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A  
HANDBOOK  
OF THE  
COLEOPTERA  
Or Beetles,  
OF  
GREAT BRITAIN AND IRELAND,

BY  
*HERBERT E. COX, M.E.S.*

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VOL. I.

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London :  
E. W. JANSON, 28, MUSEUM STREET,  
1874.

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To  
The Eternal Father,  
The Almighty, the Most Merciful,  
Whose Infinite Love hath provided,  
in the Study of  
His Wondrous Creation  
The Deepest, Purest, and most  
Durable of Pleasures,  
be  
Honour, Thanksgiving and Blessing  
for Ever.





## P R E F A C E .

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ANYONE commencing the study of British Beetles (and especially the isolated student) cannot fail to have experienced a great difficulty in ascertaining the names of the specimens he has collected. Stephens' "Manual of British Coleoptera," the last work professing to give descriptions of all the British species, was published in 1839, and for descriptions of the very numerous species found since that time to inhabit these islands, it is necessary to consult scattered notices (in many cases very difficult to obtain), the result being that the beginner is compelled to allow his specimens to lie aside unnamed until he can meet with a more advanced student. It is true that if he possess a knowledge of Latin, German and French his case is better, as he can

then meet with most of the descriptions he requires in several excellent foreign works, but the expense of procuring these is considerable.

In the absence of any attempt to provide a remedy for this state of things on the part of those more qualified to do so than myself, I have judged it well to collect from trustworthy sources short descriptions of all the species of British Beetles at present known, and in order to facilitate as much as possible their determination I have in the following pages divided and subdivided each group, family and genus under some prominent character.

It may be necessary to say a few words about the systematic arrangement I have adopted. It was at one time customary to divide the Coleoptera into groups superior to families, the most generally received system being that dependent upon the number of joints in the tarsi, the order being divided into Pentamera, Tetramera and Trimera (in which the tarsi had generally five, four and three joints respectively), and Heteromera, in which the front pairs of tarsi had

five joints and the posterior pair four joints. This system, being subject to a great number of exceptions, fell into disuse, and it became usual to recognise no sections superior to families. This, however, appears to be so contrary to nature that I have felt compelled to attempt to unite the families in groups by a combination of characters. In doing this I have had to remove the *Erotylidae*, *Coccinellidae* and *Endomychidae* from their usual position at the end of the series of Coleoptera to the *Clavicornia* (a group the component parts of which vary greatly in tarsal structure and in food), and also to place the *Bruchidae* in the *Phytophaga* instead of the *Rhynchophora*. The *Stylopidae*, which until lately were regarded as a distinct order, but have since been admitted, as it were under protest, among the *Heteromera*, in spite of their tarsal structure, I have placed at the end of the list, considering their peculiar thoracic formation to require their separation from all the other *Coleoptera*, without however demanding their exclusion from the order. In consequence of their affinities with the *Rhipiphoridae*, etc., I have located the *Heteromera* immediately before them.

In conclusion I have only to express my hope that my work, however imperfect, may at least be useful; and should it in any way advance our favourite study, or be of assistance to any of my fellow-students, I shall feel that the labour I have expended upon it has been well rewarded.

H. E. COX.

LONDON, *November*, 1874.

## INTRODUCTION.

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AN insect is an articulate animal (*i.e.*, an animal composed of segments or rings), breathing by means of tracheae, or air tubes, having the body divided into three distinct parts (head, thorax, and abdomen), and furnished in the perfect state with six legs, two antennae, and (with isolated exceptions) two compound eyes. In the course of development it passes through various metamorphoses, and when perfect is usually winged.

Insects are distributed into several orders, among which the *Coleoptera*, or Beetles, are characterized by the possession of four wings, viz., an anterior pair of horny or leathery consistence (generally covering the posterior wings when at rest, horizontal, and united by a straight suture), and a membranous posterior pair, folded when not in use; by a mouth with transversely moveable jaws; and by the pupa being neither active (as in the grasshoppers and bugs), nor covered and entirely concealed by an opaque case (as in the moths), but enclosed in a thin skin, revealing beneath it the parts of the perfect insect. The first of these characteristics is, however, not invariable, the posterior pair of wings being sometimes absent, at others not covered by anterior pair, which latter are occasionally (*e.g.*, *Meloe*) not united by a straight suture, while in some cases (*e.g.*, female of *Lampyris*) both pairs of wings are absent.

A beetle on leaving the egg passes through the state of *larva* and *pupa* before emerging as a perfect insect (*imago*). The larva varies in form, is usually long and narrow, divided into twelve segments, besides the horny head. The three segments next to the head correspond to the

thoracic portion of the imago; to each of them is usually (but not always) attached a pair of legs. The larva, like the imago, does not breathe through the mouth, but by means of air carried through the body in numerous tubes (*tracheae*), communicating with the external air by holes in the sides of the body (*spiracles*), of which there is usually one on each side of every segment after the head, except the second, third, and last. The larva when fully grown becomes a pupa, which is soft, often enclosed in a case or a cell underground, and in which the parts of the future beetle are visible through the skin. After a longer or shorter time passed inactively in this state, the fully formed beetle emerges, being at first soft and light in colour (immature), but becoming gradually harder and darker by exposure to the air. The head of the beetle

FIG. 1.

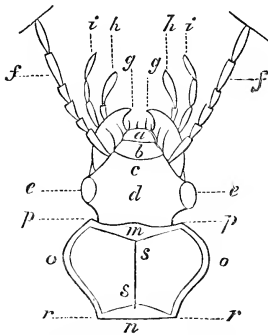
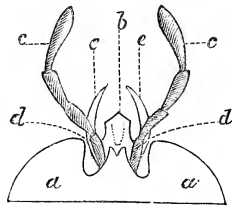
Head and Thorax of *Leistus rufescens*.

FIG. 2.

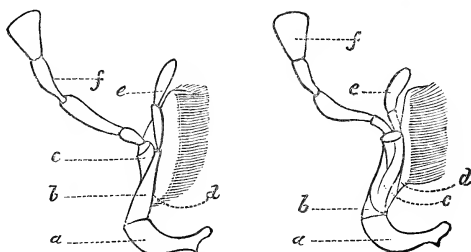
Labium of *Elaphrus riparius*.

exhibits on its upper-side the *labrum* (fig. 1, *a*), the *clypeus* (fig. 1, *b*), the *forehead* (fig. 1, *c*), the *vertex* (fig. 1, *d*), the *eyes* (fig. 1, *e*), and the *antennae* (fig. 1, *f*); the under-side of the mouth is composed of the *mentum* (fig. 2, *a*), the *ligula* (fig. 2, *b*), and the *labial palpi* (fig. 2, *c*, fig. 1, *h*), with their bases (fig. 2, *d*), these together forming the *labium*. The part of the head supporting the mentum is called the *submentum*.

Between the labrum and labium lie the jaws, of which there are two pairs, working horizontally, viz.: an upper

pair (*mandibles* (fig. 1, *g*), and a lower pair (*maxillae*). The mandibles vary in form, but are always in one piece; they are hard, and used for cutting or grinding. The maxillae are composed of a base, *cardo* (fig. 3, *a*), a stalk, *stipes* (fig. 3, *b*), the *palpifer* (fig. 3, *c*), an *inner lobe* (fig. 3, *d*), an *outer lobe* (fig. 3, *e*), and the *maxillary palpus* (fig. 3, *f*, fig. 1, *i*). On the sides of the ligula are two

FIG. 3.



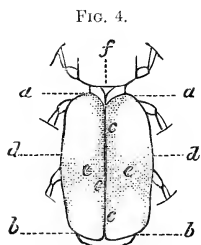
Maxillae of *Carabus nemoralis*.  
(Upper and under-sides.)

*paraglossae* (fig. 2, *e*); these are not always distinct, being sometimes soldered to the ligula, and forming an apparently integral part of it, often, however, they are clearly separate, and project much beyond it.

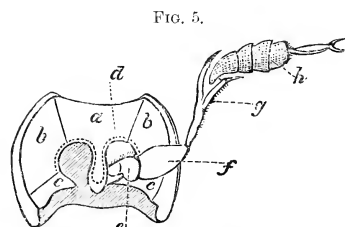
Behind the head stand the three thoracic segments, the *prothorax*, *mesothorax*, and *metathorax*. These segments carry the organs of locomotion, being each provided with a pair of legs, and the second and third bearing the two pairs of wings. The upper-side of these segments is called the *notum*, and the under-side the *sternum*. The notum of each of the thoracic segments is normally divided into four parts, the *praescutum*, *scutum*, *scutellum*, and *postscutellum*; in the Coleoptera, however, these are, in the pronotum, all soldered together, without leaving any trace of separation, forming the plate between the head and wing cases, spoken of in descriptions as the thorax. The parts of the thorax referred to in the descriptions are the *anterior* (fig. 1, *m*), *posterior* (fig. 1, *n*), and *lateral* or *side* (fig. 1, *o*) *margins*; the *anterior* (fig. 1, *p*) and *posterior* (fig. 1, *r*) *angles*; the *central line* (fig. 1, *s*); the part nearest the wing cases is

called the *base*, that nearest the head is the *apex*, the central portion of its surface is the *disc*. The scutellum (a triangular plate at the base of the elytra (fig. 4, *f*) referred to in descriptions is that of the mesonotum, which part also bears the horny anterior wings or wing cases (*elytra*). The end of these nearest the thorax is called the *base* (fig. 4, *a*), the other end the *apex* (fig. 4, *b*), the line in which they meet one another along the back the *suture* (fig. 4, *c*), their other side the *outer side*, or *lateral margin* (fig. 4, *d*), and the central portion of their surface the *disc* (fig. 4, *e*). The metanotum bears the membranous posterior pair of wings used in flight.

The under or sternal surface of each thoracic segment is divided into three parts, the *sternum* (fig. 5, *a*), *episterna* (fig. 5, *b*), and *epimera* (fig. 5, *c*), the relative proportions of which are variable. The legs are attached to the body by means of a piece of various shape (partly embedded in a socket hole or cotyloid cavity) called the *coxa* (fig. 5, *d*), a short piece attached to this is the *trochanter* (fig. 5, *e*), the



Elytra of *Deonius nigricentris*.



Under-side of Prothorax of *Carabus nemoralis*.

next piece is the *femur* (fig. 5, *f*), the next the *tibia* (fig. 5, *g*), to which is attached the foot (*tarsus*, fig. 5, *h*), composed of several joints, and bearing claws at the end. The portion of each of these pieces nearest to the body is the *base*, and the other end the *apex*; the whole sternal surface is sometimes called the breast.

All the rest of the body forms the abdomen, consisting of dorsal and ventral segments varying in number. On the sides of these segments lie the spiracles, through which



the insect breathes. The base of the abdomen is closely attached to the metathorax ; the central portion of the base of the first ventral segment is often produced between the posterior coxae, forming the *intercoxal process*. The last dorsal segment of the abdomen is the *pygidium*, and the penultimate segment the *propygidium*.

Beetles have no single brain ; their nervous system consists in a series of knots or ganglia dispersed through the body and united by double nervous cords. Digestion is carried on by means of a single tube or canal, commencing at the mouth and ending at the anal orifice ; distinct parts of this tube serve the purpose of a gizzard, stomach, and intestines, and opening into it are a number of smaller tubes for the supply of secretions. The blood is cold, clear, and nearly colourless ; it has been shewn to circulate.

The sexes are separate, and the eggs are always carefully placed by the female in the locality most likely to ensure a good supply of food for the larva.

As the arrangement of specimens in a collection must necessarily be preceded by their capture, it is needful in this place to say a few words respecting the time and place in which beetles should be looked for ; the time is *always*, and the place is *everywhere*. In the spring a reversed umbrella or large net should be held beneath hedges or trees while they are beaten with a stick ; in the summer a canvas or strong linen net should be swept over long grass, flowers, etc. ; in the autumn fungi pulled to pieces over a sheet of brown paper yield a good crop, while in the winter, moss, dead leaves, etc., can be shaken into a bag and the contents investigated at leisure. The most productive times are the spring, early summer, and autumn, while as regards place, a clay soil is considered unfavourable, but chalk or sand are accounted very good. In sand-pits with straight cut sides many good species often occur ; rough, undisturbed ground is always better than cultivated, and mountains and the seashore are inhabited by many peculiar species. Dead animals, ants' nests, the

damp layer at the bottom of haystacks, heaps of vegetable refuse, dung, the bark of trees, the sap flowing from wounded trees, and solid wood, both in and out of houses, each furnish their contingent of beetles, and during the summer, when ponds, etc., are partially dried up, the small residue of water provides a good supply for the water net, which must have a stronger frame than is required for the sweeping net, in order to resist the pressure of the water. The muddy banks of ponds contain many species, and in general damp ground is better than dry.

Besides the nets and umbrella above referred to, it is well to carry a fern trowel and chisel, the former for lifting tufts of grass, etc., to be shaken over brown paper, the latter for tearing off bark and dividing wood. For the reception of the beetles when taken a wide mouthed bottle is required, having a quill or small glass tube (stopped with a small cork or wooden plug) passed through the cork. The beetle being lifted with a wet finger may be passed through this tube into the bottle (which should contain some pieces of paper to give foothold to its occupants), and on arrival at home can be instantly killed by being turned into *quite boiling* water, which may easily be prepared in the lid of a tin box over a candle or spirit lamp. If the insects be thus carried home alive care must be taken to exclude from the bottle such rapacious species as the Geodephaga, larger Brachelytra, and Telephori; these must be put into a separate bottle, containing young laurel leaves bruised, or a piece of paper soaked in benzine. If it be not convenient to set the beetles at once they may be kept in a state of readiness by placing them (in paper or muslin bags) in a wide-mouthed stoppered bottle, partly filled with young laurel leaves chopped finely.

For setting, the requisites are a blotting pad, some fine-pointed camel's hair brushes, a setting needle (*i.e.*, a needle hooked at the point and fixed into a paint brush stick) and some white, moderately thick cardboard. The beetle being placed upon the blotting pad upon its back, the legs, antennae, and palpi must be brushed out; a little gum

tragacanth (to be prepared from a few clear, white pieces, with the addition of a little acetic acid to preserve it), is then to be placed upon the card, and the beetle being transferred to this, the legs, etc., can be put in place with a setting needle or brush. The next requisites are a pair of forceps, some pins, and a drying case, the latter being fitted with sliding corked shelves, and having the back and front formed of canvas or perforated zinc. A pin being passed through the card bearing the beetle, it is placed in the drying case, and after a fortnight or longer, according to the weather, is ready to be transferred to the cabinet. Beetles which are too large to be conveniently placed upon cards should be pinned through the centre of the width of the right wing case, the pin issuing beneath between the intermediate and posterior pairs of legs; all other orders of insects are pinned through the thorax. Each specimen should be marked with a number shewing, by reference to a journal, the time and place of capture.

Old dried specimens may be relaxed in a jar of damp sand, or by soaking in water; dirty specimens may be cleaned with benzine, to which, if there be any appearance of mould, one-tenth part of pure carbolic acid should be added.

Wherever beetles are stored it is necessary that the boxes or cabinet should contain a supply of camphor and be kept in a dry place, in order to avoid the ravages of mites.

The number of species of British beetles exceeds 3,000, the latest catalogue being that by Dr. Sharp.\* The general plan adopted in the following pages has made it needful in several instances to depart from the order used in this catalogue.

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\* Published by E. W. Janson, 28, Museum-street, London. 1871. One shilling.



## COLEOPTERA.

- A.** Prothorax largely developed, free. *Normal Coleoptera.*
- B.** Prothorax very narrow, collarlike, separated from mesothorax by a suture only. *Aberrant Coleoptera.*

### NORMAL COLEOPTERA.

- A.** Mentum emarginate; outer lobe of maxillae composed of two joints, so as to appear palpiform; posterior coxae produced backward, on inner side; all tarsi with five joints; antennae threadlike (except in *Gyrinidae*, where outer lobe of maxillae is nearly always absent, but the eyes are completely divided, and both intermediate and posterior pairs of legs are broad, flattened, and adapted for swimming). *Adephaga.*
- B.** Maxillary palpi elongate, often longer than antennae; all tarsi with five joints; antennae with from six to nine joints, clubbed. *Palpicornia.*
- C.** Elytra very short, leaving greater part of abdomen uncovered, with straight suture; wings completely folded under elytra; abdomen formed of seven or eight segments, all freely moveable; body generally long and narrow; antennae usually threadlike; number of tarsal joints variable. *Brachelytra.*
- D.** Antennae nearly always gradually or abruptly clubbed, rarely elbowed, club not composed of plates; maxillary palpi rarely elongate (or if so, antennae with eleven joints); head not produced into a rostrum; thorax not hoodlike; femora inserted towards base of trochanters, or if not, anterior coxae conical, and abdomen with six ventral segments (last very small); prosternum not produced backward into a spine to fit into cavity of mesosternum; body more or less hard; number of tarsal joints variable; antennae rarely threadlike, in which case the tarsi are five-jointed (at least in female), the outer lobe of maxillae not palpiform, elytra not short and anterior

coxae globular. When anterior coxae are conical the tarsal joints are simple. *Clavicornia*.

**E.** Antennae elbowed and clubbed, the club being composed of three or more plates attached to each other at one end; tarsi with five joints. *Lamellicornia*.

**F.** Prosternum produced behind into a spine, fitting into a cavity in front of mesosternum; antennae threadlike, sawlike, or comblike (very rarely clubbed), anterior coxae globular; tarsi with five joints; body generally elongate elliptic, more or less pointed behind and hard. *Sternoxi*.

**G.** Body soft and flexible; tarsi generally with five joints; antennae usually threadlike, sometimes sawlike or comblike, rarely clubbed, in which case tarsal joints are produced into a fleshy sole; outer lobe of maxillae not palpiform; elytra not very short; anterior coxae cylindrical or conico-cylindrical; prosternum not produced behind into a spine to fit into cavity of mesosternum; socket holes for anterior coxae open behind; trochanters not placed in axis of femora, or if so, anterior coxae, conico-cylindrical, and abdomen, with six or seven ventral segments. *Malacoderma*.

**H.** Thorax hoodlike; tarsi generally with five joints; antennae threadlike or clubbed, not elbowed, the club composed of separate joints; prosternum not produced behind into a spine to fit into cavity of mesosternum; femora inserted at or near apex of trochanters; anterior coxae cylindrical or globular, their socket holes open behind; abdomen with five ventral segments; body more or less cylindrical, hard. *Teredilia*.

**I.** Tarsi with four joints, third joint generally bilobed; head nearly always more or less produced into a rostrum; antennae inserted in cavities (*scrobes*) on sides of rostrum, almost always with a solid or compact club, and in most cases elbowed; socket holes for anterior coxae closed. (When the head shews only slight traces of a rostrum either the antennae are elbowed and clubbed or they are inserted in distinct *scrobes*). *Rhyncophora*.

**K.** Tarsi with four joints, third joint generally bilobed; head rarely slightly produced in front; antennae usually much shorter than body, not inserted in *scrobes* and not elbowed, generally threadlike, sometimes beadlike, saw-

like, comblike, or thickened toward apex (in *Urodon* with three-jointed club), first joint not long; mandibles short. (If the antennae be longer than half the body the thorax is without lateral spines and the eyes are entire).

*Phytophaga.*

**L.** Tarsi with four joints, third joint nearly always bilobed; antennae long (often much longer than body), generally threadlike, sometimes sawlike, not inserted in scrobes and not elbowed, first joint long; head not produced into a rostrum; eyes generally kidney-shaped; mandibles large and powerful; body elongate, more or less flattened, base of elytra generally broader than that of thorax.

*Longicornia.*

**M.** Front pairs of tarsi with five joints and posterior pair with four joints in both sexes; eyes generally kidney-shaped; maxillary palpi prominent, last joint often hatchet-shaped; antennae not elbowed or clubbed.

*Heteromera.*

## ADEPHAGA.

**A.** *Habitat* on land; legs formed for running.

*Geodephaga.*

**B.** *Habitat* in water; posterior legs almost always formed for swimming.

*Hydradephaga.*

## GEODEPHAGA.

**A.** Antennae eleven-jointed, inserted on the forehead above the base of the mandibles.

Head large; eyes very prominent; labrum strongly developed; mandibles large, curved, armed with several teeth, crossed when at rest; inner lobe of maxillae nearly always bearing a sharp, moveable tooth at apex; ligula short, without paraglossae; bases of labial palpi free from ligula; thorax marked with two transverse furrows, usually connected by an impressed longitudinal line; elytra completely covering abdomen; legs long and slender; abdomen with six ventral segments visible in female and usually seven in male, the first three segments soldered together.

*Cicindelidae.*

**B.** Antennae eleven-jointed, inserted behind the base of the mandibles.

Head almost always narrower than thorax; eyes in general moderately prominent; labrum seldom strongly developed; mandibles powerful, hooked at apex, in general of moderate length, with one tooth near base; inner lobe of maxillae nearly always bearing a sharp, fixed tooth at apex; ligula distinctly developed and nearly always with paraglossae; bases of labial palpi attached to ligula, but distinct; elytra usually with striae or rows of punctures; abdomen generally with only six ventral segments visible in both sexes, the first three segments soldered together.

*Carabidae.*

### CICINDELIDÆ.

Head marked with parallel longitudinal striae on the cheeks and forehead, at least at inner margin of eyes; vertex finely wrinkled; maxillary palpi longer than the labial; emargination of mentum with a sharp tooth, as long as the side pieces; scutellum distinct; first three tarsal joints in male dilated and covered beneath with stiff hairs.

*Cicindela*, Lin.

#### *Cicindela.*

**A.** Body moderately arched; thorax broader than long, with deep transverse furrows; femora and tibiae thickly covered with white hairs.

**α.** Labrum white, not ridged.

**I.** Elytra green, with a round white spot in the middle (generally standing in a darker shade).

Head and thorax green, latter rather broader in front than behind; elytra with five white spots along outer margin, besides the round one on the disc. L. 6 l. Common in dry, sandy places. *C. campestris*, Lin.

The variety *funebri*s, Sturm, is entirely black above.

**II.** Elytra brownish, with a transverse, bent white band in the middle.

Head and thorax brownish; elytra with a white crescent at shoulder and another at apex, besides the transverse white band in middle, which proceeds from the lateral margin, on reaching the middle of the elytron is turned obliquely backward and more or less narrowed, and ends



in a roundish spot near suture. In *C. hybrida* the central part of the band is not much narrowed; in *maritima* it is considerably so. L. 6 l. Sandy shores; not uncommon.

*C. hybrida*, Lin.

**b.** Labrum black, ridged longitudinally.

Upper-side blackish, with silky lustre; under-side violet; elytra with white markings, viz.: an interrupted crescent at shoulder, a narrow bent transverse band in middle and a round spot near outer margin toward the apex. L. 7 l. Not uncommon.

*C. sylvatica*, Lin.

**B.** Body cylindrical; thorax as long as broad, with shallow transverse furrows; femora and tibiae scantily covered with hair.

Upper-side green or blackish; labrum white; thorax nearly cylindrical; elytra elongate, with white markings, viz.: a small spot at shoulder, another in middle of outer margin and a narrow crescent at apex. L. 5 l. In marshy places, local.

*C. germanica*, Lin.

## CARABIDAE.

**A.** Anterior tibiae entire.

**a.** Two spines placed one at, the other above apex of anterior tibiae.

*Elaphrides.*

**b.** Both spines placed at apex of anterior tibiae.

*Carabides.*

**B.** Anterior tibiae emarginate on inner-side before apex; one spine placed above the emargination, the other at apex.

Prosternal process scarcely ever prolonged beyond anterior coxae.

**a.** Anterior tibiae more or less emarginate and toothed on the outer-side.

Second joint of antennae as long as, or longer than third; thorax generally divided by a neck from hinder part of body; anterior tarsi usually simple in both sexes.

*Scaritides.*

**b.** Anterior tibiae simple on the outer-side.

Epimera of metathorax generally distinct.

**I.** Abdomen with seven ventral segments visible in female, and eight in the male.

Second joint of antennae small, third rather longer than

the following seven, which are equal to each other; first two joints less hairy than the rest, but never quite bare; paraglossae completely soldered to ligula; thorax more or less heart-shaped; epimera of mesothorax not touching middle coxae; first three joints of anterior tarsi slightly dilated in male. *Brachinides.*

These insects have the power of squirting from the neighbourhood of the anus a corrosive fluid, which is exceedingly volatile, and on contact with the air is transformed into a bluish-white vapour.

**II.** Abdomen with only six ventral segments visible in both sexes.

**1.** Apical joint of maxillary palpi at least as large as the penultimate.

**A A.** Elytra truncate at the apex.\*

Anterior tarsi generally simple in both sexes, sometimes dilated in male. *Lebiides.*

**B B.** Elytra rounded at the apex.

Anterior tarsi (and sometimes also intermediate tarsi) dilated in male. *Harpalides.*

**2.** Apical joint of maxillary palpi very small.

Tarsi threadlike or with first joint very large in male.

*Bembidiides.*

### **ELAPHRIDES.**

**A.** Prosternum with a considerable process behind, by which a great part of the mesosternum is covered; labrum prominent and rounded; paraglossae scarcely longer than ligula.

Mentum with a very short double-tooth in its emargination; forehead with a very deep furrow on each side near the eye, and between these from five to seven shallower furrows; eyes large and prominent; thorax transverse; elytra parallel-sided, with eight lines of punctures, space between the sutural and first of the lateral lines broad and polished. *Notiophilus, Dumer.*

**B.** Prosternum not prolonged beyond the anterior coxae; labrum transverse, straight in front; paraglossae much longer than the ligula.

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\* In *Masoreus* they are almost rounded.

Emargination of mentum with a strong double-tooth.

*a.* Eyes globular and very prominent, their upper margin curved slightly inward; thorax convex, without a raised side-margin; elytra with eye-spots.

Head slightly narrowed behind; first four joints of anterior tarsi of male very slightly dilated.

*Elaphrus*, Fab.

*b.* Eyes not very prominent, their upper margin straight; thorax flat, with a raised side margin; elytra with punctured striae and depressions.

Head less narrowed behind than in *Elaphrus*, and first four joints of anterior tarsi of male more strongly dilated.

*Blethisa*, Bon.

### *Notiophilus.*

*A.* Legs wholly or partly black.

*a.* Lateral lines of punctures on elytra obsolete behind.

*I.* Palpi entirely black; sides of thorax scarcely rounded.

Bronze (rarely bluish) above; bronze-black beneath. Frontal furrows parallel; first four joints of antennae reddish beneath; margins of thorax punctured, disc smooth on each side of central furrow; lateral interstices on elytra flat; legs black. L.  $2\frac{3}{4}$  l. Common. *N. aquaticus*, Lin.

*II.* First two joints of the palpi yellow-red.

Bronze above; bronze black beneath. Frontal furrows somewhat divergent; three joints at base of antennae yellow-red; margins of thorax punctured, disc smooth; lateral interstices on elytra flat; legs black, tibiae reddish-yellow in middle. L. 2 l. Common. *N. palustris*, Duft.

*b.* Lateral lines of punctures on elytra not obsolete behind.

*I.* Body broader; elytra with coarser lines of punctures.

*I.* One impression on the second lateral interstice on elytra.

Bronze above, dark bronze-green beneath. Frontal furrows divergent; first four joints of palpi and first four joints of antennae more or less reddish-yellow; thorax punctured almost all over, posterior angles sharp; apex of

elytra usually with a pale-yellow spot, lateral interstices arched; legs bronze-black, tibiae yellow, at least in the middle. L.  $2\frac{1}{4}$  l. Common. *N. biguttatus*, Fab.

2. Two impressions on the second lateral interstice on elytra.

Very similar to *N. biguttatus*, but rather longer and more parallel-sided; thorax smoother on the disc, posterior angles right angles, but not sharp; apex of elytra less distinctly yellow; lateral interstices less arched, the second broader than the rest. L.  $2\frac{1}{4}$  l. Not common.

*N. quadripunctatus*, Dej.

**II.** Body narrower, elytra with finer lines of punctures.

Allied to *N. biguttatus* but more elongate; thorax much narrowed behind, margins finely, disc indistinctly punctured; tibiae and base of antennae red-brown. L. 2 l. Tolerably common. *N. substriatus*, Wat.

**B.** Legs wholly red.

Bronze. Thorax much narrowed behind, margins and central furrow coarsely punctured, disc on each side smooth; lines of punctures on elytra reaching apex; legs red, posterior femora and apex of tarsi somewhat darker. L.  $2\frac{1}{4}$  l. Not common. *N. rufipes*, Curt.

### *Elaphrus.*

**A.** First three joints of anterior tarsi dilated in male; tarsi green.

Bronze-green. Elytra with four rows of deep violet eye spots, one of the raised smooth spaces between the spots near the suture especially conspicuous. L.  $3\frac{1}{4}$  l. Common. *E. riparius*, Lin.

**B.** First four joints of anterior tarsi dilated in male.

**a.** Sculpture of elytra distinct; tarsi blue.

**I.** Thorax as broad as the head; tibiae reddish-yellow.

Brownish-copper above, dark bronze-green beneath. Thorax with two impressions on each side of the disc (the inner one almost effaced); elytra with four rows of large eyespots, interstices between the rows very finely and scantily punctured, the smooth spaces between the spots strongly raised. L.  $3\frac{3}{4}$  l. Common. *E. cupreus*, Duft.

