fine; antennæ entirely black.
- 48 (49). Legs blackish brown except apical half of fore and mid tibiæ. (*islandica*, Beck.)
- 49 (48). Legs all reddish yellow except part of fore femora.
(2232. *villipes*, Ztt., ♀)
- 50 (47). Body hairs not remarkably long and fine; antennæ red-brown; third joint black. (2231. *litorea*, Fln.)

498. CONIOSTERNUM, Beck.

- 1 (2). Palpi not dilated at the tip; frons red; halteres pale yellow; face white; X-veins not clouded.
(2241. *obscurum*, Fln.)
- 2 (1). Palpi distinctly dilated; frons and halteres dark; face dirty grey; X.4. very distinctly clouded; X.5² more faintly so. (*tinctinervis*, Beck.)

499. CLIDOGASTRA, Mcq.

- 1 (4). All tibiæ orange.
- 2 (3). Head yellow; thorax shining black.
(2242. *nigrita*, Fln.)
- 3 (2). Head black; thorax grey dusted. (*nigriceps*, Beck.)
- 4 (1). Only the fore tibiæ orange.

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- 5 (6). Wings, with the exception of the base, tinged smoky grey, and short. (*anthrax*, Schin.)
 6 (5). Wings coloured yellow-brown, and longer. (*carbonaria*, Pok.)

500. GYMNUMERA, Rnd.

- 1 (2). Antennæ all orange; dorsum grey. (2244. *dorsata*, Ztt.)
 2 (1). Last joint of the antennæ black; dorsum orange. (2243. *tarsea*, Fln.)

500½. COCHLIARIUM, Beck.

- 1 (6). Four scutellar bristles.
 2 (5). Palpi yellow.
 3 (4). Second antennal joint black; face black in the male, yellow in the female; V.3. and V.4. parallel; bristles on head and thorax black, or chiefly black; legs yellow; tarsi brown. (*cuneiventris*, Ztt.)
 4 (3). Second antennal joint yellow; face yellow in both sexes; V.3. and V.4. diverging; bristles of the head and thorax pale yellow; legs yellow; last tarsal joint brown. (*albipila*, Ztt.)
 5 (2). Palpi yellow; legs all chestnut. (*castanipes*, Beck.)
 6 (1). Two scutellar bristles; palpi black, grey dusted; femora black, except the tip; rest of the legs orange. (*lasiostoma*, Beck.)

FAMILY XXXV.—PHYCODROMIDÆ.

TABLE OF GENERA AND SPECIES.

- 1 (2). Third antennal joint conical, rounded, much longer than the second; head nearly as broad as the thorax.

502. ORYGMA.

2246. *Orygma luctuosum*, Mg.
 Hesleden Shore, 2 ♂, August, 1900.

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- 2 (1). Third antennal joint nearly round, not longer than the second; head much narrower than thorax.
- 3 (4). A large (6–7 mm.) brownish black shore fly with reddish antennæ; the abdominal segments tawny along the hind border, and with a tawny spot on each side.

505. FUCOMYIA, Hal. (2250. *frigida*, Fln.)

- 4 (3). A smaller (4–5 mm.) brownish black fly with the third antennal joint dark.

504. CÆLOPA, Mg. (2248. *pilipes*, Hal.)

FAMILY XXXVI.—HELOMYZIDÆ.

TABLE OF GENERA (after Lœw).

- 1 (2). Humeral bristle absent. HELOMYZA, Fln. (506)
- 2 (1). Humeral bristle present.
- 3 (4). Prothoracic bristle absent.
507. ALLOPHYLA, Lw. (2267. *atricornis*, Mg.)
- 4 (3). Prothoracic bristle present.
- 5 (6). Spurs of the mid tibiæ bent; species with long and soft hair.
508. SCOLIOCENTRA, Lw. (2268. *villosa*, Mg.)
- 6 (5). Spurs of the middle tibiæ straight; neither long nor soft haired.
- 7 (8). X.4. directly beneath the end of V.1.a.
- CRYMOBIA, Lw. (*hiemalis*, Lw.)
- 8 (7). X.4. far beyond the end of V.1.a.
- 9 (12). Eyes unusually small.
- 10 (11). Mid tibiæ without bristles. ECCOPTOMERA, Lw. (510)
- 11 (10). Mid tibiæ with bristles.
599. CECOTHEA, Hal. (2269. *fenestralis*, Fln.)
- 12 (9). Eyes not unusually small.
- 13 (14). V.1.b. unusually lengthened, and ending in the costa far beyond X.4.; costal spines very short; frons narrow; præsutural bristles present.
- HETEROMYZA, Fln. (512)
- 14 (13). V.1.b. of normal length, ending in costa nearly in a line with X.4.; costa distinctly spined; frons broad.

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- 15 (16). Four pairs of dorso-central bristles, that is at least one pair of præsutural bristles present.

BLEPHAROPTERA, Lw. (511)

- 16 (15). Only three pairs of dorso-central bristles, that is no præsutural bristles present.

TEPHROCHLAMYS, Lw. (513)

TABLE OF SPECIES.

506. HELOMYZA.

- 1 (14). Meso-pleuræ fine haired.
- 2 (7). Arista short haired or pubescent.
- 3 (4). Arista with very short pubescence.
(2253. *humilis*, Mg.)
- 4 (3). Arista distinctly but not long haired.
- 5 (6). No dark spot at the end of V.2.
(2254. *inornata*, Lw.)
- 6 (5). A dark spot at the end of V.2. (2255. *nemorum*, Mg.)
- 7 (2). Arista long haired.
- 8 (9). Tip of the wing clouded, and also showing dark and clear spots.
2255. *Helomyza rufa*, Flin.
Hesleden, 1 ♀, 18-8-99; Bishop Auckland, 1 ♀,
3-3-00.
- 9 (8). Tip of the wing without the cloud, although dark spots may be present.
- 10 (11). Scutellum with fine hairs all over. (*nemorum*, Mg.)
- 11 (10). Scutellum bare except at its sides.
- 12 (13). Thorax grey-brown. (*fæda*, Lw.)
- 13 (12). Thorax yellow.
2256. *Helomyza pectoralis*, Lw.
Hesleden, 1 ♂, 13-8-00; Shull, 1 ♀, 7-7-02.
- 14 (1). Meso-pleuræ quite bare.
- 15 (31). Arista plumose.
- 16 (22). Arista long plumed.
- 17 (19). Mid femora with thorn-like bristles on the underside.

- 18 (18a). These bristles very strong and very numerous.
(*gigantea*, Mg.)
- 18a (18). These bristles neither strong nor numerous.
(*hispanica*, Lw.)
- 19 (17). Mid femora without strong bristles on the underside.
- 20 (21). Small yellow species; wings clear with strong clouds
at the ends of the long veins. (2258. *flava*, Mg.)
- 21 (20). Larger and darker species; wings brownish with only
indistinct clouds at the ends of the long veins.
(2257. *affinis*, Mg.)
- 22 (16). Arista rather short plumed.
- 23 (24). A black spot on V.4³. (*bistrigata*, Mg.)
- 24 (23). V.4³ without any black spot.
- 25 (28). Wing tip without the vein-ends clouded.
- 26 (27). Costal spines long. *pallida*, Fln. (2265 below)
- 27 (26). Costal spines very short.
zetterstedti, Lw. (2264 below)
- 28 (25). Wing tip with the vein-ends-clouded.
- 29 (30). Frons all dull.
2259. *Helomyza similis*, Mg.
Wearhead, Harperley, 5 ♂, April–August, 1901.
- 30 (29). Frons shining.
2260. *Helomyza lævifrons*, Lw.
Harperley, 1 ♂, April, 1900; Shull, 2 ♀, September,
1900.
- 31 (15). Arista very short haired or pubescent.
- 32 (43). Arista distinctly haired.
- 33 (38). Ends of the long veins distinctly clouded.
- 34 (35). Scutellum very hairy. (*univittata*, v. Rossi.)
- 35 (34). Scutellum almost quite bare except the usual bristles.
- 36 (37). A dark spot between the antennæ and the eyes.
2262. *Helomyza ustulata*, Mg.
Bishop Auckland, 1 ♂, 9th March, 1901. Very rare.
I gave the specimen to Mr. Verrall.
- 37 (36). No spot between antennæ and eyes. (*pilimana*, Lw.)

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38 (33). Ends of the long veins quite clear.

39 (40). Costal spines very short.

2264. *Helomyza zetterstedti*, Lw.

Shiple, 3 ♀, July–September, 1900.

40 (39). Costal spines long.

41 (42). Jowls unusually narrow; scutellum without hairs.

2263. *Helomyza montana*, Lw.

Shiple, 1 ♀, July, 1900.

42 (41). Jowls of the usual breadth; scutellum with scattered hairs.

2265. *Helomyza pallida*, Fln.

The commonest species. Bishop Auckland, 5 ♂ and 6 ♀, June–July, 1897–1901.

43 (32). Arista with at most a short pubescence, almost bare.

44 (45). Scutellum very hairy. (*univittata*, v. Rossi.)

45 (44). Scutellum almost bare.

46 (47). A brown spot between antennæ and eyes.

ustulata, Mg. (2262 above)

47 (46). No brown spot.

48 (49). Legs entirely yellow or brownish yellow.

(*parva*, Lw.)

49 (48). Greater part of the fore femora and the ends of the feet black. (*femorialis*, Lw.)

510. ECCOPTOMERA, Lw.

1 (6). Thorax yellow.

2 (3). X-veins clouded. (*ornata*, Lw.)

3 (2). X-veins not clouded.

4 (5). The red third antennal joint only brownish at the point. (*longiseta*, Mg.)

5 (4). The third antennal joint black. (*filata*, Lw.)

6 (1). Thorax grey.

7 (12). Abdomen all red or yellow.

8 (11). Hind femora with a black spot at the tip.

9 (10). Stigma short; upperside of hind femora with only one bristle near the tip. (*microps*, Mg.)

- 10 (9). Stigma rather long; upperside of hind femora with three bristles near the tip. (*pallescens*, Mg.)
 11 (8). Hind femora without the black spot at the tip. (*excisa*, Lw.)
 12 (7). Abdomen only red at the end. (*emarginata*, Lw.)

511. BLEPHAROPTERA, Lw.

- 1 (4). Sterno-pleuræ covered with a fine pubescence in addition to the usual hairs.
 2 (3). Third antennal joint red. (2271. *spectabilis*, Lw.)
 3 (2). Third antennal joint dark brown. (*caesia*, Mg.)
 4 (1). Sterno-pleuræ with only the usual hairs, no fine pubescence.
 5 (8). More than one mouth bristle on each side.
 6 (7). Thorax and abdomen dark grey. (2277. *modesta*, Mg.)
 7 (6). Thorax grey; abdomen reddish.
 2276. *Blepharoptera serrata*, L.
 Common. Bishop Auckland, 12 ♂ and 3 ♀, March-July.
 8 (5). Only one mouth bristle on each side.
 9 (12). Sterno-pleuræ with more than one strong bristle.
 10 (11). Back of the head and dorsum somewhat shining. (*biseta*, Lw.)
 11 (10). Back of the head and dorsum entirely dull.
 Blepharoptera iners, Mg.
 Hesleden, 2 ♀, August, 1899; Harperley, 2 ♀, April, 1900.
 12 (9). Sterno-pleuræ with only one strong bristle.
 13 (14). Costal spines exceedingly short. (2274. *flavicornis*, Lw.)
 14 (13). Costal spines long.
 15 (16). Thorax and abdomen entirely yellow. (2275. *ruficornis*, Mg.)
 16 (15). Body not wholly yellow.
 17 (20). Pleuræ yellow.
 18 (19). Costa thickly spined. (2273. *inscripta*, Mg.)

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- 19 (18). Costa thinly spined. (*variabilis*, Lw.)
 20 (17). Pleuræ grey.
 21 (22). Femora not thickened. (*cineraria*, Lw.)
 22 (21). Femora thickened.
 23 (24). Colour black-grey. (*crassipes*, Lw.)
 24 (23). Colour light grey. (*pusilla*, Lw.)

512. HETEROMYZA, Fln.

From Collin's table of species in E.M.M., 1901.

- 1 (4). Præsutural bristles present on the thorax; antennæ entirely black; fronto-orbital bristles present in both sexes.
 2 (3). Male frons with a greyish white vertex and side lines, and very wide behind; face narrower than frons in both sexes. (2278. *atricornis*, Mg.)
 3 (2). Male frons all dull red and much narrower than preceding; face wider, or not narrower than the frons in both sexes. (2279. *commixta*, Coll.)
 4 (1). Præsutural bristles absent; antennæ reddish brown; fronto-orbital bristles absent in the male, the frons being narrower behind than at the antennæ. (2280. *oculata*, Fln.)

513. TEPHROCHLAMYS, Lw.

- 1 (2). Second antennal joint much thickened at its base. (*tarsalis*, Ztt.)
 2 (1). Second antennal joint not thickened at its base.
 3 (4). Stigma distinctly darkened at its base; the third antennal joint orange. (2282. *flavipes*, Ztt.)
 4 (3). Stigma not darkened at its base; third antennal joint black.
 5 (6). First and second antennal joints brown.
 2281. *Tephrochlamys rufiventris*, Mg.
 Common. Bishop Auckland, 1 ♂ and 12 ♀, March-August, 1898-1900.
 6 (5). First and second antennal joints yellow. (*laeta*, Mg.)

FAMILY XXXVII.—HETERONEURIDÆ.

- 1 (2). Hind tibiæ with a præapical bristle.

HETERONEURA, Fln. (514)

- 2 (1). Hind tibiæ without a præapical bristle.

515. STOMPASTICA, Lw. (2286. *flava*, Mg.)

514. HETERONEURA, Fln.

- 1 (2). Dorsum and pleuræ orange. (2283. *albimana*, Mg.)

- 2 (1). Dorsum and pleuræ shining black. (2284. *alpina*, Lw.)

FAMILY XXXVIII.—SCIOMYZIDÆ.

TABLE OF GENERA.

- 1 (12). Antennæ not very long, or if long then drooping, never horizontal; the second joint always shorter than the third; upper edge of third not generally concave.

- 2 (7). Facial profile perpendicular and concave, hollowed out beneath the antennæ, and then produced at the upper mouth edge; wings very long and broad, much longer than the abdomen.

- 3 (4). V.4. bent towards V.3.

517. LUCINA, Mg. (2289. *fasciata*, Mg.)

- 4 (3). V.4. almost straight.

- 5 (6). Jowls broader than the perpendicular breadth of the eye; costa slightly spined. ACTORA, Mg. (518)

- 6 (5). Jowls narrower than the perpendicular breadth of the eye; costa not spined. DRYOMYZA, Fln. (520)

- 7 (2). Facial profile somewhat retreating, and only slightly concave; wings moderately long, and only a little longer than the abdomen.

- 8 (9). X.5² springing almost at a right angle from V.5.; hind tibiæ bare, except for the præapical bristle.

SCIOMYZA, Fln. (523)

- 9 (8). X.5² forming a sharply acute angle at the lower outer corner of O.5²; hind tibiæ bristly outside.

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10 (11). Vertex dull ; wings brownish, darker along the outer fore margin.

524. PHÆOMYIA, Schin. (2320. *fuscipennis*, Mg.)

11 (10). Vertex shining ; wings blackish.

525. PELIDNOPTERA, Rnd. (2321. *nigripennis*, F.)

12 (1). Antennæ very long and horizontal, the second joint often as long as, or longer than the third, the upper edge of the third concave (III. 54).

13 (14). Hind femora very much thickened, and extending far beyond the end of the abdomen ; second joint of antennæ more than twice as long as the third, and stylelike.

SEPEDON, Ltr. (529)

14 (13). Hind femora not extraordinarily thick, and scarcely extending beyond the abdomen ; second joint of antennæ as long as the third, or, if longer, then always broad, and never stylelike.

15 (16). Arista long-plumed, the hairs spreading and generally dark ; the third antennal joint never bristly at the end.

TETANOCERA, Dum. (526)

16 (15). Arista bare, or, if short-plumed, the hairs lie flat and are mostly white ; third antennal joint often bristly at the end.

17 (18). Wings freckled with brown or blackish markings ; X.5² straight, or only slightly bent.

LIMNIA, Dsv. (527)

18 (17). Wings not freckled, at most a few brown dots ; X.5² waved, twice bent.

ELGIVA, Mg. (528)

TABLE OF SPECIES.

518. ACTORA, Mg.

2290. *Actora æstum*, Mg.

Hesleden Shore, 1 ♂, July, 1904.

520. DRYOMYZA, Fln.

1 (2). Wings quite clear, 8-11 mm.

2292. *Dryomyza flaveola*, F.

Bishop Auckland, Shull, Harperley, 6 ♂ and 2 ♀, June-September, 1900-01.

- 2 (1). Wings with at least the X-veins clouded.
 3 (4). Wings with only the X-veins clouded ; small species,
 4 mm. (2293. *decrepita*, Ztt.)
 4 (3). Wings with the X-veins and the ends of V.1., 2, and
 3 clouded, 8-11 mm.

521. NEUROCTENA, Rnd.

2294. *Neuroctena anilis*, Fln.

Bishop Auckland, 3 ♂, Hesleden, 3 ♂, July-August,
 1900.

523. SCIOMYZA, Fln.

- 1 (26). Arista plumose.
 2 (9). X-veins not distinctly clouded.
 3 (6). Dorsum shining black.
 4 (5). Antennæ entirely orange ; fore tarsi all black.
 (2297. *glabricula*, Fln.)
 5 (4). Antennæ yellow ; third joint partly dark brown ; fore
 tarsi black with white points.
 (2298. *nigrimana*, Mg.)
 6 (3). Dorsum orange, brown, or grey.
 7 (8). Dorsum grey, not shining. (2313. *lata*, Schin.)
 8 (7). Dorsum shining dark brown. (2312. *simplex*, Fln.)
 9 (2). X-veins distinctly clouded.
 10 (11). Wings with brown bands. (2302. *bifasciella*, Fln.)
 11 (10). Wings without brown bands.
 12 (19). Arista long-plumed.
 13 (14). Third antennal joint brown at the point.
 (2299. *pallida*, Fln.)
 14 (13). Third antennal joint entirely orange.
 15 (16). Mid and hind legs all dark testaceous.
 (2315. *ruficeps*, Ztt.)
 16 (15). All legs yellow.
 17 (18). Proboscis testaceous ; X.4. strongly clouded.
 (2300. *fuscinervis*, Ztt.)
 18 (17). Proboscis yellow : X.4. slightly clouded.
 2314. *Sciomyza dorsata*, Ztt.
 Bedburn, 1 ♂, July, 1902.

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- 19 (12). Arista short-plumed, yet always distinctly plumose.
- 20 (21). Wings with a long pale stripe near the fore margin ;
V.2. and O.2. being distinctly paler than the rest
of the wing.
2318. *Sciomyza albocostata*, Fln.
Hesleden, 1 ♂, June, 1900.
- 21 (20). No pale wing stripe.
- 22 (25). Legs orange.
- 23 (24). Dark grey species ; epistome hoary ; abdomen dull.
(2301. *obtusa*, Fln.)
- 24 (23). Black species ; epistome black ; abdomen shining ;
wings shorter than abdomen.
(2296. *brevipennis*, Ztt.)
- 25 (22). At least the fore legs entirely black.
(2316. *griseola*, Fln.)
- 26 (1). Arista bare, or very slightly pubescent.
- 27 (35). Wings without bands or spots.
- 28 (29) (30). Antennæ entirely black ; wings dark brown on
the fore margin.
2305. *Sciomyza cinerella*, Fln.
Hesleden, 2 ♂, June–August, 1899–1900.
- 29 (28) (30). Antennæ yellow, front half of the third joint
black ; wings not brown on the fore margin.
(2306. *dubia*, Fln.)
- 30 (28) (29). Antennæ entirely yellow.
- 31 (34). Fore legs yellow.
- 32 (33). Epistome not descending below the eyes ; proboscis
yellow ; dorsum grey, unmarked.
(2307. *pallidiventris*, Fln.)
- 33 (32). Epistome distinctly descending below the eyes ;
proboscis dark ; dorsum with rudiments of two
stripes.
(2317. *nasuta*, Ztt.)
- 34 (31). Fore legs black except the pale yellow coxæ.
(2311. *pusilla*, Ztt.) or (2310. *ventralis*, Fln.)
- 35 (27). Wings with grey bands or spots.
- 36 (37). Wings with one brown band, and three or four dark
spots near X.4. (2303. *nana*, Fln.)

37 (36). Wings covered with brown spots, which are larger and darker near the fore margin.

2304. *Sciomyza schoenherri*, Fln.

Hesleden, 2 ♀, August, 1902.

526. TETANOCERA, Dum.

1 (10). Wings not freckled.

2 (3). Front region of the wing with a long brown cloud; V.4⁴ clouded.

2322. *Tetanocera elata*, F.

Hesleden, 2 ♂ and 1 ♀, August, 1899-1900.

3 (2). Front region not clouded, nor V.4⁴.

4 (5). Frons shining all over.

2323. *Tetanocera lævifrons*, Lw.

Bedburn, 1 ♀, July, 1902.

5 (4). Frons always with dull places in the middle.

6 (6a) (7). Frontal and vertical orbits and a crossband above the antennæ, all shining; dorsum striped.

2324. *Tetanocera sylvatica*, Mg.

Hesleden, 1 ♂, August, 1902; Bedburn, June, 1905.

6a (6) (7). Frontal orbits dull, a shining space beneath the ocelli; dorsum unstriped. (2325. *unicolor*, Lw.)

7 (6) (6a). Only the vertical orbits shining, the entire frons dull.

8 (9). Large species, 9-10 mm. (2327. *robusta*, Lw.)

9 (8). Smaller species, 7-8 mm.

2326. *Tetanocera ferruginea*, Fln.

Hesleden, 4 ♂, August, 1902.

10 (1). Wings freckled.

11 (14). Dorsum with dark stripes.

12 (13). Second antennal joint shorter than the third.

(2328. *punctata*, F.)

13 (12). Second antennal joint as long as, or longer than the third.

(2329. *coryleti*, Scop.)

14 (11). Dorsum with brown or black spots.

15 (16). Femora with black rings. (2330. *umbrarum*, L.)

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16 (15). Femora not ringed.

17 (18). A black spot between the base of the antennæ and the eyes.

2331. *Tetanocera punctulata*, Scop.

Hesleden, 1 ♂, August, 1902.

18 (17). In addition to the lower orbital spots, another pair of black diagonal spots above.

(2232. *chærophyli*, F.)

527. LIMNIA, Dsv.

1 (2). Third antennal joint with a tuft of black bristles at the end. (2333. *marginata*, F.)

2 (1). Third antennal joint bare at the end.

3 (6). X.5² distinctly bent; hind femora without thorns beneath.

4 (5). Dorsum grey with a broad orange stripe on the middle and two quite at the sides; X.5² once bent, bow-shaped. (2334. *unguicornis*, Scop.)

5 (4). Dorsum yellowish grey with two pairs of stripes of brown spots; X.5² twice bent, waved.

2335. *Limnia rufifrons*, F.

Hesleden, 5 ♂ and 3 ♀, July–August, 1899–1900, &c.

6 (3). X.5² quite straight; hind femora with thorn-like bristles beneath. (2336. *obliterata*, F.)

528. ELGIVA, Mg.

1 (4). At least four brown spots along V.4.

2 (3). Dorsum orange.

2337. *Elgiva albiseta*, Scop.

Hesleden, 1 ♂, July, 1902.

3 (2). Dorsum blue-grey.

2338. *Elgiva dorsalis*, F.

Hesleden, 1 ♂, August, 1900.

4 (1). At most three brown spots along V.4.

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4 (3). Small species, not more than 6 mm.

5 (6). Orange species, 5-6 mm.

2345. *Psila rufa*, Mg.

Hesleden, 1 ♂ and 1 ♀, June, 1900.

6 (5). Smaller pale yellow species, 4 mm.

2346. *Psila pallida*, Fln.

Hesleden, 1 ♂, June, 1900.

The specific characters given are very unsatisfactory, and I may be mistaken in my identifications of the two last species, but they seem to be different.

7 (2). Abdomen black.

8 (9). Antennæ yellow with the third joint black or dark brown. (2353. *bicolor*, Mg.)

9 (8). Antennæ all yellow. (2347. *debilis*, Egg.)

10 (1). Dorsum and abdomen shining black; humeri and pleuræ sometimes orange.

11 (12). Pleuræ orange, sometimes also the humeri and sides of dorsum. (2348. *pectoralis*, Mg.)

12 (11). Pleuræ black.

13 (16). Legs with at least the femora black.

14 (15). Tibiæ and tarsi yellow, with broad brown ends.

(2351. *atra*, Mg.)

15 (14). Tibiæ and tarsi all pale.

(2352. *nigra*, Fln.)

16 (13). Legs with the femora yellow.

17 (18). Frons all or nearly all black, sometimes narrowly yellow on the eye-margins and above the antennæ.

(*gracilis*, Mg.)

18 (17). Frons all or nearly all yellow, only the ocellar triangle or the vertex dark brown.

19 (20). Third antennal joint all yellow, or at most the upper edge or the tip black. (2349. *rosæ*, F.)

20 (19). Third antennal joint all black.

21 (22). Large species, 4 mm.

2350. *Psila nigricornis*, Mg.

Bishop Auckland, 2 ♂, May; 1 ♂ (greenhouse), February, 1900.

22 (21). Small species, 3 mm.

2354. *Psila villosula*, Mg.

Hesleden, 1 ♂, August, 1900.

532. CHYLIZA, Fln.

- 1 (2). Third antennal joint with the upper edge concave; arista thickly set with short black hairs, making it look thickened. (2356. *atriseta*, Mg.)
- 2 (1). Upper edge of third antennal joint straight; arista thinly haired, not apparently thickened.
- 3 (4). Femora with a black ring near the tip. (2357. *annulipes*, Mcq.)
- 4 (3). Femora not ringed. (2358. *leptogaster*, Pz.)

533. LOXOCERA, Mg.

See Austen in E.M.M., March, 1899.

- 1 (6). Face and cheeks black with at most the jowls brownish.
- 2 (5). Large species, at least $7\frac{1}{2}$ mm.; abdomen wholly black; cheeks almost wholly black.
- 3 (4). Hind margin of dorsum and the whole scutellum red.
2359. *Loxocera aristata*, Pz.
Hesleden, 2 ♂ and 2 ♀, August, 1899-1902.
- 4 (3). Dorsum and scutellum wholly black.
(2359. *aristata*, Pz., var. *yerburyi*, Aust.)
- 5 (2). Small species, not exceeding 5 mm.; abdomen orange at the base beneath; cheeks broadly yellow in the middle. (2363. *fulviventris*, Mg.)
- 6 (1). Face and cheeks yellow, sometimes with a black facial stripe.
- 7 (8). Frons and scutellum black. (2362. *nigrifrons*, Mcq.)
- 8 (7). Scutellum, and at least part of the frons orange.
- 9 (10). Large species, 6-8 mm.; face without a central black stripe; arista plumose. (2360. *albiseta*, Schrk.)
- 10 (9). Small species, 4 mm.; face with a black central stripe; arista almost bare. (2361. *sylvatica*, Mg.)

FAMILY XL.—MICROPEZIDÆ.

TABLE OF GENERA.

- | | |
|------------------------|----------------------|
| 1 (2). V.l.a. absent. | MICROPEZA, Mg. (535) |
| 2 (1). V.l.a. present. | CALOBATA, Mg. (536) |

TABLES OF SPECIES.

535. MICROPEZA, Mg.

- 1 (2). Pleuræ with a whitish shimmer; male genitalia shining black.

2365. *Micropeza corrigiolata*, L.

Harperley, 1 ♂ and 1 ♀, June, 1904.

- 2 (1). Pleuræ, close under the base of the wings, with a bright yellow stripe, which is bounded beneath with another black stripe; male genitalia yellow.

(2366. *lateralis*, Mg.)

536. CALOBATA, Mg.

Life history unknown.

- 1 (2). Dorsum bright orange. (2367. *ephippium*, F.)
2 (1). Dorsum blackish or brown-grey.
3 (4). Humeri orange.