**II.** Thorax broader than the head ; tibiae steel blue.

Brownish-green above, metallic green beneath. Thorax with two impressions on each side of the disc ; elytra with four rows of large eye spots, interstices between the rows finely and closely punctured, the smooth spaces between the spots moderately raised. L.  $3\frac{3}{4}$  l. Not common.

*E. uliginosus*, Fab.

**b.** Sculpture of elytra indistinct ; tarsi green.

Coppery-bronze above, greenish or purplish-copper beneath. Head and thorax coarsely punctured ; disc of elytra with a few scattered punctures and some indistinct round depressions. L.  $4\frac{1}{2}$  l. Rare. *E. lapponicus*, Gyll.

### *Blethisa.*

Dark bronze. Elytra with nine fine punctured striae, the third interstice with four or five, the fifth with two depressions ; legs black. L.  $5\frac{1}{2}$  l. Tolerably common.

*B. multipunctata*, Lin.

## CARABIDES.

**A.** Prosternum not prolonged beyond anterior coxae.

Labrum divided into two long, narrow, rounded pieces : mandibles double as long as the labrum, prominent, almost straight, inner margin with three teeth, the foremost formed by the apex itself ; outer lobe of maxillae composed of a broad, square basal and thin, dilated, knifelike apical joint ; last joint of palpi strongly hatchet-shaped (more so in the male than in the female) ; mentum deeply emarginate, without any tooth ; ligula very small, paraglossae free ; posterior angles of thorax not prolonged ; scutellum almost hidden ; wings absent ; elytra soldered together ; legs long and thin ; tarsi not dilated in either sex ; in the male the apex of the first joint, and nearly the whole of the second to fourth joints covered with stiff hairs beneath, which in the female are found only on the apex of the second to fourth joints.

*Cychnus*, Fab.

**B.** Prosternum prolonged beyond anterior coxae, fitting into a cavity in mesosternum.

**a.** Maxillae not toothed on outer-side.

**I.** Emargination of mentum with one tooth.**1.** Third joint of antennae cylindrical.

Labrum more or less emarginate; mandibles thickly covered with yellowish-red hair at the base of the inner margin, with a projection in the middle; emargination of mentum with a simple tooth as long as the side pieces, paraglossae free at apex and equal in length to the ligula; third joint of antennae a little longer than the rest, apical joint of palpi somewhat hatchet-shaped; elytra oval; wings usually absent or rudimentary; first four joints of the anterior tarsi dilated in the male. *Carabus*, Lin.

**2.** Third joint of antennae compressed at base.

Thorax short, broad, rounded at the sides; elytra oblong, square in front, rounded off behind; mandibles broader than in *Carabus*, less hooked, transversely striate above; labrum emarginate; the tooth in emargination of mentum sharp and always considerably shorter than side pieces; paraglossae soldered to ligula and usually a little longer than it; third joint of antennae longer than the rest; wings generally present; first four joints of the anterior tarsi dilated in the male. *Calosoma*, Weber.

**II.** Emargination of mentum with two teeth.**1.** Mandibles toothed near base on inner-side.

Labrum almost straight in front; mandibles dissimilar, the left one being straight on the inner-side while the right one is dilated at the base and suddenly narrowed in the middle; maxillae with several long bristles on the outer-side; apical joints of palpi elongate, somewhat dilated and truncate at the apex; third joint of antennae as long as, or longer than the first joint; thorax more or less heart-shaped, with flattened sides and a raised lateral margin; elytra with nine striae and a short one at base near the suture. The British species are winged. Anterior tarsi of male with three joints dilated and spongy beneath.

*Nebria*, Latr.

**2.** Mandibles not toothed on inner-side.

Last joint of palpi a little more elongate than in *Nebria*, antennae and legs a little longer. *Pelophilus*, Dej.

**b.** Maxillae with long prominences on the outer-side, each bearing a moveable bristle.

Labrum rounded in front, with eight bristles ; mandibles broad, their outer surface strongly dilated and rounded at base and sloped obliquely, inner margin of the right one with a tooth above the base, corresponding to a little emargination on the left one ; emargination of the mentum with a short double tooth ; ligula very long, divided into three at apex, much longer than paraglossae ; apical joints of palpi elongate, somewhat dilated and truncate at apex ; first joint of antennae longer than the rest ; thorax strongly rounded at sides, heart-shaped ; elytra with nine striae and a short one ; wings fully developed. Anterior tarsi of male with three joints dilated and spongy beneath.

*Leistus*, Froehl.

### 2 *Cychnus*.

Black, mandibles only somewhat reddish. Head finely punctured ; thorax oblong, confusedly punctured, margins raised ; elytra very convex, closely granulated, sometimes with traces of three raised lines. Form of thorax and elytra variable. L. 8 l. Not uncommon.

*C. rostratus*, Lin.

### 3 *Carabus*.

**A.** Elytra strongly wrinkled in longitudinal lines.

Elongate, rather flat, dark-blue ; thorax narrow. L. 12—14 l. Scarce.

*C. intricatus*, Lin.

**B.** Elytra with three longitudinal ribs, the interstices finely wrinkled or granulated.

**a.** Base of antennae and palpi and the legs red.

Head and thorax green ; sides of latter rounded in front, contracted behind ; elytra moderately arched, the ribs green, the interstices bronze, in the male somewhat, in the female distinctly sinuate before apex. L. 10—12 l. Rare.

*C. auratus*, Lin.

**b.** Antennae, palpi and legs wholly black.

Head and thorax red, sides of latter evenly rounded, elytra moderately arched, the ribs black, the interstices bronze ; ribs frequently interrupted. L. 7—8 l. Not uncommon ; sand-hills on coast.

*C. nitens*, Lin.

**C.** Elytra with three longitudinal ribs, alternating with three rows of shining, round depressions.

Dark bronze. L. 11—13 l. Not common.

*C. clathratus*, Lin.

**D.** Elytra with three longitudinal ribs, alternating with three rows of large granules.

Dark bronze or blackish; posterior angles of thorax scarcely produced; elytra in the male slightly, in the female distinctly sinuate before apex. L. 8—10 l. Common.

*C. granulatus*, Lin.

**E.** Elytra with three chains of granules, each interstice having three raised lines.

**a.** Sides of elytra slightly rounded.

**I.** Thorax broader; posterior angles moderately prominent.

Bronze or blackish above; sides of thorax not at all or only slightly, sinuate behind, side margin slightly raised, more so behind than in front; elytra not sinuate before apex, central line in the interstices often higher than lateral ones. Variable in size, colour, and sculpture of elytra. L. 10—13 l. Tolerably common.

*C. monilis*, Fab.

**II.** Thorax narrower; posterior angles only slightly prominent.

Bronze-green, coppery, or blackish; sides of thorax slightly sinuate behind, side margin only a little raised, more so behind than in front; elytra not sinuate before apex, striae between the raised lines finely punctured, central line in the interstices often higher than lateral ones. L. 7—9. l. Not uncommon.

*C. arvensis*, Herbst.

**b.** Sides of elytra strongly rounded.

Bluish-black, with a violet margin to thorax and elytra; thorax considerably narrowed behind. L. 9—11 l. Common.

*C. catenulatus*, Scop.

**F.** Elytra granulated or striate, without ribs or chains of large granules.

**a.** Granulation of elytra coarser; body elongate.

Black, with a violet margin to thorax and elytra; thorax not much narrowed behind; elytra of female broader than those of male, and scarcely sinuate before apex. L. 11—13 l. Common.

*C. violaceus*, Lin.

**b.** Granulation of elytra finer; body oblong-ovate.

Black, with a slight bluish reflection; thorax somewhat



narrowed behind; elytra not sinuate before apex, convex, with a dull bluish margin. L. 11—12 l. Not uncommon.

*C. glabratus*, Payk.

**G.** Elytra covered with numerous more or less regular longitudinal striae and with three rows of depressions, which are frequently metallic.

**a.** Elytra bronze, with outer margin more or less violet; length 10—12 lines.

Head black, thorax bronze-black, with violet margin; elytra with three rows of about ten depressions; in the female they are very slightly sinuate before apex. Common.

*C. nemoralis*, Muell.

**b.** Elytra black; length 8 lines.

Black, with a bluish margin to thorax and elytra; latter moderately convex, with three rows of indistinct depressions and somewhat notched raised lines, not sinuate before apex. Rare.

*C. convexus*, Fab.

### *Calosoma.*

**A.** Thorax and elytra not concolorous.

Head and thorax bluish black; elytra golden-green, much broader than the thorax, parallel-sided in the male, somewhat dilated behind in the female; they have sixteen punctured striae, with impressions in the fourth, eighth, and twelfth interstices. Intermediate tibiae of male slightly curved, those of female hairy on outer side; first three of the four dilated joints of male anterior tarsi covered with hair beneath. L. 11—14 l. Rare.

*C. sycophanta*, Lin.

**B.** Thorax and elytra concolorous.

Upper-side bronze, with a greenish margin to thorax and elytra, under-side greenish; elytra broader than thorax, dilated behind, with sixteen punctured striae, with impressions in the fourth, eighth, and twelfth interstices. Intermediate tibiae of male slightly curved, hairy on both sides; all the four dilated joints of male anterior tarsi covered with hair beneath. L. 7—9 l. Not uncommon.

*C. inquisitor*, Lin.

***Nebria.***

**A.** Thorax wholly or partly yellow.

**a.** Elytra yellow, with black markings.

Head and thorax yellow; ligula straight in front; paraglossae soldered and equal in length to the ligula. Dilated joints of male anterior tarsi strong. L. 8—9½ l. Not uncommon.

*N. complanata*, Lin.

**b.** Elytra black, with a yellow outer margin.

Head black; antennae and palpi yellow; thorax yellow, anterior and posterior margins black; legs yellow. Apical joint of maxillary palpi double as long as the third; ligula with a process in front, paraglossae free at apex and equal in length with the process. L. 6—7½ l. Not uncommon.

*N. livida*, Fab.

**B.** Thorax entirely black.

**a.** Antennae, palpi and tibiae reddish.

Black; tarsi reddish; elytra with strongly punctured striae and four impressions beside the third stria. Sides of breast coarsely punctured. L. 4½—5 l. Common.

*N. brevicollis*, Fab.

**b.** Antennae, palpi, and tibiae black.

Black; tarsi reddish. Elytra with deep but very finely punctured striae and usually four impressions beside the third stria. Sides of breast almost impunctate. L. 4½ l. Common.

*N. Gyllenhali*, Sch.

***Pelophila.***

Bronze black. Elytra with finely punctured striae, four or five large conspicuous impressions in the third interstice, and usually also two or three others in the fifth. L. 4—6 l. Scarce.

*P. borealis*, Payk.

***Leistus.***

**A.** Upper-side bluish.

**a.** Side border of thorax broad and raised.

**I.** Thorax moderately narrowed behind.

Under-side dark brown. Extreme lateral margin of thorax reddish, its sides divergent almost immediately on leaving the base. L. 3¾—4¼ l. Common.

*L. spinibarbis*, Fab.

**II.** Thorax much narrowed behind.

Under-side brown-red. Raised side border of thorax entirely red, its sides divergent shortly after leaving the base. L.  $3\frac{1}{2}$  l. Rare. *L. montanus*, Steph.

**b.** Side border of thorax narrow and not much raised.

Brownish-blue above. Thorax short, much contracted behind, its sides parallel for some distance after leaving the base. L. 3— $3\frac{1}{2}$  l. Common. *L. fulvibarbis*. Dej.

**B.** Upper-side reddish.

**a.** Upper-side entirely red-brown.

Posterior angles of thorax right angles. L. 3 l. Common. *L. ferrugineus*, Lin.

**b.** Head brownish-black; rest of upper-side red-brown.

Posterior angles of thorax obtuse; apex of elytra sometimes black. L. 3 l. Common. *L. rufescens*, Fab.

**SCARITIDES.**

**A.** Mandibles with three little teeth on inner-side at base; clypeus simple; intermediate tibiae armed with a spine on outer-side before apex.

Emargination of mentum with a simple tooth generally nearly as long as the side pieces; ligula narrowed and produced in front, paraglossae usually much longer than ligula; third joint of antennae shorter than second; elytra with eight striae and a short one at base; wings present.

*Clivina*, Latr.

**B.** Mandibles without teeth on inner-side; clypeus with two or three teeth in front; intermediate tibiae simple.

Labrum deeply emarginate; mentum with a very small tooth; ligula rather broader at apex than at base, paraglossae double as long as ligula; elytra generally with eight striae on disc and a marginal stria; wings present.

*Dyschirius*, Bon.

***Clivina.***

**A.** Elytra pitchy-black.

Pitchy-black; mouth, antennae, and legs red. Thorax nearly square; elytra with right angled shoulders, parallel

sides and rounded apex, in the third interstice are four larger punctures; anterior tibiae with two strong teeth on outer-side. L. 3 l. Common. *C. fossor*, Lin.

**B.** Elytra reddish, often with a common elongate darker spot in middle.

Similar to *C. fossor*, but smaller and more elongate. L. 2 $\frac{3}{4}$  l. Common. *C. collaris*, Herbst.

### *Dyschirius.*

**A.** Clypeus with three teeth in front (the central tooth sometimes very feeble in female).

**a.** Striae on elytra punctured.

Bronze, sometimes black. Thorax rounded, central furrow especially deep at base; elytra with fine, diffusely punctured striae, punctures effaced behind, with three impressions (the foremost often indistinct) in third interstice, marginal striae continued on to the base; anterior tibiae with two teeth on outer-side, the upper one small, the lower one strong. L. 1 $\frac{3}{4}$ —2 l. Common.

*D. thoracicus*, Ross.

**b.** Striae on elytra impunctate.

Like *D. thoracicus* but rather darker and duller; central furrow of thorax evenly deep throughout; elytra with deep striae, which are not feebler behind and at the sides, and are scarcely or not at all punctured, interstices more convex than in *D. thoracicus*, the third with two impressions. L. 1 $\frac{2}{3}$  l. Rare. *D. obscurus*, Gyll.

**B.** Clypeus with two teeth in front.

**a.** Outer striae on elytra distinctly perceptible at apex.

**I.** Teeth on outer-side of anterior tibiae indistinct.

**1.** Striae on elytra almost impunctate.

Blackish-bronze. Thorax oblong, somewhat narrowed in front, central furrow deep; elytra with deep striae, which are equally strong throughout and apparently impunctate, first and second striae united at base in an oblong depression, marginal stria ceasing at shoulder, interstices arched; anterior tibiae only waved on outer-side. L. 2 l. Tolerably common. *D. impunctipennis*, Daws.

2. Striae on elytra punctured.

*A A.* Marginal stria ceasing at shoulder.

*a a.* Elytra oblong ovate, with strong striae.

Bronze. Thorax broadest behind middle, rounded at sides and angles, central furrow deep; elytra with deep striae on disc and feeble ones outward, first and second striae united in a depression at base, striae as deep at apex as at base, and punctured on the basal half; anterior tibiae very broad, the two teeth on outer-side scarcely indicated. L.  $2\frac{1}{4}$  l. Not common. *D. nitidus*, Dej.

*b b.* Elytra elongate, with fine striae.

Bronze. Thorax narrowed in front, central furrow fine; striae on elytra equally deep throughout, punctured until beyond middle, first and second striae united in a depression at base; teeth on outer-side of anterior tibiae inconspicuous. L. 2 l. Not uncommon. *D. politus*, Dej.

*B B.* Marginal stria distinctly continued on to base.

Bronze. Thorax elongate, somewhat narrowed in front, central furrow fine; elytra elongate, cylindrical, with strong punctured striae, which are not much feebler toward apex, the punctures small behind middle, sutural stria abbreviated in front; outer-side of anterior tibiae almost without traces of teeth. L.  $1\frac{3}{4}$  l. Rare.

*D. extensus*, Putz.

*II.* At least the lower tooth on outer-side of anterior tibiae very distinct.

*1.* Marginal stria distinctly continued on to base.

Bronze-greenish; under-side of head, thorax, and apex of abdomen reddish. Head wrinkled; thorax oblong, scarcely narrowed in front, central furrow especially deep behind; elytra elongate, almost cylindrical, with tolerably deep punctured striae, which are scarcely feebler toward apex, where however the punctures are smaller, first and second striae united in a depression at base; teeth on outer-side of anterior tibiae prominent. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Rare.

*D. angustatus*, Ahr.

2. Marginal stria ceasing at shoulder, or only very feebly indicated on base.

*A A.* Elytra almost cylindrical.

Dark bronze. Thorax scarcely longer than broad, gradually narrowed toward the front, central furrow equally deep throughout; elytra almost cylindrical, the striae deep on disc, feebler outward, as deep at apex as at base, strongly punctured until beyond middle, smooth towards apex; the sutural striae commencing in a depression at base; teeth on outer-side of anterior tibiae very strongly developed. L. 2 l. Common. *D. salinus*, Schaum.

**B B.** Elytra oblong-ovate.

Dark bronze-green. Thorax very little longer than broad, usually somewhat narrowed in front, but sometimes almost circular, central furrow fine; striae on elytra tolerably deep in front, rather feebler toward apex, strongly punctured in front, smooth behind, first and second striae united in a round depression at base, marginal stria ceasing at shoulder; lower tooth on outer-side of anterior tibiae distinct and sharp, upper one much less developed. L.  $1\frac{1}{3}$  l. Common. *D. aeneus*, Dej.

**b.** Outer striae on elytra effaced behind or only feebly indicated.

Black, with a slight bronze reflection. Thorax nearly circular, with a very fine central furrow and without any side border; elytra ovate, convex, with seven rows of deep punctures, which cease behind middle, the rows near the suture stand in striae, the deep marginal stria ends at shoulder, on each side of base of suture is a round depression; upper tooth on outer-side of anterior tibiae almost effaced, lower one blunt but tolerably distinct. L.  $1-1\frac{1}{4}$  l. Common. *D. globosus*, Herbst.

### BRACHINIDES.

Mentum not toothed; paraglossae scarcely longer than ligula; apical joint of labial palpi oblong-oval, truncate at apex; epimera of mesothorax triangular, of considerable size; epimera of metathorax visible behind and beside the episterna; first five dorsal segments of abdomen membranous. *Brachinus*, Weber.

*Brachinus.*

**A.** Elytra unicolorous.

**a.** Middle of breast reddish; length  $3\frac{1}{2}-4\frac{1}{2}$  lines.

Head and thorax red-brown; third and fourth joints of antennae generally black at base; elytra blackish blue, with shallow striae; abdomen and sides of breast blackish-brown. Common. *B. crepitans*, Lin.

**b.** Entire breast and abdomen blackish-brown; length 2—3 lines.

Head and thorax red-brown; third and fourth joints of antennae generally black at base; elytra blue or green, somewhat lustrous, striae almost or entirely absent. Rare.

*B. explodens*, Duft.

**B.** Suture of elytra red at base.

Head and thorax red-brown; elytra blue or greenish; base of suture red; breast and abdomen red. Antennae unicolorous. L. 2—3 l. Rare.

*B. sclopeta*, Fab.

### LEBIIDES.

**A.** Paraglossae free at apex.

Head often divided by a neck from thorax.

*Dryptidea*.

**B.** Paraglossae completely soldered to ligula.

Head seldom divided from thorax by a neck; anterior tibiae scarcely dilated toward apex, generally unarmed on outer-side; anterior tarsi in the male usually only slightly dilated, clothed beneath with fleshy prominences.

*Lebiidea*.

### DRYPTIDEA.

**A.** Apical joint of palpi hatchet-shaped.

Head triangular, neck thick; base of antennae hairy, the first joint as long as head, thickened at apex; emargination of mentum without any tooth; ligula elongate and narrow, paraglossae narrow, much shorter than ligula; thorax long, almost cylindrical, without a side border; tarsi hairy beneath, fourth joint bilobed. First three joints of male anterior tarsi slightly dilated, more strongly fringed on inner-side.

*Drypta*, Fab.

**B.** Apical joint of palpi somewhat clublike, strongly truncate at apex.

Head triangular, neck thick, base of antennae hairy, the first joint longer than the next two joints together; emargination of mentum with a strong simple tooth; ligula broader in front, where it is somewhat waved, paraglossae narrow, much longer than ligula; thorax flat, heart-shaped; fourth joint of tarsi simple. First three joints of male anterior tarsi slightly dilated, evenly fringed on each side. *Polystichus*, Bon.

**C.** Apical joint of palpi pointed.

Head oval, neck thick; base of antennae bare, the first joint rather shorter than next two joints together; emargination of mentum with a simple tooth; ligula almost straight in front, paraglossae longer than ligula and attached to it nearly to apex; thorax elongate, nearly cylindrical; fourth joint of tarsi slightly emarginate at apex. Anterior tarsi of male very slightly dilated. *Odacantha*, Payk.

### *Drypta.*

Blue; mouth, antennae, and legs red; body pubescent. Head and thorax coarsely, interstices of elytra finely punctured. L. 4 l. Not common. *D. dentata*, Ross.

### *Polystichus.*

Brown, with a rust-red longitudinal band from base to about middle of each elytron; body pubescent; abdomen, antennae, and legs rust red. Head and thorax coarsely, interstices of elytra finely punctured. L. 4—5 l. Not common. *P. vittatus*, Brul.

### *Odacantha.*

Head and thorax blue-green; antennae and palpi black, yellowish at base; elytra reddish-yellow, their apex blue-black; breast yellow, abdomen blue-black; legs yellow, knees and apex of tarsal joints black. Thorax coarsely punctured, side margins slightly raised. L. 3 l. Tolerably common. *O. melanura*, Lin.



**LEBIIDEA.**

**A.** Anterior tibiae unarmed on outer-side.

**a.** Fourth tarsal joint bilobed.

**I.** Claws simple.

Mentum not toothed; ligula rather longer than broad, rather strongly emarginate at apex, paraglossae much longer than ligula; apical joint of palpi oval, truncate at apex. *Aëtophorus*, Schmidt-Goebel.

**II.** Claws toothed.

Emargination of mentum with a simple tooth, formed by a separate plate; ligula narrow, almost straight at apex; paraglossae not much longer than ligula; apical joint of palpi elongate, somewhat pointed). *Demetrius*, Bon.

**b.** Fourth tarsal joint simple.

**I.** Mentum without a tooth. (Tarsal claws generally toothed.

**1.** Ligula large; paraglossae narrow.

Ligula very slightly emarginate in front; paraglossae rounded in front onto the apex of the ligula, with which they are completely united; apical joint of palpi somewhat pointed; thorax somewhat heart-shaped, base straight, posterior angles raised. *Dromius*, Bon.

**2.** Ligula small; paraglossae large.

Ligula deeply emarginate, paraglossae completely united with ligula, round the apex of which they form a membranous border, meeting one another; apical joint of palpi almost oval, somewhat truncate; thorax somewhat produced at base, posterior angles prominent.

*Blechrus*, Motsch.

**II.** Mentum toothed.

**1.** Tooth of mentum double-pointed or emarginate, formed by a separate plate; claws toothed.

Ligula more or less rounded at apex; paraglossae separately rounded and nearly touching each other before ligula; apical joint of palpi somewhat ovate; thorax cut off obliquely before each of the obtuse posterior angles.

*Metabletus*, Schmidt-Goebel.

**2.** Tooth of mentum simple, formed by a separate plate; claws simple.

Ligula dilated and very slightly emarginate in front, paraglossae united before ligula; apical joint of palpi somewhat narrow, truncate; sides of thorax with a minute tooth behind.  
*Lionychus*, Wissm.

**3.** Tooth of mentum simple; claws sawlike.

Ligula straight in front, paraglossae as long as ligula, separately rounded; thorax heart-shaped, base rounded.  
*Cymindis*, Latr.

**c.** Fourth tarsal joint emarginate.

Mentum with a broad tooth, formed by a separate plate; ligula almost straight in front, paraglossae completely united with ligula, with rounded angles; apical joint of palpi oblong oval, somewhat truncate at apex; thorax transverse, base straight near the right-angled posterior angles, produced in middle; claws strongly toothed.  
*Lebia*, Latr.

**B.** Anterior tibiae armed with spines on outer-side.

Mentum deeply and widely emarginate, without a tooth; ligula very slightly emarginate in front; paraglossae much longer than ligula; apical joint of palpi almost cylindrical, truncate at apex; frontal furrows absent; thorax transverse; elytra nearly rounded, but rather shorter than abdomen.  
*Masoreus*, Dej.

### *Aëtophorus.*

Winged. Head black, palpi and antennae yellowish; thorax yellow-red; elytra pale yellow, the suture, a common spot just behind middle, and another at side margin black; under-side and legs yellow, the breast brown-black. L.  $2\frac{1}{4}$  l. Not common. *A. imperialis*, Germ.

### *Demetrias.*

**A.** Tarsal claws with one tooth in middle; insect apterous.

Head black; thorax red, posterior angles not prominent; elytra yellow, with a common round black spot before apex; under-side and legs reddish-yellow. L. 2 l. Rather common. *D. monostigma*, Leach.

**B.** Tarsal claws with three long teeth; insect winged.

Head black; thorax red, posterior angles more or less

prominent; elytra yellow, suture often brown behind, interstices of the punctured striae diffusely punctured; under-side and legs reddish-yellow. L. 2—2½ l. Common.

*D. atricapillus*, Lin.

**Dromius.**

**A.** Elytra narrow and elongate.

**a.** Head elongate; thorax longer than broad.

Head pitch-brown; thorax yellowish-red, posterior angles rounded; elytra yellow, with a brown spot (dilated behind) along the suture, with faint punctured striae; under-side reddish-yellow, sides of abdomen brown; legs yellow. L. 2—2½ l. Not common.

*D. longiceps*, Dej.

**b.** Head oval; thorax as long as broad.

Head dark brown; thorax red, posterior angles right-angles; elytra light brown, apex darker, with strong punctured striae; under-side reddish; legs yellow. L. 1¾—2¼ l. Common.

*D. linearis*, Ol.

**B.** Elytra moderately broad.

**a.** Elytra unicolorous dark-brown.

**I.** Elytra with a row of larger impressions in sixth interstice only.

Head dark red-brown, roundish; thorax red-brown; elytra long, almost parallel-sided; under-side brownish-yellow; legs yellow. L. 2¾—3 l. Tolerably common.

*D. meridionalis*, Dej.

**II.** Elytra with a row of larger impressions in the third and another in the sixth interstice.

Head dark red-brown; thorax red-brown; elytra somewhat dilated behind; under-side reddish in front, dark-brown behind; legs yellow. L. 2½—3 l. Tolerably common.

*D. agilis*, Fab.

**b.** Elytra brown and yellow.

**I.** Anterior yellow spots on elytra not reaching side margin.

**1.** Body broader; length 2—2½ lines.

Head blackish, with fine striae between eyes; thorax red-brown, frequently blackish in middle, broader than long, sides and angles rounded; elytra dark-brown, with a large

yellow spot on middle of anterior half of each and another including the whole apex; breast dark-reddish, abdomen brown-black; legs yellow. Common.

*D. quadrimaculatus*, Lin.

2. Body more elongate; length  $1\frac{1}{2}$ — $1\frac{3}{4}$  lines.

Head black, with very feeble lines near eyes; thorax brownish, longer than broad, posterior angles right angles; elytra brown, with a large yellow spot at base of each, and a smaller one before apex near suture; under-side brown-black, that of thorax reddish; legs yellow. Common.

*D. quadrinotatus*, Panz.

II. Anterior yellow markings on elytra reaching side margin.

1. Elytra with a triangular brown spot round scutellum, extending along base and dilated at shoulders.

Head black; thorax dark red, sometimes brownish in middle, broader than long; elytra yellow, with a broad brown band somewhat behind middle, which is extended backwards at sides and attached at suture to the triangular basal brown spot, shoulders prominent, almost right-angled; under-side pitch-brown, legs yellow. L. 2 l. Not common.

*D. quadrisignatus*, Dej.

2. Elytra with yellow shoulders.

*A A.* Dark marking on elytra not well defined; body elongate.

Head black; thorax red-brown, as long as broad, not much narrowed behind, central furrow deep and broad; elytra yellowish on the anterior half, with the suture brown, and on the hinder half brown, with a yellow spot (variable in extent) at apex near suture, shoulders rounded; middle and hinder breast and legs reddish-yellow, abdomen brown-black. The limits of the colours on the elytra are not sharply defined. L.  $1\frac{1}{2}$  l. Rather common.

*D. nigriiventris*, Th.

*B B.* Dark marking on elytra well defined; body less elongate.

*a a.* Dark marking on elytra extended backward on outer-side nearly or quite to apex, leaving only a small light spot at suture.

Red-yellow; head black; disc of thorax and abdomen sometimes dark; elytra with a broad, dentate, dark, transverse band, reaching along suture toward scutellum and on outer margin nearly or quite to apex. Broader and stouter than *D. nigriventris*, similar to *D. sigma* but more robust, with shorter and stouter antennae, head and thorax less shiny, former broader and latter more transverse, elytra comparatively shorter and broader, with lateral outline less straight, their dark band broader and humeral light-coloured space smaller. L.  $1\frac{1}{2}$  l. Southern coasts, especially Isle of Wight. *D. vectensis*, Rye.

**b b.** Dark marking on elytra ceasing on outer margin far from apex.

Head black; thorax light red-yellow, central furrow rather feeble; elytra pale-yellow, with a brown transverse band behind middle, which is somewhat dilated at suture, toothed in front and at outer margin, and extends backward but ceases at some distance from apex. L.  $1\frac{1}{2}$  l. Not common. *D. sigma*, Ross.

**c.** Elytra entirely yellow.

Head black; thorax reddish, somewhat lighter at sides, central furrow strong; under-side reddish, abdomen often brown; legs yellow. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common. *D. melanocephalus*, Dej.

### *Blechrus.*

Black, shining; elytra smooth; claws feebly toothed. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Common. *B. maurus*, Sturm.

The variety *glabratus* has the elytra somewhat longer, with some feeble striae near suture, and the claws distinctly toothed. It has also usually a rather stronger bronze lustre.

### *Metabletus.*

**A.** Dark brown, with a slight bronze lustre; each elytron marked with two more or less distinct light spots, the one at shoulder, the other before apex (latter often effaced).

Antennae black, usually reddish at base; elytra with feeble striae and two impressions (often very weak) in third

interstice; legs brownish-yellow, femora usually darker. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Common. *M. obscuro-guttatus*, Duft.

**B.** Deep black and shining; elytra with very indistinct striae and without any impression in third interstice.

First joint of antennae, tibiae, and tarsi brownish. L.  $1\frac{1}{4}$  l. Common. *M. truncatellus*, Lin.

**C.** Bronze-brown; elytra with feeble striae and two deep impressions in third interstice.

Antennae, under-side, and eyes black. L.  $1\frac{1}{3}$  l. Common. *M. foveola*, Gyll.

### *Lionychus.*

Shining black, with a slight bronze lustre. Thorax heart-shaped, with a feeble transverse impression between the small but sharp lateral teeth, base flattened and finely wrinkled; each elytron with two whitish yellow spots, one at shoulder, the other (often absent) somewhat behind middle, and with four distinct striae near suture, and traces of outer ones, each interstice bearing a row of small punctures. L.  $1\frac{1}{2}$  l. Rather common.

*L. quadrillum*, Duft.

### *Lebia.*

**A.** Elytra black and reddish.

**a.** Head black, thorax red.

**I.** Elytra reddish, with black markings, viz., a triangular spot round scutellum, attached behind to a broad transverse band, which at suture and outer-margin is extended backward to apex; scutellum black.

Thorax red; breast, abdomen, knees, and tarsi black. Elytra with feeble, closely-punctured striae. L.  $2\frac{1}{2}$ — $2\frac{3}{4}$  l. Rare. *L. crux-minor*, Lin.

**II.** Elytra black, with a large reddish-yellow shoulder spot; scutellum red.

Thorax red; breast and legs red; abdomen black. Elytra with strong, almost impunctate striae. L. 2— $2\frac{1}{2}$  l. Rare. *L. turcica*, Fab.

**b.** Head and thorax red.

Elytra black, red at apex, with feebly punctured striae; breast black. L.  $1\frac{3}{4}$ — $2\frac{1}{4}$  l. Rare.

*L. haemorrhoidalis*, Fab.

**B.** Elytra unicolorous.

**a.** First joint of antennae red, the rest black; scutellum blackish; breast blue or green.

Head, elytra, and abdomen blue or green; thorax and legs red, knees and apex of tibiae black. Elytra with fine punctured striae, interstices distinctly punctured. L. 3 l. Not uncommon.

*L. cyanocephala*, Lin.

**b.** First two joints and half the third joint of antennae red, the rest black; scutellum red; breast red.

Head, elytra, and abdomen blue or green; thorax red. Elytra with very fine punctured striae, interstices finely and scantily punctured. L. 2— $3\frac{1}{4}$  l. Rather common.

*L. chlorocephala*, E. H.

**Cymindis.****A.** Thorax red.

Body not pubescent. Head dark brown-red, very finely punctured; apical joint of labial palpi of male distinctly hatchet-shaped; thorax finely punctured on disc; elytra with deep, finely punctured striae, black, with a yellowish shoulder-spot and outer margin. L.  $3\frac{1}{2}$ — $4\frac{1}{4}$  l. Not common.

*C. axillaris*, Fab.

**B.** Head and thorax dark brown.

Body pubescent; head and thorax coarsely punctured; apical joint of labial palpi of male almost cylindrical; elytra with moderately deep, finely-punctured striae, black-brown, passing toward the base into red-brown. L.  $3\frac{1}{2}$ — $4\frac{1}{4}$  l. Not common.

*C. vaporariorum*, Lin.

**Masoreus.**

Pitch-black, shining; scutellum furrowed at apex; elytra with fine punctured striae, brown-red at base. L. 2— $2\frac{1}{2}$  l.

*M. Wetterhali*, Gyll.

**HARPALIDES.**

**A.** Epimera of mesothorax reaching coxae on inner-side.

Head constricted behind eyes, forehead furrowed; basal knob of the first joint of the antennae visible from above, the first five or six joints bearing long hairs; stalk of maxillae dilated on outer-side and toothed before base of palpi, studded with bristles; paraglossae completely soldered to ligula and scarcely to be distinguished from it; elytra with twelve striae and some deep impressions in third interstice; anterior male tarsi with three joints strongly dilated and hairy beneath, the second and third joints transversely quadrangular. *Loriceridea*.

**B.** Epimera of mesothorax not reaching coxae on inner-side.

**a.** Paraglossae almost entirely absent.

Head more or less constricted behind eyes; anterior male tarsi simple or with from one to three joints dilated, spongy beneath; the dilated joints (except the first) almost quadrangular. *Panagaidea*.

**b.** Paraglossae distinctly present.

**I.** Dilated joints of male anterior tarsi quadrangular.

**1.** Mandibles pointed at apex.

Head very rarely constricted behind eyes, not dilated in front; paraglossae free at apex. Anterior male tarsi with three (very seldom four) dilated joints, spongy beneath. *Chlaeniidea*.

**2.** Mandibles blunt at apex.

Head dilated and almost always flattened in front; paraglossae free at apex or completely soldered to ligula. Anterior male tarsi with two or three dilated joints, spongy beneath. *Licinidea*.

**II.** Dilated joints of male anterior tarsi not fully quadrangular.

**1.** Thorax divided from the hinder part of body by a neck, on which stands the scutellum.

Elytra constricted at base, where there is no short sutural stria; the raised side border not continued over the rounded shoulder on to the base. Anterior male tarsi simple or with two, three, or four joints dilated. *Brosceidea*.



2. Thorax joining hinder part of body without a neck.

*A A.* Anterior male tarsi with three joints dilated, generally fleshy beneath.

First three joints of antennae usually completely bare ; paraglossae generally free. *Pterostichidea.*

*B B.* First four joints of anterior tarsi and usually also of intermediate tarsi dilated in male ; rarely simple.

Only first two joints of antennae completely bare ; paraglossae generally free. *Harpalidea.*

*C C.* Anterior male tarsi with two joints dilated.

*a a.* Ligula bearing two bristles in front.

Paraglossae free at apex. *Pogonidea.*

*b b.* Ligula broad and bearing eight bristles in front.

Paraglossae long, free, fringed on inner-side.

*Trechidea.*

### LORICERIDEA.

Mentum with a blunt tooth ; third joint of antennae longer than second and fourth (which are equal to one another and somewhat club-like), but not longer than sixth, tolerably cylindrical ; epimera of metathorax completely in one piece with the episterna ; elytra oblong, almost parallel-sided, somewhat pointed behind ; posterior legs not much longer than the rest. *Loricera*, Latr.

#### *Loricera.*

Greenish-bronze. Thorax rounded ; elytra with punctured striae, three impressions in third interstice ; underside black, femora bronze, tibiae and tarsi red. L.  $3\frac{1}{2}$  l. Common. *L. pilicornis*, Fab.

### PANAGAEIDEA.

Head strongly constricted behind eyes ; mentum narrowed in front, with a tooth, which is as long as the side pieces and emarginate at apex ; apical joint of palpi

strongly hatchet-shaped, especially in male; anterior male tarsi with two joints dilated. Body pubescent, strongly punctured. *Panagaeus*, Latr.

### *Panagaeus*.

**A.** Elytra red, with a large spot round the scutellum, the suture, an irregular transverse band behind middle, and the apex black.

Head and thorax black; latter transverse, closely and coarsely punctured. L.  $3\frac{1}{2}$ —4 l. Tolerably common.

*P. crux-major*, Lin.

**B.** Elytra black, with a transverse band in front and a round spot behind, red.

Head and thorax black; latter nearly circular, more coarsely but less closely punctured than in *P. crux-major*. L. 3 l. Not uncommon.

*P. quadripustulatus*, Sturm.

### CHLAENIDEA.

**A.** Outer lobe of maxillae in one piece, with a little excision in the place where the articulation usually occurs.

Mentum with a simple tooth; ligula dilated in front, paraglossae attached to ligula nearly to apex, and much longer than it; apical joint of palpi slightly oval, somewhat pointed. Body pubescent. *Callistus*, Bon.

**B.** Outer lobe of maxillae articulated.

**a.** Tooth of mentum double pointed.

Apical joint of palpi cylindrical, truncate at apex; first three joints of antennae bare; thorax narrower at base than elytra, on which the eighth stria (bearing depressions) stands apart from the marginal stria. Body generally pubescent. *Chlaenius*, Bon.

**b.** Tooth of mentum simple.

Apical joint of palpi almost cylindrical, truncate at apex; thorax generally as wide at base as elytra, on which the eighth stria is confluent with the marginal stria and continued to suture. Body bare. *Oodes*, Bon.

**Callistus.**

Black; thorax red; elytra yellow, each with three black spots, of which the hindermost is largest and connected with the corresponding one. Thorax almost heart-shaped; elytra with fine punctured striae and thin pubescence. L. 3 l. Moderately common. *C. lunatus*, Fab.

**Chlaenius.**

**A.** Elytra green, with outer margin yellow.

Upper-side metallic-green, thinly pubescent; elytra with a yellow border (dilated at apex); antennae and legs yellow. Interstices of striae on elytra finely granulate. L.  $4\frac{1}{2}$  l. Common. *C. vestitus*, Payk.

**B.** Elytra entirely green.

**a.** Posterior angles of thorax sharp right angles.

Head and thorax green or coppery; elytra green; first three joints of antennae, and the legs rust-red. Thorax closely punctured, posterior angles sharp right angles; interstices of striae on elytra finely granulate. L.  $4\frac{1}{2}$  l. Rare. *C. Schranki*, Duft.

**b.** Posterior angles of thorax obtuse.

Similar to *C. Schranki*, but with only first joint of antennae and the legs rust-red or pitch-brown, and posterior angles of thorax obtuse. L. 5 l. Common.

*C. nigricornis*, Fab.

**C.** Elytra black.

Upper-side black, metallic, hairy. Thorax punctured in wrinkles; interstices of striae on elytra granulate. L. 5 l. Very rare. *C. holosericeus*, Fab.

**Oodes.**

Slightly convex. Black. Thorax impunctate; elytra with fine punctured striae. L. 4 l. Rather common.

*O. helopioides*, Fab.

**LICINIDEA.**

**A.** Apical joint of palpi hatchet-shaped; paraglossae about equal in length to ligula.

Labrum small, emarginate in front; mentum not toothed. Anterior male tarsi with two joints dilated.

*Licinus*, Latr.

**B.** Apical joint of palpi oval; paraglossae much longer than ligula.

Labrum small, bilobed; mentum not toothed; mandibles dissimilar. Anterior male tarsi with three joints dilated.

*Badister*, Clairv.

### *Licinus*.

**A.** Insect apterous; elytra with finely punctured striae, the interstices flat, closely punctured.

Black, head and thorax slightly shining. L. 4—5 l. Not common.

*L. depressus*, Payk.

**B.** Insect winged; elytra with punctured striae, the interstices wrinkled, with scattered coarse punctures.

Black, dull. L.  $5\frac{1}{2}$ — $6\frac{1}{2}$  l. Not uncommon.

*L. silphoides*, Fab.

### *Badister*.

**A.** Thorax yellowish-red.

**a.** Side pieces of the middle breast reddish.

Head black, as broad as thorax, the central furrow of which is deep. Right mandible excised above. Elytra reddish, each with a longitudinal black crescent-shaped spot on the hinder part, enclosing together a common circular reddish spot. L.  $3\frac{1}{2}$  l. Rather common.

*B. unipustulatus*, Bon.

**b.** Under-side entirely blackish.

Coloured in other respects as above. Head narrower than thorax, the central furrow of which is fine. Right mandible excised above. L. 2—3 l. Common.

*B. bipustulatus*, Fab.

**B.** Thorax blackish.

**a.** Elytra with yellow shoulder spots.

Black, thorax and elytra with a yellowish margin, latter with large yellow shoulder spots; suture also frequently yellowish. Right mandible excised above. L.  $1\frac{3}{4}$  l. Rather common.

*B. sodalis*, Duft.

**b.** Elytra without shoulder spots.

Black, shining; the extreme margin of thorax and elytra yellowish. Left mandible excised above. L. 2—2½ l. Not uncommon. *B. peltatus*, Panz.

### **BROSCIDEA.**

**A.** Head as broad as thorax; antennae longer than thorax.

Mandibles very prominent; inner lobe of maxillae fringed; apical joint of palpi nearly cylindrical; thorax heart-shaped, narrowly bordered at sides. Anterior male tarsi with three joints dilated. *Broscus*, Panz.

**B.** Head narrower than thorax; antennae as long as thorax.

Mandibles moderately prominent; inner lobe of maxillae spiny; apical joint of palpi long oval, truncate at apex; thorax nearly globular, constricted behind. Anterior male tarsi with three joints dilated. *Miscodera*, Eschsch.

#### ***Broscus.***

Black; forehead punctured; elytra moderately arched, with indistinct rows of punctures. L. 8½—10 l. Rather Common. *B. cephalotes*, Lin.

#### ***Miscodera.***

Dark bronze, highly polished; antennae and legs red; elytra with some indistinct punctured striae near suture (effaced behind). L. 3 l. Not common.

*M. arctica*, Payk.

### **PTEROSTICHIDEA.**

**A.** Anterior tibiae narrow, not much thickened toward apex; the dilated tarsal joints narrow.

**a.** Tooth of mentum emarginate at apex; rarely blunt.

**I.** Apical joint of labial palpi cylindrical.

**1.** Hinder pairs of tarsi not furrowed on the outer-side.

**A A.** Claws simple.

Third joint of antennae much longer than fourth.

*Sphodrus*, Clairv.

**B B.** Claws toothed at base.

Third joint of antennae longer than fourth.

*Pristonychus*, Dej.

**2.** Hinder pairs of tarsi furrowed on the outer-side.

Third joint of antennae scarcely longer than fourth; claws toothed.

*Calathus*, Bon.

**II.** Apical joint of labial palpi slightly hatchet-shaped.

Third joint of antennae scarcely longer than fourth; hinder pairs of tarsi not furrowed, claws toothed; thorax rounded.

*Taphria*, Bon.

**b.** Tooth of mentum simple, pointed; apical joint of palpi generally rather oval, somewhat truncate at apex; claws simple. Dilated tarsal joints in the male almost quadrangular.

*Anchomenus*, Er.

**c.** Mentum scarcely or not at all toothed. Apical joint of palpi spindle shaped; thorax rounded; claws smooth.

*Olisthopus*, Dej.

**B.** Anterior tibiae thickened toward apex; the dilated tarsal joints triangular or heart-shaped. Claws simple.

**a.** Mandibles very prominent; dissimilar.

Mandibles bent inward at apex only; the right one with a little excision in middle, corresponding to a projection on the left one; maxillae narrow; mentum with a sharp, simple tooth; paraglossae very long; apical joint of palpi oval, truncate; first joint of antennae longer than the rest.

*Stomis*, Clairv.

**b.** Mandibles not projecting much beyond the labrum.

**I.** One spine at the apex of the notch on the anterior tibiae.

**1.** Tooth of mentum simple; anterior margin of thorax prominent in middle; dilated tarsal joints extended inward.

Apical joint of palpi elongate oval, truncate.

*Platyderus*, Steph.

**2.** Tooth of mentum emarginate at apex; labrum straight in front, rarely emarginate, apical joint

of palpi in the latter case cylindrical; elytra usually with dorsal impressions.

*Pterostichus*, Er.

- 3.** Tooth of mentum emarginate at apex, rarely pointed; labrum emarginate; apical joint of palpi oval, slightly truncate; elytra without dorsal impressions. *Amara*, Bon.

- II.** Two spines at the apex of the notch on the anterior tibiae.

Labrum emarginate; tooth of mentum generally simple, sometimes split; apical joint of maxillary palpi oval, truncate, that of labial palpi almost cylindrical; elytra strongly arched, without dorsal impressions.

*Zabrus*, Clairv.

### *Sphodrus*.

Winged. Black; thorax heart-shaped, fully as long as broad; elytra with fine punctured striae. In the male the trochanters of the posterior legs are very long and pointed. L. 10—11 l. Not common. *C. leucophthalmus*, Lin.

### *Pristonychus*.

Upper-side black, with dark bluish elytra, under-side pitch-brown. Thorax broader than long, somewhat heart-shaped; elytra with moderately strong striae, which are finely punctured; intermediate tibiae slightly curved. L. 6—8 l. Rather common. *P. subcyaneus*, Ill.

### *Calathus*.

- A.** Both the third and fifth interstices on elytra with a row of larger impressions beside them.

Black, antennae, palpi and legs brownish-red. Thorax slightly narrowed in front, base punctured at sides, smooth in middle, posterior margin sinuate, posterior angles right angles but rounded off; elytra with moderately deep, very finely punctured striae, with impressions as above. L. 5—6 l. Common. *C. cisteloides*, Panz.

- B.** Larger impressions on the third interstice only.

**a.** Thorax as broad at posterior margin as in middle.

**I.** Body black, apterous.

Antennae, palpi and legs red. Thorax slightly contracted in front, basal impressions tolerably conspicuous, posterior angles sharply right angled, the extreme lateral margins generally reddish, especially behind; elytra tolerably parallel-sided, with rather strong, impunctate striae, the third interstice with two impressions, one rather before middle near the third, and the other in the middle of the hinder half near the second stria. L. 4—5 l. Rather common. *C. flavipes*, Fourc.

### II. Body blackish-brown; winged.

Broader in proportion than *C. flavipes*, antennae, palpi, and legs yellowish-red. Thorax broader at base than in front, all the margins reddish, basal impressions indistinct, posterior angles slightly acute; elytra almost oval, with fine striae, third interstice with two impressions as in *C. flavipes*. L.  $4\frac{1}{4}$ —5 l. Common. *C. fuscus*, Fab.

**b.** Thorax distinctly narrowed behind; insect apterous.

**I.** Thorax with narrow side borders, not bent upward behind.

**1.** Posterior margin of thorax slightly sinuate.

Brown, with a reddish margin to thorax and elytra; antennae, palpi, legs and reflexed margin of elytra pale reddish-yellow; under-side brown-red, abdomen darker. Thorax almost quadrangular, basal impressions shallow, posterior angles right angles but not sharp; elytra with very fine striae, third interstice with three (rarely four) impressions, two near the third and one near the second stria. L. 3— $3\frac{3}{4}$  l. Common. *C. mollis*, Marsh.

**2.** Posterior margin of thorax straight.

**A A.** Thorax red.

Head black or blackish; antennae, palpi, and legs reddish-yellow; thorax red, almost quadrangular, posterior angles right angles but not sharp; elytra black-brown, the outer margin usually and the reflexed margin always reddish; with fine striae, third interstice with three (rarely four) impressions, two near the third and one near the second stria; breast reddish, abdomen blackish-brown. L. 3— $3\frac{1}{2}$  l. Common. *C. melanocephalus*, Lin.

The variety *nubigena*, Hal., is darker, the antennae reddish at the base only, the thorax blackish on disc or



even almost entirely black, the elytra with a greenish reflection in male.

**B B.** Thorax black.

Brownish-black, shining; side margins of thorax and extreme outer margin of elytra reddish; antennae, palpi and legs reddish-yellow. Sides of thorax more rounded than in *C. melanocephalus*; the basal impressions deeper; posterior angles more rounded; sides of elytra less rounded. L.  $3\frac{1}{2}$  l. Not uncommon. *C. micropterus*, Duft.

**II.** Thorax with broad side borders, bent upward behind.

Brown-black, moderately shining; antennae, palpi and legs reddish. Thorax somewhat contracted behind, posterior angles rounded, basal impressions strong; elytra ovate, with tolerably fine striae, third interstice with four or five impressions, the first three and the fifth near the third, the fourth near the second stria. L. 4—5 l. Rather common. *C. piceus*, Marsh.

***Taphria.***

Brown-black; mouth, antennae and legs red. Thorax rounded at sides and posterior angles; elytra oblong ovate, with two impressions beside the second stria; insect winged. L.  $2\frac{1}{2}$ — $3\frac{1}{2}$  l. Rather common. *T. nivalis*, Panz.

***Anchomenus.***

**A.** Sides of thorax straight or sinuate behind.

**a.** Head constricted behind.

**I.** Posterior angles of thorax sharp right angles.

Black, shining; antennae, palpi and legs pitch-brown. Thorax heart-shaped, tolerably strongly contracted behind, rather broader than long; sides of elytra somewhat rounded. L.  $4\frac{1}{2}$  l. Rather common. *A. junceus*, Scop.

**II.** Posterior angles of thorax rounded.

Pitch-brown; antennae, palpi and legs reddish; fore-head usually with two small reddish spots. Thorax slightly contracted behind, sides rounded in front and straight behind, as long as broad; sides of elytra tolerably parallel. L. 4 l. Scarce. *A. livens*, Gyll.

**b.** Head not constricted behind.

**I.** Elytra light brown, with a large dark bluish or greenish common spot on the hinder half.

Head and thorax green; base of antennae, palpi and legs yellowish. Thorax narrow. L. 3 l. Common.

*A. prasinus*, Thunb.

**II.** Elytra unicolorous.

**1.** Striae on elytra impunctate.

Brown-black; antennae, palpi and legs pale yellow. Thorax broader than long, heart-shaped, base punctured; insect winged. L. 3½ l. Common.

*A. albipes*, Fab.

**2.** Striae on elytra deep and punctured.

Brown; head and thorax usually darker; antennae and legs yellow. Thorax heart-shaped, longer than broad, base rather strongly punctured. L. 2¾ l. Common.

*A. oblongus*, Fab.

**B.** Sides of thorax evenly rounded.

**a.** Thorax evidently broader than long.

**I.** Elytra with a yellowish-white outer margin.

Bright-green, sometimes bronzy; extreme margin of thorax yellowish; antennae, femora and tarsi pitch-brown, tibiae paler. Thorax broad, scarcely narrowed behind. L. 4½ l. Common.

*A. marginatus*, Lin.

**II.** Elytra unicolorous.

**1.** Thorax green or bronze, slightly narrowed behind.

**A A.** First joint of antennae and the legs black.

**a a.** No impression on each side of disc of thorax.

Head and thorax bright green, latter much broader than long; elytra bright coppery, distinctly sinuate before the apex, with fine punctured striae and a row of six or seven impressions on third interstice; under-side and femora dark bronze-green, tibiae and tarsi black, upper-side sometimes darker coloured, in rare cases even blackish. L. 4 l. Not uncommon.

*A. sexpunctatus*, Lin.

**b b.** Disc of thorax with an impression on each side.

Upper-side bright bronze or coppery; thorax rather narrower and less rounded at sides than in *A. sexpunctatus*; elytra scarcely sinuate before apex, with fine punctured striae and six or seven impressions on third interstice. L. 3 l. Not common. *A. ericeti*, Panz.

**B B.** First joint of antennae and the legs reddish.

*a a.* Length  $3\frac{1}{2}$ —4 lines.

*A a.* Body broader; third interstice on elytra with three (rarely four) impressions.

Head and thorax dark green; elytra dark bronze, with fine striae and flat interstices; under-side dark bronze-green. Common. *A. parumpunctatus*, Fab.

**B b.** Body more elongate; third interstice on elytra with four or five (rarely six) impressions.

Upper-side bronze, under-side blackish-green. Thorax not much contracted behind, posterior angles obtuse and raised; elytra with fine striae. Rare. *A. gracilipes*, Duft.

*b b.* Length  $2\frac{1}{4}$  lines.

Blackish-bronze. Head large; thorax double as broad as long, somewhat contracted behind, posterior angles very blunt and somewhat raised; elytra with tolerably feeble striae and a row of four deep impressions on third interstice. Rare. *A. quadripunctatus*, De G.

2. Thorax black, scarcely narrowed behind.

**A A.** Thorax much broader than long, with broad raised margins.

*a a.* Interstices on elytra convex.

Head black; elytra dark greenish-bronze; under-side and legs black. Elytra with deep, feebly punctured striae, third interstice with three impressions. L. 4 l. Common. *A. viduus*, Panz.

The variety *moestus* is entirely black above.

*b b.* Interstices on elytra flat.

Similar to *A. viduus*, but rather smaller, with finer striae and flat interstices on elytra. L.  $3\frac{1}{2}$  l. Not common.

*A. versutus*, Gyll.

**B B.** Thorax nearly as long as broad, with a narrow border.

Black, shining; legs and reflexed margin of elytra pitch-brown. Elytra large, with very fine striae and flat interstices, the third with three impressions. L.  $3\frac{1}{2}$  l. Rather common. *A. atratus*, Duft.

**b.** Thorax about as long as, or longer than, broad.

**I.** Elytra with a more or less distinct greenish reflection.

**1.** Thorax scarcely narrowed behind.

Dark bronze-green, shining; under-side black; reflexed margin of elytra, basal joint of antennae and the legs brownish. The third interstice on elytra with three or four impressions. L. 3 l. Not uncommon. *A. micans*, Nic.

**2.** Thorax narrowed behind.

Shining black, elytra with a greenish reflection. Side margin of thorax narrowly raised; elytra somewhat dilated behind, with shallow striae, the third interstice with five faint impressions. L. 3 l. Rather common.

*A. scitulus*, Dej.

**II.** Elytra deep black or brown.

**1.** Thorax not narrowed behind.

Head and thorax pitch-black; elytra and legs brown. Elytra oblong, with very fine, simple striae, interstices flat, the third with four or five impressions. L. 3 l. Rather common.

*A. piceus*, Lin.

**2.** Thorax narrowed behind.

**A A.** Legs black.

Entirely black; elytra oblong, with fine striae, and four or five impressions in third interstice. L. 3 l. Rather common.

*A. gracilis*, Gyll.

**B B.** Legs lighter or darker brown.

**a a.** Body moderately broad; posterior angles of thorax completely rounded.

Head and thorax black; elytra usually reddish pitch-brown, but sometimes blackish. Elytra ovate. L. 3 l. Common.

*A. fuliginosus*, Panz.

**b b.** Body elongate; posterior angles of thorax not altogether rounded.

**A a.** Elytra red-brown, usually darker near suture, sides nearly parallel.

Head and thorax black; mouth, palpi, and first joint of antennae reddish. Striae on elytra fine, with four impressions in third interstice. L. 3 l. Rather common.

*A. Thoreyi*, Dej.

**B b.** Elytra pitch-black, sides very slightly rounded.

Head and thorax pitch-black; mouth, base of palpi, and antennae reddish. Elytra rather more convex than in *A. Thoreyi*, and the striae on them somewhat stronger, third interstice with four impressions. L. 3—3½ l. Rather common.

*A. puellus*, Dej.

### *Olisthopus.*

Bronze-brown above; reddish-brown beneath; palpi, base of antennae and legs yellow. Thorax broader than long, very finely punctured at the base and sides; elytra with deep, very finely punctured striae, and three impressions at the side of third interstice. L. 3—3½ l. Common.

*O. rotundatus*, Payk.

### *Stomis.*

Pitch-black, shining; antennae and legs red. Thorax rather longer than broad, heart-shaped; elytra oblong ovate, with strongly punctured striae; breast strongly punctured. L. 3 l. Common.

*S. pumicatus*, Panz.

### *Platyderus.*

Apterous. Head pitch-black; thorax reddish, as broad as long, slightly narrowed behind, sides somewhat rounded, central furrow strong, a short furrow on each side at base; elytra red-brown, rather flat, with impunctate striae and three impressions on the third interstice; palpi, antennae, and legs red. L. 3¼ l. Rather common.

*P. ruficollis*, Marsh.

### *Pterostichus.*

**A.** Margin of elytra with only one stria outward from the eighth stria, which bears a row of impressions.

*a.* Prosternal process with a fine border; episterna of metathorax longer than broad.

*I.* Outer margin of elytra distinctly sinuate behind, apex bluntly pointed; short scutellary stria present; basal joints of antennae generally sharpened into a ridge.

Tooth of mentum broad and only slightly emarginate; basal border of elytra forming a small tooth at shoulder; anterior male tarsi not very strongly dilated.

[*Poecilus*, Bon.]

*1.* Thorax slightly narrowed in front; insect winged.

*A A.* Front of head and middle of base of thorax delicately punctured.

Upper-side green, bronze, or bluish-black; first two joints of antennae red; under-side black; legs generally black, sometimes red. Thorax rather broader than long, base with a longitudinal impression half-way between the central furrow (which is equally deep throughout) and the side margin, and a smaller one between this impression and the side margin, nearer and parallel to the latter; striae of elytra indistinctly punctured. L.  $4\frac{1}{2}$ —6 l. Common.

*P. cupreus*, Lin.

*B B.* Front of head and middle of base of thorax not punctured.

Coloured like *P. cupreus*, but rather smaller and narrower; thorax somewhat longer, the small outer basal impression directed obliquely inward and equidistant between the lateral margin and the inner impression, central furrow deeper before and behind than in middle; striae of elytra more strongly punctured. L. 4—5 l. Common.

*P. versicolor*, Sturm.

*2.* Thorax as broad in front as behind; insect winged.