2370. *Calobata petronella*, L.

Bishop Auckland, 1 ♂ and 1 ♀, July, 1900.

- 4 (3). Humeri blackish, or at least never orange.
5 (6). Frons mostly orange.

2368. *Calobata cibaria*, L.

Bishop Auckland, 6 ♂ and 6 ♀, June–July, 1897–1901.

I am not at all sure of the two foregoing identifications. They may be only one species. The humeri all show signs of orange, but the legs are brightly yellow with sharply defined black tipped hind femora in No. 3, while in No. 5 they are all brown.

- 6 (5). Frons mostly black. (2369. *cothurnata*, Pz.)

FAMILY XLI.—ORTALIDÆ.

TABLE OF GENERA.

- 1 (4). Antennæ very long and horizontal, profile triangular, face retreating almost horizontally (VII. 1, 2).
- 2 (3). Fronto-orbital bristles present (VII. 2); hind tibiæ with a præapical bristle.
516. TRIGONOMETOPUS, Mcq. (*Heteroneuridæ*)
 (2288. *frontalis*, Mg.)
- 3 (2). Fronto-orbital bristles absent (VII. 1); hind tibiæ without præapical bristle.
537. DORYCERA, Mg. (2375. *graminum*, F.)
- 4 (1). Antennæ not long, or, if long, then drooping; profile perpendicular, or only slightly retreating (VII. 3, 4).
- 5 (6). Back of the head hollowed out above and inflated below; upper mouth-edge considerably produced (VII. 3).
545. PLATYSTOMA, Mg. (2394. *seminationes*, F.)
- 6 (5). Back of the head somewhat inflated both above and below; upper mouth-edge not produced (VII. 4).
- 7 (18). V.4. not, or only very slightly bent towards V.3.
- 8 (15). Third antennal joint shortly elliptical or oval, at most twice as long as the second.
- 9 (12). Front of the third antennal joint with a sharp upper corner, concave above.
- 10 (11). Præsutural bristles present. CEROXYS, Mcq. (**543**)
- 11 (10). Præsutural bristles absent, only alar and præscutellar bristles present. ANACAMPTA, Lw. (**544**)
- 12 (9). Front of the third antennal joint rounded or blunt.
- 13 (14). Head, and especially the frons, inflated.
538. TETANOPS, Fln. (2376. *myopina*, Fln.)
- 14 (13). Head and frons not inflated.
- 14a (14b). Wings light brown with round clear spots; V.4⁴ bent; dorsum bristly to the front. PTILONOTA, Lw. (**539**)
- 14b (14a). Wings clear with dark brown bands; V.4⁴ straight; dorsum bristly only behind and at the sides.
 ORTALIS, Fln. (**540**)
- 15 (8). Third antennal joint linear, always at least three times as long as the second.

XLI.

- 16 (17). Face keeled, *i.e.*, with a central ridge from the antennæ to the mouth. PTEROPÆCTRIA, Lw. (541)
- 17 (16). Face not keeled.
546. RIVELLIA, Dsv. (2395. *syngenesiæ*, F.)
- 18 (7). V.4. distinctly bent towards V.3.
- 19 (20). Antennæ approximate at the base; frons moderately broad, dull, and without indentations.
547. SEOPTERA, Kirby (2396. *vibrans*, L.)
- 20 (19). Antennæ distant at the base; frons unusually broad, shining, and with indented marks and points.
- 21 (22). Antennæ in a pit; O.6. short. ULIDIA, Mg. (548)
- 22 (21). Antennæ free; O.6. almost reaching the margin.
549. CHRYSOMYZA, Fln. (2398. *demandata*, F.)

TABLES OF SPECIES.

539. PTILONOTA, Lw.

- 1 (2). V.4⁴ looped; wings pale brown with 5-6 clear spots.
(2377. *guttata*, Mg.)
- 2 (1). V.4⁴ simply bent; wings with the clear places larger, almost as if banded. (2378. *centralis*, F.)

540. ORTALIS, Fln.

- 1 (2). Legs black. (2379. *gangrænosa*, F.)
- 2 (1). Legs orange. (2380. *ornata*, Mg.)

541. PTEROPÆCTRIA, Lw.

- 1 (4). Face entirely shining black.
- 2 (3). Frons shining black. (2384. *paludum*, Fln.)
- 3 (2). Frons bright orange. (2385. *palustris*, Mg.)
- 4 (1). Face wholly or mostly orange.
- 5 (6). Wings mostly dark brown with clear bands, one complete from fore to hind margin between X.4. and X.5², one before X.4. from fore margin to V.6., one beyond X.5² from hind margin but not reaching V.3.; tip, and basal hind margin also clear.
2386. *Pteropæctria frondescentiæ*, L.

Waskerley, 1 ♂, July, 1901; Hesleden, 5 ♂ and 4 ♀, August, 1902.

- 6 (5). Wings mostly clear with dark spots or incomplete bands.
- 7 (10). Face all orange.
- 8 (9). The whole of the tip of the wing dark to beyond the end of V.3. The basal fore margin and two bands dark as well as the tip.
2383. *Pteropæctria nigrina*, Mg.
Hesleden, 1 ♀, August, 1899.
- 9 (8). The whole of the tip of the wing clear from the end of V.2. The basal fore margin and four patches dark.
2382. *Pteropæctria afflicta*, Mg.
Hesleden, 8 ♂ and 7 ♀, August, 1899-1902.
- 10 (7). Face shining black below, orange above.
(2387. *oscillans*, Mg.)

543. CEROXYS, Mcq.

- 1 (4). Abdomen with shining black cross bands; femora wholly, or at least at the base black.
- 2 (3). Legs yellow with the bases of the femora black.
(2390. *crassipennis*, F.)
- 3 (2). Legs blackish with yellow knees. (2389. *pictus*, Mg.)
- 4 (1). Abdomen unicolorous, without such bands; femora all yellow.
(2391. *omissus*, Mk.)

544. ANACAMPTA, Lw.

- 1 (2). Base of the wing yellowish, none of the three wing bands broken.
(2392. *urticæ*, L.)
- 2 (1). Base of the wing not yellow, the third of the three wing bands broken into two spots.
(2393. *hyalinata*, Pz.)

548. ULIDIA, Mg.

- 1 (2). Wings clear, at most with a pale brown tinge.
(2397. *erythroptalma*, Mg.)
- 2 (1). Wings deeply tinged with black, orange at the base.
(2397½. *nigripennis*, Lw.)

FAMILY XLII.—TRYPETIDÆ.

TABLE OF GENERA.

- 1 (30). X.5² almost perpendicular, the outer hind corner of O.5² is therefore almost a right angle.
- 2 (27). Wings quite clear, or with dark bands, sometimes blackish or brownish with large clear spots or bands, but the dark parts or bands are never broken up with little clear or pale spots as if honeycombed or latticed.
- 3 (16). X.4. distinctly beyond the middle of O.5².
- 4 (9). Dorsum shining, black or orange, unspotted, neither colour nor polish altered by dusting.
- 5 (6). Frons very prominent; profile retreating; jowls very broad; eyes almost round.
551. PLATYPAREA, LW. (2400. *discoidea*, F.)
- 6 (5). Frons not prominent; profile almost perpendicular; jowls small; eyes elliptical.
- 7 (8). V.4. beyond X.5² straight, or at most somewhat bent at the end; scutellum with only two bristles.
533. ACIURA, DSV. (2402. *rotundiventris*, Fln.)
- 8 (7). V.4. somewhat bent upwards immediately beyond X.5²; scutellum with four bristles.
ACIDIA, DSV. (554)
- 9 (4). Dorsum black or yellow, the ground colour always somewhat altered by light dusting, and scarcely shining; sometimes broken with shining black spots.
- 10 (11). X.6. nearly straight; outer side of O.6¹ without any projecting point (VII. 17). UROPHORA, DSV. (562)
- 11 (10). X.6. sharply angled in the middle; O.6¹ with a projecting point at its outer hind corner (VII. 18).
- 12 (13). V.4⁴ distinctly bent upwards.
559. RHACOCHLÆNA, LW. (2415. *toxoneura*, LW.)
- 13 (12). V.4⁴ straight, or scarcely bent.
- 14 (15). Face very short; frons roof-like and very long, so that the bases of the antennæ are almost on a line with the lower orbit; proboscis very long.
566. ENSINA, DSV. (2439. *sonchi*, L.)

- 15 (14). Face about as long as the moderately bent frons ;
proboscis not long. TRYPETA, Mg. (560)
- 16 (3). X.4. on or before the middle of O.5².
- 17 (24). O.6¹ with a projecting point at its outer hind corner
(VII. 18).
- 18 (21). Dorsum shining, black or orange, unspotted, neither
colour nor polish altered by dusting.
- 19 (20). Yellow species. SPILOGRAPHA, Lw. (557)
- 20 (19). Black species. 558. RHAGOLETIS, Lw. (2414. *cerasi*, L.)
- 21 (18). Dorsum black or yellow, the ground colour always
somewhat altered by light dusting, and scarcely
shining ; sometimes broken by shining black spots.
- 22 (23). Scutellum inflated ; femora thickened ; dorsum and
scutellum with shining black spots.
555. GONYGLOSSUM, Rnd. (2406. *wiedmanni*, Mg.)
- 23 (22). Scutellum not inflated ; femora not thickened ; dorsum
and scutellum unspotted, or at most with little
black dots. TRYPETA, Mg. (560)
- 24 (17). Outer side of O.6¹ without any projecting point
(VII. 17).
- 25 (26). V.4. much bent towards V.3. MYOPITES, Breb. (561)
- 26 (25). V.4. not bent towards V.3., but almost straight.
UROPHORA, Dsv. (562)
- 27 (2). Wings with the dark parts or bands, at least at the
wing tips, broken up by larger or smaller round
clear spots, as if honeycombed or latticed.
- 28 (29). Scutellum shining black and inflated.
CARPHOTRICHA, Lw. (564)
- 29 (28). Scutellum neither shining black nor inflated.
SPHENELLA, Lw., &c. (563)
- 30 (1). V.5² much inclined backwards towards V.4., the outer
hind corner of O.5² therefore a very acute angle.
- 31 (32). Frons with a leaf-ended bristle on each side in the
male ; large species, 6 mm.
550. CERATITIS, McLeay (2399. *capitata*, W.)
- 32 (31). Frons without leaf-ended bristles ; small species, 3 mm.
552. ANOMŒA, Wlk. (2401. *antica*, W.)

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TABLES OF SPECIES.

554. ACIDIA, Dsv.

- 1 (4). V.4³ about half as long as V.4⁴; X.4. about the middle of O.5².
- 2 (3). O.6¹ and O.5¹, or at least the latter, wholly or mostly clear.

2403. *Acidia cognata*, W.

Bishop Auckland, 1 ♀, July, 1901.

- 3 (2). O.6¹ and O.5¹ wholly darkened, or at least the latter, except a small spot. (2405. *lychnidis*, F.)
- 4 (1). V.4³ scarcely one-third of the length of V.4⁴; X.4. far beyond the middle of O.5².

2404. *Acidia heraclei*, L.

Bishop Auckland, 1 ♂, April, 1902; Bedburn, 1 ♀, June 12, 1905.

557. SPILOGRAPHA, Lw.

- 1 (8). Third antennal joint rounded in front; V.3. distinctly bristly; hind femora without bristles on the under side.
- 2 (3). X.4. distinctly before the middle of O.5².
2409. *Spilographa zoë*, Mg.
- Bishop Auckland, 3 ♂ and 2 ♀, April–June, 1902.
- 3 (2). X.4. on the middle of O.5².
- 4 (5). Third antennal joint somewhat concave above; male frons with an antler-like protuberance bearing strong bristles. (2408. *abrotani*, Mg.)
- 5 (4). Third antennal joint not concave; male frons without protuberance.
- 6 (7). Tip of the wing broadly dark; the bands on X.4. and X.5² united at the hind margin; the X.5² band only reaching up to V.4. (2410. *hamifera*, Lw.)
- 7 (6). Tip of the wing narrowly dark; band on X.4. not reaching the hind margin, and not united to the X.5² band, the latter long and reaching the fore margin. (2411. *artemisiæ*, F.)

- 8 (1). Third antennal joint with a sharp upper corner in front; V.3. indistinctly bristled or bare; hind femora bristled at the tip beneath.
- 9 (10). The band on X.5. reaching the fore margin.
(2412. *alternata*, Fln.)
- 10 (9). The X.5² band only reaching V.3. (2413. *meigenii*, Lw.)

560. TRYPETA, Mg.

- 1 (12). Wings distinctly banded.
- 2 (3). Dorsum with three pairs of dorso-central bristles.
(2416. *jaceæ*, Dsv.)
- 3 (2). Dorsum with only two pairs of dorso-central bristles.
- 4 (7). Scutellum with black spots or dots.
- 5 (6). Dorsum with three pairs of round black spots.
(2417. *falcata*, Scop.)
- 6 (5). Dorsum with only one, or at most two pairs of black spots.
2418. *Trypeta onotrophes*, Lw.
Hesleden, 3 ♂ and 1 ♀, August, 1900.
- 7 (4). Scutellum unmarked, or at most with the base blackish.
- 8 (9). Second antennal joint with a short tooth-like process in the female, and a long claw-like process in the male.
(2419. *cornuta*, F.)
- 9 (8). Second antennal joint simple.
- 10 (11). The wing bands of varying intensity, and with light and dark parts.
(2420. *tussilaginis*, F.)
- 11 (10). Wing bands uniformly pale. (2421. *lappæ*, Cedj.)
- 12 (1). Wings quite unspotted, or spotted but not distinctly banded.
- 13 (16). Wings generally spotted.
- 14 (15). Femora not thickened; abdomen chiefly pale haired.
(2422. *florescentiæ*, L.)
- 15 (14). Femora much thickened; abdomen chiefly black haired; wings sometimes unspotted.
(2423. *colon*, Mg.)
- 16 (13). Wings unspotted; femora not thickened; abdomen chiefly pale haired.
(2424. *serratulæ*, L.)

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561. MYOPITES, Breb.

- 1 (2). Stigma dark brown. (2426. *inulæ*, v. Roser.)
 2 (1). Stigma yellow. (2427. *frauenfeldi*, Schin.)

562. UROPHORA, DSV.

- 1 (8). Femora chiefly yellow, at most a black stripe at the sides.
 2 (5). Wings with four black or brown bands, the one at the base always apparent, if only a half band.
 3 (4). Wings clear with black bands, of which the first and second nearly touch at the fore margin.

2029. *Urophora macrura*, Lw.

Hesleden, 4 ♂, August, 1902.

- 4 (3). Wings yellowish-white with brown bands, the first and second broadly separated at the fore margin.

2430. *Urophora solstitialis*, L.

Hesleden, 1 ♂, 9-8-02.

- 5 (2). Wings with only three bands, the basal band absent.
 6 (7). The X.5² band, and the tip band, united at the fore margin. (2431. *stylata*, F.)
 7 (6). The above two bands widely separated at the fore margin. (*affinis*, Frfld.)
 8 (1). Femora chiefly black, at most the tips or a stripe yellow.
 9 (12). First and second wing bands united at the fore margin.
 10 (11). Second and third bands united at the hind margin, making one zigzag band from base to tip. (2434. *cardui*, L.)
 11 (10). Second and third bands not united at the hind margin. (2433. *quadrifasciata*, Mg.)
 12 (9). First and second bands completely separated at the fore margin. (2432. *aprica*, Fln.)

564. CARPHOTRICHA, Lw.

- 1 (2). Two scutellar bristles. (2436. *guttularis*, Mg.)
 2 (1). Four scutellar bristles. (2437. *pupillata*, Fln.)

563. SPHENELLA, Lw.; **565.** ICTERICA; **567.** TEPHRITIS, Ltr.;
568. EUARESTA, Lw.; **569.** URELLIA, Dsv.

1 (5). V.3. bearing a row of bristles on the upper side.

2 (3) (4). Wings with four dark brown patches, besides the numerous pale yellow parts and clear round spots.

2441. *Tephritis miliaria*, Schrk.

Hesleden, 9 ♂ and 1 ♀, August, 1899-1902.

3 (2) (4). Wings with the brown showing most in an indistinct double horse-shoe mark from O.6¹ to the tip; four distinct equal, round, clear shining white spots in a long row between V.3. and V.4.

(2442. *T. corniculata*, Fln.)

4 (2) (3). Wings dark brown with a sharp large clear spot on each side of X.4., and numerous other pale yellow and clear spots.

(2438. *I. westermanni*, Mg.)

5 (1). V.3. without bristles.

6 (35). Wings with the lattice work covering the greater part of the wing, the clear spots not so arranged round the wing margin as to cause the dark parts along the margin to assume the form of rays.

7 (20). Proboscis lengthened, the comparatively narrow suckers elbowed backwards; abdomen usually with dark markings.

8 (9). Wings with complete latticed bands, the general lattice work rather incomplete.

2435. *Sphenella marginata*, Fln.

Hesleden, 1 ♂, 3 ♀, August, 1900.

9 (8). Wings without complete bands, the dark parts completely broken up by lighter spots.

10 (15). Stigma brown with two pale spots.

11 (12). Five clear spots, sometimes almost run together on the margin between the ends of V.1. and V.2.

(2440. *T. parietina*, L.)

(Larvæ in stalks of *Artemisia vulgaris*).

12 (11). Only three or four clear spots between V.1. and V.2.

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- 13 (14). Wings broad with blunt tips ; scutellum four-bristled ; colour of the male clear orange ; female brown.
(2443. *T. flavipennis*, Lw.)
(Larvæ on *Achillea millefolium*).
- 14 (13). Wings comparatively narrow and not blunt at the tips ; scutellum usually two-bristled ; body darker.
(2444. *T. proboscidea*, Lw.)
(Larvæ in round root-galls of *Chrysanthemum leucanthemum*).
- 15 (10). Stigma wholly brown, unspotted, or at most with one pale spot.
- 16 (17). Femora yellow, at most with a dark stripe above.
(2448. *T. elongatula*, Lw.)
(Larvæ on various Compositæ).
- 17 (16). Femora yellow with black bases.
- 18 (19). Stigma with one clear spot ; blackish brown species with pale yellow hairs. (2446. *T. tessellata*, Lw.)
(Larvæ in Dandelion and Sow Thistle flowers).
- 19 (18). Stigma generally unspotted ; grey species with grey hairs.
2447. *Tephritis absinthii*, F.
Hesleden, 1 ♀, July, 1899.
- 20 (7). Proboscis not lengthened, the comparatively broad suckers seldom elbowed backwards ; abdomen usually unspotted.
- 21 (26). Tip of the wing clear ; end of V.3. and V.4. each with an isolated dark spot.
- 22 (23). Wings not yellow at the base, the dark parts dark grey and very much broken up.
2449. *Tephritis hyoscyami*, L.
Evenwood, 1 ♀, June, 1897.
- 23 (22). Wings yellowish at the base, the dark parts deep brown, band-like, and not much broken up.
- 24 (25). O.5² free from the dark band except at its outer end.
2456. *Tephritis bardanæ*, Schrk.
Hesleden, 10 ♂ and 2 ♀, August, 1902.

- 25 (24). The greater part of O.5² filled by the dark band which crosses it. (2450. *T. formosa*, Lw.)
- 26 (21). Tip brown or blackish; if clear, then the dark mark at the ends of V.3. and V.4. united to the rest of the dark part.
- 27 (28). Small species, 1½–2 mm. (2454. *T. dioscurea*, Lw.)
- 28 (27). Larger species, 3 mm.
- 29 (32). O.5² clear at its base, the clear spots comparatively few, but large and distinct.
- 30 (31). No clear spot on X.5²; a clear semicircular spot between the ends of V.3. and V.4., as if half pushed off the wing by the dark part.
2453. *Tephritis vespertina*, Lw.
Harperley, 2 ♀, April; Shull, 1 ♂, September, 1900.
- 31 (30). A clear spot on X.5²; the tip spot round.
(2455. *T. leontodontis*, Deg.)
- 32 (29). O.5² spotted to its base, the clear spots generally very numerous but small.
- 33 (34). Wings yellow at the base. (2451. *T. conura*, Lw.)
- 34 (33). Wings not yellow at the base. (2452. *T. ruralis*, Lw.)
- 35 (6). Wings with the clear spots arranged round the wing margin, so as to cause the dark parts along the margin to assume the form of rays, or, the lattice work only present on the fore half of the wing.
- 36 (37). Lattice work extending nearly to the base of the wing. (2458. *E. guttata*, Fln.)
- 37 (36). Base of the wing clear, usually as far as X.4., sometimes nearly to the wing tip.
- 38 (39). Stigma brown without any clear spot; lattice work beginning a good way before X.4.
(2457. *E. conjuncta*, Lw.)
- 39 (38). Stigma all clear, or orange or brown with clear spots; the lattice work beginning close before or after X.4.
- 40 (43). Scutellum with two bristles.
- 41 (42). Stigma clear or orange, and never connected with X.4. by a brown shadow.
(2462. *U. stellata*, Fuessl.)

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- 42 (41). Stigma spotted with brown, and always, even when unspotted, connected with X.4. by a brown shadow. (2461. *U. amœna*, Frfld.)
- 43 (40). Scutellum with four bristles.
- 44 (45). Lattice work black-brown, and long rayed at the wing tip. (2459. *U. cometa*, Lw.)
- 45 (44). Lattice work very pale and indistinct, not rayed at the wing tip, or imperfectly so. (2460. *U. eluta*, Mg.)

FAMILY XLIII.—LONCHÆIDÆ.

TABLE OF GENERA.

- 1 (2). Dark metallic blue or green, plump looking species.
LONCHÆA, Fln. (570)
- 2 (1). Yellow, grey, and sometimes shining black, never metallic blue or green, of a somewhat slender aspect.
PALLOPTERA, Fln. (571)

TABLES OF SPECIES.

570. LONCHÆA, Fln.

- 1 (6). Tarsi entirely black.
- 2 (3). Dark green species. (2467. *ænea*, Mg.)
- 3 (2). Dark metallic blue or black species.
- 4 (5). Large species, 4–5 mm. Wings somewhat yellowish; X.4. a little beyond the end of V.1.a.
2463. *Lonchæa vaginalis*, Fln.
Bishop Auckland, 1 ♂ and 2 ♀, July–August, 1900–01.
- 5 (4). Small species, 3 mm. Wings clear; X.4. directly below the end of V.1.a.
2464. *Lonchæa chorea*, F.
Bishop Auckland, 1 ♀, June, 1897.
- 6 (1). Tarsi at least partly yellow.
- 7 (10). At least the first three tarsal joints yellow on all legs.
- 8 (9). Palpi unusually broad and leaf-like, protruding far out of the mouth; antennæ distinctly shorter than the face; third joint broad and round in front.
(2466. *palposa*, Ztt.)

- 9 (8). Palpi normal; antennæ nearly as long as the face; third joint very broad.

Lonchæa laticornis, Mg.

Bishop Auckland, 3 ♀, June–July, 1900–01.

These seem to come nearer to *laticornis*, Ztt., but for two of them *longicornis* would be a better name than *laticornis*, and they may be two species.

- 10 (7). The last four tarsal joints entirely black, at least on some legs.

- 11 (12) (13). Legs black, except the metatarsi, which are pale on all legs; squamæ black. (2465. *tarsata*, Fln.)

- 12 (11) (13). Legs black, except the mid and hind tarsi orange; squamæ pale; 2 mm. (2468. *pusilla*, Mg.)

- 13 (11) (12). Legs black, except the base of the fore tarsi orange; squamæ pale; 5 mm. (2469. *latifrons*, Mg.)

571. PALLOPTERA, Fln.

- 1 (6). Dorsum grey.

- 2 (3). Wings with only the tips brown, otherwise unspotted.

2473. *Palloptera ustulata*, Fln.

Bishop Auckland, 3 ♂ and 5 ♀, July, 1900–01.

- 3 (2). Wings with brown marks on the fore margin, the tip, and the middle.

- 4 (5). X.4. and X.5² both clouded; abdomen grey.

2474. *Palloptera umbellatarum*, F.

Hesleden, 2 ♂, August, 1899; Bishop Auckland, 2 ♂ and 6 ♀, June–July, 1900–01.

- 5 (4). X.4. not clouded; X.5² clouded; abdomen black.

2479. *Palloptera usta*, Mg.

Bishop Auckland, 1 ♀, July 31, 1904.

- 6 (1). Dorsum orange or black.

- 7 (8). Wings with the fore margin and tip black.

2472. *Palloptera saltuum*, L.

Barnard Castle, 3 ♀, Bishop Auckland, 2 ♂ and 1 ♀, June–July, 1899–1901.

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- 8 (7). Wings with brown marks on the fore margin, the tip, and the middle.
- 9 (10). Dorsum shining orange with black stripes. (2476. *ambusta*, Mg.)
- 10 (9). Dorsum orange, unstriped.
- 11 (12). Arista bare, the spot at the end of V.1.b. not reaching V.2.; last tarsal joints dark.
2477. *Palloptera trimacula*, Mg.
Bishop Auckland, 1 ♂ and 1 ♀, Evenwood, 1 ♂, Harperley, 1 ♀, June–July, 1896–1901.
- 12 (11). Arista distinctly pubescent or short haired, the spot at the end of V.1.b. large and extending nearly to V.3.; tarsal joints all yellow. (2478. *arcuata*, Fln.)

FAMILY XLIV.—SAPROMYZIDÆ.

TABLE OF GENERA.

- 1 (2). Wings with long stripes over V.4. and V.5.; wings lying roof-like over the abdomen.
573. *PEPLOMYZA*, Hal. (2481. *wiedemanni*, Lw.)
- 2 (1). Wings spotted or unspotted, but not striped, lying flat on the abdomen, not roof-like.
- 3 (4). Shining orange, or matt-dark or black species, not metallic; third antennal joint moderately long or short; arista bare, pubescent, or plumed.
SAPROMYZA, Fln. (574)
- 4 (3). Shining metallic black or black-green species, whose third antennal joint is usually much lengthened, and the arista nearly bare. LAUXANIA, Ltr. (575)

TABLES OF SPECIES.

574. SAPROMYZA, Fln.

- 1 (14). Arista distinctly and long plumed, or at least short haired.
- 2 (9). Dorsum black or grey; arista long haired.
- 3 (4). Abdomen brownish black. (2482. *longipennis*, F.)
- 4 (3). Abdomen orange or red brown.

- 5 (6). Scutellum grey with the whole hind margin broadly black.
 2483. *Sapromyza lupulina*, F.
 Bishop Auckland, 1 ♀, Harperley, 1 ♀, June, 1901-02.
- 6 (5). Scutellum grey with yellow margin, or all yellow.
- 7 (8). Abdomen without black bands.
 (2486. *flaviventris*, Costa.)
- 8 (7). Abdomen with black bands.
 2484. *Sapromyza fasciata*, Fln.
 Hesleden, 1 ♀, August 14, 1902.
- 9 (2). Entirely yellow species.
- 10 (11). Wings unspotted; arista long haired.
 (2500. *plumicornis*, Fln.)
- 11 (10). Wings spotted; arista short haired.
- 12 (13). Third antennal joint yellow, with the end brown; wings with five spots each.
 2487. *Sapromyza decempunctata*, Fln.
 Common. Bishop Auckland, 6 ♂ and 7 ♀, June-July, 1901-02.
- 13 (12). Third antennal joint all yellow.
- 13a (13b). Wings with six spots each. (2488. *notata*, Fln.)
- 13b (13a). Wings with X.4. and X.5² darkly clouded, the tip with a dark border, and the base of V.3. and V.5. brown.
 (2495. *biunibrata*, Lw.)
- 14 (1). Arista pubescent or bare.
- 15 (18). Dorsum grey.
- 16 (17). Head pale yellow; abdomen dirty yellow with indistinct brown bands.
 2489. *Sapromyza pallidiventris*, Fln.
 Harperley, 1 ♂, July, 1902.
- 17 (16). Head grey; abdomen red brown.
 (2499. *placida*, Mg.)
- 18 (15). Dorsum yellow.
- 19 (36). Wings unspotted, or at least never with both the wing tip and a X-vein clouded at the same time.

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20 (23). Abdomen with black points or marks at the sides.

21 (22). Abdomen with two black marks.

(2490. *bipunctata*, Mg.)

22 (21). Abdomen with four black marks.

(2491. *quadripunctata*, L.)

23 (20). Abdomen without black spots or marks.

24 (25). Hind metatarsus much thickened.

(2501. *tarsella*, Ztt.)

25 (24). Hind metatarsus not thickened.

26 (31). Antennæ yellow with the third joint black, or at least black at the point.

27 (28). Palpi all yellow. (2504. *anisodactyla*, Lw.)

28 (27). Palpi yellow with black tips.

29 (30). Bristles on the second abdominal segment not more prominent than on the other segments.

2492. *Sapromyza obsoleta*, Fln.

Bishop Auckland, 2 ♀, July, 1900.

30 (29). Bristles on the second abdominal segment distinctly longer than those on the others, especially in the female.

2503. *Sapromyza apicalis*, Lw.

Bishop Auckland, 1 ♀, July 12, 1900, 1 ♀, July 15, 1901.

31 (26). Antennæ wholly yellow, the third joint not black at the tip.

32 (33). Palpi yellow with black tips.

(2502. *decipiens*, Lw. 2498. *albiceps*, Fln.)

33 (32). Palpi all yellow.

34 (35). Two large warts on each side of the third abdominal segment. (2505. *difformis*, Lw.)

35 (34). Third abdominal segment without warts.

2496. *Sapromyza rorida*, Fln.

Very common.

36 (19). Wings with X.5² and the ends of V.2., V.3., and V.4. clouded. (2497. *præusta*, Fln.)

575. LAUXANIA, Ltr.

- 1 (4). Antennæ longer than the face, very thin and almost pointed in front; wings strongly orange tinged.
- 2 (3). Wings with a blackish spot at the base.
(2506. *cylindricornis*, F.)
- 3 (2). Wings not spotted at the base. (2507. *elisæ*, Mg.)
- 4 (1). Antennæ shorter, or at most as long as the face, not very thin, and with the third joint elliptical; wings clear or faintly tinged.
- 5 (6). Face yellow. (2508. *atrimana*, Mg.)
- 6 (5). Face shining black or dark green.
- 7 (8). Body greenish bronze; wings yellow tinged; squamæ yellow.
2509. *Lauxania ænea*, Mg.
Hesleden, Waskerley, Bishop Auckland, 6 ♂ and 6 ♀,
June–August.
- 8 (7). Body bluish black; wings clear; veins white; squamæ white. (2511. *hyalinata*, Mg.)

FAMILY XLV.—OPOMYZIDÆ.

TABLE OF GENERA.

- 1 (2). Head semicircular, almost flat behind; wings spotted.
OPOMYZA, Fln. (577)
- 2 (1). Head round, inflated behind; wings unspotted.
PELETHOPHILA, Hagenb. (578)

TABLES OF SPECIES.

576. BALIOPTERA, Lw.

Life history unknown.

(For characters, see under GEOMYZA, 590*).

2513. *Balioptera tripunctata*, Fln.

Bishop Auckland, 1 ♂, October 25, 1901.

2514. *Balioptera combinata*, L.

Hesleden, 2 ♂ and 1 ♀, August, 1900.

* Where a genus or species is repeated in different parts or tables it is owing either to the different arrangements of authors or to the possession of the character of more than one family, &c., or for greater clearness.

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577. OPOMYZA, Fln.

Life history unknown.

- 1 (2). Dorsum with dark stripes.

2516. *Opomyza germinationis*, L.

Common everywhere.

- 2 (1). Dorsum unstriped.

2517. *Opomyza florum*, F.

Hesleden, 1 ♀, August, 1899.

578. PELETHOPHILA, Hagenb.

Life history unknown.

- 1 (2). Antennæ yellow; third joint black. (2519. *lutea*, Fln.)

- 2 (1). Antennæ all yellow.

2520. *Pelethophila flava*, L.

Bishop Auckland, 2 ♂ and 1 ♀, July, 1900; Hancock
Museum window, 1 ♀, 16-8-04.

FAMILY XLVI.—SEPSIDÆ.

TABLE OF GENERA.

- 1 (8). V.1.a. present.

- 2 (5). Abdomen bent downwards, much narrowed at the
base, almost petiolate, second segment as if
swollen.

- 3 (4). Fore femora of the male with teeth or knobs on the
under side. SEPSIS, Fln. (581)

- 4 (3). Fore femora often with strong thorn-like bristles, but
without teeth or knobs. NEMOPODA, Dsv. (582)

- 5 (2). Abdomen straight, or little bent, nearly as broad at
the base as in the middle, not petiolate, and not
swollen.

- 6 (7). X.5¹ wanting; metanotum not much developed.

SALTELLA, Dsv. (585)

- 7 (6). X.5¹ present; metanotum strongly developed.

THEMIRA, Dsv. (584)

- 8 (1). V.1. not branched, V.1.a. absent.

586. MYCETAULUS, Lw. (2547. *bipunctatus*, Fln.)

TABLES OF SPECIES.

581. SEPSIS, Fln.

- 1 (2). Wings quite clear, without any spot at the point.
 583. HENICITA, Westw. (2539. *annulipes*, Mg.)
- 2 (1). Wings with a round black spot at the tip.
- 3 (4). Abdomen golden green, red at the base; legs entirely yellow.
 (2523. *punctum*, F.)
- 4 (3). Abdomen not red at the base.
- 5 (6). Legs entirely yellow except a short black line on the femora above, and the tip of the tarsi; $X.5^2$ nearly as long as $V.5^4$; abdomen violet.
 2525. *Sepsis violacea*, Mg.
 Bishop Auckland, 2 ♂, April–May, 1900–02.
- 6 (5). At least the mid and hind legs black.
- 7 (8) (9). Legs wholly black except the fore coxæ.
 (2528. *nigripes*, Mg.)
- 8 (7) (9). Legs with the knees, the fore coxæ, and fore tibiæ yellow; wings with $X.5^2$ nearly as long as $V.5^4$.
 2526. *Sepsis cynipsea*, L.
 Common everywhere.
- 9 (7) (8). The fore legs entirely yellow except the tip of the tarsi; $X.5^2$ very short, about half the length of $V.5^4$.
 (2527. *flavimana*, Mg.)

582. NEMOPODA, Dsv.

- 1 (2). Wings towards the point with a faint but always distinct brown cloud; male fore femora beneath with a few weak and short bristles.
 2534. *Nemopoda cylindrica*, F.
 Bishop Auckland, Hesleden, &c., 4 ♂ and 2 ♀, June–August.
- 2 (1). Wings quite clear; male fore femora beneath with two rather strong thorn-like bristles.
 (2535. *stercoraria*, Dsv.)

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584. THEMIRA, Dsv.

- 1 (4). Male anus with very prominent hair tufts.
- 2 (3). Sternopleura with a white reflection.
(2541. *putris*, L.)
- 3 (2). Sternopleura without white reflection.

583. HENICITA, Westw. (2540. *leachi*, Mg.)

- 4 (1). Anus of male without hair tufts. (2544. *minor*, Hal.)

585. SALTELLA, Dsv.

Life history unknown.

- 1 (2). Abdomen at the base, all the femora, and the mid tibiæ orange.
(2545. *sphondylii*, Schrk.)
- 2 (1). Abdomen all black; legs black, except the coxæ and the base of the hind femora which are yellow.
(2546. *nigripes*, Dsv.)

FAMILY XLVII.—PIOPHILIDÆ.

TABLE OF GENERA.

- 1 (4). Wings without any dark brown spot at the tip.
- 2 (3). Proboscis long and thin, the suckers hooked and much turned back.

588. MADIZA, Fln. (2558. *glabra*, Fln.)

- 3 (2). Proboscis short and broad in front, not hook-like.
PIOPHILA, Fln. (587)

- 4 (1). Wings with a dark brown spot at the tip.

586. MYCETAULUS (2547. *bipunctatus*, Fln.)

TABLE OF SPECIES.

587. PIOPHILA, Fln.

Larvæ live in cheese and in fat.

- 1 (9). Face orange.
- 2 (5). Mid and hind legs black, or at least dark; frons broadly black, yellow in front.
- 3 (4). Base of fore femora yellow.

2548. *Piophila casei*, L.

Bishop Auckland, 3 ♂ and 6 ♀, May–July.

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- 4 (3). Fore femora all black. (2550. *atrata*, F.)
- 5 (2). Mid and hind legs mostly or entirely yellow.
- 6 (7) (8). Mid and hind legs with the tip half of the femora and the last two tarsal joints black; vertex broadly black. (2551. *varipes*, Mg.)
- 7 (6) (8). Mid femora faintly, hind femora distinctly darkened at the tip; head all orange, except the ocellar spot. (2552. *affinis*, Mg.)
- 8 (6) (7). Fore legs all black except the coxæ; mid and hind legs entirely orange; vertex narrowly black. (2553. *nigrimana*, Mg.)
- 9 (1). Face black.
- 10 (13). Antennæ orange.
- 11 (12). Mid and hind femora orange with a broad black band. (2554. *nigriceps*, Mg.)
- 12 (11). Mid and hind femora all orange; fore tibiæ and first three tarsal joints rather dilate, the last two thin. (2555. *latipes*, Mg.)
- 13 (10). Antennæ black. (2556. *nigricornis*, Mg.)

FAMILY XLVIII.—GEOMYZIDÆ.

TABLE OF GENERA.

- 1 (4). Arista bare or scarcely pubescent.
- 2 (3). Third antennal joint round, disc-like; wings always unspotted. ANTHOMYZA, Fln. (589)
- 3 (2). Third antennal joint elliptical; wings mostly spotted. GEOMYZA, Fln., part (590)
- 4 (1). Arista plumose, or at least distinctly pubescent.
- 5 (6). V.4⁴ at least twice as long as V.4³; X.4. on the middle of the wing and always far beyond the end of V.1. GEOMYZA, Fln., part (590)
- 6 (5). V.4⁴ about equal to V.4³; X.4. far before the middle of the wing, and about in a line with the end of V.1. DIASTATA, Mg. (591)

TABLES OF SPECIES.

589. ANTHOMYZA, Fln.

- 1 (2). Hoary grey species. (2560. *grisea*, Fln.)
 2 (1). Black species.
 3 (4). Abdomen all black; legs yellow with the last tarsal joint dark. (2561. *gracilis*, Fln.)
 4 (3). Abdomen black, pale beneath and at the base; legs entirely yellow, including the last tarsal joint. (2562. *flavipes*, Ztt.)

590. GEOMYZA, Fln.

- 1 (4). Dorsum shining orange.
 2 (3). X.4. distinctly clouded. *Balioptera combinata*, L. (576 back)
 3 (2). X.4. not clouded. (2515. *Balioptera venusta*, Mg.)
 4 (1). Dorsum blackish grey.
 5 (6). Wings almost clear with three dark brown spots. *Balioptera tripunctata*, Fln. (576 back)
 6 (5). Wings blackish brown with clear streaks or spots; costa spined as in Helomyzidæ. (2563. *Geomyza marginella*, Fln.)

591. DIASTATA, Mg.

Life history unknown.

- 1 (5). The X-veins clouded, or with brown bands crossing the X-veins; costa spined.
 2 (3) (4). Wings plain greyish, not banded, but the X-veins and the tips of V.2., V.3., and V.4. clouded. (2566. *Geomyza obscurella*, Fln.)
 3 (2) (4). Wings greyish, a dark spot at the base of V.1.; X.5² banded; X.4. not clouded. (2570. *unipunctata*, Ztt.)
 4 (2) (3). Wings strongly brownish with two dark bands from V.3. to V.5. over the X-veins; a clear band between X.4. and X.5², and another beyond the X.5² band. 2573. *Diastata nebulosa*, Fln.

Shull, 1 ♀, September, 1900.

- 5 (1). Wings with the X-veins neither clouded nor banded; costa not spined.
- 6 (7). Wings brown with a clear indistinctly bounded spot behind X.5²; abdomen black with the base pale yellowish, and the point of the anus with a white spot. (2567. *punctum*, Mg.)
- 7 (6). Wings clear with brown fore margin; abdomen all black. (2571. *costata*, Mg.)

FAMILY XLIX.—EPHYDRIDÆ.

Becker's Ephydridæ in German, Berliner Entom. Zeitschrift, 1896, should be consulted.

TABLE OF SUB-FAMILIES AND GENERA.

Life history of only one or two species known.

- 0 (52). X.5¹ and X.6. absent; V.1.a. and V.1.b. confluent.
- 1 (16). Second antennal joint with a little thorn in front, or with a thorn-like bristle (VII. 22), or the upper side of the mid tibiæ sometimes with strong bristles.

Sub-Family NOTIPHILINÆ, Lw.

- 2 (5). Costa ending at the end of V.3.
- 3 (4). The end of the abdomen in the male with two long upward directed bristles; dull black species; two pairs of diverging fronto-orbital bristles.
593. DICHÆTA, Mg. (2575. *caudata*, Fln.)
- 4 (3). The end of the abdomen in the male without long bristles; dull grey species; one pair of fronto-orbital bristles. NOTIPHILA, Fln. (594)
- 5 (2). Costa reaching to the end of V.4.
- 6 (7) (8). The abdomen flat, and with apparently only three segments, the first and the fifth being very much shortened in both sexes.
595. TRIMERINA, Mcq. (2586. *madizans*, Fln.)
- 7 (6) (8). Abdomen with five distinct segments in the female, but with the first and fifth shortened in the male; scutellum with six bristles; shore species.
600. HECAMFDE, Hal. (2598. *albicans*, Mg.)

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- 8 (6)(7). Abdomen with five distinct segments in both sexes; four scutellar bristles.
- 8a (8b). Arista bare; second terminal segment lengthened.
618. MOSILLUS, Ltr. (2658. *subsultans*, F.)
- 8b (8a). Arista combed.
- 9 (10). Abdomen broad, almost round; palpi very broad.
 DISCOMYZA, Mg. (**596**)
- 10 (9). Abdomen not remarkably broad, lengthened, elliptical.
- 11 (12). Mouth opening large, prælabrum not protruding.
- 11a (11b). Under half of face somewhat protruding; eyes hairy; two costal spines. ATISSA, Hal. (**603**)
- 11b (11a). Under half of face with a nose-like knob; eyes bare; no costal spine.
613. ILYTHEA, Hal. (2642. *spilota*, Hal.)
- 12 (11). Mouth opening not large, prælabrum protruding.
- 13 (14) (15). Face on the upper half concave in profile, compressed, and on the lower half protruding knob-like. **599.** ATHYROGLOSSA, Lw. (2597. *glabra*, Mg.)
- 14 (13) (15). Face keeled on the upper half, flat on the under half, or nearly so, and with several side bristles.
 DISCOCERINA, Mcq. (**598**)
- 15 (13) (14). The whole length of the face flatly convex, and with only one side bristle. PSILOPA, Fln. (**597**)
- 16 (1). Second antennal joint in front with at most a short hair-like bristle (VII. 23, 24); the upper side of the mid tibiæ always without strong bristles.
- 17 (31). Eyes usually hairy; mouth opening small; face only moderately arched (VII. 25, 26).

Sub-Family HYDRELLINÆ.

- 18 (23) (28). Eyes thickly haired.
- 19 (20). Arista pubescent; dorso-central bristles absent or weak. **601.** GLENANTHE, Hal. (2599. *ripicola*, Hal.)
- 20 (19). Arista combed (VII. 23); dorso-central bristle distinct.
- 21 (22). Face arched; arista long combed (VII. 25, 23).
 HYDRELLIA, Dsv. (**602**)

- 22 (21). Face concave on the upper part; arista short combed. **603.** ATISSA, Hal. (2614. *pygmæa*, Hal.)
- 23 (18) (28). Eyes with scattered hairs or almost bare.
- 24 (27). Costa reaching to the end of V.4.
- 25 (26). Face hairy at the sides; three pairs of dorso-central bristles. PHILHYGRIA, Stnh. (**604**)
- 26 (25). Face not hairy at the sides; only one pair of dorso-central (præscutellar) bristles; wings with two clear dots near X.5. HYADINA, Hal. (**605**)
- 27 (24). Costa only reaching to the end of V.3. **606.** AXYSTA, Hal. (2624. *cesta*, Hal.)
- 28 (18) (23). Eyes bare.
- 29 (30). Fore femora very much thickened. **608.** OCHTHERA, Ltr. (2627. *mantis*, Deg.)
- 30 (29). Fore femora not thickened. PELINA, Hal. (**607**)
- 31 (17). Eyes bare; mouth opening large; face very strongly arched (VII. 21).

Sub-Family EPHYDRINÆ, Lw.

- 32 (33). V.1.a. partly, and at least always at the end separated from V.1.b. **623.** AULACIGASTER, Mcq. (2677. *rufitarsis*, Mcq.) [*Drosophilidæ.*]
- 33 (32). V.1.a. nowhere separated from V.1.b.
- 34 (41). Upper lip (labrum) protruding (VII. 26).
- 35 (38). The opening of the mouth comparatively small.
- 36 (37). Fore femora very much thickened. **608.** OCHTHERA, Ltr. (2627. *mantis*, Deg.)
- 37 (36). Fore femora not thickened. PELINA, Hal. (**607**)
- 38 (35). The opening of the mouth extremely large.
- 39 (40). Face bare, with a single long bristle on each side; only from two to three distinct dorso-central bristles. PARHYDRA, Hal. (**610**)
- 40 (39). Face with several long bristles on each side, the sides of the mouth also bristly; five distinct dorso-central bristles. **611.** HALMOPOTA, Hal. (2637. *salinarum*, Bouché)

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- 41 (34). Upper lip (labrum) entirely hidden (VII. 21).
 42 (43). Claws almost straight; foot-pads very small, rudimentary. EPHYDRA, Fln. (612)
 43 (42). Claws bent; foot-pads large and distinct.
 44 (45). Mouth edge quite bare.
 613. ILYTHEA, Hal. (2642. *spilota*, Hal.)
 45 (44). Mouth edge bristly or hairy (VII. 21).
 46 (47). Arista combed. CÆNIA, Dsv. (614)
 47 (46). Arista pubescent or bare.
 48 (49). Costa ending at, or shortly after V.3.
 SCATOPHILA, Beck. (616)
 49 (48). Costa reaching to V.4.
 50 (51). Arista quite bare (VII. 24); antennæ kneed at the first joint.
 617. TICHOMYZA, Mcq. (2657. *fusca*, Mcq.)
 51 (50). Arista pubescent; antennæ not kneed.
 SCATELLA, Dsv. (615)
 52 (0). X.5¹ and X.6. present; V.1.a. distinct from V.1.b.; third antennal joint round. CANACE, Hal. (609)

TABLES OF SPECIES.

594. NOTIPHILA, Fln.

- 1 (2). Dorsum, pleuræ, and abdomen all dusted with light grey. (2579. *guttiventris*, Stnh.)
 2 (1). Dorsum, pleuræ, and abdomen not all grey dusted, but of different colours.
 3 (6). Antennæ entirely black.
 4 (5). Palpi dark; femora and tibiæ black. (2576. *uliginosa*, Hal.)
 5 (4). Palpi pale; tibiæ mostly orange. (2577. *nigricornis*, Stnh.)
 6 (3). Antennæ at least partly orange.
 7 (10). Dorsum with very distinct dark brown stripes and spots.
 8 (9). Fore tibiæ yellow with a brown ring on the middle. (2580. *maculata*, Stnh.)
 9 (8). Fore tibiæ all dark brown. (2581. *venusta*, Lw.)

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- 10 (7). Dorsum without distinct stripes or spots.
- 11 (12). Antennæ all orange or dirty yellow, with at most the tip of the third joint brown; face grey.
(2582. *riparia*, Mg.)
- 12 (11). Antennæ with at least the first and second joints black.
- 13 (16). Fore tibiæ and fore tarsi dark brown; face yellow.
- 14 (15). Third antennal joint only narrowly yellow at the base; mid tibiæ not dark ringed. (2584. *dorsata*, Stnh.)
- 15 (14). Third antennal joint orange with a dark brown spot in front; mid and hind tibiæ ringed.
(2585. *annulipes*, Stnh.)
- 16 (13). Fore tibiæ and fore tarsi brownish yellow.
- 17 (18). Face ochre yellow.
2583. *Notiphila cinerea*, Fln.
Hesleden, 3 ♀, August, 1902.
- 18 (17). Face white. (2578. *stagnicola*, Mcq.)

596. DISCOMYZA, Mg.

- 1 (2). Black species; no dorso-central bristles in front; wings with the fore margin and X.5. clouded.
(2587. *incurva*, Fln.)
- 2 (1). Dark brown or bronze species; a pair of dorso-central bristles in front; fore margin of the wings and X.5. not clouded. (2588. *cimiciformis*, Hal.)

597. PSILOPA, Fln.

Life history unknown.

- 1 (6). Antennæ yellow or partly yellow.
- 2 (3). Legs wholly yellow; X.5² with a brown spot.
(2589. *leucostoma*, Mg.)
- 3 (2). Legs partly black; wings unspotted.
- 4 (5). Fore legs entirely black. (2590. *nitidula*, Fln.)
- 5 (4). All tibiæ and tarsi yellow. (2591. *compta*, Mg.)
- 6 (1). Antennæ black. (2592. *nigritella*, Stnh.)

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598. DISCOCERINA, Mcq.

- 1 (8). Face with only a single row of bristles near the cheeks.
- 2 (3). Cheek with a row of 5-6 very fine bristles, in addition to the facial bristles. (2593. *obscura*, Fln.)
- 3 (2). Cheeks without any fine bristles.
- 4 (7). Third antennal joint entirely black.
- 5 (6). C^2 not more than half as long again as C^3 ; dorsum dark grey-brown, matt; $1\frac{1}{4}$ -2 mm. (2596. *pulicaria*, Hal.)
- 6 (5). C^2 twice as long as C^3 ; dorsum shining olive-brown; 3 mm. (*plumosa*, Fln.)
- 7 (4). Third antennal joint reddish brown. (2595. *calceata*, Mg.=2594. *nigrina*, Stnh.)
- 8 (1). Facial bristles in two rows.
- 9 (10). Antennæ entirely black; face with 3-4 bristles in a row near the cheeks and a single bristle in a second row. (*glaucella*, Stnh.)
- 10 (9). Antennæ orange; face with two strong bristles in an inner row and 3-6 weaker in an outer row. (*xanthocera*, Lw.)

602. HYDRELLIA, Dsv.

- 1 (12). Face white or grey.
- 2 (5). Palpi black.
- 3 (4). Dorsum dark olive or yellowish grey with darker stripes in certain lights. (2601. *thoracica*, Hal.)
- 4 (3). Dorsum shining black, unstriped; V.2. short, bent up at its end. (2600. *albilabris*, Mg.)
- 5 (2). Palpi orange.
- 6 (7). Wings dusky. (2613. *albiceps*, Mg.)
- 7 (6). Wings clear.
- 8 (9). Small dark grey species, $1-1\frac{1}{2}$ mm. (2604. *discolor*, Stnh.)
- 9 (8). Larger species, $2-2\frac{1}{2}$ mm.
- 10 (11). Legs with all tarsi, the fore and mid tibiæ and the tip of the hind tibiæ tawny. (2605. *hydrocotyles*, Hal.)

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- 11 (10). Legs all black except the base of the mid and hind tarsi. (2611. *ranunculi*, Hal.)
- 12 (1). Face yellow.
- 13 (14). Claws reddish and rather long. (2612. *tarsata*, Hal.)
- 14 (13). Claws white and short.
- 15 (16). Palpi black. (2610. *cochleariæ*, Hal.)
- 16 (15). Palpi yellow or orange.
- 17 (18). Eyes purple and large. (2606. *porphyrops*, Hal.)
- 18 (17). Eyes dark green or brassy.
- 19 (22). C^2 at least half as long again as C^3 .
- 20 (21). Face scarcely keeled; C^2 twice as long as C^3 ; greenish grey species; X.4. perpendicular. (2607. *griseola*, Fln.)
- 21 (20). Face sharply keeled; C^2 about half as long again as C^3 ; X.4. slightly oblique. (2608. *chrysostoma*, Mg.)
- 22 (19). C^2 and C^3 about equally long.
- 23 (24). Third antennal joint wholly orange. (2609. *nigripes*, Ztt.)
- 24 (23). Third antennal joint black, or only yellow beneath.
- 25 (26). Fifth abdominal segment more than twice as long as the fourth; legs mostly yellow. (2602. *laticeps*, Stnh.)
- 26 (25). Fifth abdominal segment scarcely longer than the fourth; legs mostly blackish.
- 27 (28). Femora all black; fore tibiæ orange. (2603. *flavilabris*, Stnh.)
- 28 (27). Femora with orange rings; fore tibiæ black. (*fulviceps*, Stnh.)

603. ATISSA, Hal.

- 1 (2). X.5. not clouded; antennæ orange with the base brown. (2614. *pygmæa*, Hal.)
- 2 (1). X.5. distinctly clouded; antennæ black, except the base of the third joint. (*limosina*, Beck.)

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604. PHILHYGRIA, Stnh.

- 1 (9). Wings with not more than one spot, besides the spots on the two X-veins.
- 2 (3) (6). Wings quite clear and unspotted; dorsum brown with whitish stripes, and the scutellum dull black; arista combed. (2615. *picta*, Fln.)
- 3 (2) (6). Wings grey with the two X-veins clouded, but no other dark spot.
- 4 (5). Arista almost bare; legs mostly black; tarsi yellow. (2618. *interrupta*, Hal.)
- 5 (4). Arista combed; legs all yellow; C^2 three times as long as C^3 . (2620. *posticata*, Mg.)
- 6 (2) (3). Wings with one brown spot, in addition to the clouded X-veins.
- 7 (8). Wings grey clouded, the brown spot between V.3. and V.4. near the tip. (2617. *stictica*, Mg.)
- 8 (7). Wings clear with a yellowish tint; a small brown spot at the end of V.1. (2619. *flavipes*, Fln.)
- 9 (1). Wings with numerous brown spots.
- 10 (11). C^2 about equal to C^3 ; X-veins and end of V.1. clouded; two spots in O.3., two in O.4², one in O.5², not touching the veins. (2521. *interstincta*, Fln.)
- 11 (10). C^2 almost twice as long as C^3 ; X-veins and the end of V.1. clouded; rows of spots along and touching V.2., V.3., and V.4. (2616. *punctato-nervosa*, Fln.)

605. HYADINA, Hal.

- 1 (6). Pleuræ with a velvet-black spot near the shoulders.
- 2 (5). Pleural spot very large; wings with two clear spots at the X-veins.
- 3 (4). Scutellum entirely velvet-black. (2622. *scutellata*, Hal.)
- 4 (3). Scutellum shining in the middle with a velvet-black spot on each side. (2623. *guttata*, Fln.)

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- 5 (2). Pleural spot small; wings without clear spots.
(*humeralis*, Beck.)
- 6 (1). Pleuræ without any velvet-black spot. (*nitida*, Mcq.)

607. PELINA, Hal.

- 1 (2). Dorsum punctate, matt. (2625. *ænea*, Hal.)
- 2 (1). Dorsum shining. (2626. *ænescens*, Stnh.)

609. CANACE, Hal.

- 1 (2). The four dorso-central and other bristles strongly developed. (2628. *nasica*, Hal.)
- 2 (1). Thoracic bristles weakly developed.
(2629. *ramula*, Lw.)

610. PARHYDRA, Stnh.

- 1 (12). Bare species.
- 2 (7). V.2. with a hang-vein near its end.
- 3 (4). The hang-vein not brown clouded.
(2635. *coarctata*, Fln.)
- 4 (3). The hang-vein brown clouded.
- 5 (6). V.2. from the hang-vein bent gradually up; C² nearly double as long as C³; frontal triangle rounded in front.
2633. *Parhydra quadripunctata*, Mg.
Howick, 1 ♀, 22-8-05.
- 6 (5). V.2. suddenly and sharply angled upwards; C² at most half as long as C³; frontal triangle deeply incised, trifoliate. (2636. *litoralis*, Mg.)
- 7 (2). V.2. without a hang-vein.
- 8 (9). C² at least twice as long as C³; large species, 3½-4½ mm.
2634. *Parhydra aquila*, Fln.
Hesleden, 3 ♀, August, 1899.
- 9 (8). C² but little longer than C³; smaller species, 1-2½ mm.
- 10 (11). Besides the usual facial bristle, another nearly as long beneath it. (2630. *pusilla*, Mg.)
- 11 (10). No second facial bristle, only a few small hairs.
(2632. *fossarum*, Hal.)
- 12 (1). Very hairy species. (2631. *pubera*, Lw.)