Head and thorax coppery; elytra green; under-side black; the whole upper-side sometimes bronze, green, or blackish; first two joints of antennae brown-red beneath. Head smooth; thorax broader than long, anterior margin nearly straight, central furrow evenly deep throughout, base with two deep longitudinal impressions on each side;

elytra tolerably parallel-sided, with deep punctured striae, interstices flat. L. 6—7 l. Not uncommon.

*P. dimidiatus*, Ol.

**3.** Thorax slightly narrowed behind; insect apterous.

Bronze, green, or blackish above, black beneath; antennae entirely black. Head almost smooth; thorax rather broader than long, central furrow evenly deep throughout, basal impressions very strong; elytra elongate, with very finely punctured striae, interstices somewhat arched behind. L. 5—6 l. Not uncommon.

*P. lepidus*, Fab.

**II.** Apex of elytra bluntly rounded behind; short scutellary stria present; basal joints of antennae cylindrical.

Third joint of antennae as long as first; tooth of mentum moderately deeply emarginate; elytra with rounded shoulders; anterior male tarsi rather strongly dilated.

[*Adelosia*, Steph.]

Pitchy or reddish above, brown or red beneath. Thorax rather broader than long, widest much before middle, strongly narrowed behind, central furrow deep, base with a strong longitudinal impression on each side, and a very faint one near the angles; elytra tolerably parallel-sided, flat above, with rather deep, finely punctured striae. L. 6 l. Rather common.

*P. picimanus*, Duft.

**III.** Outer margin of elytra scarcely sinuate behind; apex pointedly rounded; short scutellary stria absent; basal joints of antennae cylindrical; last joint of palpi oblong oval, not very truncate.

Third joint of antennae about as long as first; anterior male tarsi moderately dilated.

[*Lagarus*, Chaud.]

**1.** Dilated tarsal joints of the male bearing a fine impressed line; insect winged.

Black; legs, and base of antennae pitch-brown. Thorax not much broader than long, scarcely narrowed behind, base with a distinct inner and a shorter, indistinct outer impression; elytra oblong, almost parallel-sided, with deep, feebly punctured striae, third interstice with three impressions. L. 3 l. Common.

*P. vernalis*, Panz.

**2.** Dilated tarsal joints of the male not impressed; insect apterous.

Pitch-brown, antennae, palpi, and legs brown-red. Thorax somewhat narrowed behind, posterior angles right angles; base strongly punctured throughout, with a deep longitudinal impression on each side; elytra elongate, with strongly punctured striae, the third interstice with a single impression near apex. L.  $2\frac{3}{4}$  l. Rather common.

*P. inaequalis*, Marsh.

**b.** Prosternal process without a border.

**I.** Episterna of metathorax much longer than broad.

**1.** Apical joint of palpi cylindrical, truncate.

**A A.** Thorax with rounded or nearly rounded posterior angles and a depression on each side at base; elytra with three impressions on the third interstice and rounded shoulders.

Episterna of metathorax very long; elytra slightly sinuate before apex, disc flat, sides steep; insect winged.

[*Lyperus*, Chaud.]

Deep black, very shining. Thorax transverse, posterior angles almost rounded, base with a deep, roundish depression on each side; elytra elongate, almost parallel-sided, with finely punctured striae. L.  $5\frac{1}{2}$ —6 l. Not common.

*P. aterrimus*, Payk.

**B B.** Thorax with sharply pointed (whether acute or obtuse) posterior angles, a basal depression on each side, containing two striae, and a fold near the posterior angles; elytra with a very small tooth at the rounded shoulders.

Tooth of mentum narrow, moderately deeply emarginate; insect generally winged; anterior male tarsi rather strongly dilated.

[*Omaseus*, Ziegl.]

**a a.** Legs black; length  $4\frac{1}{2}$ —10 lines.

**A a.** Basal depression of thorax feeble; the two striae deep.

Entirely black, with feeble lustre. Thorax almost square, posterior angles right angles; elytra with deep, smooth, or very slightly punctured striae, interstices very convex. L. 8—10 l. Common.

*P. niger*, Schal.

**B b.** Basal depressions of thorax deep.

**A 1.** Insect apterous.

Entirely black, moderately shining. Thorax rather



broader than long, posterior angles obtuse, but pointed, basal depressions punctured, with two distinct striae; elytra with strong, smooth striae, interstices tolerably convex, the third with two impressions, short scutellary stria stands next the suture. Thorax and elytra somewhat variable in form. L.  $6\frac{1}{2}$ — $7\frac{1}{2}$  l. *P. vulgaris*, Lin.

**B 1.** Insect winged.

**a 1.** Apex of elytra with a little tooth at the suture.

Black. Thorax somewhat contracted behind, posterior angles right angles, basal depressions punctured, the inner stria tolerably distinct; interstices of elytra flat. In the male the last ventral segment of the abdomen has a large impression in the middle. L.  $4\frac{1}{2}$ — $5\frac{1}{2}$  l. Rather common. *P. anthracinus*, Ill.

**b 1.** Apex of elytra not toothed.

Deep-black, shining. Thorax contracted behind, posterior angles obtuse, basal depressions closely punctured in wrinkles, the inner stria indistinct; elytra with tolerably flat interstices. In the male the last ventral segment of the abdomen has a little prominence in the middle. L.  $4\frac{1}{2}$ —5 l. Common. *P. nigrita*, Fab.

**b b.** Legs pitchy; length 4 lines; last ventral segment of the abdomen flat in both sexes.

Shining-black, antennae pitchy. Thorax almost as long as broad, a little contracted behind, posterior angles right angles, basal depressions not very deep, both striae distinct; under-side of thorax more finely punctured than the rest of breast. Rather common. *P. gracilis*, Dej.

**c c.** Legs reddish-pitchy; length 3 lines; last ventral segment of the abdomen with a fine longitudinal ridge in male.

Pitch-black, antennae reddish-pitchy. Thorax not much broader than long, contracted behind, posterior angles right angles, basal depressions feeble, the two striae sharp; under-side of thorax as closely punctured as sides of breast. Common. *P. minor*, Gyll.

**2.** Apical joint of palpi oblong oval, not very truncate at apex.

Thorax with a strong longitudinal impression on each

side at base, without any fold; elytra with a distinct short scutellary stria. Antennae as long as head and thorax; sides of latter somewhat contracted behind and curved inward, with sharp angles; elytra not distinctly sinuate before apex, shoulders rounded, but with small teeth; insect generally apterous. Tooth of mentum broad, moderately deeply emarginate; anterior male tarsi slightly dilated. Species small. [Argutor, Meg.]

**A A.** Under-side of thorax punctured at sides.

Pitch-black; antennae, palpi and legs brown-red. Thorax as long as broad, posterior angles acute; striae on elytra near suture deep and strongly punctured, the outer ones fine and almost smooth. L. 3 l. Common.

*P. strenuus*, Panz.

**B B.** Under-side of thorax not punctured.

Black, shining; antennae, palpi and legs pitch-brown, first joint of the former often reddish. Thorax as long as broad, posterior angles acute; inner striae on elytra finely punctured, outer ones almost as deep as inner. L.  $2\frac{3}{4}$  l. Common.

*P. diligens*, Sturm.

**II.** Episterna of metathorax not much broader than long.

Thorax tolerably flat, the sides somewhat sinuate behind, with sharp posterior angles and a deep longitudinal impression on each side; elytra sinuate and bluntly pointed at apex, with a row of impressions in the third interstice; tooth of mentum deeply emarginate.

**1.** Upper-side bronze-black; thorax as long as broad; antennae slender.

Under-side black; palpi, tibiae and tarsi reddish-pitch-brown. Third interstice of elytra with five (rarely four or six) impressions. L. 5 l. Rather common.

*P. oblongopunctatus*, Fab.

**2.** Upper-side deep-black; thorax broader than long; antennae thick.

Under-side black. Third interstice of elytra with five or six impressions. L. 5 l. Not uncommon. *P. vitreus*, Dej.

**III.** Episterna of metathorax not longer than broad.

**1.** Posterior angles of thorax and generally also shoulders of elytra rounded.

Apical joint of palpi cylindrical, truncate. Scutellum very short; insect apterous. [Steropus, Meg.]

**A A.** Third interstice of elytra with one impression.

Black. Thorax broader than long, rounded, base with a deep round depression on each side, containing two feeble longitudinal striae; elytra long ovate, rather convex. Femora either black or red. In the male the last ventral segment of the abdomen has at the apex a large depression, and in the middle a short transverse ridge. L. 7—8 l. Common. *P. madidus*, Fab.

**B B.** Third interstice of elytra with three impressions.

Black. Thorax much broader than long, rounded, basal depressions moderately deep, without longitudinal striae; elytra ovate, rather convex. In the male the penultimate ventral segment of the abdomen has a large tooth at apex, the last segment has a shallower depression. L. 5½ l. Not uncommon. *P. aethiops*, Panz.

**2.** Posterior angles of thorax and generally also shoulders of elytra sharp.

Tooth of mentum distinctly emarginate, with sharp points; insect apterous; posterior tarsi in general only indistinctly furrowed on outer-side; anterior tarsi of male strongly dilated; basal border of elytra not forming a tooth at shoulder; third interstice with two or more impressions, impressions also frequently in the fifth and seventh interstices, short stria often indistinct and usually placed near scutellum. [*Pterostichus*, Bon.]

Black. Thorax broader than long, heart-shaped, posterior angles right angles, base with a deep, smooth, longitudinal impression, and a short, less distinct one (often effaced) on each side; elytra oblong-ovate, rather flat, with deep, smooth striae, third interstice with three impressions. L. 6—8 l. Not very common.

*P. parumpunctatus*, Germ.

**B.** Margin of elytra with two striae (at least behind) outward from the eighth stria; episterna of metathorax short; prosternal process not bordered.

Tarsi bare and smooth above; first joint of posterior tarsi furrowed; third joint of antennae bare; thorax as

broad at base as elytra; latter without dorsal impressions, the seventh interstice generally raised; insects apterous; tooth of mentum slightly emarginate, with blunt points; anterior male tarsi strongly dilated. [*Abax*, Bon.]

Deep-black. Oblong; head large; thorax almost square, being only narrowed quite in front, base with two deep longitudinal impressions (almost equal in length) on each side, side border thick; elytra tolerably parallel-sided until beyond middle, apex rounded, with rather deep striae. L.  $7\frac{1}{2}$ — $9\frac{1}{2}$  l. Common. *P. striola*, Fab.

### *Amara.*

**A.** Thorax more narrowed behind than in front, more or less heart-shaped, dilated before middle.

**a.** Posterior tibiae of male densely covered with hair on inner-side.

**I.** Upper-side reddish-yellow, with a slight bluish reflection on the elytra.

Thorax double as broad as long, posterior angles somewhat acute, each side of base more or less closely punctured, with two shallow longitudinal impressions; elytra short ovate, with deep punctured striae. Anal segment of male with one, of the female with two impressions on each side. L. 4— $4\frac{1}{2}$  l. Rather common. *A. fulva*, De G.

**II.** Upper-side pitch-brown or pitch-black.

**1.** Sides of thorax moderately rounded.

Under-side red-brown; antennae and legs red. Base of thorax strongly and closely punctured, with two tolerably deep impressions on each side, posterior angles right angles; elytra oblong ovate, with deep striae, punctured at base, impunctate at apex. Anal segment of male with one, of female with two impressions on each side. L.  $2\frac{3}{4}$ — $3\frac{1}{2}$  l. Common. *A. apricaria*, Payk.

**2.** Sides of thorax very slightly rounded.

Under-side pitch-brown or reddish; antennae and legs red. Thorax broad, not much narrowed behind, each side of base punctured, with two short, tolerably deep impressions, posterior angles almost right angles; elytra short ovate, with deep punctured striae. L. 4 l. Not uncommon. *A. consularis*, Duft.

**b.** Posterior tibiae bare on the inner-side in both sexes.

Intermediate tibiae of male two-toothed on inner-side, and usually with one or more little prominences ; prosteral process bordered.

**I.** Antennae (except first joint) and tarsi pitchy ; length  $4\frac{1}{2}$  lines.

Parallel-sided. Pitchy ; first joint of antennae, femora, and tibiae red-brown. Head with two deep impressions between base of antennae : thorax short and broad, with a divided, deep, closely punctured depression on each side of base ; elytra with punctured striae. Similar to *A. apricaria*, but more elongate and with punctured space on thorax smaller, the punctures deeper. Two specimens taken on Grayvel, Perthshire, of a variety having the elytra dull reddish, with the suture broadly but obscurely darker.

*A. alpina*, Payk.

**II.** Antennae and legs reddish ; length 5—6 lines.

**1.** Anterior margin of thorax closely punctured.

Ovate. Upper-side black or pitch-black, shiny ; under-side pitch-brown ; antennae and legs red-brown. Head with two distinct impressions ; thorax closely punctured at apex and base, with two shallow impressions in the acute posterior angles ; elytra with punctured striae. Rather common.

*A. spinipes*, Lin.

**2.** Anterior margin of thorax impunctate.

Elongate, somewhat parallel-sided. Pitch-brown, with metallic reflection above ; antennae, legs, and under-side reddish. Head with two feeble impressions ; thorax rounded at sides, base punctured, with two very shallow impressions (outer one more distinct) on each side ; elytra oblong, with strong punctured striae. Rather common.

*A. convexiuscula*, Marsh.

**B.** Thorax more narrowed in front than behind, the base dilated or as broad as the apex.

**a.** Posterior tibiae of male bare on inner-side or only thinly fringed with hairs.

**I.** Dilated male tarsal joints broad heart-shaped.

Pitch-black above ; mouth, antennae, and legs red, brown-red beneath. Thorax much broader than long, side border

raised, base punctured with two impressions on each side; elytra broad ovate, with strong punctured striae. Intermediate tibiae of male slightly curved; anal segment of male with one, of female with two, impressions on each side. L. 4—5 l. Rare. *A. patricia*, Duft.

**II.** Dilated male tarsal joints oblong heart-shaped.

**1.** Anterior angles of thorax rounded.

**A A.** Head thick; eyes flat.

Oblong. Brownish-bronze; the short-jointed antennae, the palpi and legs red-brown or pitch-brown. Thorax transverse, each side of base with two deep depressions, surrounded by punctures; elytra somewhat convex, with punctured striae. In male the prosternum punctured, and a few hairs on the slightly curved hinder tibiae. L. 4 l. Scarce. *A. ingenua*, Duft.

**B B.** Head small; eyes prominent.

**a a.** Length  $3\frac{1}{2}$ —4 lines.

Brownish above, pitchy beneath, antennae, palpi, and legs brownish-red. Thorax half as broad again as long, somewhat contracted in front, each side of base punctured, with two depressions, the outer one oblique and rather shallow, posterior angles almost right angles, but not sharp; elytra not very convex, with finely punctured striae. Each side of anal segment in both sexes with two impressions, standing close together in male, apart in female. In male the middle of the prosternum punctured, and a few hairs on the slightly curved hinder tibiae. Scarce. *A. fusca*, Dej.

**b b.** Length not exceeding 3 lines.

**A a.** Joints of antennae short; body strongly convex.

Blackish-bronze above, brown-black beneath, antennae and legs reddish. Thorax transverse, each side of base with two roundish, punctured impressions, posterior angles almost right angles; elytra with distinct punctured striae, short scutellary stria rudimentary. Each side of the anal segment of male with one (rarely two) impressions, female with two; hinder pair of male tibiae straight, without any hairs on inner-side, middle of its prosternum punctured. L.  $2\frac{1}{4}$  l. Scarce. *A. infima*, Duft.

**B b.** Joints of antennae long; body moderately convex.

Oblong ovate. Bronze-brown, shining; antennae, palpi, and legs reddish-yellow. Thorax much broader than long, not much contracted in front, each side of base closely and strongly punctured, with two narrow and deep impressions; elytra with tolerably deep punctured striae. Each side of the anal segment with one impression in male and two in female; both sexes have the prosternum impunctate, intermediate tibiae straight, and posterior tibiae hairless. L.  $2\frac{1}{2}$ —3 l. Rather common. *A. bifrons*, Gyll.

**2.** Anterior angles of thorax prominent.

**A A.** Upper-side deep pitch-brown, with metallic lustre; thorax somewhat contracted in front, sides tolerably rounded.

Ovate. Under-side blackish; antennae, palpi, and legs red; sides of thorax reddish. Base of thorax punctured, with two impressions on each side; elytra with punctured striae, scutellary stria rather short and almost always free behind. Each side of anal segment with one impression in male and two in female; both sexes have the prosternum impunctate, intermediate tibiae straight, and posterior tibiae hairless. L.  $2\frac{1}{2}$ —3 l. Not common.

*A. rufo-cincta*, Sahl.

**B B.** Upper-side dark bronze; thorax not much contracted in front, sides only slightly rounded.

Under-side blackish; antennae and legs reddish, former long-jointed. Thorax much broader than long, base punctured on each side, with two tolerably deep impressions, side margin reddish; elytra oblong ovate, with fine, indistinctly punctured striae. Each side of the anal segment with two impressions, standing close together in male, farther apart in female; in the male the prosternum finely, sometimes indistinctly punctured in middle, intermediate tibiae slightly curved, posterior tibiae hairless. L.  $2\frac{1}{2}$ — $3\frac{1}{2}$  l. Rare; Braemar. *A. Quenseli*, Schönh.

**b.** Posterior tibiae of male thickly covered with hair on inner-side.

**I.** Apical spine of anterior tibiae simple.

**1.** Curved intermediate tibiae of male hairless.

Anal segment of male with one impression on each side.

**A A.** Basal impressions on thorax deep.

Convex, oblong ovate. Bronze; first three joints of antennae red; legs brownish. Base of thorax impunctate, with two deep impressions on each side; elytra with fine punctured striae, evenly deep throughout, short scutellary stria absent or only represented by a few punctures. Anal segment of female with two impressions on each side. L. 2 l. Common. *A. tibialis*, Payk.

**B B.** Basal impressions on thorax more or less feeble.**a a.** Legs entirely red.**A a.** Anterior angles of thorax obtuse and not prominent.

Greenish-bronze above, blackish<sup>7</sup> beneath; first three joints of antennae red. Outer impression on each side of base of thorax almost entirely effaced; elytra with tolerably deep, fine punctured striae, which are deeper behind. Anal segment of female with two impressions on each side. L. 2½ l. Rather common. *G. lucida*, Duft.

**B b.** Anterior angles of thorax acute and prominent.

Coloured like *A. lucida*, but rather less green above. Eyes less prominent; base of thorax with two shallow but distinct impressions on each side; striae on elytra deeper behind than in front. Anal segment of female with two impressions on each side. L. 2½—3 l. Common.

*A. familiaris*, Duft.

**b b.** Legs wholly or partly black.**A a.** Striae on elytra not deeper behind.**A 1.** Length 4½—5 lines.

Broad ovate, tolerably flat. Bronze; first three joints of antennae red; legs entirely black. Anterior angles of thorax rather blunt, posterior angles tolerably acute, base impunctate, with a short and deep impression on each side, the outer impression nearly or quite effaced; elytra somewhat pointed behind, with fine but sharp striae. Anal segment of female with two impressions on each side. Rather common. *A. acuminata*, Payk.



**B 1.** Length under 4 lines.

**a 1.** First three joints of antennae red ;  
posterior angles of thorax right angles.

Bronze ; femora black, tibiae rust-red, tarsi brown. Anterior angles of thorax prominent, base with a short and deep impression on each side, the outer impression effaced ; elytra with fine, feebly-punctured striae. Anal segment of female with two impressions on each side. L. 3 l. Common.  
*A. trivialis*, Gyll.

**b 1.** First two joints of antennae red ;  
posterior angles of thorax acute.

Bronze ; femora and tarsi black, tibiae rust-red. Broader than *A. trivialis*, thorax less contracted in front, its base punctured on each side, with two impressions, the outer one being distinct ; elytra with finely-punctured striae. Anal segment of female with one impression on each side. L. 3½ l. Rather common.  
*A. spreta*, Dej.

**B b.** Striae on elytra deeper behind.

**A 1.** First two joints of antennae wholly  
or partly red.

**a 1.** Tibiae reddish.

Dark bronze ; femora black, tibiae reddish, tarsi brown. Anterior angles of thorax moderately prominent, each side of base with two feeble impressions ; elytra with fine, feebly punctured striae. Anal segment of the female with two impressions on each side. L. 3 l. Rather common.

*A. curta*, Dej.

**b 1.** Tibiae black.

Dark bronze ; under-side and legs entirely black. Anterior angles of thorax prominent, base impunctate, with two short impressions on each side ; elytra with fine striae, indistinctly punctured in front. Anal segment of female with one impression on each side. L. 3½ l. Rather common.  
*A. lunicollis*, Schiöd.

**B 1.** First three joints of antennae red.

Bronze ; femora black, tibiae reddish, tarsi brown. Anterior angles of thorax prominent, posterior angles acute. Each side of base punctured, with two indistinct impressions ; striae of elytra feebly punctured in front. Anal

segment of female with one impression on each side.  
L. 3 l. Common. *A. communis*, Panz.

2. Intermediate tibiae of male fringed with hairs on inner-side.

Anal segment with two impressions on each side in both sexes.

**A A.** Legs entirely black.

Dark bronze; first three joints of antennae red. Anterior angles of thorax rather prominent, posterior angles acute, base not punctured, the inner impression on each side small, the outer one almost entirely effaced; elytra with simple striae, which are deeper behind. L.  $4\frac{1}{2}$  l. Common. *A. ovata*, Fab.

**B B.** Tibiae and tarsi reddish.

Rather narrower than *A. ovata*. Greenish-bronze above; bronze-black beneath; femora black; first three joints of the antennae red. Anterior angles of thorax prominent, posterior angles right angles, base feebly punctured, with two small, shallow impressions on each side; elytra with simple striae, which are deeper behind. L. 4 l. Common. *A. similata*, Gyll.

**II.** Apical spine of anterior tibiae three-pointed.

Body more or less elongate; intermediate tibiae straight in both sexes; each side of the anal segment with one impression in male and two in female.

1. Base of thorax not punctured, with one impression on each side; posterior angles acute.

Shining bronze above; first three joints of antennae red; bronze-black beneath; femora black, tibiae rust-red. Thorax slightly emarginate in front, anterior angles somewhat prominent; elytra with distinctly punctured striae. L. 4 l. Not uncommon. *A. strenua*, Zimm.

2. Base of thorax finely and closely punctured, with two feeble but distinct impressions on each side; posterior angles right angles.

Shining bronze above; first three joints of antennae and tibiae red, under-side blackish-bronze. Thorax emarginate in front, anterior angles prominent; elytra with impunctate or very indistinctly punctured striae. L. 3 l. Common.

*A. plebeia*, Gyll.

*Zabrus.*

Winged. Black above, pitch-brown beneath. Body nearly cylindrical. Thorax broader than long, not much narrowed in front, arched transversely, as wide at the base as elytra, which have deep punctured striae and teeth at shoulders. L. 6—7 l. Rather common.

*Z. gibbus*, Fab.

**HARPALIDEA.**

**A.** The sole of the dilated male tarsal joints covered with a thick brush of long hairs.

**a.** Anterior tibiae with a double apical spine (inner one inconspicuous).

Mentum with a simple short, blunt tooth; ligula somewhat dilated and emarginate in front, paraglossae equal in length to ligula; apical joint of palpi slightly oval, truncate at apex. Body closely punctured, pubescent; winged.

*Diachromus*, Er.

**b.** Anterior tibiae with one apical spine.

**I.** First joint of male anterior tarsi as broad as the others; intermediate tarsi not dilated; tooth of mentum distinct.

Ligula dilated and almost straight in front, paraglossae scarcely longer than ligula; apical joint of palpi spindle-shaped, apex truncate; thorax short, more or less heart-shaped, with a strong central furrow; elytra moderately convex, without any short scutellary stria. Body hairy and punctured.

*Dichirotrichus*, Duv.

**II.** Both the front pairs of male tarsi dilated, first joint narrower than the following two joints; tooth of mentum absent or feeble.

Ligula somewhat dilated and straight in front, paraglossae about equal in length to ligula; apical joint of palpi spindle-shaped, apex somewhat truncate; abbreviated scutellary stria on elytra very long. Body bare.

*Anisodactylus*, Dej.

**B.** The sole of the dilated male tarsal joints with fleshy prominences, generally placed in two rows.

- a.** Legs robust; anterior tibiae dilated at apex; intermediate tarsi of male dilated.

Emargination of mentum with a longer or shorter tooth; ligula more or less dilated and straight in front, paraglossae as long as, or rather longer than, ligula; apical joint of palpi slightly oval, truncate at apex; thorax broader than long; elytra with impunctate striae. *Harpalus*, Latr.

- b.** Legs slender; anterior tibiae scarcely dilated at apex.

- I.** Emargination of mentum without a tooth; intermediate tarsi of male nearly always dilated.

Ligula straight or slightly prominent in front; paraglossae rather longer than ligula; apical joint of palpi rather pointed; thorax broader than long; elytra with impunctate striae. *Stenolophus*, Er.

- II.** Emargination of mentum with a tooth; intermediate tarsi of male not dilated.

Ligula generally rather prominent in middle of the front; apical joint of palpi spindle-shaped, pointed.

*Bradycellus*, Er.

### *Diachromus.*

Head red-yellow; thorax bluish or greenish; scutellum black; elytra yellow, with a common blackish-blue heart-shaped spot on the hinder part; under-side of thorax and abdomen black; legs yellow. Thorax short heart-shaped, with a longitudinal impression on each side of base; upper-side closely punctured and pubescent. L. 4 l. Rare.

*D. germanus*, Lin.

### *Dichirotrichus.*

- A.** Upper-side closely and finely punctured; striae on elytra impunctate.

Brownish-yellow, with an oblong dark spot on each elytron; pubescent. L. 3½ l. Rather common.

*D. obsoletus*, Dej.

- B.** Upper-side strongly and somewhat scantily punctured; striae on elytra punctured.

Yellow-brown; with a dark spot on head, another on

thorax, and a larger or smaller oblong one on hinder half of each elytron; sometimes entirely pitch-brown or pale brown; pubescent. L.  $2\frac{1}{2}$ —3 l. Common.

*D. pubescens*, Payk.

### *Anisodactylus.*

**A.** Apical spine of anterior tibiae dilated in middle of each side into an obtuse angle.

Black; base of antennae and apex of palpi red; legs either black or red. Head with two red spots (sometimes confluent); posterior angles of thorax pointed. L. 5 l. Rather common.

*A. binotatus*, Fab.

**B.** Apical spine of anterior tibiae three-pointed.

Bronze or green above; blackish beneath; first joint of antennae and apex of palpi red; legs black or reddish; head generally with a small red spot. Posterior angles of thorax rounded. L.  $5\frac{1}{2}$  l. Rather common.

*A. poeciloides*, Steph.

### *Harpalus.*

**A.** Head, thorax, and interstices of elytra punctured and hairy.

**a.** Elytra blue or green.

**I.** Posterior angles of thorax very obtuse, but pointed.

Head and thorax pitch-black, under-side red-brown, mouth, antennae, and legs red. Thorax narrowed behind, strongly punctured; elytra scarcely at all sinuate before apex, interstices very closely punctured, more strongly and scantily toward the base. L.  $5\frac{1}{2}$ — $6\frac{1}{2}$  l. Not uncommon.

*H. sabulicola*, Panz.

**II.** Posterior angles of thorax completely rounded.

**1.** Sides of thorax only moderately rounded.

Black green above; red-brown beneath; antennae and legs red or brown. Thorax scarcely narrower behind than in front, moderately strongly punctured; elytra distinctly sinuate before apex, interstices evenly, closely, and finely punctured. L. 5—6 l. Scarce.

*H. obscurus*, Fab.

**2.** Sides of thorax strongly rounded.

Head and thorax pitchy; under-side red-brown; mouth, antennae, and legs red. Thorax scarcely narrower behind than in front, finely punctured; elytra slightly sinuate before apex, interstices very finely and closely punctured, more closely behind than at the base. L.  $4\frac{1}{2}$ — $5\frac{1}{2}$  l. Common.  
*H. rotundicollis*, Fairm.

**III.** Posterior angles of thorax sharp right angles.

Dark-green above; pitch-brown beneath; mouth, antennae, and legs red. Head finely and very scantily punctured; thorax not much contracted behind, more strongly punctured than head; elytra with very closely and finely punctured interstices. L. 4 l. Not uncommon.

*H. punctatulus*, Duft.

**IV.** Posterior angles of thorax only slightly obtuse, but rounded at apex.

Bright-green or blue above; pitch-brown beneath; mouth, antennae, and legs red. Head tolerably strongly punctured; thorax slightly contracted behind, coarsely punctured; interstices of elytra closely and moderately strongly punctured. L. 3— $3\frac{1}{2}$  l. Rather common.

*H. azureus*, Fab.

In the variety *similis*, Dej., the elytra are more strongly punctured.

**b.** Elytra black or brown.**I.** Thorax heart-shaped, tolerably convex.

Reddish or dark-brown above, elytra with a broad reddish band along the suture; under-side red-brown; antennae brown-red; legs yellow-red. Elongate. Thorax rounded at the sides in front, suddenly narrowed behind, posterior angles right angles, strongly punctured; interstices of elytra closely and finely punctured. L. 4 l. Not common.

*H. cordatus*, Duft.

**II.** Thorax slightly heart-shaped, flattish.**1.** Sides of thorax tolerably strongly rounded in front.**A A.** Thorax not much broader than long.

**a a.** Posterior angles of thorax slightly obtuse, elytra somewhat elongate.

Head, thorax, antennae and under-side brown-red; elytra dark brown; legs red-yellow. Head tolerably closely and moderately strongly punctured; thorax rounded at the sides in front, contracted behind more strongly but not so soon as in *H. puncticollis*, rather closely and strongly punctured; interstices of elytra punctured more strongly and not quite so closely as in *H. puncticollis*. L. 4 l. Not common.  
*H. rupicola*, Sturm.

**b b.** Posterior angles of thorax right angles; elytra oblong-ovate.

Brown-black above, head and thorax sometimes reddish; under-side and antennae brown-red; legs yellow-red. Head rather strongly but not very closely punctured; thorax somewhat rounded at the sides in front, moderately contracted behind, strongly but not closely punctured; interstices of elytra very closely and finely punctured. L. 3—3½ l. Common.  
*H. puncticollis*, Payk.

**B B.** Thorax nearly twice as broad as long.

Blackish above, head and thorax sometimes lighter; pitch-brown beneath; antennae and legs yellowish-red. Head scantily and tolerably finely punctured; thorax strongly rounded at the sides in front, contracted behind, posterior angles right angles, punctuation rather fine; interstices of elytra finely and not quite so closely punctured as in *H. puncticollis*. L. 3½ l. Common.

*H. rufibarbis*, Fab. (*rufilabris*, Sharp's Cat.)

**2.** Sides of thorax only slightly rounded in front.

Brown-black above, head and thorax often reddish; red-brown beneath; mouth, antennae and legs yellowish-red. Head and thorax coarsely punctured; interstices of elytra very closely and finely punctured, with a row of larger impressions in the third, fifth, and seventh. L. 2½—3 l. Rare.  
*H. parallelus*, Dej.

**B.** Head impunctate; thorax not punctured except at margins or at base; interstices of elytra punctured and hairy.

Pitch-black, antennae and legs red. Thorax punctured at base very closely, the other margins indistinctly, posterior angles sharp right angles; elytra thickly covered with golden-yellow hairs. L. 6—7 l. Common.

*H. ruficornis*, Fab.

The variety *griseus*, Panz. is smaller, and has the thorax punctured only at base, with the posterior angles not so sharp.

**C.** Body not hairy. Head impunctate, thorax not punctured except sometimes at base; elytra not punctured save occasionally on the outer interstices.

*a.* Length exceeding 3 lines.

**I.** Thorax broader at anterior margin than at posterior margin.

**1.** Outer interstices of elytra not punctured.

**A A.** Antennae red, the second, third, and often also the fourth joints blackish at base; tibiae pitchy.

Colour variable, bronze, green, or blackish. Base of thorax with a deep punctured longitudinal impression on each side, otherwise impunctate, posterior angles almost right angles; elytra very slightly sinuate behind, the seventh interstice generally with a few impressions at apex. L. 4 l. Rather common. *H. ignavus*, Duft.

**B B.** Antennae entirely red; tibiae red.

*a a.* Base of thorax with a strong oblong impression on each side.

Bluish-black above; brown-black beneath. Thorax more narrowed behind than in *H. ignavus*, posterior angles more obtuse; elytra more sinuate before apex, the seventh interstice always without impressions. L.  $3\frac{3}{4}$  l. Rare.

*H. sulphuripes*, Germ.

*b b.* Base of thorax with a broad depression on each side.

Pitchy-black above. Body narrower than *H. ignavus*, thorax more narrowed behind, posterior angles right angles; elytra less sinuate behind, the seventh interstice without impressions. L.  $3\frac{1}{2}$ —4 l. Rather common.

*H. consentaneus*, Dej.

**2.** Outer interstices of elytra finely punctured.

Colour variable, green, bronze, or blackish; antennae and legs red; under-side black. Thorax not much narrowed behind, posterior angles not pointed, rather obtuse, base punctured, except in middle, with a feeble longitudinal impression on each side; elytra strongly sinuate behind. L. 5 l. Common. *H. proteus*, Payk.



**II.** Thorax about as broad at posterior as at anterior margin.

**1.** Abbreviated scutellary stria on elytra elongate; legs pitch-black.

Broad. Usually bronze-green; antennae rust-red, with the first joint brighter. Base of thorax punctured at each side with a wide shallow depression; elytra with deep striae, interstices convex. L. 6 l. Very rare.

*H. cupreus*, Steph.

**2.** Scutellary stria not elongate; legs more or less reddish.

**A A.** Posterior angles of thorax right angles.

**a a.** Elytra with tolerably fine striae.

Brown-black, elytra of male usually shining dark bronze-green; margin of thorax and elytra red; antennae, palpi and legs red. Thorax with sharp posterior angles, the whole base finely and closely punctured, with very shallow impressions, sides flattened, especially behind; elytra very slightly sinuate behind, interstices even. L. 5—6 l. Very rare.

*H. discoideus*, Fab.

**b b.** Elytra with strong striae.

**A a.** Seventh interstice on elytra with a few impressions at apex.

Rather broader and more convex than *H. discoideus*. Male blue or greenish above, female dull-black; antennae, palpi and legs red. Posterior angles of thorax not sharp, base closely punctured, basal impressions shallow, the extreme side-margins often red; elytra somewhat sinuate behind. L.  $4\frac{1}{2}$ —5 l. Common.

*H. rubripes*, Duft.

**B b.** Seventh interstice on elytra without impressions.

**A 1.** Whole base of thorax closely punctured, posterior angles right angles, but blunted at the apex; length 4 lines.

**a 1.** Extreme side-margin of thorax red.

Black; antennae, palpi and legs brownish-red. Common.

*H. latus*, Lin.

**b 1.** Thorax unicolorous.

Very similar to *H. latus*, but rather longer and more

parallel-sided; thorax comparatively shorter, with basal depressions much deeper and base more obsoletely punctured; striae on elytra rather deeper, third interstice with (generally) two or three impressions. Braemar.

*H. quadripunctatus*, Dej.

**B 1.** Base of thorax punctured feebly or not at all in middle, posterior angles sharp; length 3—3½ lines.

Black, antennae and legs light yellow-brown; extreme side margin of thorax red. Rare, North Devon.

*H. luteicornis*, Duft.

**B B.** Posterior angles of thorax obtuse or rounded.

**a a.** Sides of thorax strongly rounded; antennae brownish, first joint rust-red, second, third and fourth blackish at base.

Black; femora and tibiae brown-black, tarsi reddish. Base of thorax with a deep punctured longitudinal impression on each side, otherwise impunctate; elytra distinctly sinuate behind. L. 3½ l. Rather common.

*H. neglectus*, Dej.

**b b.** Sides of thorax not much rounded; antennae red-yellow, the middle joints blackish at base.

Black, with a bluish reflection; femora and tibiae pitch-brown, tarsi red-yellow. Base of thorax punctured, indistinctly in middle; elytra strongly sinuate behind, apex slightly produced. L. 4—5 l. Rare. *H. tenebrosus*, Dej.

**III.** Anterior margin of thorax narrower than posterior margin.

**1.** Length exceeding 4 lines.

**A A.** Posterior angles of thorax sharp right angles; apex of elytra slightly produced.

Rather flat. Black; palpi red, with the base of each joint blackish; antennae yellow-red, with the second, third and fourth joints generally blackish at the base; legs pitch-brown, tarsi reddish. Thorax as broad behind as in middle, the shallow basal impressions and their neighbourhood very finely punctured; eighth interstice on elytra with some impressions at apex. L. 4½ l. Not common.

*H. melancholicus*, Dej.

**B B.** Posterior angles of thorax right angles, but rounded at apex; apex of elytra not produced.

**a a.** Fifth and seventh interstices on elytra without impressions at apex.

**A a.** Antennae entirely yellow-red.

Black; palpi yellow-red, base of tibiae and the tarsi rust-red. Thorax scarcely narrower behind than in middle, basal impressions tolerably deep, base otherwise impunctate; elytra scarcely broader than thorax. L.  $4\frac{1}{2}$  l. Common.  
*H. tardus*, Panz.

**B b.** First joint of antennae red, next three joints black at the base, the rest brown-red.

Rather larger and more convex than *H. tardus*. Black; palpi reddish, with each joint black at base; legs pitch-black, tarsi generally lighter. Thorax gradually narrowed in front, basal impressions short and wrinkled, central furrow ceasing at some distance from the margins; elytra somewhat dilated behind. L. 5 l. Common.

*H. serripes*, Schönh.

**b b.** Fifth and seventh interstices on elytra with some impressions at apex.

Black; thorax often bluish-green; antennae brown, their first joint red; palpi brown, with the apex of each joint reddish. Sides of thorax rounded and narrowed from middle forward, base punctured throughout, basal impressions feeble. L. 5—6 l. Rather common.

*H. caspius*, Stev.

**2.** Length not exceeding 4 lines.

**A A.** Antennae reddish; thorax much narrowed in front, base emarginate.

Ovate, tolerably flat. Brown-black; elytra and margins of thorax often brown-red; antennae and palpi reddish; base of tibiae and the tarsi red-brown. Thorax widest at base, sides gently rounded, basal impressions narrow but rather sharp. L.  $3\frac{1}{2}$ —4 l. Rare. *H. servus*, Duft

**B B.** Antennae brown, with red-yellow base; thorax moderately narrowed in front, base straight or nearly so.

Long ovate. Black; palpi rust-red; base of each joint usually darker; base of tibiae and apex of tarsi brown. Sides of thorax gently rounded in front only, base with a deep, oblong impression on each side, otherwise smooth. L. 3—3 $\frac{3}{4}$  l. Common. *H. anxius*, Duft.

**b.** Length not exceeding 3 lines.

Pitchy-black; antennae and palpi pale brownish-yellow; legs pitchy-red, femora generally darker. Thorax short, not narrower in front than behind, gently rounded at sides, angles rounded, basal impressions shallow, base otherwise smooth; elytra rather short, dilated at sides. L. 2—3 l. Not uncommon. *H. picipennis*, Duft.

### *Stenolophus.*

**A.** Fourth joint of male anterior tarsi deeply excised, bilobed. [*Stenolophus*, Dej.]

**a.** Length exceeding 2 lines.

**I.** Thorax red-yellow.

**1.** Elytra red-yellow, with a sharply defined bluish-black common spot from before middle to apex.

Head black; antennae brownish, first two joints yellow; palpi yellow, base of last joint dark; under-side (except of thorax) black; legs yellow. L. 3 l. Rather common.

*S. teutonius*, Schr.

**2.** Elytra red-yellow in front, passing gradually into a bluish-brown shade behind.

Head black; palpi and first two joints of antennae yellow-red, rest of latter brownish; under-side black; legs yellow. L. 2 $\frac{1}{2}$ —3 l. Rather common.

*S. skrimshiranus*, Steph.

**II.** Thorax black, with a red-yellow side-border.

Narrower than *S. teutonius*. Head black; antennae brown-black, with reddish-yellow basal joints; palpi yellow, base of last joint blackish; elytra brownish-yellow in front and at the sides, the inner part covered with a more or less extensive imperfectly defined bluish-black spot; under-side black; legs yellow. L. 2 $\frac{1}{2}$  l. Common.

*S. vespertinus*, Pauz.

**b.** Length not exceeding 2 lines.

Head black; first two joints of antennae red, the rest brown-black; palpi yellow, last joint brown-black, with lighter apex; thorax red, scarcely narrower behind than in front, sides gently rounded; elytra yellow-red, with a large, nearly circular bluish-black spot, divided by the suture, rarely reaching the side-margin or apex; under-side (except thorax) black; legs red-yellow. L.  $1\frac{3}{4}$ —2 l. Not common.

*S. elegans*, Dej.

**B.** Fourth joint of male anterior tarsi moderately emarginate, heart-shaped. [Acupalpus, Latr.]

**a.** Posterior angles of thorax obtuse or rounded.

**I.** Thorax entirely yellow; head black.

Mandibles reddish, apex darker; palpi yellow, base of last joint blackish; first two joints of antennae yellow, the rest brown-black; elytra brownish, darker toward the apex, lighter at the margin and suture; episterna of prothorax yellowish-red, rest of under-side black; legs red-yellow. Thorax scarcely narrowed behind. L.  $1\frac{1}{2}$  l. Not common.

*S. flavicollis*, Sturm.

**II.** Thorax yellow, with a brown-black spot (more or less extensive) in middle; head black.

Mandibles, palpi, and antennae coloured as in *S. flavicollis*; elytra brownish-yellow, with a more or less extensive black spot behind, which always leaves the suture and outer margin free, and usually also the base and apex; under-side black; legs yellow. Thorax a little narrowed behind, rather shorter than in *S. flavicollis*, the posterior angles more rounded. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Not uncommon.

*S. Gyllenhalii*, Th.

**III.** Thorax entirely black or brown, at most the extreme margins paler.

**1.** Elytra unicolorous.

**AA.** Thorax much broader than long, only a little narrowed behind, posterior angles completely rounded.

**aa.** First joint of antennae, and the legs brownish-yellow.

Similar to *S. Gyllenhalii*, but entirely brown-black, except the antennae and legs as above; usually also the reflexed

margin of the elytra brownish-yellow. Thorax broader in proportion to elytra, less narrowed behind, posterior angles more rounded, basal depressions more punctured; elytra with finer striae, and no impression beside the second stria behind. L.  $1\frac{2}{3}$  l. Scarce. *S. brunniipes*, Sturm.

**b b.** First two joints of antennae and the legs yellow.

Pitch-black; thorax reddish-pitchy, with its margins pale, broad, very slightly narrowed behind, very moderately convex, base depressed, basal depressions impunctate; elytra wide. L.  $1\frac{2}{3}$  l. Scarce. *S. derelictus*, Daws.

**B B.** Thorax rather broader than long, distinctly narrowed behind, posterior angles apparent, although very obtuse.

Entirely pitch-black, except the antennae, of which the first joint is, like the legs, dull yellow, and the rest brown. Basal impressions of thorax large but shallow, with scattered punctures. L.  $1\frac{1}{4}$  l. Not uncommon.

*S. exiguus*, Dej.

The variety *luridus*, Dej., is brownish-yellow; thorax reddish, often brownish in middle; suture and outer margin of elytra lighter yellow; antennae brownish, with yellow base; legs yellow.

**2.** Elytra black, the base and suture yellow-brown.

Head and thorax black, palpi and antennae coloured as in *S. Gyllenhali*; legs yellow. Thorax narrowed behind; posterior angles obtuse, base strongly punctured, especially in the deep impressions; elytra almost parallel-sided, with deep striae. L.  $1\frac{2}{3}$  l. Common. *S. meridianus*, Lin.

**b.** Posterior angles of thorax sharp right angles, the sides being sinuate behind.

Head blackish; mouth, palpi, first two joints of the long antennae, and legs yellow; thorax red, often brown in the middle, rather broader than long, narrowed behind, basal depressions large, deep, and almost smooth, side margins raised; elytra elongate, yellow, with a large, common, oval black spot, divided by the suture, striae deep; under-side black, apex of abdomen reddish. L. 2 l. Rather common.

*S. consputus*, Duft.

*Bradycellus.***A.** Short scutellary stria on elytra wanting.

Head black or brown; antennae brown-red, base yellow; palpi yellow, base of last joint black; thorax dark red-yellow, generally blackish in middle, basal impressions large and deep; elytra yellow-brown, with an undefined blackish spot on each near the suture; under-side brown-black, apex of abdomen yellowish; legs yellow. L. 2 l. Rather common. *B. placidus*, Gyll.

**B.** Short scutellary striae on elytra present.**a.** Body very finely pubescent.

Head black, palpi, and antennae pitchy, apex of former and basal joint of latter red; thorax pitch-black, with the margins lighter; elytra pitch-black, suture, shoulders, and outer margins reddish, striae rather feebler than in *B. placidus*. L. 2 l. Not uncommon. *B. cognatus*, Gyll.

**b.** Body not pubescent.**I.** Upper-side red or brown.**1.** Posterior angles of thorax right angles; upper-side red-brown.

Antennae, palpi, and legs yellowish. Thorax with anterior margin and all the base with rather large and closely placed punctures, contracted behind; third interstice of elytra without an impression. L.  $2\frac{1}{3}$  l. Not uncommon.

*B. distinctus*, Dej.

**2.** Posterior angles of thorax obtuse, but distinct; upper-side rust-red.

Antennae and palpi brownish-yellow; elytra often lighter at the margins. Thorax narrowed behind, base frequently smooth in middle; elytra convex. L.  $2\frac{1}{4}$  l. Rather common.

*B. verbasci*, Duft.

**3.** Posterior angles of thorax rounded.**A A.** Upper-side red-brown; elytra  $1\frac{1}{2}$  times as long as their united breadth; length of body  $1\frac{3}{4}$ — $2\frac{1}{4}$  lines.

Antennae, palpi, and legs brownish-yellow. Thorax not much narrowed behind, basal impressions deep and strongly punctured; elytra with tolerably strong striae. Rather common.

*B. harpalinus*, Dej.

**B B.** Upper-side brown-red, head and thorax generally lighter; elytra shorter than in *B. harpalinus*; length of body  $1\frac{2}{3}$  lines.

Basal impressions of thorax not quite so deep and broad as in *B. harpalinus*, and not so closely punctured; striae on elytra rather stronger, interstices a little more arched. Rare. *B. collaris*, Payk.

## II. Upper-side pitchy.

Suture and outer margin of elytra reddish; antennae and legs rust-red. Basal impressions of thorax very deep and indistinctly punctured, posterior angles very obtuse, almost rounded. L.  $1\frac{1}{2}$  l. Common. *B. similis*, Dej.

## POGONIDEA.

**A.** Head constricted behind; paraglossae free considerably before apex, and much longer than ligula.

Third joint of antennae entirely pubescent, nearly as long as fourth and fifth together; mentum with a strong double tooth; ligula broad, angles rounded; last joint of palpi elongate oval, somewhat truncate at apex; thorax more or less heart-shaped; elytra broader than thorax, long, ovate. First dilated male tarsal joint large and triangular, second smaller and heart-shaped.

*Patrobus*, Dej.

**B.** Head not constricted behind; paraglossae not much, or not at all, longer than ligula.

Third joint of antennae bare at base, rather longer than the succeeding joints; mentum with a strong double tooth; ligula broad, straight in front; last joint of palpi elongate oval, truncate at apex; thorax not much, or not at all, narrowed behind; elytra somewhat flat, the eighth stria, which bears the row of larger impressions, stands at the base close to the side margin and before the middle turns inward and runs to the apex at some distance from the side; tarsi furrowed longitudinally above; first dilated male tarsal joint much larger than the second, almost trapeziform, emarginate at the apex, the second short heart-shaped, produced much more inward than outward.

*Pogonus*, Dej.



*Patrobus.***A.** Insect apterous.

**a.** Head smooth; striae on elytra rather indistinct at sides and apex.

Pitch-brown above, more red beneath; antennae darker, legs lighter red. Thorax rather convex, contracted behind, heart-shaped, posterior angles sharp right angles or somewhat acute, basal depressions deep and strongly punctured; elytra oblong ovate, with closely punctured striae, third interstice with three impressions. On the under-side the prothorax is deeply, the meso- and metathorax distinctly punctured. L.  $3\frac{1}{2}$ —4 l. Common. *P. excavatus*, Payk.

**b.** Forehead finely wrinkled transversely; striae on elytra effaced behind.

Similar to *P. excavatus*, but smaller, the thorax more convex, narrower at base; third interstice on elytra much wider than second. L.  $3\frac{3}{4}$  l. Rather common.

*P. assimilis*, Chaud.

**B.** Insect winged.

Pitch-black, antennae dark brown, legs rust-red, femora darker. Thorax shorter than in *P. excavatus*, less narrowed behind; elytra rather longer and less rounded at sides, striae much finer beneath, the prothorax not quite so strongly punctured, sides of metathorax almost smooth. L.  $3\frac{1}{2}$ —4 l. Not uncommon. *P. septentrionis*, Dej.

*Pogonus.***A.** Head and thorax bright green, elytra yellow.

Under-side bronze-green; antennae light reddish-yellow; legs pale yellow. L. 3— $3\frac{1}{2}$  l. Rather common.

*P. luridipennis*, Germ.

**B.** Upper-side unicolorous.

**a.** Sides of thorax more rounded; elytra elongate, sides nearly parallel.

Bronze-green; antennae brown-black; legs rust-red, femora darker. Thorax narrowed in front and behind, the sides rounded; elytra with punctured striae, which are feebler at sides and apex. L.  $3\frac{1}{4}$  l. Rather common.

*P. littoralis*, Duft.

- b.** Sides of thorax less rounded; elytra oblong ovate, sides slightly rounded.

Bronze or greenish-bronze; antennae brown-black, apex somewhat reddish; legs red, femora darker. Thorax less narrowed in front and behind than in *P. littoralis*; striae on elytra rather feebler; body slightly less convex. L. 3 l. Common. *P. chalcone*, Marsh.

### **TRECHIDEA.**

- A.** Apical joint of the palpi conical, pointed at apex.

- a.** Elytra jointly rounded, covering abdomen, with distinct striae.

Tooth of mentum generally double; eyes large and prominent; first stria on elytra turned round at the apex and running some distance again forward, being here deeply impressed. *Trechus*, Clairv.

- b.** Elytra separately rounded, not completely covering abdomen, without striae.

Tooth of mentum blunt; eyes small and flat; fourth joint of anterior tarsi with a curved spine beneath.

*Aëpus*, Leach.

- B.** Apical joint of palpi very thin, awllike, but nearly as long as the thick penultimate joint.

Tooth of mentum pointed; eyes prominent and hairy; fourth joint of anterior tarsi with a curved spine beneath; body hairy, especially the elytra, the first stria on which is not curved again forward at the apex.

*Perileptus*, Schaum.

### **Trechus.**

- A.** Elytra hairy and narrow.

- a.** Elytra red-yellow, with a broad, black, common, transverse band behind middle.

Head, thorax and legs red-yellow, forehead brown. Thorax almost heart-shaped, posterior angles acute; elytra elongate oval, with fine punctured striae toward suture. L. 2½ l. Rather common. *T. discus*, Fab.

**b.** Elytra reddish-yellow, with a badly defined dark spot on hinder part of disc of each.

Head, thorax and legs reddish-yellow, forehead darker. Thorax somewhat heart-shaped, posterior angles sharp right angles; elytra oblong, with very fine striae toward suture, the two impressions in the third stria conspicuous; interstices very finely and closely punctured. L. 2 l. Not uncommon. *T. micros*, Herbst.

**B.** Body not hairy.

**a.** Posterior angles of thorax apparent, even if very obtuse.

**I.** Elytra narrow and parallel-sided; curved end of first stria turned into the third stria.

Body flat. Upper-side brownish-yellow; on the under-side, head and breast dark brown, abdomen brown-red, legs yellow. Antennae very long; thorax somewhat heart-shaped, posterior angles almost right angles; three inner striae on elytra strong but feebly punctured. L.  $1\frac{3}{4}$  l. Rare. *T. longicornis*, Sturm.

**II.** Elytra rounded at sides; curved end of first stria turned into the fifth stria, or, if that be absent, into its place.

**1.** Elytra with strongly punctured striae.

**A A.** Thorax red-yellow; elytra very flat.

Red-yellow; head sometimes darker, antennae and legs yellow. Sides of thorax rounded in front, obliquely narrowed behind, posterior angles acute and prominent; third interstice on elytra with two impressions. L.  $2\frac{3}{4}$  l. Not uncommon. *T. lapidosus*, Daws.

**B B.** Thorax pitch-brown; elytra moderately convex.

Pitch-brown; elytra generally lighter, with a bluish reflection; antennae and legs yellow. Sides of thorax moderately rounded in front and somewhat sinuate behind, posterior angles almost acute; each elytron with seven punctured striae (the inner five very distinct, the outer two much feebler), eighth stria effaced in front, very deep behind, with a row of very feeble impressions. L.  $2\frac{3}{4}$  l. Rather common. *T. rubens*, Fab.

2. Elytra with feebly punctured or impunctate striae.

**A A.** Striae on elytra moderately deep; posterior angles of thorax obtuse.

Reddish-brown, head usually darker; elytra reddish-yellow at the shoulders and sides; antennae and legs yellow. Sides of thorax very slightly rounded, not much contracted behind; elytra oblong-ovate, with four distinct striae, the others perceptible but indistinct, third stria with two inconspicuous impressions. L.  $1\frac{1}{4}$  l. Common.

*T. minutus*, Fab.

**B B.** Striae on elytra feeble, two impressions in third stria conspicuous; posterior angles of thorax more nearly rounded.

Darker in colour than *T. minutus*; sides of thorax more rounded; elytra with two fine striae next the suture, third shallower, fourth and fifth very indistinct, outer ones effaced. Wings very little developed. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Rather common.

*T. obtusus*, Er.

3. Elytra with three deep and broad furrows near the suture, the second and third of which are effaced behind.

Pitch-brown, elytra with a bluish reflection; antennae rust-red, second, third, and fourth joints brown-black; legs red-yellow. Sides of thorax moderately rounded, very little narrowed behind, posterior angles small, right angles. L. 2 l. Rare.

*T. rivularis*, Gyll.

**b.** Posterior angles of thorax completely rounded.

Rust-red, shining; antennae and legs reddish-yellow. Thorax convex, sides strongly rounded, somewhat narrowed behind; elytra convex, the striae until the fourth become gradually feebler and shorter, but are strongly punctured, in place of the fifth is only a row of punctures not reaching beyond middle. L.  $1\frac{3}{4}$  l. Common. *T. secalis*, Payk.

### *Aëpus.*

**A.** Posterior angles of thorax nearly right angles; sides of elytra rather parallel.

Apterous, flat, slightly pubescent; pale yellow. Thorax

heart-shaped; elytra with some indistinct striae, and generally two or three impressions. L. 1 l. Rather common.

*A. marinus*, Ström.

**B.** Posterior angles of thorax more rounded; elytra somewhat dilated behind, sides more rounded.

Closely resembling *A. marinus*; mandibles less prominent; tarsal spines shorter and straighter; upper surface more shining. L. 1 l. Rather common. *A. Robini*, Lab.

### *Perileptus.*

Flat. Head and thorax pitch-black; palpi, labrum and antennae brown-red, base of latter and legs red-yellow. Thorax heart-shaped, posterior angles sharp right angles, elytra oblong, red-yellow, with a narrow dark-brown border, striae effaced at sides and apex. L. 1 l. Not common.

*P. areolatus*, Creutz.

## **BEMBIDIIDES.**

**A.** Anterior tarsi with a curved spine beneath the fourth joint in both sexes.

Apical joint of palpi longer than in the following genera; second joint of outer lobe of maxillae half as long again as first; eyes flat; antennae threadlike; elytra without any short scutellary stria, sutural stria not turned forward again at the apex.

*Lymnaeum*, Steph.

**B.** Fourth joint of anterior tarsi without the spine.

**a.** Body not pubescent.

**I.** Antennae beadlike.

Eyes not prominent; elytra with a rather long scutellary stria, parallel to the suture, first stria not turned forward at the apex; anterior tibiae not much dilated at apex, deeply emarginate within and armed at apex of emargination with two spines directed inward; tarsal joints very short, on the anterior tarsi the first is drawn out into a spine on both sides, the second and third on the inner-side only.

*Cillenus*, Curt.

**II.** Antennae threadlike.

**1.** First stria on elytra turned forward at the apex; abbreviated scutellary stria wanting.

Eyes convex ; anterior tibiae dilated toward apex, where they are cut off obliquely on outer-side. *Tachys*, Ziegl.

2. First stria on elytra not turned forward at the apex ; short scutellary stria present.

Eyes convex ; anterior tibiae not much dilated at apex.  
*Bembidium*, Latr.

**b.** Body pubescent above.

Eyes strongly prominent ; frontal furrows scarcely indicated ; elytra with green, cloudy spots, some indistinct dorsal striae and two large, deep impressions ; anterior tibiae not much dilated toward apex ; body finely punctured all over. First dilated male tarsal joint broad and almost as long as the next three joints together, the second slightly dilated. *Tachypus*, Meg.

### *Lymnaeum.*

Apterous, oblong. Pitch-black, shining ; antennae, palpi and legs red. Thorax heart-shaped, posterior angles rather acute ; elytra almost parallel-sided, striae all entire but deeper toward suture, third interstice with two deep impressions. L. 2 l. Rather common.

*L. nigropiceum*, Marsh.

### *Cilleus.*

Head and thorax bronze-green ; elytra yellow, with a slight bronze lustre ; antennae brownish, base lighter, under-side brown-black ; legs yellow. Thorax heart-shaped, posterior angles right angles ; elytra elongate, parallel-sided, striae strong, the third with four impressions. L. 1 $\frac{3}{4}$  l. Common.

*C. lateralis*, Sam.

### *Tachys.*

**A.** Posterior angles of thorax sharp.

Antennae not much longer than head and thorax. Anterior tarsi simple in both sexes.

**a.** Body convex ; elytra short ovate, with four punctured striae near suture, the first two of which are deep ; eighth stria visible behind only.

Red-yellow, antennae and legs lighter. Thorax scarcely contracted behind. L. 1 $\frac{1}{4}$  l. Scarce. *T. Focki*, Hum.

- b.** Body not very convex; elytra long ovate, with four deep punctured striae near suture, eighth stria visible throughout.