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612. EPHYDRA, Fln.

- 1 (2). Third antennal joint without any long erect bristle in addition to the arista.
(2638. *riparia*, Fln.=2639. *halophila*, v. Heyd.)
- 2 (1). Third antennal joint, in addition to the usual arista, with a single erect bristle.
- 3 (4). Costa black; arching of the face widest about or under the middle when seen in profile.
(2640. *micans*, Hal.)
- 4 (3). Costa yellowish brown; the arching of the face widest considerably above the middle when seen in profile.
- 5 (6). The last abdominal segment in the male shorter than the one before; mouth bristles weak.
(2641. *breviventris*, Lw.)
- 6 (5). The last abdominal segment in the male fully twice as long as the one before; mouth bristles strong in the female.
(*salinae*, Ztt.)

614. CÆNIA, Dsv.

- 1 (2). Third antennal joint almost conical; wings dark with nine clear spots.
(2643. *defecta*, Hal.)
- 2 (1). Third antennal joint obtuse.
- 3 (6). Halteres and wings brownish; size, 2 mm.; head and legs black.
- 4 (5). Abdomen unicolorous.
(2645. *palustris*, Fln.)
- 5 (4). Abdomen with greyish green bands. (*fumosa*, Stnh.)
- 6 (3). Halteres white; wings clear.
- 7 (8). Small species, 1½ mm.; face yellow; legs grey.
(2644. *obscura*, Mg.)
- 8 (7). Large species, 3 mm.; face grey; abdomen greenish; edges of segment dark.
(2646. *albula*, Mg.)

615. SCATELLA, Dsv.

- 1 (2) (3). Wings brown spotted.
(2647. *quadrata*, Fln.)
- 2 (1) (3). Wings unspotted.
(2648. *sibilans*, Hal.)
- 3 (1) (2). Wings grey with about five clear drop-like spots.

- 5 (6). Face silver white ; jowls without bristles.
(2649. *sorbillans*, Hal.)
- 6 (5). Face not silver white ; jowls with a distinct bristle.
- 7 (10). The clear mark between V.2. and V.3. large and broad.
- 8 (9). Dorsum grey with an indistinct dark centre stripe.
(2650. *æstuans*, Hal.)
- 9 (8). Dorsum grey with four yellow stripes.
(2653. *noctula*, Mg.)
- 10 (7). The clear mark between V.2. and V.4. small and narrow.
- 11 (12). Legs entirely black ; blackish brown species ; face distinctly haired and ciliated, and bearing beneath the corner of the eye a very strong upward directed bristle. (2651. *stagnalis*, Fln.)
- 12 (11). Knees and metatarsi orange ; yellowish grey species ; facial hairs weaker, and with three erect side bristles instead of the one strong one.
(2652. *lutosa*, Hal.)

616. SCATOPHILA, Beck.

- 1 (2). Halteres black-brown ; dark brown species.
(2655. *cribrata*, Stnh.)
- 2 (1). Halteres pale ; greyish brown species.
- 3 (4). Face in profile convex ; a strong erect bristle at the corner of the mouth. (2656. *despecta*, Hal.)
- 4 (3). Face in profile concave, and without the mouth corner bristle. (*caviceps*, Stnh.)

FAMILY L.—DROSOPHILIDÆ.

The larvæ mostly live in decaying vegetable matter ; some are leaf miners.

TABLE OF GENERA.

- 1 (10). X.5¹ absent.
- 2 (9). Arista plumose, or combed on the upper side.
- 3 (4). Costa ending at V.3.

619. LEUCOPHENGA, Mik. (2559. *maculata*, Duf.)

L. 621.

- 8 (9). Brown coloured species. (2671. *obscura*, Fln.)
 9 (8). Orange coloured species, with black abdomen.
 (2666. *melanogaster*, Mg.)
 10 (1). V.4² very little shorter than V.4³.
 11 (12). Small species, 1½–2 mm. (2667. *fenestrarum*, Fln.)
 12 (11). Larger species, at least 3 mm.
 13 (14). Dorsum dark brownish yellow.
 2669. *Drosophila funebris*, F.
 Bishop Auckland, 1 ♂, April, 1902.
- 14 (13). Dorsum bright orange.
 2668. *Drosophila confusa*, Stæg.
 Gibside, 1 ♀, June, 1898; Bishop Auckland, 1 ♀,
 June, 1901.

625. STEGANA, Mg.

- 1 (2). Thorax wholly black. (2680. *curvipennis*, Fln.)
 2 (1). Thorax red-brown above, pale yellow below.
 (2679. *coleoptrata*, Scop.)

FAMILY LI.—CHLOROPIDÆ.

TABLE OF GENERA.

- 1 (26). Costa ending at V.3. or a little beyond.
 2 (7). Third antennal joint lengthened.
 3 (4). V.3. bent upwards in front towards the fore margin;
 arista thickened.
 629. CAMAROTA, Mg. (2686. *flavitaris*, Mg.)
 4 (3). V.3. straight; arista hair-like.
 5 (6). Antennæ rather long, third joint pointed in front;
 hind femora much thickened.
 PLATYCEPHALA, Fln. (628)
 6 (5). Antennæ rather short, third joint round in front;
 hind femora not thickened.
 627. EURINA, Mg. (2683. *lurida*, Mg.)
 7 (2). Third joint of antennæ a round disc.
 8 (9). Antennæ inserted below the edge of the frons, and
 half hidden by it.
 630. SELACHOPS, Whlbg. (2687. *flavocincta*, Whlbg.)

LI.

- 9 (8). Antennæ placed on the edge of the frons, not half hidden, free.
- 10 (11). Hind femora much thickened. *MEROMYZA*, Mg. (631)
- 11 (10). Hind femora not thickened.
(See *CHLOROPS*, &c., page 365).
- 12 (13). The spur of the mid tibiæ a strong bent thorn; body cylindrical; legs strong, especially the femora; male organ large. *CENTOR*, Lw. (632)
- 13 (12). The spur of the mid tibiæ a straight weak bristle.
- 14 (15). Suckers of the proboscis very long and thin; wings more or less darkened; V.3. and V.4. diverging considerably. *CAPNOPTERA*, Lw.
- 15 (14). Suckers short.
- 16 (17). Arista white, except at its base, and on account of its thick pubescence apparently thickened; palpi black. *ANTHRACOPHAGA*, Lw. (633)
- 17 (16). Arista not thickened; pubescence extremely short.
- 18 (19). The vertical triangle almost entirely filling the vertex, and bordered with a single row of hairs; entirely black species. *HAPLEGIS*, Lw. (634)
- 19 (18). The vertical triangle even when large not nearly filling the vertex.
- 20 (21). X.4. and X.5. very close together, sometimes almost in a line; V.3., and usually V.2., distinctly bent upwards; an erect hair at the upper mouth corner; orbits in species under 2 mm. with a distinct row of hairs. *DIPLOTOXA*, Lw. (636)
- 21 (20). X.4. and X.5. not specially close together.
- 22 (23). The third antennal joint not circular in front, but with a distinct upper corner. *EUTROPHA*, Lw. (635)
- 23 (22). The third antennal joint circular, without a distinct upper corner.
- 24 (25). Scutellum with its upper side arched, or if rather flat at least never with a distinct rim or border-line. *CHLOROPS*, Lw. (637)
- 25 (24). Upper side of the scutellum flat, and marked off from the sides by a distinct edge. *CHLOROPISCA*, Lw. (638)

- 26 (1). Costa reaching to the end of V.4.
- 27 (28). Arista thick and style-like; wings sometimes shortened. ELACHYPTERA, Mcq. (641)
- 28 (27). Arista hair-like and bent; wings never shortened.
- 29 (30). Face very distinctly produced forwards at the mouth edge; proboscis often very long, the suckers narrow and bent back knee-like on the trunk. SIPHONELLA, Mcq. (640)
- 30 (29). Face not protruding at the mouth; proboscis short, with moderately broad suckers only slightly bent back.
- 31 (34). V.4³ three or four times as long as V.4².
- 32 (33). V.1. ending about the middle of the wing; large species, usually thickly pubescent. LIPARA, Mg. (626)
- 33 (32). V.1. ending at about one-third of the wing; smaller species, usually quite bare. OSCINIS, Ltr. (639)
- 34 (31). V.4³ at most twice as long as V.4².

618. MOSILLUS, Ltr. (2658. *subsultans*, F.)

[*Ephydridæ*]

TABLES OF SPECIES.

626. LIPARA, Mg.

Life history unknown.

- 1 (2). Dorsum very much arched, and thickly covered with pale felt-like hairs. (2681. *lucens*, Mg.)
- 2 (1). Dorsum flat and almost bare. (2682. *rufitarsis*, Lw.)

628. PLATYCEPHALA, Flin.

Pupæ have been found in reed stems.

- 1 (2). Large species, 7 mm. The frontal protuberance, measured from the eye margin to the front corner, nearly as long as the antennæ; scutellum quite bare. (2685. *planifrons*, F.)
- 2 (1). Smaller species, 5 mm. Frontal protuberance shorter than the antennæ; scutellum haired at the edge. (2684. *umbraculata*, F.)

LI. 631.

631. MEROMYZA, Mg.

Life history unknown.

- 1 (2). Abdomen with a black centre stripe.
2688. *Meromyza pratorum*, Mg.
Hesleden, 1 ♂, Aug. 5, 1902.
- 2 (1). Abdomen with three rows of black dots.
- 3 (4) (7). Palpi all yellow; hind femora with two small black dots at the tip. (2690. *variegata*, Mg.)
- 4 (3) (7). Palpi with black tips.
- 5 (6). Hind femora with two small black dots at the tip.
2692. *Meromyza læta*, Mcq.
Hesleden, 3 ♂ and 6 ♀, July–August, 1899–1900.
- 6 (5). Hind femora not spotted at the tip.
(2689. *saltatrix*, L.)
- 7 (3) (4). Abdomen shining black with slight yellow incisions; palpi with black tips; hind femora not spotted. (2691. *nigriventris*, Mcq.)

632. CENTOR, Lw.

- 1 (2). Arista pale; mid tibiæ of the male long haired.
cereris, Fln. (2693)
- 2 (1). Arista dark.
- 3 (4). Mid tibiæ of the male long haired.
(2694. *myopinus*, Lw.)
- 4 (3). Mid tibiæ of the male short haired.
(2695. *nudipes*, Lw.)

633. ANTHRACOPHAGA, Lw.

- 1 (2). Hind margins of abdominal segments prominently yellow. (2696. *strigula*, F.)
- 2 (1). Abdominal segments without yellow hind margins.
- 3 (4). Vertical triangle and antennæ entirely black.
(2697. *frontosa*, Mg.)
- 4 (3). Vertical triangle and antennæ not entirely black.
(*longicornis*, Ztt.)

634. HAPLEGIS, Lw.

- 1 (4). Frons entirely black.
- 2 (3). V.3. and V.4. almost parallel. (2698. *tarsata*, Fln.)
- 3 (2). V.3. and V.4. very divergent. (2699. *divergens*, Lw.)
- 4 (1). Frons red in front. (2700. *rufifrons*, Lw.)

635. EUTROPHA, Lw.

- 1 (4). Thorax and scutellum entirely shining black.
- 2 (3). V.3. and V.4. parallel. (*ingrata*, Lw.)
- 3 (2). V.3. and V.4. very divergent. (2701. *fulvifrons*, Hal.)
- 4 (1). Thorax and scutellum black and yellow.
- 5 (6). Dorsum black with yellow spots in front and at the sides; abdomen dark brown. (*variegata*, Lw.)
- 6 (5). Dorsum yellow with black stripes; abdomen with four stripes of yellow spots. (*maculata*, Lw.)

636. DIPLOTOXA, Lw. (see also page 365).

- 1 (4). C² as long as, or shorter than C³.
- 2 (3). The scutellum wholly and the legs partly black. (2702. *messoria*, Fln.)
- 3 (2). The scutellum and legs all dark yellow. (*approximatonevris*, Ztt.)
- 4 (1). C² much longer than C³.
- 5 (6). Abdomen with black hairs all over. (*inconstans*, Lw.)
- 6 (5). The hairs of the abdomen white except on the middle. (*albipila*, Lw.)

637. CHLOROPS, Mg. (see also page 365).

- 1 (2). Dorsum coarsely punctate, and with the exception of the side margins black. *puncticollis*, Ztt. (2706)
- 2 (1). Dorsum yellow with black stripes, which are sometimes run together, seldom with red or partly red stripes.
- 3 (6). Wings distinctly brownish.
- 4 (5). Costa reaching beyond the end of V.3.; palpi small. (2703. *meigenii*, Lw.)

LI. 637.

- 5 (4). Costa ending at the end of V.3.; palpi large.
(*ringens*, Lw.)
- 6 (3). Wings clear-translucent or clear-grey.
- 7 (8). Third antennal joint with unusually long pubescence.
(*dasycera*, Lw.)
- 8 (7). Third antennal joint with the usual quite short pubescence.
- 9 (10). Fore tarsal joints very much shortened in the male; all fifth tarsal joints large, especially in the male.
(2704. *brevimana*, Lw.)
- 10 (9). Fore tarsal joints of the male not shortened.
- 11 (28). Third antennal joint always quite black.
- 12 (23). Sternopleural and hypopleural spots both entirely black.
- 13 (16). Fore metatarsus black.
- 14 (15). Second and third tarsal joints entirely pale, or at least at their bases or under sides; vertical triangle with a broad flat central channel.
tæniopus, Mg. (2705)
- 15 (14). Fore tarsi entirely black; vertical triangle without a channel or impressed middle line. (*brevifrons*, Lw.)
- 16 (13). Fore metatarsus yellow, or at least brown.
- 17 (20). Large species, $2\frac{1}{2}$ –4 mm.
- 18 (19). Third antennal joint small. *speciosa*, Mg. (2707)
- 19 (18). Third antennal joint large. (*planifrons*, Lw.)
- 20 (17). Small species, $1\frac{1}{4}$ – $1\frac{1}{2}$ mm.
- 21 (22). The vertical triangle with yellow corners.
(*minuta*, Lw.)
- 22 (21). The vertical triangle entirely black. (*humilis*, Lw.)
- 23 (12). The entire sternopleural spot pale, or only black on its upper edge.
- 24 (25). Palpi much larger than usual. (*ringens*, Lw.)
- 25 (24). Palpi of the usual size.
- 26 (27). The second antennal joint with no black dot on its upper side. (*serena*, Lw.)
- 27 (26). Second antennal joint with a prominent black dot at the base of its upper side. (*puncticornis*, Lw.)

- 28 (11). Third antennal joint orange, or at most only partly darkened.
- 29 (32). Sternopleural spot always entirely black.
- 30 (31). Third antennal joint large. (*discicornis*, Lw.)
- 31 (32). Third antennal joint small. (*didyma*, Ztt.)
- 32 (29). Sternopleural spot never entirely black, usually entirely pale.
- 33 (36). Abdomen with a distinct black central stripe.
- 34 (35). The vertical diameter of the eye longer than the half of the vertical diameter of the head. (*divisa*, Lw.)
- 35 (34). Eye small, scarcely half as long as the head. (*pallens*, Lw.)
- 36 (33). Abdomen without any black stripe.
- 37 (42). Base of the abdomen with a distinct black dot on each side.
- 38 (39). Vertical triangle without any black dot on its fore corner. (*gracilis*, Mg. (2711))
- 39 (38). Vertical triangle with a black dot on its fore corner.
- 40 (41). Head more inflated than usual; abdomen, in fresh specimens, without dark interrupted bands; large species, over 4 mm. (*binotata*, Lw.)
- 41 (40). Head normal; abdomen with dark interrupted bands or spots. (*geminata*, Mg.)
- 42 (37). Abdomen with two dark places, but without any distinct black dots at its base.
- 43 (44). Vertical triangle without any black spot at its fore corner; dorsal stripes greyish black, seldom mottled in front. (*hirsuta*, Lw.)
- 44 (43). Vertical triangle with a distinct black spot at its fore corner; dorsal stripes for the most part shining red. (2709. *rufina*, Ztt.)

637. CHLOROPS, Mg., &c. (Zetterstedt's OSCINUS, part).

The following table, taken from Zetterstedt and Loew, but following a somewhat different plan from Loew's, may be helpful in identifying these beautiful little flies. It includes **632.** CENTOR, **633.** ANTHRACOPHAGA, **634.** HAPLEGIS,

LI. 637.

636. DIPLOTOXA, **637.** CHLOROPS, and **638.** CHLOROPISCA, in Verrall's list. Many of the so-called species are probably only varieties, and many have not yet been found in Britain, but I fancy the British list is very incomplete.

The larvæ of many of them live in the stems of grasses, some under bark, or in flower heads.

- 1 (53). Dorsum yellow with black, dark grey, or red stripes.
 2 (45). Antennæ not wholly yellow.
 3 (38). Antennæ at least pale at the base.
 4 (23). Large species, $2\frac{1}{2}$ –3 or 5 mm.
 5 (6). Palpi black. ANTHRACOPHAGA, Lw. (**633**)
 6 (5). Palpi yellow, sometimes the tip dark.
 6a (6b). Third antennal joint with very long pubescence.
(*dasycera*, Lw.)
 6b (6a). Third antennal joint with the ordinary short
 pubescence.
 7 (16). Third antennal joint all black.
 8 (11). Legs all yellow, the tarsi often darkened.
 8a (10a). Sternopleural spot all black.
 9 (10). Central thoracic stripe not abbreviated; abdomen
 banded; vertical triangle large and broad.
Chlorops nasuta, Ztt.=var. of *speciosa*, Mg.?
 Bedburn, 1 ♂ and 1 ♀, July, 1902.
 10 (9). Central thoracic stripe abbreviated; abdomen orange
 below, black above; vertical triangle long and
 narrow. (*Chloropisca abbreviata*, Ztt.=*rufa*, Mcq.)
 10a (8a). The sternopleural spot pale, or only black on its
 upper edge. (*serena*, Lw., and *puncticornis*, Lw.)
 11 (8). Legs striped or ringed.
 12 (15). Fore femora with a stripe on the middle outside;
 hind tibiæ ringed.
 13 (14). Abdomen with four narrow bands. (*calceata*, Mg.)
 14 (13). Abdomen yellow below, black above.
2707. *Chlorops speciosa*, Mg.
 Wakerley, 1 ♂, July, 1901; Harperley, 2 ♀, June,
 1900.

- 15 (12). All femora with a stripe on the middle.
(*lineola*, Stæg.=*planifrons*, Lw.?)
- 16 (7). Third antennal joint partly yellow.
- 16a (16b). Wings distinctly brownish.
(2703. *meigenii*, Lw., and *ringens*, Lw.)
- 16b (16a). Wings not browned.
- 17 (22). Legs all yellow.
- 18 (19). Vertical triangle black with two yellow spots ; sternopleural spot all black. (*didyma*, Ztt.)
- 19 (18). Vertical triangle without yellow spots.
- 20 (21). Vertical triangle very small ; abdomen four-banded.
2710. *Chlorops scalaris*, Mg.
Hesleden, 1 ♂, August, 1897.
- 21 (20). Vertical triangle long, conical ; abdomen three-banded. (*Chloropisca trifasciata*, Stæg.)
- 22 (17). Fore femora with a dark stripe on the middle outside, and the hind tibiæ ringed.
- 22a (22b). Vertical triangle black, small, long, and narrow.
2708. *Chlorops læta*, Mg.=*discicornis*, Lw.?
Hesleden, 1 ♀, August, 1896.
- 22b (22a). Vertical triangle shining brownish yellow and large. (*hirsuta*, Lw.)
- 23 (4). Small species, under 2 mm.
- 24 (25). Scutellum dark. (*Chloropisca obscurella*, Ztt.)
- 25 (24). Scutellum yellow.
- 26 (36) (37). X-veins only moderately approximated ; V.4³ not more than three and a half times V.4².
- 27 (29a) (30). Abdomen yellow with two dark spots on the second segment.
- 28 (29). Vertical triangle very small.
(*hypostigma*, Mg.=*minuta*, Lw.?)
- 29 (28). Vertical triangle large. (*Chloropisca parvula*, Ztt.)
- 29a (27) (30). Abdomen blackish brown ; side margins and tip yellow. (*humilis*, Lw.)
- 30 (27) (29a). Abdomen yellow below, black above.
- 31 (34) (35). Legs all orange.

LI. 637.

32 (33). Third antennal joint nearly all black; vertical triangle short; abdomen shining black, base and sides yellow.

(*Chloropisca circumdata*, Mg.=*ornata*, Mg.?)

33 (32). Third antennal joint only black at the point; vertical triangle with two reddish dots.

2714. *Chloropisca ornata*, Mg.=*notata*, Mg.

Bishop Auckland, 2 ♂ and 2 ♀, May, 1900.

34 (31) (35). Legs with the femora widely brown; abdomen shining black above; anus yellow.

(*Chloropisca lineata*, F.?)

35 (31) (34). Legs with the fore tarsi black; vertical triangle black and long. (2715. *Chloropisca glabra*, Mg.)

36 (26) (37). X-veins very near each other; V.4³ six times the length of V.4²; V.2. and V.3. much bent upwards.

(*Diplotoxa curvinervis*, Ztt.)

37 (26) (36). X-veins so close together that X.5. is almost in a line with X.4.; V.3. only gently curved.

(*Diplotoxa approximatonevis*, Ztt.)

38 (3). Antennæ wholly black, sometimes brown at the base.

38a (38b). Fore tarsal joints very much shortened in the male. (2704. *brevimana*, Lw.)

38b (38a). Fore tarsal joints of the male not shortened.

39 (40). Small species, 1-1½ mm.; V.4³ at least four times V.4²; legs yellow; hind tibiæ ringed.

(*trogodytes*, Ztt.)

40 (39). Larger species, 2½-3 mm.; V.4³ about three times V.4².

41 (44). Legs yellow, only the tarsi partly dark.

42 (43). Second and third fore tarsal joints pale; metatarsus dark; vertical triangle with a central channel.

2705. *Chlorops taniopus*, Mg.

Hesleden, 1 ♂ and 1 ♀, August, 1899.

43 (42). Fore tarsi entirely black; vertical triangle not channelled. (*brevifrons*, Lw.)

44 (41). Legs dingy yellow; fore femora and hind tibiæ broadly dark. (*brunnipes*, Ztt.)

- 45 (2). Antennæ wholly yellow.
- 46 (51) (52). Vertex with two black spots.
- 47 (48). Arista pale with the base black. (*geminata*, Mg.)
- 48 (47). Arista all pale or white.
- 49 (50). Abdomen with four dark bands; arista pale; dorsum with red stripes. (2709. *rufina*, Ztt.)
- 50 (49). Abdomen with three dark bands; arista white. (*citrinella*, Ztt.)
- 51 (46) (52). Vertex with one black spot or triangle.
- 51a (51b). Vertical triangle well separated from both eyes and occiput, and with two pale spots, sometimes reduced to a black ocellar spot. (*pallens*, Lw.)
- 51b (51a). Vertex with a large all-black triangle. (*figurata*, Ztt.)
- 52 (46) (51). Vertical triangle shining orange, sometimes black-edged.
- 52a (52b). Abdomen with a central stripe; vertical triangle with the edges and central line black; eyes large. (*divisa*, Lw.)
- 52b (52a). Abdomen entirely yellow, except two black basal spots.
- 52c (52d). Head larger than usual; vertical triangle with a black spot at its fore corner. (*binotata*, Lw.)
- 52d (52c). Head of the usual size; no black spot at the fore corner of the vertical triangle.

2711. *Chlorops gracilis*, Mg.

Hesleden, 1 ♀, August, 1901.

- 53 (1). Dorsum wholly black, or at most with the margin narrowly yellow.
- 54 (59). Scutellum partly or wholly yellow.
- 55 (56). Antennæ orange with the third joint black above and at the point.

2693. *Centor cereris*, Fln.

Bishop Auckland, 1 ♂, July, 1900.

- 56 (55). Antennæ wholly black.

LI. 637.

57 (58). Scutellum black, yellow in the middle; dorsum nearly smooth. (*scutellaris*, Ztt.)

58 (57). Scutellum yellow, with only a trace of a brown spot on each side of the base; dorsum coarsely punctate.

2706. *Chlorops puncticollis*, Stæg.

Bishop Auckland, 1 ♀, July, 1901.

59 (54). Scutellum dark or black.

60 (63). Antennæ black.

61 (62). X-veins close together, almost perpendicular; arista white; frons yellow.

(2702. *Diplotoxa messoria*, Fln.)

62 (61). X-veins not in a line; V.4³ about three times V.4²; entirely black except the tarsi; frons all black.

HAPLEGIS, Lw. (634)

63 (60). Antennæ orange; head reddish white.

(*Diplotoxa erythrocephala*, Ztt.)

638. CHLOROPISCA, Lw. (see also page 366).

1 (2). Jowls small; eyes large. (*ornata*, Mg. (2714)

2 (1). Jowls broad.

3 (6). The upper mouth edge (clypeus) black.

4 (5). Legs dark. (*obscurilla*, Ztt.)

5 (4). Legs pale. (2715. *glabra*, Mg.)

6 (3). Upper mouth edge not darkened.

7 (8). Jowls exceedingly broad; X.4. and X.5. rather near together. (*trifasciata*, Ztt.)

8 (7). Jowls and X-veins normal. (*rufa*, Mcq.)

639. OSCINIS, Ltr.

1 (17). Antennæ all black.

2 (12). Body and head entirely black.

3 (9). Arista black.

4 (5). Legs all yellow. (*atricornis*, Ztt.)

5 (4). Legs at least partly black.

6 (7) (8). Legs all black except the joints. (*atricilla*, Ztt.)

LI. 639.

33 (36). A black spot above the hind coxæ.

34 (35). Abdomen banded ; arista dark.

(*Siphonella pumilionis*, F.)

35 (34). Abdomen all black above ; arista pale.

(*ephippium*, Ztt.)

36 (33). No black hypopleural spot.

37 (38). Wings with an indistinct spot near the point.

(*maculipennis*, Ztt.)

38 (37). Wings without this spot. (*Siphonella flavella*, Ztt.)

640. SIPHONELLA, Mcq.

1 (4). Dorsum yellow.

2 (3). Dorsum with three broad, almost confluent, greyish black stripes ; a black spot above the hind coxæ.

(*pumilionis*, F.)

3 (2). Dorsum unstriped, or with faint brown line ; no black hypopleural spot.

(*flavella*, Ztt.)

4 (1). Dorsum black.

5 (6). Face wholly black. (2721. *lævigata*, Fln.)

6 (5). Face wholly or partly orange or whitish.

7 (8). Halteres yellowish white ; third antennal joint orange.

(2723. *palposa*, Fln.)

8 (7). Halteres brown ; third antennal joint black on the outer side.

(*nucis*, Per.)

641. ELACHYPTERA, Mcq.

1 (2). Wings longer than the abdomen.

2725. *Elachyptera cornuta*, Fln.

Very common.

2 (1). Wings shorter than the abdomen, almost rudimentary.

(2724. *brevipennis*, Mg.)

FAMILY LII.—MILICHIDÆ.

1 (2). Eyes round ; dorsum with both centre and side bristles. 643. MILICHIA, Mg. (2727. *ornata*, Ztt.)

Life history unknown, probably the larvæ live in fungi.

LIII. 646.

7 (2). V.4. as distinct as the others.

8 (17). Frons all or mostly yellow.

9 (10). Species mostly yellow.

2733. *Agromyza lutea*, Mg.

Hesleden, 1 ♀, Aug. 5, 1902.

10 (9). Species mostly black, at least above.

11 (12). Legs wholly yellow.

2734. *Agromyza pusilla*, Mg.

Bishop Auckland, 1 ♂, June, 1901.

12 (11). Legs mostly black.

13 (14). Antennæ, pleuræ, and scutellum yellow.

2736. *Agromyza flaveola*, Fln.

Bishop Auckland, 1 ♀, August, 1904.

14 (13). Antennæ, pleuræ, and scutellum black.

15 (16). V.4⁴ four times V.4³; legs black with a yellowish stripe. (2743. *geniculata*, Fln.)

16 (15). V.4⁴ ten times V.4³; legs all black. (2738. *exigua*, Mg.)

17 (8). Frons black, or black and grey.

18 (19). Large species, 2-2½ mm. (2735. *nigripes*, Mg.)

19 (18). Small species, 1 mm.

20 (21). Frons black; hind tibiæ normal. (2737. *nana*, Mg.)

21 (20). Frons grey, black striped; hind tibiæ dilated; convex on the outer side. (2739. *latipes*, Mg.)

22 (1). Halteres black or brown; frons blackish grey, with a matt-black M-shaped stripe.

645. DESMOMETOPA, Lw. (2729. *M-atrum*, Mg.)

648. LIOMYZA, Mcq.

1 (2). Frons black. (2745. *glabricula*, Mg.)

2 (1). Frons orange. (2746. *flavipes*, Fln.)

649. LEUCOPIS, Mg.

Larvæ live on hides, &c., and in galls of other insects.

1 (2). Fore tarsi all black. (2749. *griseola*, Fln.)

2 (1). Fore tarsi all or mostly yellow.

- 3 (4). Frons with two black stripes. (2747. *puncticornis*, Mg.)
 4 (3). Frons unstriped, or at most with quite indistinct lines
 near the eyes. (2750. *annulipes*, Ztt.)

650. OCHTHIPHILA, Fln.

Life history unknown.

- 1 (2). Frons very broad, with a black band across the
 middle; frontal bristles only reaching to the
 middle. (2756. *spectabilis*, Lw.)
 2 (1). Frons moderately broad, not banded; frontal bristles
 reaching to the antennæ.
 3 (6). Antennæ not entirely black.
 4 (5). Antennæ all yellow, often darkened.
 2755. *Ochthiphila flavipalpis*, Hal.
 Hesleden, 6 ♂ and 6 ♀, August, 1902.
 5 (4). Antennæ black, only yellow on the middle.
 2751. *Ochthiphila polystigma*, Mg.
 Bollihope, 1 ♀, June, 1901.
 6 (3). Antennæ entirely black.
 7 (8). Tibiæ broadly black on the middle.
 (2754. *geniculata*, Hal.)
 8 (7). Tibiæ all yellow.
 9 (10). Abdomen with black spots. (2752. *juncorum*, Fln.)
 10 (9). Abdomen unspotted. (2753. *aridella*, Fln.)

651. SCHÆNOMYZA, Hal.

- 1 (2). Abdomen grey with brown bands.
 (2757. *litorella*, Fln.)
 2 (1). Abdomen with three shining black bands.
 (2758. *fasciata*, Mg.)

FAMILY LIV.—PHYTOMYZIDÆ.

The larvæ are leaf-miners, said to pupate in two forms, namely, a barrel-shaped pupa beneath the epidermis of a leaf and a potato-like pupa in the earth.

TABLE OF GENERA AND SPECIES.

- 1 (4). X.5¹ and X.5² both present; X.4. and X.5² in a line.

LIV. 652.

652. NAPOMYZA, Hal.

- 2 (3). Abdomen mostly yellow with dark bands; pleuræ yellow.

2759½. *Napomyza elegans*, Mg., var. *festiva*, Mg.

(First antennal joint yellow).

Bedburn, 1 ♀, June, 1905.

- 3 (2). Abdomen and pleuræ dark with narrow yellow bands.

2759. *Napomyza lateralis*, Fln.

Hesleden, 1 ♀, August, 1900.

- 4 (1). No X-veins on V.5. (V. 38).

653. PHYTOMYZA, Fln.

- 5 (12). Species with more than the pleuræ and the scutellum yellow.

- 6 (11). Dorsum not striped.

- 7 (10). Third antennal joint black with at most the extreme base yellow.

- 8 (9). Dorsum and scutellum grey; abdomen yellow.

(2768. *flaviventris*, Ztt.)

- 9 (8). Dorsum orange with only a dark grey spot on the mid-front.

2767. *Phytomyza flava*, Fln.

Bishop Auckland, 1 ♀, July, 1900.

- 10 (7). Third antennal joint yellow, with at most the front edge brownish; dorsum grey; scutellum yellow.

(2765. *analis*, Ztt.)

- 11 (6). Dorsum with three broad yellow stripes.

(2769. *populicola*, Wlk.)

- 12 (5). Species chiefly black or dark grey.

- 13 (16). Frons entirely black.

- 14 (15). Face pale yellow; wings whitish.

(2762. *albipennis*, Fln.)

- 15 (14). Face black; wings clear.

(2772. *Chromatomyia obscurella*, Fln.)

- 16 (13). Frons wholly or mostly yellow.

- 17 (18) (21). Legs wholly yellow. (2764. *rufipes*, Mg.)

- 18 (17) (21). Legs black; femora and knees and fore coxæ yellow.
- 19 (20). Scutellum yellow.
 2763. *Phytomyza notata*, Mg.
 Bishop Auckland, 2 ♂, May, 1900.
- 20 (19). Scutellum grey. (2766. *zetterstedtii*, Schin.)
- 21 (17) (18). Legs entirely black with at most the knees pale; antennæ black; dorsum and scutellum grey.

654. CHROMATOMYIA, Hardy.

- 22 (23). Abdomen black with yellowish white incisions on every ring. (2774. *affinis*, Mg.)
- 23 (22). Abdomen black with at most the last ring pale edged; dorsum with pale side stripes. (2775. *albiceps*, Mg.)

FAMILY LV.—ASTIADÆ.

Life history unknown.

655. ASTIA, Mg.

- 1 (2). Dorsum shining black, with the edge and the pleuræ yellowish white; abdomen all yellow. (2778. *concinna*, Mg.)
- 2 (1). Dorsum black with yellow side spots behind; pleuræ yellow with two shining black spots; abdomen with black spots and stripes. (2779. *amæna*, Mg.)

FAMILY LVI.—BORBORIDÆ.

TABLE OF GENERA.

- 1 (2) (3). V.4. distinctly reaching the wing margin; V.5. ending at or very slightly beyond X.5², and not reaching the margin (VII. 27); X.5¹ and X.6. distinctly present; scutellar bristles present.
 BORBORUS, Mg. (656)
- 2 (1) (3). V.4. and V.5. both reaching the margin; X.5¹ and X.6. distinctly present; scutellum without bristles, though sometimes toothed.
 SPHÆROCERA, Ltr. (657)

LVI.

- 3 (1) (2). V.4. and V.5. both broken off, or very faint beyond X.5², and not reaching the margin (V. 39, VII. 28); X.5¹ and X.6. very indistinct or absent; scutellar bristles present. LIMOSINA, Mcq. (658)

TABLES OF SPECIES.

656. BORBORUS, Mg.

Larvæ live in dung.

- 1 (2). Wings rudimentary. (2786. *pedestris*, Mg.)
 2 (1). Wings longer than the abdomen.
 3 (20). Black or dark brown species.
 4 (5). Hind tibiæ without a thorn-like process beneath at the end.
 2792. *Borborus geniculatus*, Mcq.
 Bishop Auckland, 2 ♂ and 1 ♀; Hesleden, 1 ♀, March-June, 1898-1901.
 5 (4). Hind tibiæ with a thorn-like process at the end beneath (VI. 24).
 6 (13). Mid tibiæ with bristles on the outer side.
 7 (10). Small black shining species, 1-2 mm.
 8 (9). Face and frons black; X-veins clouded; size about 2 mm. (2783. *suillorum*, Hal.)
 9 (8). Face and frons orange; wings clear; size 1-1½ mm. (2785. *pallifrons*, Fln.)
 10 (7). Large species, 3-5 mm.
 11 (12). Fore femora with a row of bristles on the upper side; mid metatarsus as long as the next three joints together; male hind femora with a hooked thorn below at the base; shining black. (2780. *nitidus*, Mg.)
 12 (11). Fore femora not bristly but thickly haired; mid metatarsus as long as the next two joints; male hind femora not thorned; brown-black, not very shining. (2782. *niger*, Mg.)
 13 (6). Mid tibiæ bare or nearly bare on the outer side.
 14 (17). V.4⁴ not more than two and a half times the length of V.4³.

- 15 (16). Face and frons all dark ; $V.4^4$ about one and a half times $V.4^3$ (VII. 27).
2790. *Borborus equinus*, Fln.
Very common on dung.
- 16 (15). Face black ; frons pale ; $V.4^4$ about $2-2\frac{1}{2}$ times as long as $V.4^3$.
2791. *Borborus nigrifemoratus*, Mcq.
Bishop Auckland, 1 ♀, immature, May, 1900.
- 17 (14). $V.4^4$ four times as long as $V.4^3$.
- 18 (19). Halteres whitish.
2787. *Borborus longipennis*, Hal.
Bishop Auckland, 3 ♂, May, 1900.
- 19 (18). Base of the halteres blackish. (2788. *vitripennis*, Mg.)
- 20 (3). Dark grey species. (2789. *sordidus*, Ztt.)

657. SPHÆROCERA, Ltr.

Larvæ live in horse-dung.

- 1 (4). Scutellum not toothed.
- 2 (3). Fore tarsi not white ringed ; second abdominal segment apparently very large and broad.
2793. *Sphærocera subsultans*, F.
Harperley, 1 ♂, 8-4-06.
- 3 (2). Fore tarsi with the end of the first joint and the entire second joint white ; the second, third, and fourth abdominal segments nearly equal.
(2794. *monilis*, Hal.)
- 4 (1). Scutellum with small teeth round the edge.
- 5 (6). Head and thorax chestnut-brown ; abdomen black.
(2799. *scabricula*, Hal.)
- 6 (5). Head and thorax black or dark brown.
- 7 (10). Coxæ black.
- 8 (9). Hind femora not thickened. (2796. *denticulata*, Mg.)
- 9 (8). Hind femora thickened. (2797. *vaporarium*, Hal.)
- 10 (7). Coxæ partly or wholly yellow. (2798. *pusilla*, Fln.)

LVI. 658.

658. LIMOSINA, Mcq.

Larvæ have been found among confervæ, in diseased potatoes, &c.

- 1 (2). V.5² slanting so much backwards that it looks like a continuation of V.4.; O.5² pointed at its outer end; hind margin of the wing notched, with ten bristles resting on the wing disc in the male.
(2801. *acutangula*, Ztt.)
- 2 (1). X.5² nearly at right angles to V.5.; O.5² blunt at its outer end.
- 3 (4). V.3² distinctly twice bent, almost looped above X.5²; the fourth abdominal segment in the male with a long curved tuft of hair at each side.
(2814. *sylvatica*, Mg.)
- 4 (3). V.3. straight or gradually bent up.
- 5 (12). Scutellum with hairs or small bristles on the disc in addition to the strong marginal bristles.
- 6 (9). Disc of scutellum with distinct short bristles.
- 7 (8). Dorsum and scutellum brownish red; abdomen dark brown; legs orange; the upperside of the femora and the tips of the tibiæ black.
(2803. *ferruginata*, Stnh.)
- 8 (7). Dorsum and scutellum black, sometimes rust-brown; abdomen black; legs pitchy brown.
(2804. *fuscipennis*, Hal.)
- 9 (6). Disc of scutellum only pubescent.
- 10 (11). C² twice the length of C³; wings brownish yellow; halteres yellow. (2802. *vagans*, Hal.)
- 11 (10). C² equal to C³; wings blackish; halteres dark.
(2800. *lugubris*, Hal.)
- 12 (5). Scutellum bare on the disc.
- 13 (14). Wings very short, not extending to the end of the abdomen.
(2819. *nivalis*, Hal.)
- 14 (13). Wings normal, extending beyond the abdomen.
- 15 (42) (43). Face black or grey.
- 16 (23). C² twice as long as, or much longer than C³.

LVI. 658.

- 17 (18). V.3. much bent up to the fore margin and ending long before the tip of the wing; shining black species with eight scutellar bristles.
2805. *Limosina fontinalis*, Fln.
Bishop Auckland, 1 ♂ and 4 ♀, Jan.–March.
- 18 (17). V.3. straight, or very slightly bent up, and ending near the wing tip.
- 19 (20) (22a). Wings clear, or nearly so; dark brown species; scutellar bristles usually eight.
2807. *Limosina lutosa*, Stnh.
Gibside, 2 ♂, 1 ♀, April, 1898; Harperley, 1 ♂, April.
- 20 (19) (22a). Wings brownish; black species, with usually only six scutellar bristles.
- 21 (22). Legs all black. (2809. *limosa*, Fln.)
- 22 (21). Fore coxæ, knees, and tarsi reddish.
(2810. *geniculata*, Mcq.)
- 22a (20) (19). Wings whitish; antennæ lying close to the eyes. (2834. *leucoptera*, Hal.)
- 23 (16). C² about equal to C³.
- 24 (35). Antennæ standing out clear of the face, "obliquely porrect."
- 25 (26). Fore tarsi dilated, especially in the male.
(2823. *crassimana*, Hal.)
- 26 (25). Fore tarsi not dilated.
- 27 (32). Wings blackish or greyish.
- 28 (29). Shining black species; frons opaque, triangle shining; a black line on C². (2825. *fungicola*, Hal.)
- 29 (28). Dull black species.
- 30 (31). Halteres brown; wings brownish; scutellum long; legs unusually pubescent. (2824. *quisquilia*, Hal.)
- 31 (30). Halteres black; wings blackish; costa thickened about the middle, with a long erect basal spine; arista with thick black pubescence.
(2828. *spinipennis*, Hal.)
- 32 (27). Wings clear or white.

LVI. 658.

33 (34). V.3. slightly bent up; wings hyaline; frons bristly; size about 1 mm.

2826. *Limosina vitripennis*, Ztt.

Bishop Auckland, 2 ♀, May, 1900, 1 ♀, January, 1902.

34 (33). V.3. straight; wings whitish; frons almost bare; size $\frac{1}{2}$ mm. (2829. *minutissima*, Ztt.)

35 (24). Antennæ turned in opposite directions, lying close to the eyes.

36 (41). Eyes bare.

37 (38). Wings and veins brownish yellow; dorsum with an impressed central line; size $2\frac{1}{2}$ mm.

(2811. *zosteræ*, Hal.)

38 (37). Wings whitish; veins of the hind region colourless.

39 (40). Dusky species with paler legs; veins of the fore region dark; mid tibiæ bristly; C^2 longer than C^3 ; size $1\frac{1}{4}$ mm. (2834. *leucoptera*, Hal.)

40 (39). Velvet black species; all veins colourless except the costa; V.3. bent and ending in the fore margin considerably before the wing tip; mid tibiæ almost bare; scarcely 1 mm. (2831. *nigerrima*, Hal.)

41 (36). Eyes with minute erect hairs; velvet black species with delicate, coloured veins; V.3. almost straight, ending nearer the wing tip. (2833. *melania*, Hal.)

42 (15) (43). Face milk white; mid tarsi orange.

2812. *Limosina pumilio*, Mg.

Hesleden, 1 ♂, April, 1901.

43 (15) (42). Face yellow or orange.

44 (47). C^2 much longer than C^3 .

45 (46). Halteres dark; abdomen shining black.

(2813. *flaviceps*, Stnh.)

46 (45). Halteres whitish; abdomen dull black.

(2817. *scutellaris*, Hal.)

47 (44). C^2 about equal to C^3 .

48 (55). Legs mostly reddish, at least the knees and tarsi pale.

49 (50). Head all yellow, except at the back and a dot on the vertex. (2816. *ochripes*, Mg.)

50 (49). Frons all or mostly black.

51 (52). Wings clear; veins nearly colourless.

(2820. *clunipes*, Mg.)

52 (51). Wings brownish with distinct brown veins.

53 (54). V.4³ at least as long as X.5². (2818. *erratica*, Hal.)

54 (53). V.4³ only as long as X.4. (2821. *heteroneura*, Hal.)

55 (48). Legs black, at most the fore and mid coxæ pale.

(2827. *coxata*, Stnh.)

FAMILY LVII.—PHORIDÆ.

Becker's monograph, on which the following tables are founded, should be consulted by those who read German.

The wing veins of the Phoridæ (V. 35) are probably as follows, counting round from the base of the fore margin:—V.1., V.2., V.3., thick-veins; V.4.a., V.4.b., V.5., V.7., thin-veins; V.6. is undeveloped, although the base may be detected. But for the purpose of the following tables, account is chiefly taken of the lower thick-vein, called V.3. (which is said to be forked when the end of V.2. shows itself, as in Plate V. 35), and of the upper thin-vein which is simply called V.4., although it is probably V.4.a. If in Macrocera (IV. 6) the lower portions of the third, fourth, and fifth veins were crushed together, an arrangement would be produced not unlike Phora (V. 35).

The arrangement of the head bristles is also most important. In the principal genus, Phora, they consist of 14–16 strong bristles, 12 of them arranged in four perpendicular rows of three bristles each, or three horizontal rows of four bristles each. The two side rows each consist of one vertical and two fronto-orbital bristles. The two middle rows are formed of one pair of post-vertical, one pair of upper-frontal, and one pair of lower-frontal bristles. These all point backwards over the head. In addition there are 2–4 still lower frontal bristles, immediately above the antennæ, which are here called the post-antennal bristles, and numerous hairs

- 10 (9). Arista dorsal; third antennal joint short in both sexes; head bristles in three horizontal rows of four bristles each in addition to the post-antennal.
PHORA, Ltr. (663)

TABLES OF SPECIES.

659. CONICERA, Mg.

- 1 (2). Third antennal joint in the male $2\frac{1}{2}$ times as long as its basal breadth. (2835. *atra*, Mg.)
2 (1). Third antennal joint about $1\frac{1}{2}$ times as long as broad. (2836. *similis*, Hal.)

662. TRINEURA, Mg.

- 1 (4). Hind tibiæ with only one outer bristle on the basal half.
2 (3). Fore tarsi not dilated; mid tibiæ with 4-5 outer bristles in the male and 2-3 in the female.
2839. *Trineura aterrima*, F.=*stictica*, Mg.
Wearhead, 4 ♂, August, 1901; Bishop Auckland, 4 ♀, May-June, 1902.
3 (2). Fore tarsi dilated; mid tibiæ with 5-7 outer bristles in the male and always three in the female.
(2840. *velutina*, Mg.)
4 (1). Hind tibiæ always with two outer bristles on the basal half; wings brownish yellow in the male.
(2841. *schineri*, Beck.)

663. PHORA, Ltr.

- 1 (80). All frontal bristles, including the two post-antennal ones, directed backwards; frons without a central furrow or indented line; tibiæ with long strong bristles, in addition to the terminal spurs.
2 (65). V.3. forked.
3 (12). Only three distinct thin-veins present.
4 (5). Palpi extraordinarily large, larger than the head in the male kidney-shaped and directed upwards.
(*palposa*, Ztt.)

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- 5 (4). Palpi of the usual size.
- 6 (7). Palpi comparatively narrow, almost threadlike, with stout end-bristles in both sexes; legs stout; male organ large, shining chestnut-brown; sixth abdominal segment with strong marginal bristles in the male. (2843. *trinervis*, Beck.)
- 7 (6). Palpi dilated.
- 8 (9). Palpi with strong bristles in both sexes; male organ small and matt; legs long and thin; costa extending far beyond the wing middle; wings smoky black. (2842. *opaca*, Mg.)
- 9 (8). Palpi without strong bristles in the male, only finely ciliated.
- 10 (11). Third antennal joint extraordinarily large in the male, almost as large as the eyes; male organ large, shining black.
Phora nigricornis, Egg.
Bishop Auckland, 1 ♂, 8-3-02.
- 11 (10). Third antennal joint about half as large as the eyes, and thinly pubescent; male organ small; end half of the costa thickened and very finely ciliated. (2844. *lugubris*, Mg.)
- 12 (3). Four distinct thin-veins present.
- 13 (48). Halteres yellowish.
- 14 (21). V.3. from the base to the fork bristly.
- 15 (16). The tip third of the wing brown; costa strongly thickened in the female. (2845. *thoracica*, Mg.)
- 16 (15). Wings unicolorous, not browned at the tip.
- 17 (20). Costa not thicker at its end half; thorax black.
- 18 (19). Hind tibiæ with 5-6 bristles; legs orange with dark brown femora and coxæ. (2846. *urbana*, Mg.)
- 19 (18). Hind tibiæ with only two bristles; legs red-brown, fore legs lighter. (2847. *fennica*, Beck.)
- 20 (17). Costa much thickened on its second half; thorax brownish; legs all yellow; hind tibiæ with four bristles. (*thoracica*, Mg., var. *claripennis*)
- 21 (14) V.3. not bristly.

- 22 (41). Dorsum black.
- 23 (36). Scutellum with four bristles.
- 24 (27). V.4. straight at its base.
- 25 (26). V.4. straight to the margin ; wings brownish ; legs and first abdominal segment yellow.
(*abbreviata*, v. Ros.)
- 26 (25). V.4. bent backwards at the margin ; legs dark brown.
(2849. *concinna*, Mg.)
- 27 (24). V.4. more or less bent at its base.
- 29 (32). Two pairs of dorso-central bristles.
- 30 (31). Antennæ, palpi, and legs pale orange ; hind tibiæ with four bristles ; wings unspotted.
(*bergenstammi*, Mik.)
- 31 (30). Antennæ and palpi red-brown ; legs dark brown ; base of V.4. with a brown spot. (2850. *maculata*, Mg.)
- 32 (29). Only one pair of dorso-central bristles.
- 33 (34) (35). Antennæ and palpi red-brown ; legs dark ; fore tibiæ with one, mid with three, and hind with two bristles.
(*bohemanni*, Beck.)
- 34 (33) (35). Antennæ black ; palpi orange ; legs dark ; fore tibiæ with two, mid with 6-7, hind with 8-10 bristles.
(*spinosissima*, Strobl.)
- 35 (33) (34). Antennæ, palpi, and legs orange ; fore tibiæ with one, mid with three, hind with four bristles.
(*excisa*, Beck.)
- 36 (23). Scutellum with only two distinct bristles.
- 37 (38). Palpi long and broad with a single long terminal bristle ; costal bristles long and scattered ; frons long.
Phora nudipalpis, Beck.
Bishop Auckland, 1 ♂, 14-5-02.
- 38 (37). Shape and bristles of palpi normal ; costal bristles short ; male frons short.
- 39 (40). Fore tarsal joints together scarcely longer than the fore tibiæ.
(2851. *unispinosa*, Ztt.)
- 40 (39). Fore tarsal joints together one and a half times as long as the tibiæ.
(2858. *autumnalis*, Beck.)

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- 41 (22). Dorsum yellow or red-brown.
- 42 (45). Two pairs of dorso-central bristles.
- 43 (44). Colour entirely yellow, except black fore marginal abdominal bands; hind tibiæ with two outer and one inner bristle; third antennal joint in the male large and brown tipped. (2852. *dorsalis*, Beck.)
- 44 (43). Entirely yellow; hind tibiæ with two outer, one inner, and one hind bristle. (*bergenstammi*, Mik.)
- 45 (42). Only one pair of dorso-central bristles.
- 46 (47) (47a). Fore tibiæ with 3-4 bristles; hind tibiæ with one hind end bristle and one spur; dorsum brown; pleuræ yellow; abdomen black, segments one, two, and part of six yellow. (*chlorogastra*, Beck.)
- 47 (46) (47a). Fore tibiæ with one bristle on the middle; hind tibiæ with one hind mid bristle and one spur; entirely orange species. (*unicalcarata*, Beck.)
- 47a (46) (47). Fore tibiæ with one bristle on the first third; hind tibiæ with one outer basal bristle, and apparently three long spurs; dorsum orange; pleuræ black; abdomen black with narrow hind marginal bands. (2853. *erythronota*, Strobl.)
- 48 (13). Halteres blackish brown.
- 49 (52). V.3. bearing bristles.
- 50 (51). Hind tibiæ without bristles, except at the tip; costa with long ciliation; V.2. very weak, generally absent. (*agilis*, Mg.)
- 51 (50). Hind tibiæ with two bristles on the middle; costa with short thick ciliation.
2854. *Phora curvinervis*, Beck.
- Harperley, 1 ♀, 4-6-00; Bishop Auckland, 1 ♂,
25-5-02.
- 52 (49). V.3. not bristly.
- 53 (56). Scutellum with two bristles.
- 54 (55). Costa extending far beyond the middle of the wing; fork of V.3. short, and almost a right angle at the base; size $1\frac{1}{2}$ -2 mm. (2851. *unispinosa*, Ztt.)

- 55 (54). Costa only extending to the middle of the wing; fork of V.3. long and very acute at the base; size $3\frac{3}{4}$ mm. (*aptina*, Schin. ♀)
- 56 (53). Scutellum with four bristles.
- 57 (57a) (58). Palpi orange; abdomen orange, often black in the male.
(2855. *abdominalis*, Fln.=2873. *florea*, F.?)
- 57a (57) (58). Palpi black; abdomen brownish black with pimpled patches on the fore margin of the segments shewing orange in certain lights.
Phora papillata, nov. sp. (see E.M.M., 1906).
Brancepeth, 1 ♀, 15-6-02.
- 58 (57) (57a). Palpi and abdomen black.
- 59 (60). Two pairs of dorso-central bristles; third antennal joint very large in the male; fore tibiæ with one, mid and hind with three bristles, and the hind in the male with a row of 7-8 hind bristles in addition. (*strobbli*, Beck.)
- 60 (59). Only one pair of dorso-central bristles.
- 61 (62). It is a female, with a small brown third antennal joint, and 1-3 bristles on the hinder and outer sides of the hind tibiæ. (2848. *crassicornis*, Mg. ♀)
- 62 (61). It is a male.
- 63 (64). Third antennal joint large and black; hind tibiæ with 3-4 bristles on the hind and outer sides; upper frontal bristles lower than the upper fronto-orbital.
(2848. *crassicornis*, Mg. ♂)
- 64 (63). Third antennal joint short; hind tibiæ without the hind bristle; upper frontal bristles higher than the upper fronto-orbital. (2849. *concinna*, Mg. ♂)
- 65 (2). V.3. not forked.
- 66 (70). Vertex with a distinct raised ocellar knob.
- 67 (68). Third antennal joint large and orange.
(*bernuthi*, Egg.)
- 68 (67). Third antennal joint small and black.

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69 (69a). Ocellar knob broad, two-thirds of frons; V.4. strongly bent at the base.

2856. *Phora incrassata*, Mg.

Hesleden, 1 ♂, August, 1899.

69a (69). Ocellar knob narrow, half of frons; V.4. only slightly bent at the base. (2857. *carinifrons*, Ztt.)

70 (66). No ocellar knob on the vertex.

71 (72). V.3. with distinct bristles at its base; V.4. strongly bent at its base; palpi yellow. (*mordellaria*, Fln.)

72 (71). V.3. without bristles, or its whole length bearing fine micro-hairs.

73 (74) (77). V.4. strongly bent at its base; whole length of V.3. fine haired. (*femorata*, Mg.)

74 (73) (77). V.4. at its base only slightly bent, then straight.

75 (76). Last fore tarsal joint much dilated; the back of the vertex standing up like a half disc on edge, very prominent in the male, rudimentary in the female. (*coronata*, Beck.)

76 (75). Last fore tarsal joint not dilated; vertical hind margin normal. (*agilis*, Mg.)

77 (73) (74). V.4. gently bent through its whole length.

78 (79). V.3. straight; hind tibiæ with two outer bristles.

(*vitripennis*, Mg.)

79 (78). V.3. distinctly bent and thickened; hind tibiæ without outer bristles. (*citreifformis*, Beck.)

80 (1). Frons with an indented centre line; the 2-4 post-antennal bristles directed forward and downward; tibiæ without long isolated bristles, at most ciliated.