Black; antennae, tibiae, tarsi and two round spots on each elytron red-yellow. Forehead with two fine ridges on each side near eyes; thorax not much contracted behind. L. 1 l. A single specimen taken by Mr. Bold, near Newcastle. *T. quadrisignatus*, Duft.

- B.** Posterior angles of thorax not sharp.

Antennae half as long as the body. Anterior tarsi of the male with two joints dilated.

- a.** Elytra pitch-brown or brown.

Head blackish-brown; thorax pitch-brown or brown; base of antennae and legs yellow. Thorax somewhat contracted behind; elytra with two striae near the suture, outer ones quite indistinct, the recurved part of the first stria runs almost parallel to the suture. L.  $\frac{3}{4}$  l. Rather common. *T. bistriatus*, Duft.

- b.** Elytra whitish-yellow, with a brown spot round the scutellum, and another larger common round spot at apex.

Head and thorax dark-brown; base of antennae and legs yellow. Thorax moderately narrowed behind; first two striae on elytra more distinct than the outer ones, which are very feeble; the recurved part of the first stria runs inward. L. 1 l. Common. *T. scutellaris*, Germ.

### *Bembidium.*

- A.** Eighth stria on elytra deeper than the rest, standing close to the marginal stria.

- a.** Thorax very short, transverse, with sharp posterior angles and broad raised side-borders.

Elytra with a little fold near apex of fifth stria, and one impression in third interstice.

- I.** Elytra red, with a bluish reflection, and striae finely punctured on disc, impunctate at sides and behind.

Head and thorax red, rather paler than the elytra, antennae and legs yellow. L.  $2\frac{1}{2}$  l. Rather common.

*B. rufescens*, Guer.

**II.** Elytra dark greenish-brown, with five rather strongly punctured striae, becoming feebler outward.

Head and thorax pitchy; antennae and palpi reddish-yellow. Posterior angles of thorax a little blunted. L. 2 l. Not common.

*B. quinquestriatum*, Gyll.

**b.** Thorax transverse, rounded at sides, posterior angles obtuse, side-border fine.

Striae on elytra, especially the outer ones, effaced behind, third interstice with two impressions.

**I.** Posterior margin of thorax almost straight.

Blackish-bronze-green; base of antennae, tibiae and tarsi red-yellow, femora pitchy. Elytra with a small fold near the apex of the fifth stria. L.  $1\frac{1}{4}$  l. Common.

*B. obtusum*, Sturm.

**II.** Posterior margin of thorax prominent in middle, sinuate on each side behind the angles.

**1.** Sinuation of base of thorax tolerably strong.

**AA.** Sides of thorax rather strongly rounded; apex of elytra and a round spot before it red.

Bronze-green; base of antennae and legs reddish-yellow. Elytra with seven rather strongly punctured striae, becoming shorter and feebler outward. L. 2 l. Common.

*B. biguttatum*, Fab.

The variety *riparium*, Ol. is bronze-black, with the base of antennae and legs reddish-brown, and the elytra have only six punctured striae.

**BB.** Sides of thorax moderately rounded; apex of elytra without a round red spot.

Dark-bronze; legs and antennae black-brown, the first joint of latter rather lighter. Posterior angles of thorax rather less rounded than in *B. biguttatum*; elytra with six rather finely punctured striae. L. 2. l. Rather common.

*B. acneum*, Germ.

**2.** Sinuation of base of thorax rather shallow.

**AA.** Sides of thorax moderately rounded; elytra with a round red spot before apex.



Bronze-black ; antennae brown, first joint red ; legs red-yellow, femora often brown at the base. Posterior angles of thorax almost rounded. L.  $1\frac{1}{2}$  l. Common.

*B. guttula*, Fab.

**B B.** Sides of thorax more rounded ; elytra without the round red spot before apex.

Black ; antennae brown, first joint red ; legs light red-yellow. Thorax broader than in *B. guttula*, somewhat contracted behind ; elytra shorter and more convex. L.  $1\frac{1}{2}$  l. Rather common.

*B. Mannerheimi*, Sahl.

**c.** Thorax narrowed behind, posterior angles sharp right angles.

**I.** Striae on elytra feebler at sides and apex, the seventh not uncommonly absent, all of them often abbreviated behind.

**1.** Frontal furrows double on each side.

Third interstice on elytra with two impressions.

**A A.** Elytra dark bronze-green or blackish, with a more or less indistinct reddish spot before apex.

**a a.** Thorax rather strongly narrowed behind.

Head and thorax dark bronze-green ; base of antennae, legs, and usually also apex of elytra red-yellow. Thorax a little broader than long ; striae on elytra strong. L.  $1\frac{1}{2}$  l. Common.

*B. assimile*, Gyll.

**b b.** Thorax only moderately narrowed behind.

Greenish-bronze-black ; base of antennae and legs red. Head a little broader than in *B. assimile* ; thorax broader ; elytra shorter ; striae deep. L.  $1\frac{2}{3}$  l. Not uncommon.

*B. Clarki*, Daws.

**B B.** Elytra yellow-brown, with dark-brown markings, generally forming three irregular transverse bands.

Head and thorax dark-bronze, almost dull ; base of antennae and legs yellow-brown. Thorax a little broader behind than in *B. assimile* ; striae on elytra not so deep. L.  $1\frac{3}{4}$  l. Rather common.

*B. fumigatum*, Duft.

**2.** Frontal furrows simple and deep.

**A A.** Eighth stria, standing near the margin, entire.

**a a.** Basal depressions on thorax standing immediately at the side margin.

Thorax rather convex, much narrowed behind, posterior angles not prominent. Frontal furrows parallel; third interstice of elytra with two impressions.

**A a.** Punctured striae on elytra reaching beyond middle.

**A 1.** First four joints of antennae yellow, the rest brown.

Head and thorax dark-green; elytra black or greenish, with yellow spots on each; legs reddish-yellow. Posterior angles of thorax slightly projecting. L.  $1\frac{1}{2}$  l. Common.

*B. quadrimaculatum*, Lin.

**B 1.** Antennae brown-black, first joint dark-green.

Bronze-black; elytra with two yellow spots on each (smaller than in *B. guttatum*); femora bronze-black, tibiae yellowish, tarsi brown. Striae on elytra nearly reaching apex. L.  $1\frac{2}{3}$  l. Rare.

*B. Olivieri*, Crotch (*4-pustulatum*, Sharp's Cat.)

**B b.** Punctured striae on elytra not reaching middle.

Black or black-green; elytra with two yellowish spots on each; antennae black-brown, first joint and base of the next three red-yellow; legs yellow, knees brown. Thorax almost as long as broad. L. 2 l. Common.

*B. quadriguttatum*, Fab.

**b b.** Basal depressions on thorax raising a fold near the posterior angles.

Third interstice on elytra with two impressions.

**A a.** Base of elytra entirely brownish-yellow.

Head and thorax bronze-green; elytra brownish-yellow, with a brown transverse band (darker at the sides) just behind middle, and another one before apex, punctures and impressions dark; antennae brown, their base and the legs yellowish. Forehead with a second smaller furrow on each side. L.  $1\frac{1}{2}$  l. Common.

*B. articulatum*, Panz.

**B b.** Base of elytra with at least the suture black or brownish.

**A 1.** Upper-side black, with a round reddish-yellow spot before apex of elytra.

**a 1.** Several small longitudinal yellow-red spots on the front half of elytra.

Antennae brown, first joint and base of the next two pale red-yellow; legs yellow. Forehead with a second smaller furrow on each side, larger pair convergent. Thorax short, heart-shaped. L.  $1\frac{1}{4}$  l. Scarce.

*B. Sturmii*, Panz.

**b 1.** Front half of elytra entirely black.

**A 2.** Frontal furrows convergent.

Antennae brown-black, first joint and base of the next two and legs red. Forehead with a second smaller furrow on each side. Thorax almost as long as broad. L.  $1\frac{1}{2}$  l. Not uncommon.

*B. doris*, Panz.

**B 2.** Frontal furrows parallel.

Similar to *B. doris*, but rather narrower. The red spot before apex of elytra often indistinct, sometimes only the apex itself red. L.  $1\frac{1}{2}$  l. Rather common.

*B. normannum*, Dej.

**B 1.** Upper-side entirely black; length  $1\frac{1}{4}$ — $1\frac{1}{3}$  lines.

**a 1.** Antennae entirely dark brown.

Legs dark brown. Frontal furrows deep and parallel; thorax broader than long, heart-shaped; elytra with seven strongly punctured striae, effaced at apex, which is rarely brownish. L.  $1\frac{1}{4}$  l. Common.

*B. minimum*, Fab.

**b 1.** First two joints of antennae and base of the next two red-yellow.

**A 2.** Thorax not much narrowed behind; elytra ovate.

Legs reddish, femora rather darker. Forehead with convergent furrows, and a second smaller furrow on each side; thorax short; striae on elytra finer, but (at least the inner ones) distinct at apex. L.  $1\frac{1}{4}$  l. Scarce.

*B. Schüppeli*, Dej.

**B 2.** Thorax rather strongly narrowed behind; elytra oblong-ovate.

Legs entirely red-yellow. Frontal furrows convergent, with a smaller one on each side; thorax short; elytra smooth at apex. L.  $1\frac{1}{4}$  l. Common. *B. gilvipes*, Sturm.

**C 1.** Upper-side entirely bronze.

**a 1.** Thorax with isolated punctures at base only.

**A 2.** Antennae black, first two joints usually red at base, and always so beneath.

Legs red, femora and tarsi often darker; under-side black. Highly polished. Frontal furrows deep; thorax strongly narrowed behind; elytra with six rather strong punctured striae, effaced behind. L.  $1\frac{1}{2}$  l. Common.

*B. lampros*, Herbst.

The variety *velox*, Er., is rather larger and wider, with thorax more transverse, posterior angles somewhat more pointed, elytra scarcely rotundate at sides, more flattened on back, with seven striae, which are more delicate, interstices flat and wider; base of antennae and tibiae darker.

**B 2.** Antennae entirely black.

Similar to *B. lampros*, but with a shorter thorax, which is much less contracted behind, with smaller basal depressions. Femora either entirely black or reddish-pitchy beneath, tibiae and tarsi lighter. L.  $1\frac{1}{2}$  l.

*B. nigricorne*, Gyll.

**b 1.** Thorax strongly punctured in front and behind.

Antennae black, base often bronze; under-side and legs blackish-bronze. Head punctured; thorax short, strongly narrowed behind; elytra with fine punctured striae, effaced behind, third interstice with two round depressions. L. 2 l. Rather common.

*B. bipunctatum*, Lin.

**D 1.** Upper-side blue-green or bronze-green; length exceeding  $1\frac{3}{4}$  lines.

**a 1.** Outer striae on elytra almost or quite effaced at apex.

**A 2.** Thorax not very short.

**a 2.** Head triangular; eyes prominent.

**A 3.** Elytra oblong and flat.

Antennae black-brown, first joint and base of the next three red-yellow; under-side bronze-black, legs red-yellow. Head with some fine punctures near the eyes behind; thorax a little broader than long; striae on elytra strongly punctured until beyond middle. L.  $2\frac{1}{2}$  l. Common.

*B. decorum*, Panz.

**B 3.** Elytra oblong-ovate and moderately convex.

Antennae black-brown, first joint yellow, second joint and base of the following ones reddish-yellow; legs yellow. Head smooth; thorax almost as long as broad; striae on elytra tolerably finely punctured. L.  $2\frac{1}{4}$  l. Moderately common.

*B. monticola*, Sturm.

**b 2.** Head oblong; eyes not prominent.

Antennae brownish, first three joints yellow; legs reddish-yellow. Thorax somewhat broader than long; elytra with rather finely punctured striae, and often a common red blotch before apex. L.  $2\frac{3}{4}$  l. Not uncommon.

*B. Stephensi*, Crotch.

**B 2.** Thorax very short.

Antennae dark brown, first joint and base of the next three red; legs red-yellow, femora pitchy at base. Elytra with strongly punctured striae. L.  $2\frac{1}{2}$  l. Common.

*B. brunnipes*, Sturm.

**b 1.** Outer striae on elytra distinct to apex.

**A 2.** Thorax not much narrowed behind; elytra oblong-ovate.

Antennae brown-black, first joint reddish-yellow; femora brown-black, tibiae and tarsi reddish-yellow. Elytra with strongly punctured striae. L.  $2\frac{1}{2}$  l. Common.

*B. tibiale*, Duft.

**B 2.** Thorax moderately narrowed behind; elytra elongate ovate.

Similar to *B. tibiale*, but darker. Elytra with less strongly punctured striae; third stria with two conspicuous impressions. L. 2 l. Common. *B. atrocoeruleum*, Steph. 230

**E 1.** Head and thorax more or less bronze-green; elytra bronze-green and yellow.

**a 1.** Base of elytra partly yellow.

**A 2.** Thorax broader than long, posterior angles prominent.

**a 2.** Central furrow on thorax effaced or very indistinct toward the posterior margin.

**A 3.** First three joints of antennae entirely pale, the rest wholly or partly brown or black.

**a 3.** Elytra red-yellow, with the suture and a transverse band (generally rather indistinct) behind the middle greenish-bronze.

Legs red-yellow. Thorax nearly as long as broad; elytra almost smooth behind. L.  $2\frac{1}{4}$  l. Not uncommon.

*B. testaceum*, Duft.

**b 3.** Elytra bronze-green, with two yellow spots on each.

**A 4.** Outer striae on elytra distinct to apex.

Legs red, femora often brownish. Apical spot on elytra roundish. L. 2 l. Rather common. *B. saxatile*, Gyll.

**B 4.** Outer striae on elytra effaced behind.

Similar to *B. femoratum* but rather larger; head, thorax, and dark parts of elytra distinct metallic-green; antennae longer, thorax slightly broader and flatter, elytra broader and flatter; legs entirely pale, femora sometimes a little pitchy in middle. L. 2— $2\frac{1}{2}$  l. Dumfries.

*B. anglicanum*, Sharp.

**B 3.** First or first and second joints of antennae entirely pale, the rest wholly or partly brown or black.

**a 3.** Striae on elytra fine.

Body rather flatter than *B. littorale*, head and thorax more bronze; femora brownish; penultimate joint of palpi brown-black. Base of thorax indistinctly punctured; spots

on elytra more extensive, especially the basal ones, leaving a triangular spot round the scutellum, the suture, a transverse band (narrowing outward) behind middle and the apex dark. L.  $2\frac{1}{2}$  l. Common. *B. femoratum*, Sturm.

**b 3.** Striae on elytra strong.

Femora (except apex) brown; penultimate joint of palpi black. Base of thorax distinctly punctured; spots on elytra as in *B. littorale*, but generally rather darker. L.  $2\frac{1}{4}$  l. Rather common. *B. bruxellense*, Wesm.

**C 3.** Antennae entirely yellow.

Legs and palpi entirely yellow. Base of thorax somewhat punctured; sides of elytra yellow, with the outer margin brown, the suture also is brown for some breadth (except at apex) and in the middle is dilated into a nearly round common spot. L.  $2\frac{1}{4}$  l. Moderately common.

*B. concinnum*, Steph.

**b 2.** Central furrow on thorax distinctly reaching posterior margin.

Antennae brown, first three joints and base of the next two red-yellow; penultimate joint of palpi brownish at apex; legs entirely red-yellow. Thorax punctured at base; elytra brownish-bronze-green, with two yellow spots on each, a basal one at shoulder (the inner margin of which runs nearly parallel with the suture) and an oblong obliquely placed one near apex; striae deep and strongly punctured, outer ones effaced behind. L.  $2\frac{1}{2}$  l. Common.

*B. littorale*, Ol.

**B 2.** Thorax as long as broad, heart-shaped, posterior angles not prominent, the base being scarcely wider than the necklike part of the mesothorax.

Antennae, palpi, and legs coloured as in *B. littorale*; body more elongate and convex. Elytra bronze-green, with two yellow spots on each, which are rather larger than in *B. littorale*, the inner margin of the basal one curved. L.  $2\frac{3}{4}$  l. Not uncommon. *B. fluviale*, Dej.

**b 1.** Base of elytra wholly bronze-green.

Antennae reddish-brown, first three joints and base of the fourth yellow; palpi and legs yellow. Thorax much

broader than long, base punctured, elytra bronze-green, with a common yellow crescent before apex, striae strongly punctured, effaced behind. L. 3 l. Rather common.

*B. lunatum*, Duft.

**B B.** Eighth stria on elytra visible behind only, but here deep.

Bronze-green; antennae reddish, their base, the palpi, and legs red-yellow. Thorax heart-shaped, base strongly punctured; elytra oblong-ovate, convex, with seven coarsely punctured striae, outer ones effaced behind. L.  $2\frac{1}{2}$  l. Not common.

*B. stomoides*, Dej.

**3.** Frontal furrows feeble.

Convex. Head and thorax bronze-green, former with scattered punctures; palpi, and antennae red-yellow; legs yellow. Thorax rather short, narrowed behind; elytra yellow, with a more or less broad, toothed bronze-green band across the middle and a triangular spot round the scutellum. L.  $2\frac{1}{4}$  l. Rather common.

*B. pallidipenne*, Ill.

**II.** Elytra with seven striae evenly deep throughout.

**1.** Striae punctured until beyond the middle.

Head and thorax impunctate; latter somewhat heart-shaped, with deep basal depressions, in which stand two longitudinal striae.

**A A.** Elytra brown or bronze, with yellow markings.

**a a.** Antennae brown, with the first joint and base of the three following joints reddish.

**A a.** Elytra brown, with yellow dentate bands, striae strong, the seventh reaching apex.

Head and thorax dark bronze-green; under-side black, reflexed margin of thorax and elytra, apex of abdomen and the legs brownish-yellow. L.  $2\frac{1}{2}$  l. Moderately common.

*B. flammulatum*, Clairv.

**B b.** Elytra bronze-green, with more or less irregular and indistinct yellow bands, striae only moderately strong, the seventh rarely reaching apex.



Head and thorax dark bronze-green; under-side black, reflexed margin of elytra usually brownish-yellow; legs brown or reddish. L.  $2\frac{1}{4}$  l. Common. *B. varium*, Ol.

**b b.** Antennae reddish-brown, with the first joint and base of next four joints yellow.

Head and thorax greenish-bronze; yellow spots on elytra extensive, leaving only three toothed, transverse bands of bronze; striae deep and strongly punctured; under-side black-green, reflexed margin of elytra brownish-yellow; legs yellow. L. 2 l. Rare. *B. adustum*, Schaum.

**c c.** Antennae black, first joint red beneath only.

Dark bronze; elytra with two narrow, yellowish, toothed transverse bands, and sometimes one or two small yellow spots at base and a dark point at apex, with fine punctured striae; under-side black, reflexed margin of elytra dark, legs black. L. 2 l. Not common. *B. obliquum*, Sturm,

**B B.** Elytra yellow, with a common brown cloud behind middle.

Head and thorax bronze-green; antennae and legs yellow; under-side black-green. L.  $1\frac{1}{2}$  l. Moderately common. *B. ephippium*, Marsh.

**2.** Striae on elytra deep and impunctate.

Dark bronze; antennae blackish, first joint red, at least beneath; legs black. Head and thorax impunctate, latter short, not much narrowed behind, flat; elytra oblong, flat. L.  $2\frac{1}{4}$  l. Not uncommon. *B. prasinum*, Duft.

**3.** Striae on elytra deep and strongly punctured.

Bronze-green, shining; first joint of antennae and legs red, knees and tarsi greenish. Head and thorax strongly punctured, latter much narrowed behind, tolerably convex. L.  $2\frac{1}{4}$  l. Common. *B. punctulatum*, Drap.

**B.** Eighth stria on elytra similar to the rest and placed so far from the marginal stria that the ninth interstice is as broad as the others.

Head and thorax coppery-bronze; elytra bronze or greenish, the space between the suture and fourth stria, and some spots outward of this coppery, the third interstice with two oblong silver-gray spots, in each of which is an

impression, fourth stria bent; under-side and legs bronzen-green. L.  $2\frac{1}{2}$  l. Not uncommon. *B. paludosum*, Panz.

### *Tachypus.*

**A.** Head, with the eyes, scarcely broader than thorax; first joint of antennae greenish.

Coppery-bronze, with a greenish reflection; basal half of antennae (except first joint), palpi and legs yellow. Punctuation fine. L.  $2\frac{1}{2}$  l. Not uncommon.

*T. pallipes*, Duft.

**B.** Head, with the eyes, wider than thorax; first joint of antennae yellow or reddish.

Bronze, with greenish reflection; basal half of antennae, palpi and legs yellow, knees somewhat greenish. Punctuation rather strong; dorsal furrow on thorax deeper at the ends, and an impression on disc on each side; elytra more bluntly rounded at apex than in *T. pallipes*. L. 2 l. Common.

*T. flavipes*, Lin.

## HYDRADEPHAGA.

**A.** Antennae threadlike.

Sides of thorax forming a more or less continuous outline with those of the elytra; inner maxillary lobe with a fixed hook; mentum deeply emarginate; front pairs of legs rather short, posterior pair long and more or less fringed with swimming hairs; mesosternum very small; metasternum large; abdomen with six ventral segments visible in both sexes, the first three soldered together; wings well developed.

*Dytiscidae.*

**B.** Antennae very short and thick, the second joint large, third joint forming a large lateral appendage, following joints much broader than long.

Head sunk in thorax, eyes divided completely into two by side margin of head, one pair looking upward, the other downward. Body ovate, convex, outline continuous; mentum deeply emarginate; maxillae curved, sicklelike, of semi-horny-consistence, inner lobe sharply pointed,

outer lobe absent (except in *Gyrinus*, where it forms an unjointed, palpus-like organ); anterior legs long; the hinder pairs short, first three joints of their tarsi extended inward into large parchmentlike surfaces; mesosternum very large; metasternum small; abdomen with six ventral segments visible in both sexes, the front ones more or less soldered together. *Gyrinidae.*

### DYTISCIDAE.

**A.** Antennae ten-jointed, inserted on sides of forehead.

Head projecting, eyes prominent; posterior legs not compressed, only their tarsi covered with long hairs above, posterior coxae dilated into a large plate, covering basal half of the femora and the greater part of abdomen; scutellum not visible; body thick. First three joints of male front pairs of tarsi slightly dilated. *Haliplides.*

**B.** Antennae eleven-jointed, inserted before eyes.

**a.** Head projecting.

All the tibiae and tarsi covered with swimming hairs on both sides; posterior coxae narrow, posterior tarsi slightly compressed; scutellum visible; body thick; third abdominal segment projecting in middle, dividing the second and first segments. First three joints of male front pairs of tarsi moderately dilated. *Pelobiides.*

**b.** Head sunk in thorax.

Posterior coxae very large, dilated in front.

**I.** Anterior tarsi apparently four-jointed.

Front pairs of tibiae and tarsi covered on outer-side, posterior pair on both sides with swimming hairs; front pairs of tarsi apparently consisting of four joints only (of which three are dilated in both sexes), the fourth joint being very small and lying within the bilobed third joint; eyes not prominent; scutellum generally hidden. *Hydroporides.*

**II.** Anterior tarsi distinctly five-jointed.

Anterior male tarsi more or less dilated; eyes not prominent. Body flattened. *Dytiscides.*

**HALIPLIDES.**

**A.** Apical joint of palpi longer than the penultimate, conical.

Head small, space between the large eyes narrow; thorax short, narrowed in front; metasternum with a depression; posterior coxae covering all the abdomen except the last and the apex of the penultimate segment; first four joints of posterior tarsi gradually smaller; claws small. *Cnemidotus*, Ill.

**B.** Apical joint of palpi very small, awllike.

**a.** Thorax narrowed in front; sides nearly straight.

Posterior coxae covering the first three abdominal segments, except the sides; first four joints of posterior tarsi gradually smaller; claws small. *Haliplus*, Latr.

**b.** Thorax nearly rectangular, sides rounded in front.

Thorax with a longitudinal furrow on each side, connected at the base by a transverse furrow; metasternum with a deep, bordered depression, dividing the episterna of metathorax from the coxae; posterior coxae covering the first three abdominal segments, except the sides; first four joints of posterior tarsi equal in length; claws long and powerful. *Brychius*, Th.

***Cnemidotus.***

Pale yellow, elytra grayish. Base of thorax with a strong transverse impression and a row of strong punctures; punctures on elytra very large and deep in front, smaller behind, middle of suture with a common brown spot. L. 2 l. Common. *C. impressus*, Fab.

***Haliplus.***

**A.** Elytra with rows of feeble punctures; interstices finely reticulated, irregularly punctured.

**a.** Base of thorax without any longitudinal impression on each side.

Yellow, dull; finely punctured; vertex of head brown. Thorax with isolated scattered larger punctures, anterior

margin often brown in middle; elytra with ten rows of fine punctures, standing in black lines, which are dilated in places and even confluent. L.  $1\frac{1}{2}$  l. Common.

*H. obliquus*, Fab.

**b.** Base of thorax with a small longitudinal impression on each side.

**I.** Vertex of head, anterior and posterior margins of thorax black (sharply defined).

Similar to *H. obliquus*, but smaller and broader at shoulders. Impressions at base of thorax much finer than in *H. confinis*. L.  $1\frac{1}{3}$  l.

*H. varius*, Nic.

**II.** Only vertex of head brown.

A little shorter and more shining than *H. obliquus*, more reddish. Impressions at base of thorax distinct. L.  $1\frac{1}{2}$  l. Common.

*H. confinis*, Steph.

**B.** Elytra with rows of coarse punctures; interstices smooth, with a more or less regular row of punctures.

**a.** Base of thorax without any longitudinal impression on each side.

**I.** Head broad; elytra nearly parallel-sided.

Eyes rather prominent; thorax closely and finely punctured. Yellow-brown, elytra unicolorous. L. 2 l. Scarce.

*H. mucronatus*, Steph.

**II.** Head smaller and rounder; elytra rounded at sides.

**1.** Thorax with a row of larger punctures at base.

**A A.** Elytra with the suture, a common spot on middle and several spots on disc blackish.

Dark rust-red; elytra as above. Thorax strongly punctured in front and behind. Sides of thorax and elytra nearly in a continuous line. L.  $1\frac{1}{2}$  l. Rather common.

*H. variegatus*, Sturm.

**B B.** Elytra with more or less distinct dark streaks on disc.

Rust-red, punctures on elytra usually black. Thorax with isolated strong punctures in front and behind, anterior margin somewhat produced in middle. L.  $1\frac{3}{4}$  l. Common.

*H. fulvus*, Fab.

**C C.** Elytra with only the rows of punctures dark.

Pale red-yellow. Thorax rather deeply punctured in front and behind, punctures dark; shoulders of elytra rather broader than in *H. fulvus*. L.  $1\frac{2}{3}$  l. Rather common.

*H. flavicollis*, Sturm.

**2.** Thorax without the row of larger punctures at base.

Pale yellow. Thorax rather closely punctured in front and behind, punctures finer than in *H. flavicollis* and uncoloured; shoulders of elytra prominent, rows of punctures dark, first puncture of five inner rows much larger than the rest. L.  $1\frac{2}{3}$  l. Not common. *H. cinereus*, Aub.

**b.** Base of thorax with a small longitudinal impression on each side.

**I.** Punctuation of thorax rather close in front and behind.

**1.** Elytra with black lines, somewhat interrupted in places.

Pale yellow. Shoulders of elytra narrower than in *H. ruficollis*, first puncture in the rows not large. L.  $1\frac{1}{2}$  l. Common. *H. fluviatilis*, Aub.

**2.** Elytra with black lines, equally broad throughout.

Yellow-brown. Shoulders of elytra much narrower than in *H. ruficollis*. L.  $1\frac{1}{3}$  l. Dumfries. *H. striatus*, Sharp.

**3.** Elytra with black lines and spots.

Yellow-brown. L.  $1\frac{1}{2}$  l. Common. *H. ruficollis*, De G.

**II.** Punctuation of thorax close in front, in other parts very isolated.

Head brown, antennae and palpi yellow; thorax yellow, with a black longitudinal line in middle, base with a transverse impression, at each end of which is a sharply engraved curved line; elytra grey-yellow, with some more or less distinct dark spots, sides almost in a continuous line with those of thorax, third, fourth, and fifth rows of punctures commencing with a much larger puncture. L.  $1\frac{1}{2}$  l. Common. *H. lineatocollis*, Marsh.

*Brychius.*

Pale yellow-brown; elytra with black rows of punctures, deeper toward suture, third interstice raised ridgelike until beyond middle. L. 2 l. Rather common.

*B. elevatus*, Panz.

**PELOBIIDES.**

Inner lobe of maxillae not hairy on inner-side; prosternum convex, compressed, ending in a flat, bordered, blunt process.

*Pelobius*, Schönh.

*Pelobius.*

Rust-red, dull; anterior and posterior margins of thorax, a large common spot on elytra, and the breast black. L.  $4\frac{1}{2}$ —5 l. Moderately common.

*H. Hermannii*, Fab.

*Handwritten note:* *the more than one of the other species which are broader and longer*

**HYDROPORIDES.**

**A.** Posterior tarsal claws unequal; dilated tarsal joints much longer than broad.

Body short and thick; prosternum ending in a point behind; intermediate coxae standing near each other; posterior tarsi compressed, inner claw four times as large as the outer, fixed.

*Hydroporus*, Ill.

**B.** Posterior tarsal claws equal; dilated tarsal joint scarcely longer than broad.

**a.** Apex of elytra produced into a small sharp point; prosternum with a broad blunt process behind.

Intermediate coxae placed far apart, the metasternum being broad in front; body short and thick; posterior tarsi not much compressed.