81 (84). V.3. not forked.

82 (83). Four scutellar bristles; palpi and halteres brown.

(*exemta*, Beck.)

83 (82). Two scutellar bristles; palpi and halteres yellow.

(2859. *formicarum*, Verr.)

84 (81). V.3. forked.

85 (101). Thorax entirely yellow or orange.

86 (89). Costa about one-third of the wing length.

- 87 (88). Abdomen yellow, matt-brown above; frons grey; third antennal joint round; costa long haired.
(2860. *pygmæa*, Ztt.)
- 88 (87). Abdomen yellow, segments 2-4 matt-black; frons yellow in front; third antennal joint longish; costa short haired.
(2861. *fasciata*, Fln.)
- 89 (86). Costa extending to the wing middle or beyond.
- 90 (91). A long and broad brown stigma, almost filling O.1.
(*costalis*, v. Ros.)
- 91 (90). No such stigma.
- 92 (96). Four scutellar bristles.
- 93 (111). V.4. bent in a single curve, or nearly straight, not bent back at the tip.
- 94 (95). Costa shortly and finely ciliated; abdomen yellow, with segments 4-6 with black interrupted fore marginal bands.
Phora picta, Lehm.
Hesleden, 1 ♀, 1-8-02.
- 95 (94). Costal ciliation moderately long; abdomen all matt-black.
(*ruficornis*, Mg., see below, 110.)
- 96 (92). Two scutellar bristles.
- 97 (98). Costa with very short ciliation; abdomen brown above; C¹ and C² equal.
(2868. *flava*, Fln.)
- 98 (97). Costa with long ciliation; C¹ half as long again as C².
- 99 (100). Hind tibiæ without strong bristles; costal ciliation moderately long; abdomen varies from matt-yellow to all dark above; 2 mm.
(2862. *lutea*, Mg.)
- 100 (99). Hind tibiæ with strong bristles; abdomen yellow, segments 3-5 with black hind margins, 3 and 4 short in the male.
(2863. *melanocephala*, v. Ros.)
- 101 (85). Thorax entirely black, or only partly orange.
- 102 (128). Halteres yellow or yellowish brown.
- 103 (114). Four equally strong scutellar bristles.
- 104 (105). V.3. much dilated; third antennal joint large and yellow; humeri orange.
(*cubitalis*, Beck.)
- 105 (104). V.3. not unusually dilated.

LVII. 663.

- 106 (107). Palpi large, protruding, and much dilated ; second abdominal segment without side bristles.
(*projecta*, Beck.)
- 107 (106). Palpi normal ; second abdominal segment with distinct side bristles.
- 108 (111). V.4. bent in a single curve or nearly straight, not bent back at the tip.
- 109 (110). Hind femora strongly dilated to the tip, then suddenly diminishing. (*latifemorata*, Beck.)
- 110 (109). Hind femora normal.
Phora ruficornis, Mg.
Bishop Auckland, 1 ♀, 25-5-00.
- 111 (108). V.4. waved in a double curve, bent back at the tip ; dorsum sometimes yellow or red-brown.
- 112 (113). Abdomen either yellow with black fore margins, or black with yellow hind margins ; tip of male organ with two strong thorn-like bristles beneath. (*meigeni*, Beck.)
- 113 (112). Abdomen usually all black, or only with narrow yellow hind margins ; male hypopygium with only the usual hairs. (*giraudii*, Egg.)
- 114 (103). Only two scutellar bristles.
- 115 (116). Costa short, only reaching the third of the wing ; ciliation long ; C¹ three or four times as long as C² ; colour variable. (2860. *pygmæa*, Ztt.)
- 116 (115). Costa reaching the middle of the wing.
- 117 (137). Costal ciliation long.
- 118 (119). Fourth abdominal segment ivory-white ; 1 mm.
(*zonata*, Ztt. ♀)
- 119 (118). Abdomen entirely black.
- 120 (121). Basal half of the hind femora with long ciliation beneath ; male abdomen almost bare.
(*sordida*, Ztt.)
- 121 (120). Hind femora not ciliated beneath.
- 122 (123). Male abdomen with long erect scale-like hairs ; hind tibiæ not ciliated.
2864. *Phora rufipes*, Mg.
Common.

- 123 (122). Male abdomen almost bare.
- 124 (125). Hind tibiæ distinctly ciliated; 2-3 mm.
(*humeralis*, Ztt. ♀)
- 125 (124). Hind tibiæ almost bare; 1-1½ mm.
- 126 (127). Fore metatarsus distinctly thickened. (*dahli*, Beck.)
- 127 (126). Fore metatarsus not thickened.
2865. *Phora pulicaria*, Fln.
Bishop Auckland, 1 ♂, 7-4-02; 3 ♀, 19-4-02.
- 128 (102). Halteres dark brown or black.
- 129 (130). A long and broad brown stigma, almost filling
O.1. (*costalis*, v. Ros.)
- 130 (129). No such stigma.
- 131 (140). Only two scutellar bristles.
- 132 (135). Costa not reaching to the middle of the wing;
V.1. and V.3. much approximated.
- 133 (134). Frons long, arched, and shining black; male organ
large, clubbed, yellow. (*xanthozona*, Strobl.)
- 134 (133). Frons of normal length, matt, dark grey dusted.
(*pusilla*, Mg.)
- 135 (132). Costa reaching the middle of the wing; V.1. and
V.2. not specially near one another.
- 136 (137). Costal ciliation long; hind femora normal, thinning
gradually. *pulicaria*, Fln. (2865)
- 137 (136). Costal ciliation very short; hind femora, especially
in the male, dilated throughout, thinning
suddenly at the tip; hind tibiæ distinctly
ciliated; halteres often pale.
- 138 (139). Frons very long, arched, and shining.
2866. *Phora minor*, Ztt.
Bishop Auckland, 1 ♀, 16-5-02.
- 139 (138). Frons of normal length, grey dusted.
(2867. *ciliata*, Ztt.)
- 140 (131). Four scutellar bristles.
- 141 (144). Costal ciliation long, or very long.
- 142 (143). Third antennal joint in the male about as large as
the eye; size 1½ mm. (*palmeni*, Beck.)

LVII. 663.

143 (142). Third antennal joint in the male not nearly so large as the eye; size $2\frac{1}{2}$ mm.

Phora umbrimargo, Beck.

Bedburn, 1 ♂, 12-6-05.

144 (141). Costal ciliation short.

145 (146). Frons matt, blackish grey; V.1. and V.3. approximate; hind tibiæ thickly ciliated.

(*ruficornis*, Mg., var. *flavicoxa*, Ztt.)

146 (145). Frons long, arched, and shining black; V.1. and V.3. not very close; hind tibiæ bare.

(*nudipes*, Beck.)

SECTION IV.—EPROBOSCIDEA.

FAMILY LVIII.—HIPPOBOSCIDÆ.

1 (10). Wings present, or if wanting, at least traces of them are always perceptible.

2 (7). Wings broad, round at the tip, not pointed; or rudimentary.

3 (6). Each tarsal claw doubled; ocelli generally absent.

4 (5). Wings always fully developed, and the front veins very thick and prominent.

665. HIPPOBOSCA, L. (2875. *equina*, L.)

(Parasitic on quadrupeds, especially horses).

5 (4). Wings rudimentary, or if present then all the veins faint and almost invisible.

669. LIPOPTENA, Nitz. (2880. *cervi*, L.)

(Parasitic on quadrupeds).

6 (3). Each tarsal claw tripled; ocelli present.

666. ORNITHOMYIA, Ltr.

Parasitic on birds.

2876. *Ornithomyia avicularia*, L.

Bishop Auckland, 2, on domestic fowls.

7 (2). Wings very narrow, pointed at the tip.

8 (9). Ocelli present.

667. STENOPTERYX.2877. *Stenopteryx hirundinis*, L.

Bishop Auckland, 2; Darlington, 1, on young swallows.

9 (8). Ocelli absent.

668. OXYPTERUM, Leach (2878. *pallidum*, Leach)
(Parasitic on swallows).

10 (1). Wings entirely wanting.

670. MELOPHAGUS, Ltr.2881. *Melophagus ovinus*, L.

Everywhere; too common on sheep.

FAMILY LIX.—BRAULIDÆ.

671. BRAULA, Nitz. (2882. *cæca*, Nitz.)

Parasitic on bees.

FAMILY LX.—NYCTERIBIDÆ.

672. NYCTERIBIA, Ltr.

Parasitic on bats.

1 (2). Tibiæ club-shaped, much narrower in the middle than
the whole length. (2884. *hermanni*, Leach)

(On the two horseshoe bats, &c.)

2 (1). Tibiæ shovel-shaped, nearly as broad as long in the
middle. (2883. *latreillii*, Leach)(Commonest on the Particoloured Bat (*Vespertilio murinus*),
also on the Lesser Horseshoe and Daubenton's).

ADDITIONAL LOCAL SPECIES.

The following additional identifications of local species have been made while the foregoing pages were in course of printing. A few additional records of species apparently rare in this district are also given and are marked*.

- Insert at page 41. 142. *Sciara præcox*, Mg.
Common.
- ” ” 41. 192. *Mycetophila signata*, Mg.
Hesleden, 1 ♀, 12-8-02; Wearhead, 1 ♀,
3-8-01.
- ” ” 41. 287. *Lasiosoma luteum*, Mcq.
Bishop Auckland, 1 ♂, 18-8-02.
- ” ” 42. 330. *Platyura discoloria*, Mg. (?)
Hesleden, 1 ♀, 7-8-02.
- ” ” 42. 336. *Macrocera lutea*, Mg.
Hesleden, 1 ♀, 12-8-02.
- ” ” 42. 339. *Macrocera centralis*, Mg.
Hesleden, 1 ♀, 5-8-02.
- ” ” 42. *341. *Macrocera stigma*, Curt.
Bishop Auckland, 1 ♂, 10-9-02.
- ” ” 45. 338. *Bibio nigriventris*, Hal.
Bishop Auckland, 1 ♀, 14-6-02.
- ” ” 49. 416. *Chironomus tentans*, F.
Bishop Auckland, common.
- ” ” 53. 485. *Camptocladus aterrimus*, Mg.
Bishop Auckland, 4 ♂, 28-3-06.
- ” ” 53. 486. *Camptocladus byssinus*, Schrk.
Bishop Auckland, 1 ♂, 15-5-00; 3 ♀ (?),
April-May.
- ” ” 77. *751. *Limnophila lineola*, Mg.
Howick, 1 ♂, August, 1905.

- Insert at page 79. 775. *Dicranota pavida*, Hal.
Howick, Northumberland, 1 ♂ and 3 ♀,
August, 1905.
- „ „ 93. 857. *Oxycera pygmæa*, Mg.
Hesleden, 2 ♂, August, 1902.
- „ „ 97. *892. *Beris vallata*, Forst.
Bishop Auckland, 1 ♂, 26-6-04.
- „ „ 105. 964. *Dismachus trigonus*, Mg.
Hart, August, 1 ♂, 26-8-02 ; 1 ♀, 16-7-04.
- „ „ 122. 1099. *Hemerodromia precatória*, Fln.
Hesleden, 1 ♀, 16-8-02.
- „ „ 123. 1123. *Tachista arrogans*, L.
Howick, 1 ♀, 22-8-05.
- „ „ 125. 1162. *Tachydromia flavipes*, F.
Bishop Auckland, 7 ♂ and 5 ♀, May 27,
1897-1900 ; Stanhope, 1 ♂, May, 1900 ;
Evenwood, 1 ♀, May, 1897.
- „ „ 144. 1230. *Dolichopus brevipennis*, Mg.
South Durham, 2 ♂.
- „ „ 156. 1334. *Hydrophorus præcox*, Mg.
Hesleden, 1 ♀, 17-8-04.
- „ „ 158. 1358. *Xanthochlorus ornatus*, Hal.
Hesleden, 1 ♀, 2-8-02.
- „ „ 169. 1500. *Melangyna quadrimaculata*, Verr.
Bishop Auckland, 1 ♂, 20-3-06 ; Harper-
ley abundant, ♂, ♀, 3-4-06.
- „ „ 192. 1543. *Syrphus lasiophthalmus*, Ztt.
Muggleswick, 3 ♀, 27-5-03 ; Harperley,
3 ♂, 3-4-06 ; Bishop Auckland, 1 ♂,
6-4-06.

- Insert at page 275. 2106. *Phorbia intersecta*, Mg.
Bishop Auckland, 1 ♂, May, 1902.
- „ „ 282. 2158. *Homalomyia incisurata*, Ztt.
Bishop Auckland, 1 ♂, May, 1900.
- „ „ 286. 2165. *Azelia cilipes*, Hal.
Deepdale (Yorks), 1 ♂, 1 ♀, 26-6-01;
Hesleden, 1 ♂, 5-8-02.
- „ „ 287. 2177. *Cænosiæ elegantula*, Rnd.
Bishop Auckland, 1 ♂, July, 1902.
- „ „ 303. 2219. *Spathiophora hydromyzina*, Fln.
Hesleden, 1 ♀, August, 1900.
- „ „ 309. 2248. *Cælopa pilipes*, Hal.
Craster and Howick, 4 ♀, August, 1905.
- „ „ 309. 2250. *Fucomyia frigida*, Fln.
Craster, Northumberland, 1 ♂, August,
1905.
- „ „ 319. 2325. *Tetanocera unicolor*, Lw. (?)
Howick, 1 ♂, 22-8-05.
- „ „ 319. 2329. *Tetanocera coryleti*, Scop.
Howick, 1 ♀, 22-8-05.
- „ „ 327. *2383. *Pteropæctria nigrina*, Mg.
Craster, 1 ♀, 1-8-05.
- „ „ 330. *2403. *Acidia cognata*, W.
Howick, 1 ♂ and 3 ♀, 22-8-05.
- „ „ 332. 2430. *Urophora solstitialis*, L.
Hesleden, 1 ♂, 9-8-02.
- „ „ 333. 2435. *Sphenella marginata*, Fln.
Hesleden, 1 ♂ and 3 ♀, August, 1900.

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Oreogeton.....	110	Phorocera..	213, 215, 222, 223, 224
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Ornithomyia.....	394	Phrosia	291
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Orthoneura	168, 174	Piezura	246
Orygma	308	Piophila	344, 344
Oscinis	361, 370	Pipiza	167, 173
Oxycera	90, 92	Pipizella	167, 172
Oxypterum	395	Pipunculus	163, 163
Pachygaster.....	90, 91	Plagia	210, 230
Pachymeria	109, 118	Platycephala	359, 361
Pachyrrhina	80, 81	Platychirus	169, 180
Palloptera	336, 337	Platycnema	160
Pamponerus.....	106	Platyparea	328
Paragus	167, 172	Platypeza.....	161, 161
Parallelomma	290, 298	Platyphora	384
Parexorista.....	222	Platystoma	325
Parhydra	349, 355	Platyura	38
Pedicia	68, 80	Plesiastina	37
Pegomyia.....	246, 276	Pocota	171
Pelatachina.....	224	Pœcilobothrus.....	130, 145
Pelecocera	169	Pœcilostola	67, 76
Peleteria	229	Pogonomyia.....	245
Pelethophila	341, 342	Pogonota	294
Pelidnoptera.....	316	Polietes	245, 248
Pelina	349, 349, 355	Pollenia	238, 239
Peplomyza	338	Polylepta.....	39
Perichæta	223	Porphyrops	134, 150

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Psarus	172	Scatophila	350, 357
Pselaphephila	293	Scatopse	42, 42
Psila	321, 321	Scellus	132, 155
Psilocephala	108	Scenopinus	108
Psilopa.....	348, 351	Sceptonia	40
Psilopus	129, 135	Schoenomyza.....	248, 373, 375
Psilosoma	321	Schœnophilus	132
Psilota	167	Sciara	37
Pteropæctria	326, 326	Sciodromia	111
Pthiria	107	Sciomyza	315, 317
Ptilonota	325, 326	Sciophila	38, 42
Ptilops.....	226	Scoliaphleps	291
Ptychoneura	213	Scoliocentra	309
Ptychoptera	64	Selachops	359
Pyrellia	238, 241	Seoptera	326
Pyrophæna	168, 185	Sepedon	316, 321
Racochlæna	328	Sepsis	342, 343
Ragas	110	Sericomyia	170, 204
Redtenbacheria	215	Servillia	230
Rhadiurgus	106	Sicus	207
Rhagoletis	329	Simulium	46
Rhamphidia	66	Siphona	214, 231
Rhamphomyia	111, 112	Siphonella	361, 372
Rhaphium	134	Sisyropa	220, 220, 221
Rhingia	168, 195	Somolia.....	215, 225
Rhinophora	216, 217, 233	Spania	101
Rhipidia	65, 71	Spathephilus	293
Rhymosia	40	Spathiophora	296, 303
Rhynchista	226	Sphærocera	377, 379
Rhypholophus	66, 73	Sphærophoria	169, 193
Rhyphus	89	Sphecolyma.....	245, 254
Rivellia	326	Sphecomyia	172
Roeselia	214, 230	Sphegina	168, 194
Rymosia	40	Sphenella	329, 333
Saltella.....	342, 344	Spilogaster	245, 254, 256, 288
Sapromyza	338, 338	Spilographa.....	329, 330
Sarcophaga	216, 234	Stægeria	295
Sarcophila.....	216	Stegana	358, 359
Sargus	91, 96	Stenopteryx	395

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Stevenia	216, 233	Thinophilus	132, 158
Stilpon	30, 110, 123	Thrypticus	134
Stomatomyia	222	Thryptocera.....	214, 231
Stomoxys.....	237, 239	Thyreophora	33
Stomphastica	315	Tichomyza	350
Stratiomys	90, 94	Tipula	81, 83
Sybistroma	130	Trichina	111, 120
Symphoromyia	101, 103	Trichocera	67, 78
Symplecta.....	67, 74	Trichonta	40
Sympycnus	132, 157	Trichopalpus	296, 303
Syntemna	39	Trichopareia	226
Syntormon	133, 152	Trichopeza	109
Syritta	171, 202	Trichopticus	245, 268
Syrphus.....	170, 186	Trigonometopus	325
Systemus	133, 151	Trimerina.....	347
Tabanus	100, 100	Trimicra	67
Tachina	211, 223, 224	Trineura	384, 385
Tachista	110, 123	Trixa	211, 232
Tachydromia	110, 124	Tropidia.....	170, 171
Tachypeza	110, 123	Trypeta.....	329, 329, 331
Tachytrechus	130, 144	Ula	68, 79
Tanypus	48, 54	Ulidia	326, 327
Tanytarsus	48, 53	Urellia.....	333
Tephritis.....	333	Urophora	328, 329, 332
Tephrochlamys	310, 314	Varichæta	228
Tetanocera	316, 319	Verrallia	162, 162
Tetanops	325	Volucella	170, 195
Tetanura.....	34	Xanthandrus	169
Tetragoneura	38	Xanthochlorus.....	130, 158
Teuchophorus	132, 157	Xanthogramma	169, 194
Thalassomyia.....	48	Xiphandrium	134, 153
Thamnodromia	110, 122	Xiphura	81, 89
Thaumastoptera.....	66	Xylomyia	28, 98, 98
Thelaira	218	Xylophagus	28, 98, 103
Thelymorpha	224	Xylota	171, 202
Themira	342, 344	Zodion	206
Thereva	108, 108	Zophomyia	213
Theria	216	Zygomia	40
Therioplectes	99, 99	Zygoneura	37

PLATE I.

Diagram of the Exterior Parts of a Fly, a full description of which will be found on pages 8-21, to which should be added under Abdomen, page 20: The abdomen is said to be *depressed* when it is pressed together above and below till almost flat—the section would be like \ominus ; *compressed* when pressed together at the sides—the section would be like \circ ; and cylindrical when not pressed together from any direction—the section would be like O.

NOTE.

It will be understood that all the parts shown opposite are not to be found on any single species; and the drawings on the six plates which follow are not to be considered as full or correct in every detail, but as illustrating the particular characters in the tables to which the plate-reference is made. They are given to try to make the meaning of terms or characters a little clearer. The sizes are not at all proportionate.

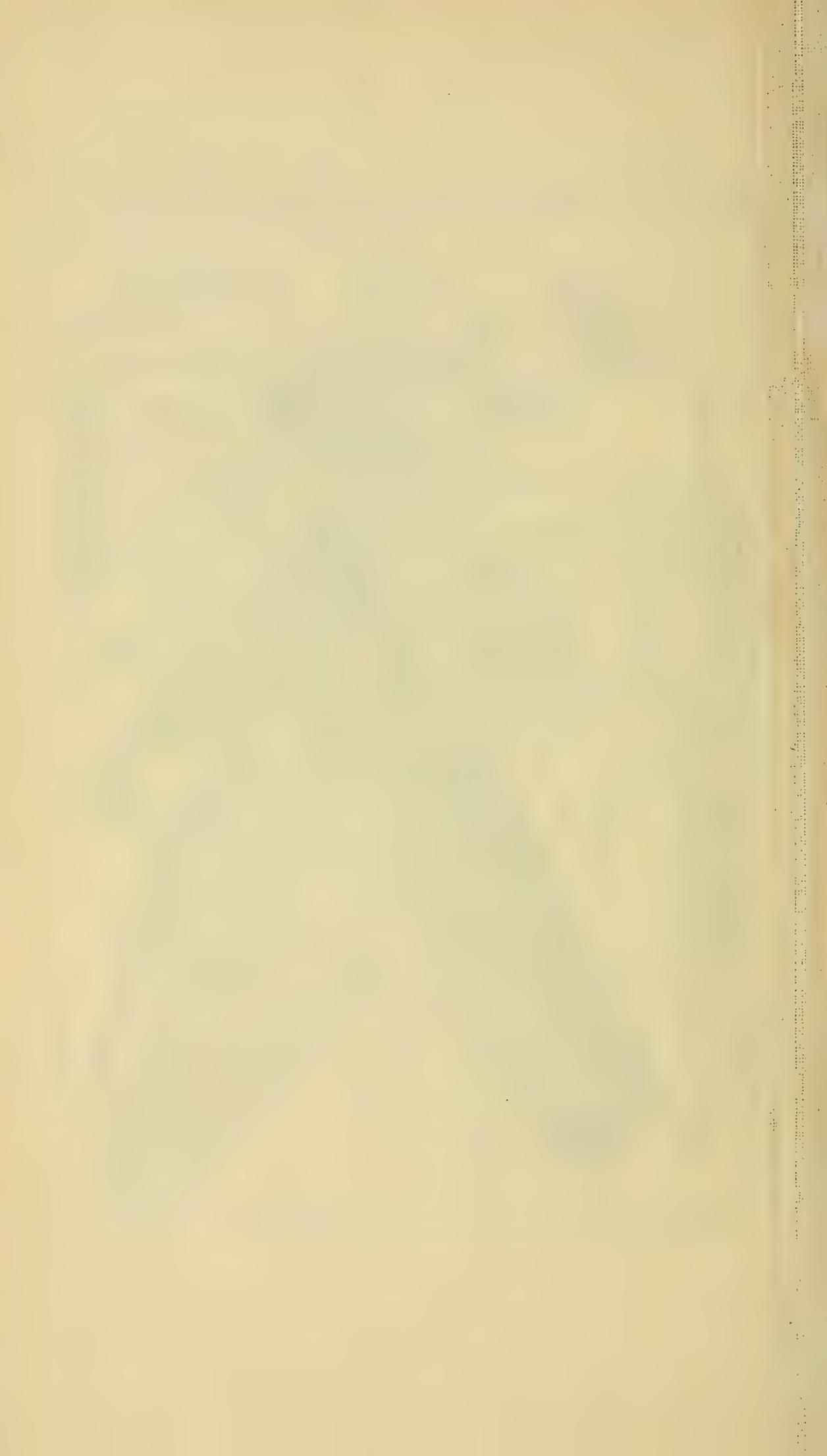


PLATE II.

Family Type-Forms of Antennæ in the First Section, or Flies
with many-jointed Antennæ—NEMOCERA.

FAM. II.—CECIDOMYIDÆ.

1. *Epidosis longipes*, Lw. ♂ (126)
2. *Asphondylia sarothamni*, Lw. (38)

FAM. III.—MYCETOPHILIDÆ.

3. *Sciara thomæ*, L. (140)
4. *Mycetophila cingulum*, Mg. (195)
5. *Mycetobia pallipes*, Mg. (347)
6. *Macrocera lutea*, Mg. (336)

FAM. IV.—BIBIONIDÆ.

7. *Bibio marci*, L. ♀ (381)
8. *Scatopse notata*, L. (353)

FAM. V.—SIMULIDÆ.

9. *Simulium reptans*, L. (396)

FAM. VI.—CHIRONOMIDÆ.

10. *Chironomus plumosus*, L. ♂ & ♀ (403)
11. *Ceratopogon femoratus*, F. ♂ (583)
12. *Clunio marinus*, Hal. (532)

FAM. IX.—CULICIDÆ.

13. *Mochlonyx velutinus*, Ruthé. ♂ (640)
14. *Corethra plumicornis*, F. ♀ (638)

FAM. XII.—LIMNOBIDÆ.

15. *Limnophila dispar*, Mg. (750)
16. *Rhipidia maculata*, Mg. ♂ (695)
17. *Erioptera flavescens*, Mg. (726)
18. *Trichocera hiemalis*, Deg. (767)

FAM. XI.—PTYCHOPTERIDÆ.

19. *Ptychoptera contaminata*, L. (666)

FAM. XIII.—TIPULIDÆ.

20. *Tipula gigantea*, Schrk. (830)
21. *Ctenophora pectinicornis*, L. ♂ (843)

FAM. XIV.—RHYPHIDÆ.

22. *Rhyphus cinctus*, F. (845)

CECIDOMYIDÆ.

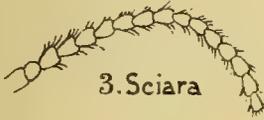


1. Epidosis.



2. Asphondylia.

MYCETOPHILIDÆ.



3. Sciara



4. Mycetophila.



5. Mycetobia.



6. Macrocera.

BIBIONIDÆ.



7. Bibio.



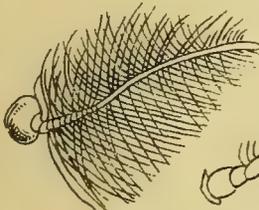
8. Scatopse.

SIMULIDÆ.

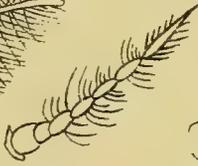


9. Simulium

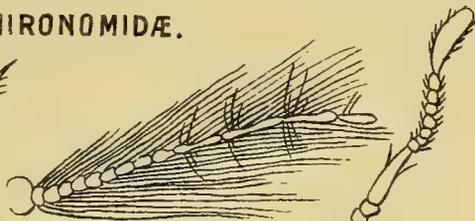
CHIRONOMIDÆ.



10. Chironomus. ♂



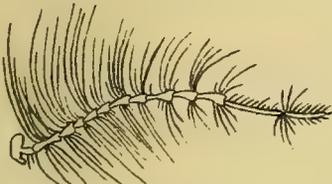
♀



11. Ceratopogon. ♂

12. Clunio.

CULICIDÆ.



13. Mochlonyx. ♂



14. Corethra. ♀

LIMNOBIDÆ. &c.



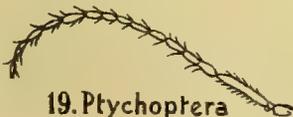
15. Limnophila



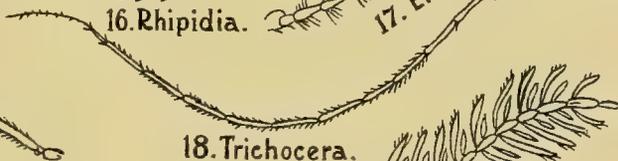
16. Rhipidia.



17. Erioptera.



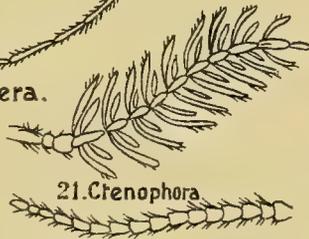
19. Ptychoptera



18. Trichocera.



20. Tipula.



21. Crenophora

22. Rhyphus.



PLATE III.