*Oxyoptilus*, Schaum.

**b.** Apex of elytra not produced; prosternum produced into a sharp point behind.

Intermediate coxae placed near each other; posterior tarsi not much compressed. In the male of most species the outer anterior claw is formed differently to the inner.

*Hydroporus*, Clairv.

*Hyphydrus.*

Rust-red, elytra darker, male shining, female dull.  
L.  $2\frac{1}{2}$  l. Common. *H. ovatus*, Lin.

*Oxynoptilus.*

Head and thorax brown-red; elytra brown, with the outer margin and two transverse bands (interrupted at suture) red-yellow. Male more shiny than female; under-side and legs dark red-yellow. L.  $1\frac{1}{2}$  l. Portsea.

*O. cuspidatus*, Kunze.

*Hydroporus.*

**A.** Forehead bordered in front.

Reflexed margin of elytra with a bordered cavity under shoulder for reception of apex of intermediate femora. Species short, convex, and bare.

**a.** Body short oval; thorax red-yellow, generally darker in front and behind.

**I.** Elytra very finely and closely punctured, with scattered strong punctures.

Rust-yellow, elytra with the base, suture, three unequal, often confluent longitudinal lines and a spot near middle of third line black, the first line not reaching base, second short, placed behind, third reaching the base, interrupted behind. L.  $1\frac{1}{2}$  l. Common. *H. reticulatus*, Fab.

**II.** Elytra coarsely and rather closely punctured, with intermediate isolated smaller punctures.

Closely allied to *H. reticulatus* but having longitudinal markings on elytra narrower, more regular, uninterrupted and continued to base parallel with sutural marking; punctuation also more uniform and coarser. L.  $1\frac{1}{2}$  l. Rare.

*H. quinquelineatus*, Zett.

**III.** Elytra very closely and coarsely punctured.

Head red-yellow; elytra black, with a broad side border, dilated in two places and a transverse band (not reaching the suture) near base red-yellow, often also with a yellow longitudinal line along the disc. L.  $1\frac{1}{2}$  l. Common.

*H. inaequalis*, Fab.



**b.** Body long oval ; thorax brown-red.

Elytra brown, with side margin and two transverse spots connected with it (one behind the base, the other behind the middle) yellowish-red, punctured strongly and not very closely, with isolated intermediate very fine punctures. L. 1 l. Rather common. *H. decoratus*, Gyll.

**B.** Forehead not bordered in front.

Body more or less flattened.

**a.** Reflexed margin of elytra with a bordered cavity under shoulder for reception of the apex of intermediate femora.

**I.** Length  $1\frac{1}{2}$  lines.

Yellow, head dark behind ; elytra with suture and four lines (confluent behind) black, second line longer than first, third very short, disc diffusely and coarsely punctured. Common. *H. confluens*, Fab.

**II.** Length 2 lines or more.

**1.** Punctuation not coarse.

**A A.** Elytra brownish-yellow, with suture and four lines, reaching neither base nor apex, black.

Head and thorax yellowish, latter with a dark spot on disc. L. 2 l. Not common. *H. novemlineatus*, Steph.

**B B.** Elytra brownish-yellow, with inner part of base, the suture, four lines (the second of which reaches the base), and two streaks near the margin black.

Head and thorax red-yellow, latter with a dark spot on disc. L.  $2\frac{1}{2}$  l. Rather common.

*H. parallelogrammus*, Ahr.

**2.** Punctuation very coarse.

Rather convex. Dark red-yellow, thorax black in front and behind, elytra with suture and four indistinct lines brown-black. L.  $2\frac{1}{2}$  l. Moderately common.

*H. picipes*, Fab.

**b.** Reflexed margin of elytra without the cavity under shoulder.

**I.** Base of thorax with an impressed longitudinal line on each side, which is continued on the base of elytra.

**1.** Body bare; antennae entirely yellow.

Head brownish-yellow, vertex darker; thorax yellow, darker in front and behind; elytra yellowish, with suture, base, and two waved transverse bands (attached to suture) black, beside the suture runs a deeply engraved stria, effaced behind; the impressed lines on the base of thorax continued nearly to middle of elytra. L.  $\frac{3}{4}$  l. Rare.

*H. minutissimus*, Germ.

**2.** Body very finely pubescent; antennae dark at apex.

**A A.** Sutural stria entire.

Head brown: thorax reddish-yellow, anterior and posterior margins more or less broadly brown-black, the impressed lines on the base short and somewhat oblique; elytra black, with a toothed transverse band at base, and the waved outer margin yellow. L. 1 l. Common.

*H. geminus*, Fab.

**B B.** Sutural stria abbreviated.

Head pitch-brown; thorax yellow, darker in front and behind; elytra pitch-brown, with some rust-reddish spots on outer margin. L.  $\frac{5}{8}$  l. Rare. *H. unistriatus*, Schr.

**II.** Thorax with an impressed longitudinal line on each side, parallel to side margin.

Species pointed behind, more or less convex, slightly or not at all hairy.

**1.** Elytra black, with a spot at base, connected with another near apex by the outer margin and a longitudinal line on the disc, yellow (thus enclosing an oval black spot).

Head reddish, thorax brown, under-side red-brown. L. 1 l. Common. *H. pictus*, Fab.

**2.** Elytra black, with outer margin and two longitudinal bands pale brownish-yellow.

Head and thorax brownish-black, latter somewhat reddish at margins; under-side black, legs rust-red. L. 1 l. Common. *H. granularis*, Lin.

- 3.** Elytra black, with outer margin and four irregular, more or less interrupted longitudinal lines yellow.

Head and thorax black, sides of latter rather broadly red-yellow; under-side black; legs red-yellow. L.  $1\frac{1}{4}$  l. Common. *H. flavipes*, Ol.

- 4.** Elytra black, with outer margin, a toothed oblique band at base and some oblique curved lines on the hinder half (attached to margin) yellow.

Head and thorax black; under-side black; legs yellow. L.  $1\frac{1}{2}$  l. Rather common. *H. lepidus*, Ol.

- III.** Thorax with an abbreviated stria on each side and a feeble transverse impression at base.

- 1.** Body short oval.

Upper-side yellow; thorax with a dark transverse band on disc; elytra with four broad black lines (often touching one another), and two short outer lines in middle, first line thinner in middle, fourth line abbreviated behind. L.  $1\frac{1}{4}$  l. Common. *H. rivalis*, Gyll.

- 2.** Body long oval.

**A A.** Head light brown near eyes and at base only.

Upper-side pale brownish-yellow; thorax with two dark transverse lines, usually interrupted; elytra with suture and seven lines black, of these lines the third reaches farthest forward, the fifth, sixth, and seventh are abbreviated behind, the seventh (or sixth and seventh) twice interrupted. L.  $1\frac{2}{3}$  l. Common.

*H. septentrionalis*, Gyll.

**B B.** Head with a large dark brown V-shaped spot on forehead.

Upper-side brownish-yellow; thorax transversely impressed on each side before base, the impressions black and connected by a black line; elytra with seven longitudinal black lines, the seventh interrupted. L. 2 l. Common. *H. Davisi*, Curt.

- IV.** Thorax without impressed lines.

- 1.** Upper-side very finely reticulated and also more or less closely covered with larger, shallow punctures.

Short ovate; brown; elytra rust-brown at base, with very thin and short pubescence. L. 2 l. Scarce.

*H. latus*, Steph.

**2.** Punctuation of upper-side uniform.

**A A.** Disc of thorax black or brown.

**a a.** Elytra yellowish, with black lines.

**A a.** Angle at junction of sides of thorax and elytra distinct.

**A 1.** Outer margin of elytra not toothed before apex.

Red-yellow; thorax with anterior margin and two spots on posterior margin black; the black lines on each elytron touch one another, leaving the outer margin, four spots attached to it and two inner spots yellow, the black suture dilated at apex. Sides of thorax much rounded, angle at junction with elytra strong. L.  $2\frac{1}{2}$  l. Moderately common.

*H. duodecimpustulatus*, Ol.

**B 1.** Outer margin of elytra with a tooth before apex.

**a 1.** Elytra with suture and seven lines on each (often nearly touching each other) black, the second interrupted in middle, fourth dilated at apex, fifth reaching base and abbreviated behind, sixth and seventh consisting only of short marks behind base and in middle, leaving six yellow spots.

Head and thorax yellowish, latter with a narrow border in front and behind and two spots at base black. Sides of thorax rounded, angle at junction with elytra strong. L. 2 l. Common.

*H. depressus*, Fab.

**b 1.** Elytra with suture and six lines on each (not reaching apex and usually not base) black, the sixth much abbreviated behind, often interrupted in middle, there is also a longitudinal black spot at side, often attached to the sixth line.

Head and thorax red-yellow, latter with the middle of the anterior margin, the posterior margin and two spots at

base black. Sides of thorax rounded, angle at junction with elytra moderate. L. 2 l. Moderately common.

*H. assimilis*, Payk.

**B b.** Angle at junction of sides of thorax and elytra inconspicuous.

**A 1.** Sides of thorax rounded; under-side deeply and coarsely punctured.

Head and thorax reddish-yellow, latter with two dark spots on disc; elytra gray-yellow, with suture and five or six lines on each (reaching neither base nor apex) black, outer lines usually much interrupted, inner connected here and there. Body finely pubescent. L. 2 l. Moderately common.

*H. halensis*, Fab.

**B 1.** Sides of thorax nearly straight; under-side very finely punctured.

Reddish-yellow; thorax with anterior and posterior margins, two spots on disc and usually also a smaller spot black; elytra with suture and seven lines on each black, first line narrower than the rest, sixth and seventh sometimes interrupted, slightly hairy. L.  $2\frac{1}{4}$  l. Not very common.

*H. griseostriatus*, De G.

**b b.** Elytra black or blackish, with lighter side margin.

**A a.** Sides of thorax lighter than disc.

**A 1.** Thorax with a transverse impression on hinder half.

Head brown-red; thorax black, sides and interrupted transverse band brown-red; elytra brown-black, with a broad curved red-brown border and usually also a red transverse band near base, pubescent. Punctuation strong. L.  $2\frac{1}{2}$  l. Moderately common.

*H. dorsalis*, Fab.

**B 1.** Thorax without the transverse impression.

**a 1.** Disc of thorax nearly or quite impunctate.

**A 2.** Thorax blackish, sides brown-red.

**a 2.** Elytra gradually narrowed after the first third part of the length.

Elongate oval, shining. Head large, black-brown behind, lighter in front; antennae yellow, apex of last joints darker; elytra brownish, sides, base, and reflexed margin brown-yellow; legs yellow-brown; punctuation fine. L. 2—2½ l. Scarce. *H. oblongus*, Steph.

**b 2.** Elytra parallel-sided for three-quarters of the length.

Oblong oval, shining. Head large, pitch-brown, front and posterior margin dark red; antennae bright red, last joints scarcely darker at apex; elytra black, apex or entire side margin reddish; legs red. Punctuation fine, each elytron with two rows of larger punctures. L. 2 l. Rather common. *H. memnonius*, Nic.

**B 2.** Thorax reddish, with a brown patch in middle.

Allied to *H. ferrugineus*, but narrower, with less variegated elytra, which are more sparingly and more distinctly punctured. Disc of thorax smooth. L. 2 l. Rare.

*H. obsoletus*, Aub.

**b 1.** Disc of thorax distinctly punctured.

**A 2.** Punctuation scattered.

**a 2.** Elytra with three rows of larger impressions.

Oblong oval, flat, moderately shining. Head red-yellow, with a dark spot between eyes; thorax reddish-yellow, with a dark shade on disc; elytra brown, with a broad irregular yellow transverse band at base and some lighter places at apex. Punctuation rather strong. L. 2 l. Not common. *H. ferrugineus*, Steph.

**b 2.** Elytra without any rows of larger impressions.

Allied to *H. memnonius*, but rather smaller and strongly punctured. Pitchy; front of head, sides of thorax and elytra reddish. L. 1¾ l. Common.

*H. Gyllenhali*, Schiodt.

**B 2.** Punctuation close.

**a 2.** Elytra strongly or rather strongly punctured.

**A 3.** Pubescence scanty; length 2½ lines.

Head brown-red, forehead blackish; thorax black, extreme side margin red-brownish; elytra dark brown, base and sides red-brown. Punctuation strong. Not very common. *H. Duftschmidti*, Rye (*rufifrons*, Sharp's Cat.)

**B 3.** Pubescence close; length  $1\frac{3}{4}$  lines.

Oval, rather convex, with thick, close-lying pubescence. Head brown-red; antennae red, darker toward apex; thorax black, sides reddish; elytra black-brown, sides lighter; prosternum and legs red. Punctuation rather strong. Common. *H. erythrocephalus*, Lin.

**b 2.** Elytra finely reticulate or punctured.

**A 3.** Body broader; length 2 lines.

Head black, the front and usually also the posterior margin red-yellow; antennae yellow, darker toward apex; thorax black, sides broadly red-yellow; elytra brown-black, base broadly brownish-yellow, outer margin narrowly yellow, with some irregular spots attached to it at apex, pubescent, punctuation very fine, reticulate, with two rows of larger punctures; legs brownish-yellow. Rare.

*H. marginatus*, Duft.

**B 3.** Body narrower; length  $1\frac{3}{4}$  lines.

Black; lateral margins of thorax pale brownish-yellow; elytra finely punctured, base with a broad brownish-yellow band, margin also brownish-yellow and irregularly extending at apex upon disc, pubescent; legs reddish-yellow, intermediate femora with a brown belt. Rather common.

*H. lituratus*, Fab.

**B b.** Thorax entirely black.

**A 1.** Length  $1\frac{3}{4}$ —2 lines.

Rather flat. Head black, red-brown in front and behind; elytra dark-brown, base and sides lighter, very closely punctured, each with two rows of larger punctures, with thick, long, close-lying pubescence. Base and outer margin sometimes dark. Common. *H. planus*, Fab.

**B 1.** Length  $1\frac{1}{2}$  lines.

Similar to *H. planus*, but with elytra sometimes entirely

light brown, and their base, outer margin, and reflexed margin always light brown. Common.

*H. melanocephalus*, Steph.

**c c.** Elytra entirely black.

**A a.** Disc of thorax distinctly punctured.

**A 1.** Head black, sometimes reddish in front and behind; thorax entirely black.

**a 1.** Punctuation close; upper-side shining.

Scantily pubescent. Each elytron with two rows of larger punctures. L.  $1\frac{1}{3}$  l. Not uncommon.

*H. discretus*, Fairm.

**b 1.** Punctuation rather diffuse; upper-side somewhat dull.

Scantily pubescent. Each elytron with two rows of larger punctures. L.  $1\frac{1}{4}$  l. Rather common.

*H. nigrita*, Fab.

**B 1.** Head pitchy-red; thorax black, margins reddish.

Scantily pubescent. Each elytron with the rudiments of two rows of larger punctures. Sides of thorax and elytra forming a very obtuse angle. Anterior tibiae short and very broad at apex. Punctuation moderately close and fine. L.  $1\frac{1}{2}$  l. Scarce.

*H. celatus*, Clark.

**B b.** Disc of thorax nearly or quite impunctate.

**A 1.** Punctuation of elytra diffuse.

**a 1.** Elytra somewhat shiny.

Tolerably oval, flat, scarcely pubescent. Black, shiny; head, side margins of thorax, antennae, and legs brown-red; apex of elytra brown. Thorax only slightly narrowed in front, scarcely rounded at sides, punctured at margins, impunctate in middle; elytra parallel-sided until beyond middle, bluntly rounded at apex, finely and diffusely punctured. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Scarce.

*H. melanarius*, Sturm.

**b 1.** Elytra dull.

Very similar to *H. melanarius*, but narrower and more depressed, with the elytra much duller, more sparingly and more finely punctured, and not quite so destitute of pubes-



cence. Female rather duller than male. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Mountain species. *H. monticola*, Sharp.

**B 1.** Punctuation of elytra rather close or close.

**a 1.** Thorax strongly margined.

Black; extreme side margins of thorax reddish; first two or three joints of antennae reddish, the rest more or less pitchy; legs red, posterior pair darker. Differing from *H. monticola* in its narrower and more elongate form, longer and darker antennae, and rows of larger punctures on elytra: somewhat resembling *H. atriceps* but more parallel-sided, less distinctly punctured, with thorax strongly margined. Elytra with two rows of larger punctures. L. nearly  $1\frac{2}{3}$  l. A single specimen taken by Dr. Sharp at Rannoch. *H. longicornis*, Sharp.

**b 1.** Thorax not strongly margined.

Oblong oval, almost parallel-sided, pointed. Black, shiny; base of antennae and knees brown-red. Punctuation fine and close; pubescence scanty. L. 2 l. Rather common. *H. atriceps*, Crotch.

**d d.** Elytra red-brown.

**A a.** Punctuation of elytra rather fine.

**A 1.** Body scarcely pubescent.

**a 1.** Length  $1\frac{1}{2}$  lines.

Oblong. Head brown-red; thorax black; elytra red-brown, darker on the disc, diffusely punctured. Sides of thorax scarcely rounded, and forming an obtuse but distinct angle with those of elytra. Disc of thorax almost impunctate, margins strongly punctured. Common.

*H. tristis*, Payk.

**b 1.** Length  $1\frac{1}{5}$  lines.

Similar to *H. tristis*, but rather narrower; sides of thorax more rounded and forming a stronger angle with those of elytra; antennae rather longer. Elytra diffusely punctured. Not uncommon. *H. neglectus*, Schaum.

**B 1.** Body with long thick pubescence, especially on elytra.

Elliptic, flatly arched, Head brown-red, darker between

the eyes; thorax black; elytra brown, darker on disc, closely punctured. L.  $1\frac{1}{4}$  l. Rather common.

*H. umbrosus*, Gyll.

**B b.** Punctuation of elytra strong and rather close.

Elliptic, rather convex. Upper-side reddish pitch-brown, scarcely pubescent; head lighter in front. Disc of thorax almost impunctate, margins diffusely and rather finely punctured. L.  $1\frac{1}{3}$  l. Common. *H. obscurus*, Sturm.

**e e.** Elytra black-brown, with outer margin, an oblique bandlike spot at base, and a marking near side behind yellow.

**A a.** Oblong oval; pubescence on elytra long.

**A 1.** Colour darker; yellow markings near side of elytra behind consisting of a simple streak.

Head brown; thorax black-brown; sides reddish; under-side of thorax brown in the middle, blackish before anterior coxae. Less pointed behind than *H. palustris*. L.  $1\frac{1}{2}$  l. Moderately common. *H. vittula*, Er.

**B 1.** Colour lighter; yellow marking near side of elytra behind consisting of two spots united by a line.

Head red, darker between the eyes; thorax brown; sides red; under-side black, that of head and thorax rust-red. L.  $1\frac{3}{4}$  l. Common. *H. palustris*, Lin.

**B b.** Oval; pubescence of elytra rather finer and more sparing.

Allied to *H. palustris*, but larger, especially broader, with the pale markings less developed and not so distinct from the ground colour. Disc of thorax punctured more finely and sparingly than the margins; elytra punctured rather more distinctly than in *H. palustris*. L.  $1\frac{3}{4}$  l. Not common. *H. incognitus*, Sharp.

**B B.** Thorax rust-red.

**a a.** Disc of thorax distinctly punctured, base with a shallow depression on each side.

Elongate oval. Head rust-red; thorax not much nar-

rowed in front; elytra brown, sides rather lighter, with long, thick pubescence, punctured rather closely but not very distinctly, apex pointed; breast and abdomen blackish. L.  $1\frac{1}{2}$  l. Rather common. *H. angustatus*, Sturm.

**b b.** Disc of thorax smooth or indistinctly punctured; base without depressions.

**A a.** Elytra brown, rather lighter at the sides; length  $\frac{3}{4}$ —1 line.

Oblong. Head rust-red; thorax somewhat narrowed in front; elytra with rather strong and very scattered punctation, scarcely pubescent; breast and abdomen blackish. Not common. *H. Scalesianus*, Steph.

**B b.** Elytra brown, with outer margin and four lines on disc yellow; length  $1\frac{1}{2}$  lines.

Head rust-red; thorax rather strongly narrowed in front; elytra indistinctly punctured, with thick yellow pubescence; under-side rust-yellow. Common.

*H. lineatus*, Fab.

### DYTISCIDES.

**A.** Anterior male tarsi with first three joints more or less dilated and covered beneath with sucker cups, but without large suckers.

**a.** Scutellum not visible.

**I.** Posterior tarsi moderately compressed, fringed on both sides, with two equal claws.

Antennae rather thick, dissimilar in the two sexes; in male the first four joints small, the fifth very large and compressed, the rest more or less dilated; antennae of female somewhat spindle-shaped; prosternum dilated behind the coxae into a flat, bordered process, rounded at the end; middle coxae placed far apart; last joint of labial palpi large, toothed before the apex. Body reversed conical, convex above, flat beneath. *Noterus*, Clairv.

**II.** Posterior tarsi very short, strongly compressed, first four joints with a long appendage on outer-side, claws very unequal.

Antennae thin; prosternum strongly compressed behind,

ending in a sharp point; last joint of labial palpi scarcely longer than the second, pointed; body oval, flatly arched.

*Laccophilus*, Leach.

**b.** Scutellum visible.

**I.** Posterior tarsal claws unequal.

**1.** Body rather flat.

Inner claw on posterior tarsi three times as long as outer one; second joint of labial palpi fully as long as the last one.

*Colymbetes*, Clairv.

**2.** Body convex.

Inner claw on posterior tarsi rather longer than outer one; second joint of labial palpi rather shorter than, or as long as the last one; each elytron with two transparent light spots, more or less apparent.

*Ilybius*, Er.

**II.** Posterior tarsal claws equal.

**1.** Front pairs of tarsi in male strongly dilated, not compressed, and bearing four rows of large sucker-cups beneath.

Body elongate, much narrowed behind; elytra pointed at apex.

*Liopterus*, Eschsch.

**2.** Anterior male tarsi slightly dilated and bearing small sucker-cups beneath.

Body oval, more or less convex. Anterior claws of female always simple and similar, those of male often dissimilar; elytra with three irregular rows of punctures.

*Agabus*, Leach.

**B.** First three joints of anterior male tarsi forming a roundish plate, fringed with hair and covered beneath with sucking-cups and larger suckers.

**a.** Posterior claws nearly equal in size, moveable.

Under-side of anterior male tarsi with a large sucker at base, another nearly as large rather before this and a number of equal, small cups; elytra oblong oval; posterior tarsi fringed with long hairs on both sides in male, on inner-side only in female. Intermediate tarsi of male dilated. Upper-side of male smooth, of female furrowed.

*Dytiscus*, Lin.

**b.** Posterior claws unequal, the larger one fixed.

**I.** Under-side of anterior malé tarsi with a large sucker at base, two much smaller ones obliquely before this and a number of small cups.

Elytra short oval, dilated behind, of female furrowed, furrows hairy; intermediate tarsi simple and posterior tarsi fringed on each side in both sexes. *Acilius*, Leach.

**II.** Under-side of anterior male tarsi with nearly equal-sized sucker-cups, the suckers being much smaller and the cups much larger and fewer than in *Acilius*.

Elytra short oval, dilated behind. Intermediate tarsi of male generally dilated. Posterior tarsi fringed on each side in both sexes. *Hydaticus*, Leach.

### *Noterus.*

**A.** Elytra with coarse punctures, forming three not very regular rows.

Head and thorax rust-yellow; elytra light brown. Prosternum not ridged in front. In the male the fifth joint of antennae very large, the sixth much shorter but nearly as broad, the following ones narrow and short, with sharp angles, the last joint oblong, pointed. L.  $1\frac{3}{4}$  l. Rather common. *N. clavicornis*, De G.

**B.** Elytra with scattered punctures, rather fine in front, deeper behind.

Head and thorax rust-yellow, former behind, latter in front and behind brownish, disc of thorax usually with a brown spot; elytra chestnut-brown. Prosternum with a fine, sharp ridge. In the male the fifth joint of antennae very large, the following five joints almost as broad and not much shorter, with prominent outer angles, last joint much narrower and pointed. L. 2 l. Common.

*N. sparsus*, Marsh.

### *Laccophilus.*

**A.** Thorax unicolorous.

**a.** Middle of base of thorax produced into a very short blunt point; elytra scarcely transparent.

Head and thorax yellow; elytra brown, the outer

margin, four spots attached to it and two smaller variable spots not far from the base pale yellow. L. 2 l. Common.

*L. minutus*, Lin.

**b.** Middle of base of thorax produced into a sharp point; elytra transparent.

Head and thorax greenish-yellow; elytra greenish-brown with several indistinct streaks on disc, the outer margin and four spots attached to it (often indistinct) pale green. L. 2 l. Common.

*L. hyalinus*, De G.

**B.** Thorax yellow-brown, with middle of anterior margin and whole of posterior margin black.

Head yellow-brown; elytra dark-brown, with outer margin and two irregular transverse bands, placed at base and behind middle, yellow. L.  $1\frac{3}{4}$  l. Not uncommon.

*L. variegatus*, Germ.

### *Colymbetes.*

**A.** Elytra brownish, with fine transverse scratches; first three joints of anterior male tarsi considerably dilated.

Oblong oval. Upper-side brown, side margin of thorax and elytra, with reflexed margin of latter lighter; under-side black, legs brown. L.  $7\frac{1}{2}$  l. Common. *L. fuscus*, Lin.

**B.** Elytra unicolorous black, without transverse scratches; first three joints of anterior male tarsi laterally compressed.

Oblong-elliptic, dull black, antennae, mouth, and anterior legs rust-red. L.  $5\frac{1}{2}$  l. Moderately common.

*C. Grapei*, Gyll.

**C.** Elytra pale brownish-yellow, sprinkled with black spots, leaving a narrow border at the base and suture and a broader one at the sides free.

**a.** First three joints of male anterior tarsi laterally compressed.

Oblong-ovate, rather flat. Head and thorax yellowish, vertex of head, two frontal spots and a transverse spot in middle of thorax black; under-side black, legs reddish-yellow. L.  $5\frac{1}{2}$  l. Common. *C. pulverosus*, Steph.

**b.** First three joints of male anterior tarsi considerably dilated, laterally not compressed.

**I.** Thorax yellow, with a large transverse spot in middle and usually two side spots, and the middle of posterior margin black.

Oblong oval, moderately convex. Head yellow, vertex and forehead black; under-side black, prosternum yellow, abdominal segments bordered with yellow in male, almost entirely yellow in female; legs yellow. L. 5 l. Common.  
*C. notatus*, Berg.

**II.** Thorax yellow, with middle of anterior and posterior margins black.

Oblong ovate. Head yellow, vertex and two frontal spots black; under-side black, part of prosternum reddish or yellowish, legs yellow. L. 5 l. Moderately common.  
*C. bistriatus*, Berg.

**III.** Thorax pale brownish-yellow, middle of posterior margin sometimes rather darker.

**1.** Under-side reddish-yellow.

Oblong oval. Head reddish-yellow, vertex and two frontal spots black. L. 5 l. Common. *C. exoletus*, Forst.

**2.** Breast and abdomen black, middle of former, margins of segments of latter yellow.

Oval. Head pale brownish-yellow, spotted with black at base. L.  $4\frac{1}{2}$  l. Rare. *C. aberratus*, Har.

### *Ilybius.*

**A.** Posterior coxae much extended in front, their anterior margin forming an almost angular projection, the side pieces of metasternum consequently narrow and curved backward.

Oval, broadest rather behind middle. Upper-side bright bronze, side margin of thorax and elytra and the whole under-side and legs red-brown. L. 5 l. Rather common.  
*I. fenestratus*, Fab.

**B.** Posterior coxae with a curved anterior margin, side pieces of metasternum rather broad and almost triangular.

**a.** Upper-side dark bronze, thorax and elytra with a narrow red-brown border.

Oblong oval, broadest in middle. Under-side reddish-pitch-brown. L. 5 l. Rare. *I. subaeneus*, Er.

**b.** Upper-side bronze-brown; thorax and elytra with a broad reddish-yellow border.

Oblong elliptic. Under-side red-brown. L.  $4\frac{1}{4}$  l. Common. *I. fuliginosus*, Fab.

**c.** Upper-side black.

**I.** Length over 4 lines.

**1.** Length  $6\frac{1}{2}$  lines; male with anterior claws not toothed, and outer posterior claw suddenly hooked at apex.

Upper-side with a bronzy reflection, under-side red-brown. Last abdominal segment with fine striae behind and a fine ridge in middle. Rather common.

*I. ater*, De G.

**2.** Length 5 lines; male with a small obtuse tooth in middle of anterior claws and outer posterior claw straight, broad, and rounded at apex.

Deep black; more pointed behind than *I. ater*. Last abdominal segment with very feeble striae behind and a fine ridge in middle. Moderately common.

*I. obscurus*, Marsh.

**II.** Length 4 lines or less.

**1.** Antennae entirely brown-red; body broader.

**A A.** Body without metallic lustre.

Black, without metallic lustre. Hinder light spot on elytra roundish, and both often feeble. L. 4 l. Not uncommon.

*I. guttiger*, Gyll.

**B B.** Body with some metallic lustre.

Similar to *I. angustior* but usually somewhat smaller, with less metallic lustre, and antennae unicolorous; smaller and less black than *I. guttiger*, with rows of punctures on elytra less evident. Not very common. *I. aenescens*, Th.

**2.** Antennae brown-red at base, blackish at apex; body narrower.

Black, with metallic lustre. Light spots on elytra very small, often effaced. L.  $3\frac{3}{4}$  l. *I. angustior*, Gyll.