Family Type-Forms of Antennæ in the Second Section, or Flies
with three or few-jointed Antennæ.

FAM. XV.—STRATIOMYIDÆ.

1. *Pachygaster atra*, Pz. (847)
2. *Oxycera pulchella*, Mg. (866)
3. *Stratiomys chamæleon*, L. (868)
4. *Sargus cuparius*, L. (885)
5. *Beris chalybeata*, Forst. (893)
6. *Nemotelus uliginosus*, L. (853)

FAM. XVI.—TABANIDÆ.

7. *Chrysops cæcutiens*, L. (918)
8. *Hæmatopota pluvialis*, L. (901)
9. *Tabanus bovinus*, L. (910)

FAM. XVII.—LEPTIDÆ.

10. *Chrysopilus auratus*, F. (930)
11. *Leptis scolopacea*, L. (922)
12. *Atherix ibis*, F. (932)
13. *Symphoromyia melæna*, Mg. (936)
14. *Spania nigra*, Mg., ♂ & ♀ (938)

FAM. XVIII.—ASILIDÆ.

15. *Leptogaster cylindrica*, Deg. (941)
16. *Dioctria celandica*, L. (943)
(Delete the line dividing the last two joints shown and throw them into one)
17. *Isopogon brevisstris*, Mg. (950)
18. *Laphria marginata*, L. (953)
19. *Asilus crabroniformis*, L. (954)

FAM. XIX.—BOMBYLIDÆ.

20. *Anthrax hottentota*, L. (966)
21. *Bombylius major*, L. (969)

FAM. XX.—THEREVIDÆ.

22. *Thereva annulata*, F. (979)

FAM. XXI.—SCENOPINIDÆ.

23. *Scenopinus fenestralis*, L. (982)

FAM. XXIII.—EMPIDÆ.

- 24a. *Empis livida*, L. (1020)
- 24b. ,, *borealis*, L. (1022)
25. *Ardoptera irrorata*, Fln. (1104)
26. *Ocydromia glabricula*, Fln. (1084)
27. *Stilpon lunata*, Wlk. (1119)
- 28a. *Clinocera stagnalis*, Hal. (1093)
- 28b. ,, *lota*, Hal. (1095)
29. *Hybos grossipes*, L. (987)
30. *Tachista arrogans*, L. (1123)
31. *Chersodromia hirta*, Wlk. (1132)
32. *Cyrtoma spuria*, Fln. (990)

FAM. XXIV.—DOLICHOPODIDÆ.

33. *Psilopus wiedemanni*, Fln. (1181)
- 34a. *Dolichopus longicornis*, Stan. (1215)
- *34b. ,, *discifer*, Stan. (1207)
- *35. *Chrysotus gramineus*, Fln. (1270)
- *36. *Rhaphium longicorne*, Fln. (1286)
37. *Medeterus diadema*, L. (1322)

FAM. XXV.—LONCHOPTERIDÆ.

38. *Lonchoptera lutea*, Pz. (1369)

FAM. XXVI.—PLATYPEZIDÆ.

39. *Platycnema pulicaria*, Fln. (1376)
40. *Platypeza picta*, Mg. (1391)

FAM. XXVII.—PIPUNCULIDÆ.

41. *Chalarus spurius*, Fln. (1392)
42. *Pipunculus campestris*, Ltr. (1408)

FAM. XXVIII.—SYRPHIDÆ.

43. *Volucella bombylans*, L. (1564)
44. *Xylota sylvarum*, L. (1603)
45. *Orthoneura elegans*, Mg. (1442)
46. *Chrysotoxum arcuatum*, L. (1618)

FAM. XXIX.—CONOPIDÆ.

47. *Myopa buccata*, L. (1639)
48. *Physocephala rufipes*, F. (1634)

FAM. XXXI.—TACHINIDÆ.

49. *Zophomyia temula*, Scop. (1772)
50. *Sarcophaga carnaria*, L. (1859)

FAM. XXXII.—MUSCIDÆ.

51. *Calliphora vomitoria*, L. (1931)

FAM. XXXIV.—CORDYLURIDÆ.

52. *Coniosternum obscurum*, Fln. (2241)
53. *Scatophaga stercoraria*, L. (2229)

FAM. XXXVIII.—SCIOMYZIDÆ.

54. *Tetanocera ferruginea*, Fln. (2326)

FAM. LVI.—BORBORIDÆ.

55. *Borborus nitidus*, Mg. (2780)

FAM. XXX.—CESTRIDÆ.

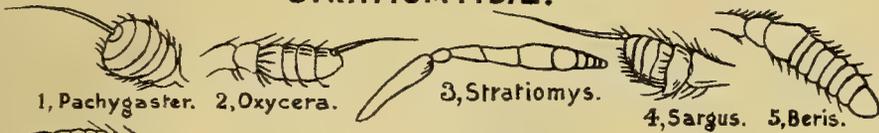
56. *Hypoderma bovis*, Deg. (1649)

FAM. LVII.—PHORIDÆ.

57. *Phora incrassata*, Mg. (2856)
(The arista should be slightly higher so as to be dorsal not apical).

* NOTE.—The numbers are somewhat displaced. The antenna immediately above No. 35 is 34b, that above 36 is 35, while No. 36 belongs to the uppermost of the three antennæ to the right as indicated by the arrows.

STRATIOMYIDÆ.



1, Pachygaster.

2, Oxycera.

3, Stratiomys.

4, Sargus. 5, Beris.

TABANIDÆ



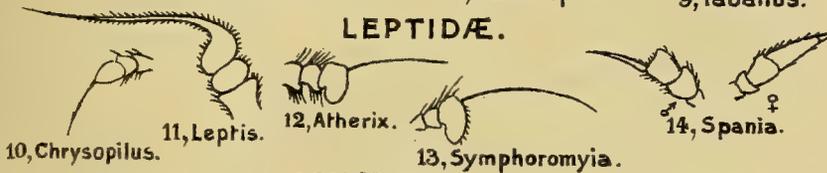
6, Nemotelus.

7, Chrysops.

8, Hæmatopota

9, Tabanus.

LEPTIDÆ.



10, Chrysopilus.

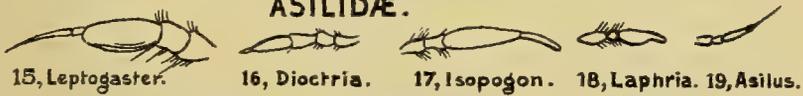
11, Lepris.

12, Atherix.

13, Symphoromyia.

14, Spania.

ASILIDÆ.



15, Leptogaster.

16, Dioctria.

17, Isopogon.

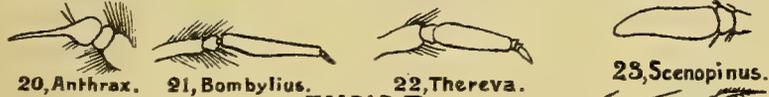
18, Laphria.

19, Asilus.

BOMBYLIDÆ.

THEREVIDÆ.

SCENOPINIDÆ.



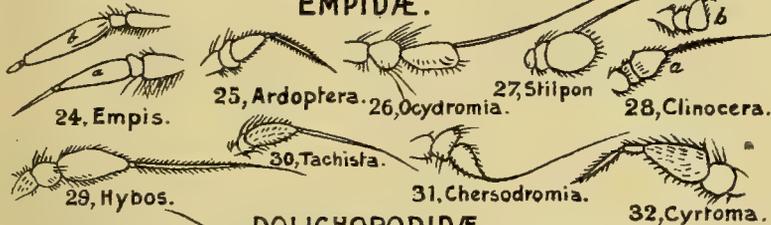
20, Anthrax.

21, Bombylius.

22, Thereva.

23, Scenopinus.

EMPIDÆ.



24, Empis.

25, Ardoptera.

26, Ocydromia.

27, Stilpon.

28, Clinocera.

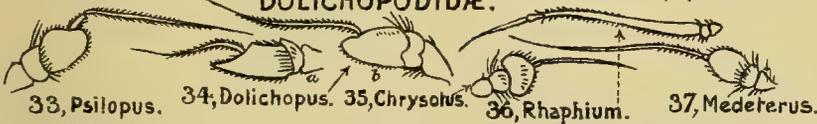
29, Hybos.

30, Tachista.

31, Chersodromia.

32, Cyrtoma.

DOLICHOPODIDÆ.



33, Psilopus.

34, Dolichopus.

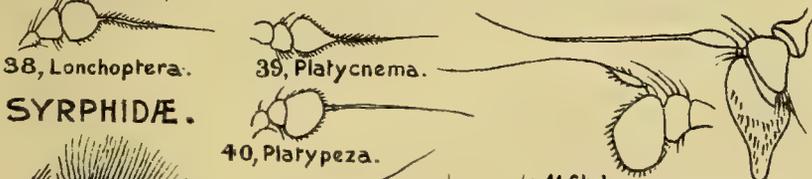
35, Chrysotus.

36, Raphium.

37, Medeterus.

LONCHOPTERIDÆ. PLATYPEZIDÆ.

PIPUNCULIDÆ.



38, Lonchoptera.

39, Platycnema.

40, Platypeza.

41, Chalarus.

42, Pipunculus.

47, Myopa.

SYRPHIDÆ.



43, Volucella.

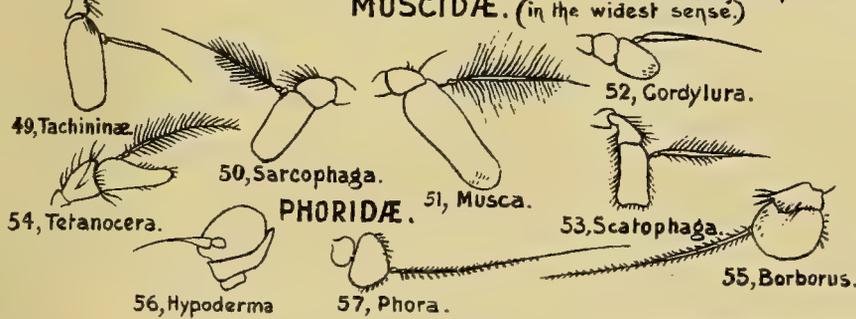
44, Xylola.

45, Orthoneura.

46, Chrysotoxum.

48, Physocephala.

MUSCIDÆ. (in the widest sense.)



49, Tachinæ.

50, Sarcophaga.

51, Musca.

52, Gordylura.

53, Scatophaga.

54, Tetanocera.

PHORIDÆ.

56, Hypoderma

57, Phora.

55, Borborus.

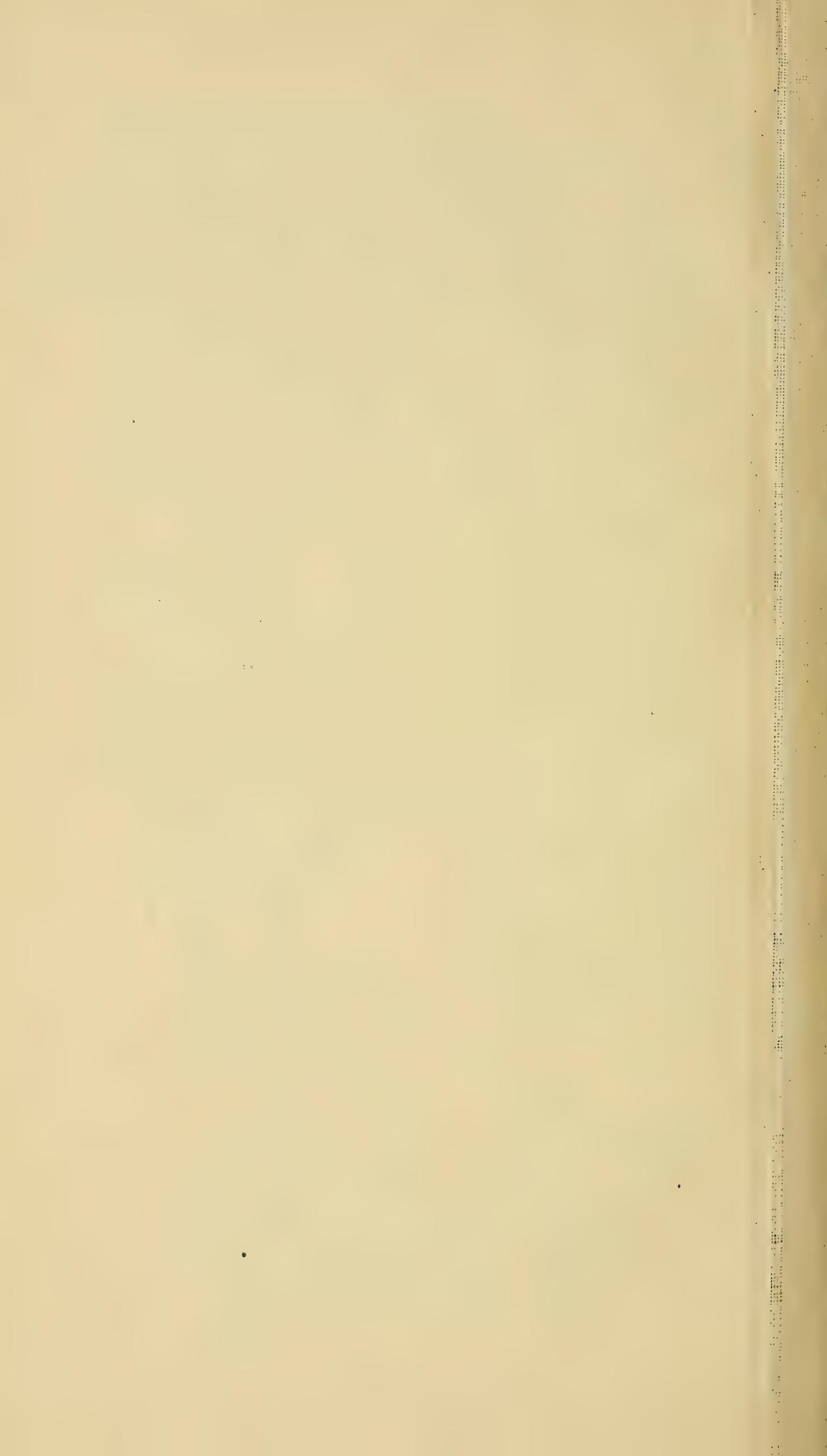


PLATE IV.

Family Type-Forms of the Wings of NEMOCERA.

FAM. II.—CECIDOMYIDÆ.

1. *Cecidomyia rosaria*, Lw. (75)
2. *Lasioptera rubi*, Schrk. (35)
3. *Catocha latipes*, Hal. (134)

FAM. III.—MYCETOPHILIDÆ.

4. *Sciara thomæ*, L. (140)
5. *Mycetophila cingulum*, Mg. (195)
6. *Macrocera lutea*, Mg. (336)

FAM. IV.—BIBIONIDÆ.

7. *Bibio pomonæ*, F. (380)

FAM. V.—SIMULIDÆ.

8. *Simulium reptans*, L. (396)

FAM. VI.—CHIRONOMIDÆ.

9. *Ceratopogon illustris*, Winn. (569)
10. *Chironomus plumosus*, L. (403)
11. *Tanypus monilis*, L. (521)

FAM. VIII.—PSYCHODIDÆ.

12. *Psychoda sexpunctata*, Curt. (631)

FAM. IX.—CULICIDÆ.

13. *Culex annulatus*, Schrk. (645)

FAM. X.—DIXIDÆ.

14. *Dixa maculata*, Mg. (662)

FAM. XI.—PTYCHOPTERIDÆ.

15. *Ptychoptera contaminata*, L. (666)

FAM. XIV.—RHYPHIDÆ.

16. *Rhyphus cinctus*, F. (845)

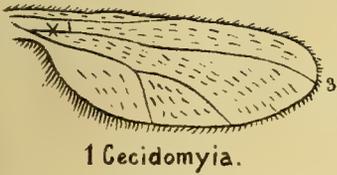
FAM. XII.—LIMNOBIDÆ.

17. *Dicranomyia stigmatica*, Mg. (689)
18. *Rhipidia maculata*, Mg. (695)
19. *Symplecta punctipennis*, Mg. (732)
20. *Erioptera fuscipennis*, Mg. (730)
(The last vein should bend outwards near its present end, and end about over the o of *Erioptera*).
21. *Limnophila nemoralis*, Mg. (763)
22. *Trichocera hiemalis*, Deg. (767)

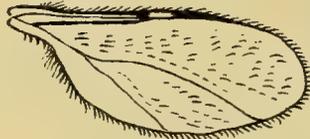
FAM. XIII.—TIPULIDÆ.

23. *Nephrotoma dorsalis*, F. (789)
24. *Dolichopeza sylvicola*, Curt. (788)
25. *Pachyrrhina crocata*, L. (790)
26. *Tipula gigantea*, Schrk. (830)

CECIDOMYIDÆ.



1 Cecidomyia.

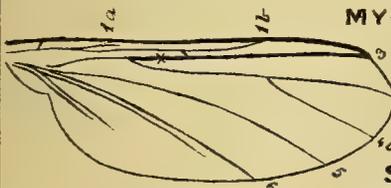


2 Lasioptera.

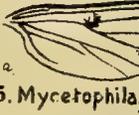


3 Carocha.

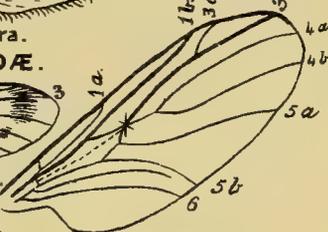
MYCETOPHILIDÆ.



4 Sciara.



5 Mycetophila.



6 Macrocera.

SIMULIDÆ.



8 Simulium.

CHIRONOMIDÆ.

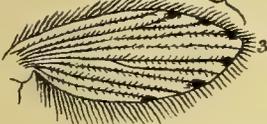


10 Chironomus.



7 Bibio.

PSYCHODIDÆ.



12 Psychoda.



9 Ceratopogon.

CULICIDÆ.



13 Culex.



11 Tanypus.

DIXIDÆ.

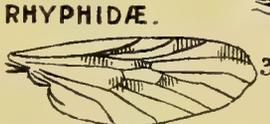


14 Dixa.

PTYCHOPTERIDÆ.

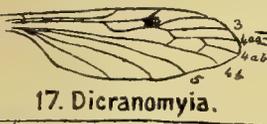


15 Ptychoptera.

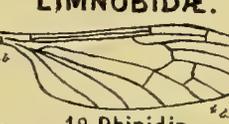


16 Rhyphus.

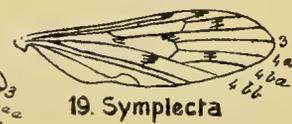
LIMNOBIDÆ.



17 Dicranomyia.



18 Rhipidia.



19 Symplecta.



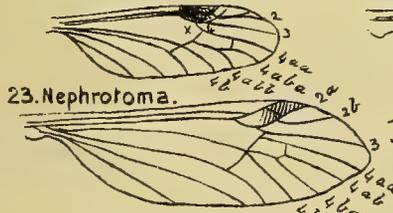
20 Erioptera.



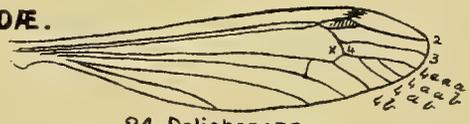
21 Limnophila.

TRICHOCERA.

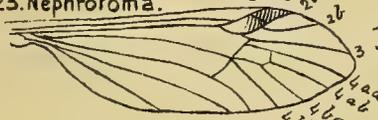
TIPULIDÆ.



23 Nephrotoma.



24 Dolichopeza.



25 Pachyrrhina.



26 Tipula.

PLATE V.

Family Type-Forms of the Wings in the Second Section, or Flies
with few-jointed Antennæ.

- | | |
|--|--|
| <p>FAM. XV.—STRATIOMYIDÆ.</p> <p>1. <i>Sargus cuprarius</i>, L. (885)</p> <p style="padding-left: 2em;">FAM. XVI.—TABANIDÆ.</p> <p>2. <i>Tabanus bovinus</i>, L. (910)</p> <p style="padding-left: 2em;">FAM. XVII.—LEPTIDÆ.</p> <p>3. <i>Leptis scolopacea</i>, L. (922)</p> <p style="padding-left: 2em;">FAM. XVIII.—ASILIDÆ.</p> <p>4. <i>Asilus crabroniformis</i>, L. (954)</p> <p>5. <i>Isopogon brevisrostris</i>, Mg. (950)</p> <p style="padding-left: 2em;">FAM. XIX.—BOMBYLIDÆ.</p> <p>6. <i>Bombylius major</i>, L. (969)</p> <p>7. <i>Anthrax hottentota</i>, L. (966)</p> <p style="padding-left: 2em;">FAM. XX.—THEREVIDÆ.</p> <p>8. <i>Thereva nobilitata</i>, F. (974)</p> <p style="padding-left: 2em;">FAM. XXI.—SCENOPINIDÆ.</p> <p>9. <i>Scenopinus fenestralis</i>, L. (982)</p> <p style="padding-left: 2em;">FAM. XXIII.—EMPIDÆ.</p> <p>10. <i>Empis livida</i>, L. (1020)</p> <p>11. <i>Ocydromia glabricula</i>, Fln. (1084)</p> <p>12. <i>Stilpon lunata</i>, Wlk. (1119)</p> <p style="padding-left: 2em;">FAM. XXII.—CYRTIDÆ.</p> <p>13. <i>Acrocera globulus</i>, Pz. (986)</p> <p style="padding-left: 2em;">FAM. XXIV.—DOLICHOPODIDÆ.</p> <p>14. <i>Dolichopus plumipes</i>, Scop. (1208)</p> <p>15. <i>Medeterus diadema</i>, L. (1322)</p> <p style="padding-left: 2em;">FAM. XXV.—LONCHOPTERIDÆ.</p> <p>16. <i>Lonchoptera lutea</i>, Pz., male. The dotted line shows the course of V.6. in the female (1369)</p> <p style="padding-left: 2em;">FAM. XXVI.—PLATYPEZIDÆ.</p> <p>17. <i>Platypeza picta</i>, Mg. (1391)</p> <p style="padding-left: 2em;">FAM. XXVII.—PIPUNCULIDÆ.</p> <p>18. <i>Verralia aucta</i>, Fln. (1395)</p> <p style="padding-left: 2em;">FAM. XXVIII.—SYRPHIDÆ.</p> <p>19. <i>Syritta pipiens</i>, L. (1607)</p> <p>19½. <i>Eumerus sabulonum</i>, Fln. (1608) (Apical region).</p> <p>20. <i>Eristalis tenax</i>, L. (1571)
(X.4. should have been rather further out, over the middle of O.5²).</p> <p>21. <i>Brachyopa bicolor</i>, Fln. (1561)</p> | <p style="padding-left: 2em;">FAM. XXIX.—CONOPIDÆ.</p> <p>21½. <i>Physocephala rufipes</i>, F. (1634)</p> <p style="padding-left: 2em;">FAM. XXX.—ÆSTRIDÆ.</p> <p>22. <i>Gastrophilus equi</i>, F. (1644)</p> <p>23. <i>Æstrus ovis</i>, L. (1651)</p> <p style="padding-left: 2em;">FAM. XXXI.—TACHINIDÆ.</p> <p>24. <i>Gymnosoma rotundatum</i>, L. (1823)</p> <p>25. <i>Ceromyia thoracica</i>, Mg. (1825)</p> <p>26. <i>Dexiosoma caninum</i>, F. (1895)</p> <p>27. <i>Sarcophaga carnaria</i>, L. (1859)</p> <p style="padding-left: 2em;">FAM. XXXII.—MUSCIDÆ.</p> <p>28. <i>Calliphora erythrocephala</i>, Mg. (1930)</p> <p>29. <i>Mesembrina meridiana</i>, L. (1922)</p> <p style="padding-left: 2em;">FAM. XXXIII.—ANTHOMYIDÆ.</p> <p>30. <i>Anthomyia pluvialis</i>, L. (2081)</p> <p style="padding-left: 2em;">FAM. XXXIV.—CORDYLURIDÆ.</p> <p>31. <i>Scatophaga stercoraria</i>, L. (2229)</p> <p style="padding-left: 2em;">FAM. XXXVIII.—SCIOMYZIDÆ.</p> <p>32. <i>Tetanocera ferruginea</i>, Fln. (2326)</p> <p style="padding-left: 2em;">FAM. XXXIX.—PSILIDÆ.</p> <p>33. <i>Psila fimentaria</i>, L. (2344)</p> <p style="padding-left: 2em;">FAM. XLII.—TRYPETIDÆ.</p> <p>34. <i>Tephritis corniculata</i>, Fln. (2442)</p> <p style="padding-left: 2em;">FAM. LVII.—PHORIDÆ.</p> <p>35. <i>Phora rufipes</i>, Mg. (2864)</p> <p style="padding-left: 2em;">FAM. XL.—MICROPEZIDÆ.</p> <p>36. <i>Micropeza corrigiolata</i>, L. (2365)</p> <p style="padding-left: 2em;">FAM. LI.—CHLOROPIDÆ.</p> <p>37. <i>Centor cereris</i>, Fln. (2693)</p> <p style="padding-left: 2em;">FAM. LIV.—PHYTOMYZIDÆ.</p> <p>38. <i>Chromatomyia affinis</i>, Mg. (2774)</p> <p style="padding-left: 2em;">FAM. LVI.—BORBORIDÆ.</p> <p>39. <i>Limosina fontinalis</i>, Fln. (2805)</p> <p style="padding-left: 2em;">FAM. LVIII.—HIPPOBOSCIDÆ.</p> <p>40. <i>Hippobosca equina</i>, L. (2875)</p> |
|--|--|

STRATIOMYIDÆ.



1. Sargus.

ASILIDÆ.



4. Asilus.



5. Isopogon.

EMPIDÆ.



10. Empis.

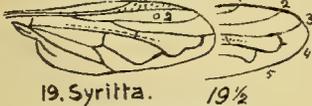


11. Ocydromia.

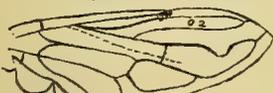


12. Stilpon.

SYRPHIDÆ.



19. Syrphid. 19 1/2



20. Eristalis.



21. Brachyopa.

MUSCIDÆ.



28. Calliphora.



29. Mesembrina.

MICROPEZIDÆ.



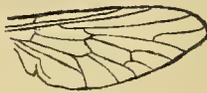
36. Micropeza.

HIPPOBOSCIDÆ.



40. Hippobosca.

TABANIDÆ.



2. Tabanus.

BOMBYLIDÆ.



6. Bombylius.



7. Anthrax.

CYRTIDÆ.



13. Acrocera.

LONCHOPTERIDÆ.



16. Lonchoptera.

PLATYPEZIDÆ.



17. Platypeza.

CONOPIDÆ.



21 1/2. Physocephala.

TACHINIDÆ.



24. Gymnosoma.



25. Cercomyia



26. Dexiosoma.



27. Sarcophaga.

CORDYLURIDÆ



31. Scatophaga.

PSILIDÆ.



33. Psila.

CHLOROPIDÆ



37. Centor

TRYPETIDÆ.



34. Tephritis.

PHYTOMYZIDÆ.



38. Chromatomyia

LEPTIDÆ.



3. Leptis.

THEREVIDÆ.



8. Thereva.



9. Scenopinus.



14. Dolichopus.



15. Medeterus.

PIPUNCULIDÆ.



18. Verrallia.

CESTRIDÆ.



22. Gastrophilus.



23. Oestrus.

ANTHOMYIDÆ



30. Anthomyia.

SCIOMYZIDÆ.



32. Tetanocera.

PHORIDÆ.



35. Phora.

BORBORIDÆ.



39. Limosina.

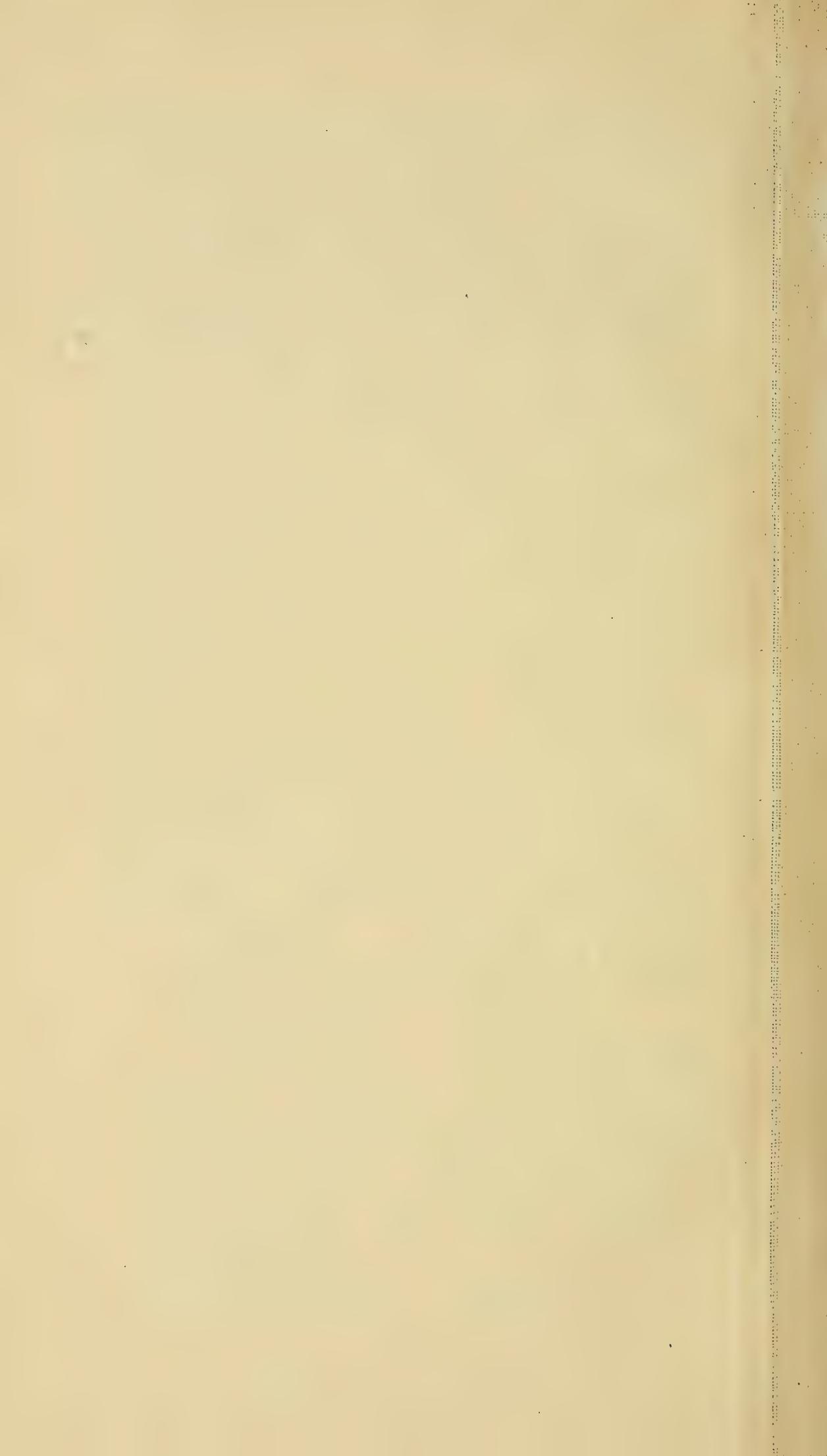


PLATE VI.

1. Head of *Mycetophila* to show the position of the two ocelli.
2. Fore-leg of *Dilophus*.
3. „ „ *Bibio*.
4. Palpus of *Limnobia*.
5. „ „ *Tipula*.
6. „ „ *Anopheles*.
7. „ „ *Culex*.
8. Foot of *Dilophus*.
9. „ „ *Leptis*.
10. „ „ *Asilus*.
11. „ „ *Thereva*.
12. Profile of *Eumerus*.
13. „ „ *Syritta*.
14. „ „ *Helophilus*.
15. „ „ *Volucella*.
16. „ „ *Rhingia*.
(not *Criorrhina*).
17. End of the abdomen of *Dolichopus*.
(a) The forceps.
(b) The penis.
(c) The lamellæ.
18. Head of *Psarus*, viewed from above, showing frontal process.
19. Shape of the proboscis in *Empis*.
20. „ „ „ *Hilara*.
21. „ „ „ *Ocydromia*.
22. „ „ „ *Euthyneura*.
23. Hind-leg of *Ramphomyia pennata*, Mcq.
24. „ „ *Sphærocera subsultans*, F.
- 24½. Palpus of *Lispe tentaculata*, Deg.
25. Leg of *Limnophila*—tibia spurred.
26. „ „ *Erioptera*—tibia not spurred.
27. Head and double-jointed proboscis of *Myopa*.
28. Head of *Asilus*—front view.
(a) The hollowed vertex.
(b) The mystax.
29. Head of *Drymia*.
30. Head and proboscis of *Stomoxys calcitrans*, L.
31. Dorsum of *Culex*—no cross-seam.
32. „ „ *Tipula*—shewing the cross-seams (a-a).
33. Dorsum of Muscid.
31, 32, and 33 are merely for the purpose of illustrating the cross-seam, other characters are disregarded.
34. Extremity of the abdomen of *Pedicia rivosa*, L.
35. Fore part of *Stenopteryx*, shewing the head sunk in the shoulders.
36. Foot and claws of *Hippobosca*.
37. Pupa-case of *Calliphora*, shewing the barrel-pupa and circular emergence-orifice characteristic of the sub-order *Cyclorrhapha*.
38. T-shaped emergence-orifice (pupa of *Dixa*—dorsal aspect), and,
39. A Mummy-pupa (*Tipula*—ventral aspect), both characteristic of the sub-order *Orthorrhapha*.
40. Diagram of the Dorsum.
(1-1) The Humeri.
(2) The Præ-sutural Central Region.
(3) The Post-sutural Central Region.
(4-4) The Post-humeral Regions.
(5-5) The Alar Regions.
(6) The Scutellum.
(7) The Neck.
(8) The Dorsal Suture.
(9-9) The Dorso-pleural Sutures.
(10-10) The Wing bases.
(11-11) The Scutellar Bridges.
(12-12) The Alar Frena.
(13-13) The inner rows of Dorso-central bristles.
(14-14) The outer rows of Dorso-central bristles.
(15) The Scutellar Suture.
41. Diagram of the Chætotaxy of an Abdominal Segment.
(1-1) The Side Fore-marginal bristles.
(2-2) The Side Hind-marginal bristles.
(3) The Central Fore-marginal bristles.
(4) The Central Hind-marginal bristles.
(5) The Discal bristles.

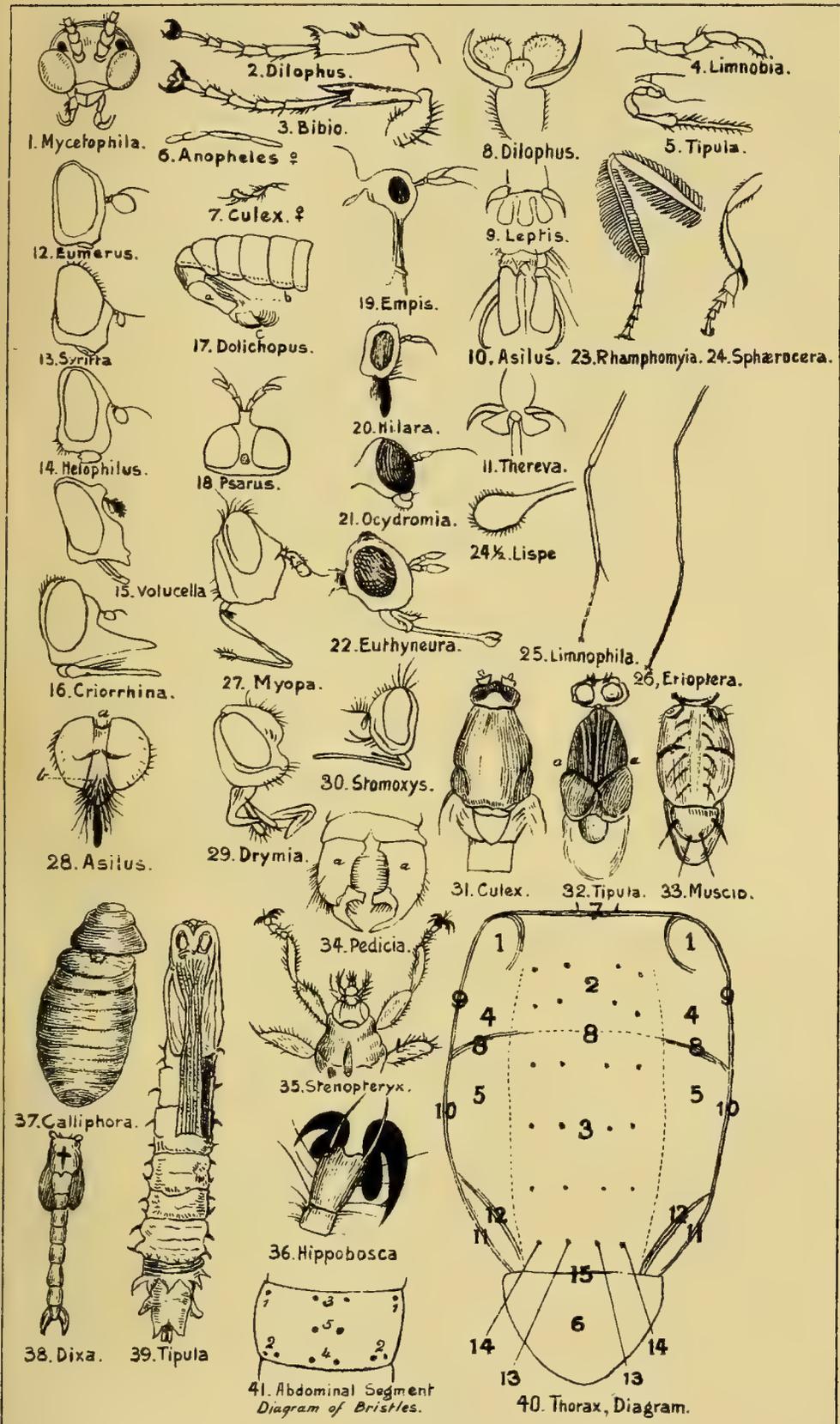
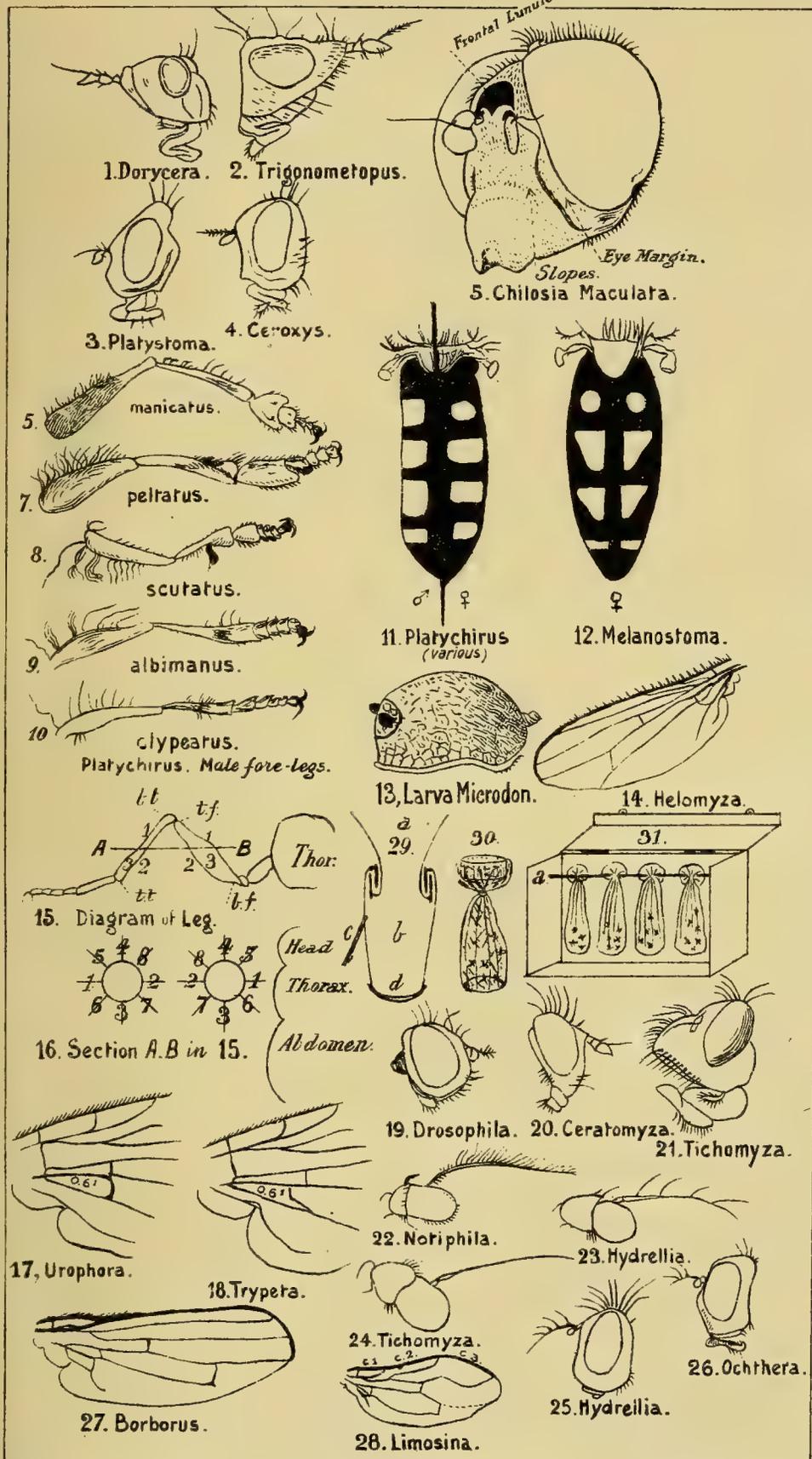


PLATE VII.

1. Profile of *Dorycera graminum*, F. (2375)
2. „ *Trigonometopus frontalis*, Mg. (2288)
3. „ *Platystoma seminationis*, F. (2394)
4. „ *Ceroxys crassipennis*, F. (2390)
5. Head of *Chilosia maculata*, Fln. (1453) ♂
6. Fore-leg of *Platychirus manicatus*, Mg. (1479) ♂ (5 should be 6)
7. Fore-leg of *Platychirus peltatus*, Mg. (1483) ♂
8. Fore-leg of *Platychirus scutatus*, Mg. (1484) ♂
9. Fore-leg of *Platychirus albimanus*, F. (1485) ♂
10. Fore-leg of *Platychirus clypeatus*, Mg. (1491) ♂
11. Abdomen and quadrate spotting of *Platychirus* (219) ♂ & ♀
12. Abdomen and triangular spotting of *Melanostoma mellinum*, L. (1498) ♀
13. Slug-like larva of *Microdon* (320)
14. Wing of *Helomyza pallida*, Fln. (2268)
- 15 & 16. Diagram of a Fly's leg to illustrate Section C.I.12 in the Description of Parts, on page 14. No. 15 viewed from behind; No. 16 horizontal section of 15 through A-B. :—(b.f.) base of femur; (t.f.) tip of femur; (b.t.) base of tibia; (t.t.) tip of tibia; (1) the upper or outer side; (2) the under or inner side; (3) the hinder side; (4) the fore side; (5) the upper fore side; (6) the upper hind side; (7) the under hind side; (8) the under fore side.
- 17 & 18. Base of wing—(17) of a *Urophora* (562); (18) of a *Trypeta* (560); to illustrate the difference in the shape of **O.6**¹.
19. Profile of *Drosophila* (621).
20. Profile of *Ceratomyza denticornis*, Pz. (2744)
21. Profile of *Tichomyza fusca*, Mcq. (2657)
22. Antennæ of *Notophila cinerea*, Fln. (2583), showing thorn on second antennal joint characteristic of *Notophilinæ*.
23. Antennæ of *Hydrellia griseola*, Fln. (2607)
24. Antennæ of *Tichomyza fusca*, Mcq. (2657)
25. Profile of *Hydrellia griseola*, Fln. (2607)
26. Profile of *Ochthera mantis*, Deg. (2627)
27. Wing of *Borborus equinus*, Fln. (2790)
28. Wing of *Limosina sylvatica*, Mg. (2814)
29. Section of the end of the net to show the bag-attachment (p. 4).
 (a) The small end of the large net.
 (b) The detachable muslin bag.
 (c) Piece of elastic for closing the bag.
 (d) Celluloid end of the bag for examining the contents.
30. A small bag, closed and detached.
31. Box for carrying the full bags (the front removed).
 (a) A stretched piece of elastic band to grip the rim of the bags and so keep them suspended.



ADDITIONS.

These are printed on one side only of thinner paper in order that they may be cut out and pasted in at their proper places, which is much more easily and neatly done than making the alterations with pen and ink. A correct line is repeated here where required to allow of this, and for the same reason the order is not consecutive.

(6/10 means page 6, 10th line from the top, not counting the heading, page, or index lines).

28/4 delete the line and insert

31a (31b). First antennal joint about as long as the second ;
O.4.b.b. closed. XYLOMYIA, Rnd. (XV. 152).

31b (31a). First antennal joint much longer than the second ;
O.4.b.b. open. XYLOPHAGUS, Mg. (XVII. 164):

31/18 delete the line and insert

never shining black.

82a (82b). Face in profile straight or concave.
CORDYLURIDÆ (XXXIV.)

82b (82a). Face in profile convex (like VII. 21). Small
shore flies. CANACE, Hal. (609)

42/22 delete the line and insert

1 (2). O.5. open ; X.5. absent.

1a (1b). Legs slender, the hind metatarsus as long as or
longer than the other tarsal joints together.

64. ANARETE, Hal. (352. *candidata*, Hal.)

1b (1a). Legs rather stout, hind metatarsus shorter than the
other joints. SCATOPSE, Geoff. (65)

244/19 delete the line and insert

gently bent; squamæ generally large, the inner
scale projecting considerably beyond the outer.

246/13 delete the line and insert

the end of V.6., or at least always considerably
longer than V.6.; squamæ rather small, inner
scale generally slightly projecting, distinctly so in
Piezura.

ADDITIONS.

157/26 delete the line and insert

(1346. *picticornis*, Ztt.)

249. TEUCHOPHORUS, LW.

- 1 (5). Hind tibiæ bent before the tip, apical part dilated and hairy, with a long curved subapical spine beneath.
- 2 (3) (4). Hind tibiæ with no long spine just before bending.
(1348. *spinigerellus*, Ztt.)
- 3 (2) (4). Hind tibiæ with a long conspicuous spine just before bending. (1350. *monacanthus*, Lw.)
- 4 (2) (3). The process about the middle of the hind tibiæ spread out at its tip like a fan. (*calcaratus*, Mcq.)
- 5 (1). Hind tibiæ not bent before the tip, apical part not dilated, and bearing no long curved subapical spine.
- 6 (7) (8). The middle of the inner side of the hind tibiæ bearing a double thorn. (*signatus*, Stæg.)
- 7 (6) (8). The middle of the inner side of the hind tibiæ bearing a mammilla-like tuft of dark bristles, followed by some long thin bristles; mid tibiæ with two conspicuous bristles beneath.
(1349. *pectinifer*, Kow.)
- 8 (6) (7). Hind tibiæ with only an equal fine ciliation of about ten small bristles; mid tibiæ with no conspicuous bristles beneath. (1351. *simplex*, Mik.)

286/2 delete line and insert

- 1 (6). Halteres yellow; abdomen spotted.
- 1a (5a). Wings more or less darkened in the male.

286/16 delete line and insert

Stanhope, 1 ♂, May, 1900.

- 5a (1a). Wings quite clear in the male.
- 5b (5c). Fore claws normal. (*parva*, Rnd.)
- 5c (5b). Fore claws united so as to form a single clubshaped claw slightly notched at its tip.
(*monodactyla*, Lw.)

ADDITIONS.

132/18 delete the line and insert

52 (55). Small species, $1\frac{1}{2}$ –2 mm.

52a (52b). Palpi very large; arista subapical.

256. SCHÆNOPHILUS, Mik. (1365. *versutus*, Wlk.)

52b (52a). Palpi not large; arista distinctly dorsal.

139/after line 20 insert

60a (61) (62) (63). Third, fourth, and fifth mid tarsal joints
silvered in the male. (*argyrotarsis*, Whlbg.)

151/after line 7 insert

(*gravipes*, Wlk., is like *patula*, but with simple arista
and entirely black hind femora).

Foot of page 223 and top of 224 for table **349** substitute the
following:—

349. TACHINA, Mg.

1 (14). Palpi yellow or brownish.

2 (13). $O.4^2$ ending much before the tip of the wing; dorsum
brown-grey with four black stripes.

3 (8). Scutellum wholly, or at least at the sides orange.

4 (7). Face generally yellow.

5 (6). The frontal stripe narrower than the orbits; the facial
bristles nearly reaching up to the fronto-orbital
ones. (1716. *larvarum*, L.)

6 (5). Frontal stripe equal in width to the orbits; the facial
bristles ending some distance from the fronto-
orbital ones. (1720. *noctuarum*, Rnd.)

7 (4). The face generally white; the frontal stripe wider
than the orbits; the facial bristles quite reaching
to the fronto-orbital ones. (1721. *latifrons*, Rnd.)

8 (3). Scutellum black or grey.

9 (10). The middle abdominal segments without discal
bristles. (1718. *erucarum*, Rnd.)

10 (9). The middle abdominal segments bearing discal
bristles.

ADDITIONS.

- 11 (12). Lower fronto-orbital bristles extending beyond the middle of the cheeks, nearly to the mouth.
(1719. *rustica*, Mg.)
- 12 (11). The lower fronto-orbital bristles not extending beyond the middle of the cheeks. (1722. *nigricans*, Mg.)
- 13 (2). O.4² ending rather near the wing tip; dorsum shining blue-black with white dusting and four narrow black stripes.
(1663. *Ceromasia machairopsis*, B. & B.)
- 14 (1). Palpi black.
- 15 (26). Legs entirely black.
- 16 (19). Abdominal segments with straight black and white bands.
- 17 (18). White abdominal bands very narrow; wings short with the X-veins and the bent portion of V.4. straight. (1667. *Ceromasia brevipennis*, Mg.)
- 18 (17). The black and the white abdominal bands of nearly equal width; bent portion of V.4. not straight.
(*morosa*, Mg.)
- 19 (16). Abdomen tessellated brown and black, forming irregular bands, not straight ones.
- 20 (21). Bent portion of V.4. straight.
(*agilis*, Mg.=1663. *Ceromasia machairopsis*, B. & B.)
- 21 (20). Bent portion of V.4. not straight.

411. BRACHYCOMA, Rnd.

- 22 (25). Arista pubescent; cheeks with short bristles.
- 23 (24). Abdomen with black waved bands.
1850. *Brachycoma devia*, Fln.
Hesleden, 3 ♀, August, 1900.
- 24 (23). Abdomen with dark brown triangular central spots.
(1852. *erratica*, Mg.)
- 25 (22). Arista with the base sub-plumose; cheeks bare.
(1851. *smerinthi*, Mde.)
- 26 (15). Legs black with orange tibiae.
362. PELATACHINA, Mde. (1741. *tibialis*, Fln.)

ADDITIONS.

On page 272 for table **468** substitute the following:—

468. LASIOPS, Mg.

Kowarz's table of European males.

- 1 (10). Abdomen slender with parallel sides.
- 2 (5). Almost the whole of the hinder side of the hind tibiæ combed with a numerous row of regular bristles.
- 3 (4). Dorsum and scutellum entirely, or at least on the front, covered with grey dusting.
(2078. *roederi*, Kow.)
- 4 (3). Dorsum and scutellum entirely shining silky black.
2079. *Lasiops ctenocnema*, Kow.
Bishop Auckland, 8 ♂ and 1 ♀, May, 1897-1902.
- 5 (2). Only the basal half of the hinder side of the hind tibiæ with three or four erect bristles.
- 6 (7). Squamæ with black fringes.
2080. *Lasiops meadei*, Kow.
Bishop Auckland, 8 ♂, 5 ♀, March, 1902-06.
- 7 (6). Squamæ with yellow or brownish yellow fringes.
- 8 (9). Abdomen with distinct rather broad black bands on the fore margins of the segments.
(*parviceps*, Kow.)
- 9 (8). Abdomen without these bands, or with very narrow and indistinct ones.
(*adelpa*, Kow.)
- 10 (1). Abdomen flat and oval.
- 11 (12). Thorax thickly dusted with grey. (*anthomyina*, Rd.)
- 12 (11). Thorax black without light grey dusting.
(*eriphthalma*, Ztt.)

34/20 delete the line and insert

DROSOPHILIDÆ (L).

- 131a (131) (132). Arista long haired above, short haired beneath.

BALIOPTERA, Lw. (see GEOMYZA, **590**)

306/3 for (*oceana*, Mcq.) insert

(*oceana*, Mcq.=2240. *Ceratinostoma ostiorum*, Hal.)

ADDITIONS.

152/4 delete the line and insert

4 (1). V.3. and V.4. almost parallel.

5 (8). Antennæ entirely black.

6 (7). Third joint of the antennæ conical and broad ; genital lamellæ very long, the basal part black and unusually long, apical part short, but with two black shafts ; outer lamellæ long, thread-like, forked, and dirty whitish. = (*bipartitus*, Lw.)

7 (6). Third joint of the antennæ very long and pointed ; genital lamellæ with the basal part brown and very short, apical part large, rather thick and all white ; outer lamellæ very short, white with a black tip.

(*leucurus*, Lw.)

8 (5). Antennæ with the basal joint conspicuously pale yellow. (*tener*, Lw.)

315/25 delete the line and insert

eye ; costa not spined.

6a (6b). Dorsum matt-grey, with short bristles all over.

519. CEDOPAREA, Lw. (2291. *buccata*, Fln.)

6b (6a). Dorsum shining orange, finely haired, with strong bristles at the sides only. DRYOMYZA, Fln. (**520**)

CORRECTIONS.

CORRECTIONS.

4/15, 18, 25, for whalebone read horn horn horn

27/15 for ORNEPHELIDÆ (VII.), read
VII. ORPHNEPHILIDÆ (594. *Orphnephila testacea*,
Ruthé.)

33/28 for THYREPHORA read THYREOPHORA.

56/32 for 543 read 534.

66/21, 24, for O.6., read O.7., O.7.

66/34 for GONOMYIA read GONIOMYIA.

68/33 for tus read ta.

91/8 for exactly at read close to

93/16 for 862 read 861.

93/32 for 875 read 865.

97/31 for 884 read 894.

100/8 for 411 read 911.

104/11 for 945 read 944.

106/17 for 969 read 959.

121/1, 3, for x and x read c and c

125/last line, for 5 read 9.

130/5 for us read um,

134/5 for RAPHIUM read RHAPHIUM.

CORRECTIONS.

146/9 for 3 read 5.

152/16 for (*denticulatus*, Ztt.) read (1301. *biseriatus*, Lw.)

163/34 for 9 read 4.

164/22 for 9 read 4.

168/19 for 1451 read 1551.

172/16 for **320**. MICRODON, Mg. read MICRODON, Mg. (**320**)

181/25 for 6 read 7.

205/16 for 1525 read 1625.

206/12 for 1624 read 1631.

212/29 for 1600 read 1660.

217/29 for DIXERA, Mcq. (1901 read DINERA, Mcq. (1902.

224/21 for 1730 read 1731.

227/27 for Dsv. read F.

229/3 for 1784 read 1787.

237/5 for 1902 read 1903.

239/25, 27, for MYSOPILA read MYIOSPILA, *Myiospila*.

245/7, and on pages 248 and 252 wherever it occurs, for
HYEDOTESIA read HYETODESIA.

247/26 for ALA read ELA.

295/18, 19, delete both lines.

304/2 for Antennæ read Arista

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