*Liopterus.*

Elongate ovate. Head and thorax brown-red, former black behind; elytra brown, lighter at sides; under-side black; legs brown-yellow. Elytra pointed behind. L.  $3\frac{1}{2}$  l. Common. *L. ruficollis*, Schal.

*Agabus.*

**A.** Side pieces (laciniae) of metasternum broad and triangular.

**a.** Elytra entirely black, or black or brown with sides lighter.

**I.** Head and thorax with a network of scratches.

**1.** Elytra unicolorous.

**A A.** Network on upper-side rather close, scratches distinctly longitudinal.

**a a.** Front pairs of legs (except anterior knees and tarsi) blackish.

**A a.** Base of thorax sinuate on each side, posterior angles somewhat acute.

Ovate, pointed behind, somewhat convex. Black; network very close (especially on elytra). Rows of punctures on elytra feeble; male with anterior tarsi much dilated, their claws dissimilar, outer one larger than inner, slightly curved S-like, dilated in middle, inner one with a strong tooth at base; all joints of posterior tarsi with swimming hairs beneath. L.  $4\frac{1}{2}$  l. Common.

*A. bipustulatus*, Lin.

**B b.** Base of thorax straight, posterior angles rather obtuse.

Similar to *A. bipustulatus* but flatter and narrower, with more bronze reflection, and the meshes of the sculpture rather larger. Male with anterior tarsi much dilated, their outer claw larger than inner, curved sicklelike. L.  $4\frac{1}{2}$  l. Rare.

*A. Solieri*, Aub.

**b b.** Front pairs of legs red.

Oblong-ovate. Black, not very shiny; network on upper-side rather close, irregular. Rows of punctures on elytra very irregular, especially behind, punctures shallow.

Male with first four joints of posterior tarsi with swimming hairs beneath. L.  $3\frac{1}{2}$  l. Not common.

*A. striolatus*, Gyll.

**B B.** Network on upper-side rather diffuse, scratches without any definite direction.

Oval, rather flat. Black, male rather shiny, female less so; legs pitch-black, knees and tarsi reddish; each elytron with an obscure pale dash at side near apex; rows of punctures on elytra rather strong, male with a little tooth at base of inner claw of anterior tarsi and with swimming hairs beneath two joints of posterior tarsi. L.  $4\frac{1}{4}$ — $4\frac{1}{2}$  l. A single specimen in Dr. Power's collection.

*A. tarsatus*, Zett.

**2.** Elytra black or brown, with sides lighter.

**A A.** Hinder process of prosternum with feeble central ridge and sharp side edges; irregular rows of punctures on elytra distinct; anterior tarsi of male not strongly dilated.

**a a.** Disc of elytra blackish-bronze, posterior tibiae and tarsi blackish; posterior tarsi of male with swimming hairs beneath first joint only.

Oblong oval, not very convex. Upper-side bronze-black, with a very close and fine network of scratches; sides of thorax and elytra lighter; under-side black; reflexed margin of elytra brown-red; legs reddish pitch-brown, posterior tibiae and tarsi and middle of all femora blackish. L. 4 l. Common.

*A. chalconotus*, Panz.

**b b.** Disc of elytra brown; posterior tibiae and tarsi red; posterior tarsi of male with swimming hairs beneath three joints.

Oval, slightly convex. Head and thorax with a fine and close network of scratches, black, with metallic lustre, latter with raised side margin sometimes reddish; elytra very finely shagreened, brown, with metallic lustre, sides and base lighter; under-side black; reflexed margin of elytra yellow-brown; legs rust-red, femora blackish. L.  $3\frac{1}{4}$ — $3\frac{1}{2}$  l. Rather common.

*A. congener*, Thunb.

**B B.** Hinder process of prosternum flat; irregular rows of punctures on elytra indistinct or absent; anterior tarsi of male strongly dilated.

**a a.** Elytra very finely wrinkled; body oblong.

Black; head red in front, with two pale spots behind; thorax pale reddish-yellow, with anterior and posterior margins black, (or nearly black, with sides alone pale); elytra brown, side margin pale; margins of abdominal segments and the legs red-yellow; sternum dull red. L.  $3\frac{1}{2}$  l. Rather common. *A. arcticus*, Payk.

**b b.** Elytra with very fine network; body oval.

Slightly convex, not very shiny. Head and thorax black, sides of latter light brownish-yellow; elytra brown, base and sides brownish-yellow; under-side black; legs red-brown, posterior femora pitch-black. Male with swimming hairs beneath all joints of posterior tarsi. L.  $3\frac{1}{2}$  l. Common. *A. Sturmii*, Schönh.

**II.** Head and thorax without a network of scratches.

**1.** Disc of elytra brownish-black, very finely punctured (besides the very distinct irregular rows); male with swimming hairs beneath all joints of posterior tarsi.

Ovate, convex. Brownish-black, shiny; sides of thorax and elytra and the legs reddish. Upper-side very finely punctured. Male with outer claw of anterior tarsi double as broad as inner one, deeply notched at base and with a strong, short tooth in middle. L.  $3\frac{1}{4}$  l. Not uncommon.

*A. uliginosus*, Lin.

**2.** Disc of elytra acorn-brown, without punctures (except usual rows); male with swimming hairs beneath first two joints of posterior tarsi.

Oval, flatly arched, very shiny. Head and thorax black, sides of latter red; elytra acorn-brown, with sides light brown; under-side black; reflexed margin of elytra light brown; legs brown-red, all femora and hinder tibiae black. L.  $3\frac{3}{4}$  l. Common. *A. paludosus*, Fab.

**b.** Elytra either black, with two light spots on each, yellowish with black markings or entirely brown-red.

**I.** Length  $3\frac{2}{3}$ —4 lines.

**1.** Thorax black.

**A A.** Anterior light spot on elytra round.

**a a.** Elytra without distinct punctures, except three tolerably regular rows.

Oblong oval, slightly convex. Black, very shiny; apical light spot on elytra often indistinct; legs pitch-black. Upper-side with extremely feeble network, almost smooth. Male with a tooth in middle of inner claw of anterior tarsi, and swimming hairs beneath first joint only of posterior tarsi. L. 4 l. Not very common. *A. nitidus*, Fab.

**b b.** Elytra distinctly punctured, besides three irregular rows.

Oblong oval, rather flat. Black, shiny; light spots on elytra sometimes rather indistinct; legs pitch-black, tibiae and tarsi of front pairs reddish. Upper-side with close and fine network; side margins of thorax rather strongly raised. Male with swimming hairs beneath first joint only of posterior tarsi. L. 4 l. Common. *A. guttatus*, Payk.

**B B.** Anterior light spot on elytra constricted or divided.

Oblong-ovate, tolerably convex. Black, with metallic lustre, especially on elytra; reflexed margin of elytra red; front pairs of legs red, with a dark spot on femora and intermediate tibiae, posterior legs pitchy, trochanters and apex of femora reddish. Upper-side smooth, except the irregular rows of punctures on elytra. Male with swimming hairs beneath four joints of posterior tarsi. L.  $3\frac{2}{3}$  l. Common. *A. didymus*, Ol.

## 2. Thorax brown red.

Ovate, convex. Brown-red; smooth, spotless; elytra rather darker, with base and side margin a little paler; sides of breast and abdomen black; anterior pairs of legs pitchy-red, posterior pair pitch-black; antennae short, reddish. Male with swimming hairs beneath four joints of posterior tarsi. L. 4—4½ l. Scarce. *A. brunneus*, Fab.

## 3. Thorax yellow, with two black points.

Oval. Head (except labrum, clypeus and frontal spots) black; elytra yellow, with irregular black spots, which leave base, suture, side margin and a small round spot somewhat behind middle uncovered; under-side black, margins of abdominal segments somewhat widely reddish; legs yellow, posterior femora darker. Male with a tooth

quite at base of each of anterior claws and with swimming hairs beneath first four joints of posterior tarsi. L. 4 l. Common. *A. nebulosus*, Forst.

**4.** Thorax entirely yellow.

Very similar to *A. nebulosus* but with front pairs of femora spotted with black, posterior femora almost entirely black, and only extreme margins of abdominal segments reddish. Male with inner claw of anterior tarsi broader than outer and slightly toothed in middle; outer claw of intermediate tarsi rather longer and less curved than inner, posterior tarsi with swimming hairs beneath first four joints. L.  $3\frac{3}{4}$ —4 l. Rather common. *A. conspersus*, Marsh.

**II.** Length 3 lines.

Oblong oval, moderately convex. Black, with bronze reflection; light spots on elytra oblong, often indistinct; legs red, with femora blackish. Upper-side extremely feebly shagreened, elytra with extremely fine punctures, besides irregular rows. Male with a sharp tooth beneath each of anterior claws and with swimming hairs beneath first two joints of posterior tarsi. Dumfries.

*A. affinis*, Payk.

**B.** Side pieces (laciniae) of metasternum narrow and linear.

**a.** Under-side entirely black.

Similar to *A. affinis*, but with sides not parallel, head smaller, thorax narrower in front, with sides rather thick, pitchy; reflexed margin of base of elytra dark red-brown. L. 3 l. Tolerably common. *A. unguicularis*, Th.

**b.** Under-side of thorax brown-red, rest of breast and abdomen black.

**I.** Elytra brownish-bronze, with sides lighter.

Oval, slightly convex. Upper-side brownish-bronze; sides of thorax reddish; legs brown-red. Elytra very finely punctured, the irregular rows distinct. Male with under-side of anterior femora thickly fringed, and with swimming hairs beneath first three joints of posterior tarsi. L. 3 l. Common. *A. femoralis*, Payk.

**II.** Elytra black, with slight bronze reflection and with side margin (except apex), a curved transverse band at base, an irregular spot (sometimes divided and generally attached by a line to side margin)

behind middle and a roundish spot at apex brownish-yellow.

Oval, rather convex. Head (except vertex) reddish; thorax blackish, sides indistinctly reddish; legs brownish-red. Upper-side smooth. Male with swimming hairs beneath first three joints of posterior tarsi. L.  $3\frac{1}{4}$  l. Common. *A. undulatus*, Schr.

**c.** Under-side entirely brownish-yellow.

Oval, tolerably convex. Head yellow in front, bronze-brown behind; thorax bronze-brown, with a yellow transverse band (dilated at sides) in middle; elytra bronze-brown, with side margin, a basal band, dilated within, two longitudinal lines (inner one very short), and an oblique band from shoulder yellow. Prosternum ridged in front, strongly dilated behind coxae, flat, hinder process sharp. Male with swimming hairs beneath first three joints of posterior tarsi. L.  $3\frac{3}{4}$  l. Common. *A. maculatus*, Lin.

### *Dytiscus.*

**A.** Posterior coxae with a pointed process behind.

**a.** Scutellum black.

**I.** Process of posterior coxae short and rather blunt.

Upper-side dark olive-green; all the margins of thorax and side margins of elytra yellow; under-side brownish-yellow. Elytra of female furrowed or smooth. L. 14 l. Common. *D. marginalis*, Lin.

**II.** Process of posterior coxae sharp.

Upper-side dark olive-green, all the margins of thorax and side margins of elytra pale yellow; under-side pale yellow. Elytra of female furrowed. L. 14 l. Not common. *D. circumcinctus*, Ahr.

**b.** Scutellum yellow.

**I.** Elytra olive-green, with side margin yellow.

Head and thorax olive-green, all the margins of latter yellow; under-side yellow, with black spots. Process of posterior coxae sharp. Elytra of female furrowed until beyond middle. L. 13 l. Not uncommon.

*D. circumflexus*, Fab.

**II.** Elytra olive-black, with side margin and numerous fine longitudinal lines yellow.

Head and thorax olive-black, all the margins of latter yellow; under-side yellow, with some more or less distinct dark spots. Process of posterior coxae sharp. Elytra of female furrowed until near apex. L. 12 l. Rare.

*D. lapponicus*, Gyll.

**B.** Posterior coxae with a rounded process behind.

**a.** Under-side pitch-black.

Upper-side olive-black, side margins of thorax and elytra yellow. Elytra of female furrowed until beyond middle. L. 12 l. Common.

*D. punctulatus*, Fab.

**b.** Under-side yellow.

Upper-side dark olive-green, side margins of thorax and elytra yellow. Elytra of female furrowed until beyond middle. L. 15 l. Not common.

*D. dimidiatus*, Berg.

### *Acilius.*

**A.** Posterior femora without any black spot.

Similar to *A. sulcatus*, but rather narrower, with yellow much more predominant on abdomen, and with posterior tibiae and tarsi reddish. In female, the shallow depressions on thorax not hairy and third furrow on elytra narrower. L.  $6\frac{1}{2}$  l. Moderately common.

*A. canaliculatus*, Nic.

**B.** Posterior femora with a black spot at base.

Broad oval, flat. Upper-side blackish-brown; mouth, margins of thorax and a transverse band in its middle yellow; under-side black, prosternum and lateral spots on, and apical margins of abdominal segments yellow; front pairs of legs yellow; posterior femora yellow, with a black spot at base, their tibiae and tarsi pitch-black. L.  $7\frac{1}{2}$  l. Common.

*A. sulcatus*, Lin.

The variety *scoticus*, Steph., has the thoracic band interrupted in middle, outer margin of elytra clouded with brown, abdomen with small yellowish spots on the sides and its segments edged with dull red.

*Hydaticus.*

**A.** Intermediate tarsi of male not much dilated, their first three joints with two rows of sucker-cups beneath.

Oval. Yellow, vertex of head, two frontal spots and two broad bands (including the anterior and posterior margins) on thorax black; elytra sprinkled with dark brown spots. L.  $6\frac{1}{2}$  l. Scarce. *H. cinereus*, Lin.

**B.** Intermediate tarsi of male considerably dilated, with four rows of sucker-cups beneath.

**a.** Elytra black, with a broad side border (interrupted by black lines) and a narrow transverse band behind base yellow.

Oblong oval. Head black, front and a pair of frontal spots rust-red; thorax yellow, with a broad triangular black spot at base; under-side pitchy. L.  $5\frac{1}{2}$  l. Rather common. *H. transversalis*, Berg.

**b.** Elytra black, with a broad yellow side border, sometimes sprinkled with black lines behind.

Oblong-ovate. Head and thorax black, mouth and two frontal spots, anterior margin and sides of latter rust-yellow; under-side black. L. 6 l. Not uncommon.

*H. seminiger*, De G.

**GYRINIDAE.**

**A.** Last abdominal segment rather flat, rounded at apex, little or not at all fringed; elytra with rows of punctures.

Last joint of labial palpi as long as the two preceding joints together; mentum without any middle tooth; outer lobe of maxillae narrow, thin and inarticulate, lying close against the inner lobe. *Gyrinus*, Lin.

**B.** Last abdominal segment prominent, conical, fringed with hairs at the apex; elytra irregularly punctured.

Last joint of labial palpi as long as the three preceding joints together; mentum with a small middle tooth; outer lobe of maxillae wanting. *Orectochilus*, Eschsch.

*Gyrinus.*

**A.** Under-side entirely rust-red.



**a.** Punctures on elytra scarcely feebler toward suture.

Oblong oval. Upper-side blackish-blue, sides of thorax and elytra bronzy. L.  $2\frac{1}{4}$  l. Rather common in Scotland, but local. *G. minutus*, Fab.

**b.** Punctures on elytra much finer toward suture.

Ovate. Upper-side blackish-blue. Elytra with coppery bands, in which the rows of punctures stand. L.  $3-3\frac{1}{2}$  l. Not uncommon near Newcastle. *G. urinator*, Ill.

**B.** Under-side wholly or chiefly black, legs reddish.

**a.** Reflexed margin of thorax and elytra reddish.

**I.** Body ovate or oval.

**1.** Punctures on elytra distinctly finer toward suture.

Convex. Upper-side blackish-blue, suture and side margin of elytra more or less brassy. Breast and last abdominal segment sometimes reddish. L. 3 l. Common. *G. natator*, Scop.

**2.** Punctures on elytra scarcely finer toward suture.

Rather flat. Upper-side black-blue, side margins greenish-bronze; apex of abdomen reddish. L.  $2\frac{1}{4}$  l. *G. Suffriani*, Scrib.

**II.** Body elongate, oblong, with nearly parallel sides.

Moderately convex; upper-side blue-black. Elytra very long, their apices more rounded than in *G. distinctus*, their punctuation finer toward suture, interstices impunctate. L.  $3\frac{3}{4}$  l. Rare. *G. bicolor*, Payk.

**III.** Body oblong ovate.

**1.** Interstices on elytra impunctate.

Flatly arched. Upper-side bluish-black. Punctures on elytra finer toward suture, interstices impunctate. L. 3 l. Rather common. *G. distinctus*, Aub.

**2.** Interstices on elytra indistinctly punctured.

Rather flatly arched. Upper-side bluish-black. Punctures on elytra finer toward suture, interstices (when strongly magnified) visibly punctured. Breast and apex of abdomen sometimes reddish. L.  $3\frac{1}{4}$  l. Rare.

*G. caspius*, Mén.

**3.** Interstices on elytra closely and distinctly punctured.

Slightly convex. Upper-side blue-black, greenish-bronze at sides. Punctures on elytra finer toward suture. Breast sometimes reddish. L. 3 l. Rare. *G. colymbus*, Er.

**b.** Reflexed margin of thorax and elytra brassy-black.

**I.** Punctures on elytra scarcely finer toward suture.

Oval, greatest breadth rather behind middle; flatly arched. Upper-side bluish-black-gray, suture and sides of elytra brassy. Interstices of elytra finely punctured in female, very indistinctly so in male. L. 3 l. Common.

*G. marinus*, Gyll.

**II.** Punctures on elytra much finer toward suture.

Oval, greatest breadth in middle, flatly arched. Coloured like *G. marinus*. Interstices of elytra finely punctured in female. L. 2½ l. Common.

*G. opacus*, Sahlb.

### *Orectochilis.*

Oblong oval, convex; dark brown, with slight bronze lustre, finely punctured all over, with tolerably thick gray pubescence; under-side rust-red. L. 3 l. Rather common.

*O. villosus*, Müll.

## PALPICORNIA.

**A.** First joint of posterior tarsi short. *Hydrophilidae.*

**B.** First joint of posterior tarsi long. *Sphaeridiidae.*

## HYDROPHILIDAE.

**A.** Thorax narrower at apex than at base.

**a.** First joint of posterior tarsi very short, second joint long.

Labrum not hidden; femora compressed; antennae with eight or nine joints. *Hydrophilides.*

**b.** First four joints of posterior tarsi all equally short.

Labrum hidden; femora almost cylindrical; antennae with six joints. *Spercheides.*

**B.** Thorax narrower at base than at apex.

Labrum not hidden ; femora almost cylindrical ; antennae with nine (rarely seven) joints. *Helophorides.*

### HYDROPHILIDES.

**A.** Abdomen with five visible ventral segments.

**a.** Antennae nine-jointed.

**I.** Posterior tarsi strongly compressed, oarlike ; prosternum and mesosternum ridged.

**1.** Apex of metasternum reaching much beyond posterior coxae.

Labrum entire ; inner margin of mandibles toothed. Last joint of anterior tarsi dilated in male.

*Hydrophilus*, Geoff.

**2.** Apex of metasternum not reaching beyond posterior coxae.

Labrum emarginate ; inner margin of mandibles fringed. Last joint of anterior tarsi dilated in male.

*Hydrous*, Brull.

**II.** Posterior tarsi scarcely compressed, not oarlike ; prosternum not ridged.

**1.** Maxillary palpi long.

**A A.** Tibiae strongly spined.

Oblong oval. Maxillary palpi moderately long, their third joint shorter than the second and fourth, which are about equal in length ; labial palpi moderately long and moderately stout, second joint longer than the third ; front of clypeus straight or nearly so ; mesosternum ridged ; head with two depressions near eyes. *Hydrobius*, Leach.

**B B.** Tibiae feebly spined.

**a a.** Mesosternum simple.

Oblong oval. Maxillary palpi very long, third joint not so long as second, fourth not so long as third but more than half as long as second ; labial palpi short, third joint not quite so long as second ; mentum notched in front.

*Helochares*, Muls.

**b b.** Mesosternum ridged.

**A a.** Labial palpi long and slender; maxillary palpi long, second joint considerably longer than third, and third than fourth, fourth joint not quite half so long as second.

Oblong oval. Elytra with a furrow near suture.

*Philhydrus*, Sol.

**B b.** Labial palpi rather short; maxillary palpi rather long, second joint longer than third and fourth, which are equal in length.

Oval. Elytra with a furrow near suture; front of clypeus strongly emarginate; sternal ridge strong.

*Enochrus*, Th.

**2.** Maxillary palpi short.

**A A.** Posterior femora smooth and shining beneath.

Short oval, convex. Mesosternum ridged; tibiae very strongly spined; second and fourth joints of maxillary palpi about equal in length, third rather shorter; labial palpi short, third joint not quite so long as second; front of clypeus strongly emarginate; sternal ridge strong.

*Paracymus*, Th.

**B B.** Posterior femora densely pubescent beneath.

Convex, nearly hemispherical or oblong. Mesosternum simple; tibiae strongly spined; fourth joint of maxillary palpi rather longer than either of the others; labial palpi very short, third joint stout, nearly as long as second; front of clypeus slightly emarginate; sternal ridge feeble.

*Anacaena*, Th.

**b.** Antennae eight-jointed.

**I.** Body short oval; posterior tibiae not fringed.

Elytra with numerous rows of punctures. Anterior tarsi of male somewhat dilated.

*Laccobius*, Er.

**II.** Body long oval; posterior tibiae fringed.

Elytra with deep punctured striae. Second joint of male anterior tarsi strongly dilated.

*Berosus*, Leach.

**B.** Abdomen with six or seven visible ventral segments.

Antennae eight-jointed; elytra truncate at apex; posterior tibiae and tarsi not at all or very slightly fringed. Body oval. *Limnebius*, Leach.

**C.** Abdomen with four visible ventral segments, the first two segments being covered by two plates, meeting in the middle.

Antennae nine-jointed; tibiae with fine spines, tarsi somewhat compressed. *Chaetarthria*, Wat.

### *Hydrophilus.*

Oblong oval, moderately convex. Pitch-black; antennae rust-red, club brown. Elytra with a tooth at apex; abdominal segments ridged. L. 17—20 l. Common.

*H. piceus*, Lin.

### *Hydrous.*

Oblong oval. Greenish-black; antennae rust-red, club brown; legs brown-black. Elytra with some rows of punctures. L. 7—8 l. Rather common.

*H. caraboides*, Lin.

### *Hydrobius.*

**A.** Elytra with punctured striae, interstices closely punctured, alternate interstices with a row of larger punctures.

Pitch-black; antennae (except club) and legs brown. Posterior femora pubescent for at least  $\frac{2}{3}$  of their length. L.  $3\frac{1}{2}$  l. Common.

*H. fuscipes*, Lin.

**B.** Elytra with rows of fine punctures, interstices closely punctured, alternate interstices with a row of larger punctures.

Black; antennae (except club) and tarsi reddish. Posterior femora pubescent at base only. Body more elongate than *H. fuscipes*. L. 4 l. Not uncommon.

*H. oblongus*, Herbst.

### *Helochares.*

**A.** Punctuation scarcely strong, finer and more scanty toward apex of elytra.

Oblong-ovate, moderately convex. Upper-side pale brown-yellow, very closely punctured; under-side and apex of palpi (latter narrowly) blackish; tibiae usually yellow-brown. Elytra without sutural furrow. L.  $2\frac{3}{4}$ —3 l. Common. *H. lividus*, Forst.

**B.** Punctuation strong and close throughout.

Similar to *H. lividus*, but darker brown-yellow, with head and a broader space at apex of palpi blackish. L.  $2\frac{1}{2}$ — $2\frac{3}{4}$  l. Rather common. *H. punctatus*, Sharp.

### *Philhydrus*.

**A.** Elytra unicolorous.

**a.** Body oblong-ovate, moderately convex.

**I.** Penultimate joint of palpi pitehy.

Oblong-ovate, moderately convex: Upper-side lighter or darker yellow-brown, finely and closely punctured; head and disc of thorax usually blackish. Elytra with a sutural furrow, abbreviated in front. L.  $2\frac{1}{2}$ —3 l. Rather common. *P. testaceus*, Fab.

**II.** Palpi entirely yellow-brown.

Similar to *P. testaceus* but rather more shiny, a little narrower and more oblong, punctuation not quite so close and a little more distinct; club of antennae not so black; head only slightly brown in middle. Rather common.

*P. maritimus*, Th.

**b.** Body oval, convex.

**I.** Palpi entirely reddish.

Similar to *P. melanocephalus* but shorter in proportion and more convex; punctuation of elytra generally stronger but without any rows of larger irregular punctures; femora reddish, but brown on upper-side. Rather common.

*P. nigricans*, Zett.

**II.** Palpi reddish, with apex of last joint brown.

Elliptic, convex. Upper-side brownish-yellow, closely punctured; head, middle of thorax, and the under-side black; legs reddish, with femora blackish. Elytra with a sutural furrow abbreviated in front. L.  $2\frac{1}{3}$  l. Moderately common. *P. melanocephalus*, Ol.

**B.** Elytra yellowish or brownish, with black suture, or black, with yellow side margin.

**a.** Head black, with a distinct yellow spot on each side of clypeus before eye.

Oblong oval, closely punctured. Black; thorax and elytra yellowish, former brown on disc, latter with black suture; base of antennae and the palpi yellow, latter sometimes with second joint and middle of last one a little clouded; tibiae pitchy, tarsi yellowish. L.  $1\frac{3}{4}$  l. Common.

*P. suturalis*, Sharp.

**b.** Head black, without light spots.

**I.** Last joint of palpi black.

Allied to *P. suturalis* but smaller, thorax darker, elytra browner in colour, with punctuation of upper-side slightly more marked.

*P. marginellus*, Th.

**II.** Palpi entirely yellow.

Black; sides of thorax and of elytra yellowish. L.  $1\frac{2}{3}$  l.

*P. ovalis*, Th.

### *Enochrus.*

Head black; antennae yellowish, club gray; thorax and elytra reddish-yellow. Closely and finely punctured. L.  $2\frac{1}{4}$  l. Not uncommon.

*E. bicolor*, Payk.

### *Paracymus.*

Bronze-brown; antennae rust-red, club gray. Rather closely punctured; front pairs of femora rather thickly pubescent on their basal half. L.  $1-1\frac{1}{4}$  l. Rather common.

*P. aeneus*, Germ.

### *Anacaena.*

**A.** Thorax black, sides paler.

**a.** Elytra black, sides paler; tarsi (especially posterior pair) rather stout.

Nearly hemispherical. Head black; base of antennae red-yellow; palpi red-yellow, last joint pitchy; legs red. L.  $1\frac{1}{2}-1\frac{2}{3}$  l. Common.

*A. limbata*, Fab.

**b.** Elytra pitchy or pitch-brown; tarsi slender.

Rather narrower and less convex than *A. limbata*. Head black, sometimes with two small reddish spots between the eyes; base of antennae red-yellow; palpi pitchy, last joint black; legs pitchy-red. L.  $1\frac{1}{4}$ — $1\frac{1}{3}$  l. Variable in size and colour; common in England, rare in Scotland.

*A. variabilis*, Sharp.

**B.** Thorax red-yellow, disc more or less brown.

Broad oval, moderately convex. Head black, with two large pale spots between the eyes; base of antennae red-yellow; palpi red-yellow, last joint pitchy; elytra red-yellow, strewed with black spots; legs red-yellow. L.  $1$ — $1\frac{1}{4}$  l. Common in England, not in Scotland.

*A. bipustulata*, Steph.

### *Laccobius.*

**A.** Length  $1\frac{1}{4}$  lines.

Black; sides of thorax and the elytra gray-yellow, latter sprinkled with black and usually with a lighter point near suture before apex. Common.

*L. minutus*, Lin.

**B.** Length 2 lines.

Similar to *L. minutus* but obovate, with head bronze-black, striae on elytra less deeply punctured, irregular, alternate interstices with rows of larger punctures. Common.

*L. nigriceps*, Th.

### *Berosus.*

**A.** Elytra with two spines at apex.

Very convex. Brownish-yellow, vertex of head, almost always two spots on disc of thorax and some spots on elytra darker. Elytra with deep punctured striae, interstices flat and punctured almost in a regular row. Fifth abdominal segment unarmed. L.  $2\frac{1}{2}$  l. Not uncommon.

*B. spinosus*, Stev.

**B.** Elytra without spines at apex.

**a.** Thorax red-yellow, with an oval greenish-bronze black or violet spot, composed of two separate slightly curved longitudinal lines.

Very convex. Head greenish-bronze-black; elytra red-yellow, with dark spots, with deep punctured striae, inter-



stices punctured almost in a regular row. L.  $2\frac{1}{2}$  l. Rather common. *B. signaticollis*, Charp.

**b.** Thorax red-yellow, with a greenish-bronze-black or violet spot, which is parallel-sided in front, suddenly dilated in the middle and partly divided by a narrow red-yellow central longitudinal line.

Very convex. Head greenish-bronze-black; elytra red-yellow, with dark spots, striae deep and strongly punctured, interstices arched, punctured in one or two irregular rows. L. 2 l. Common. *C. luridus*, Lin.

**c.** Thorax red-yellow, with a greenish-bronze or violet spot, which is nearly square or evenly and slightly dilated behind.

Convex. Head greenish-violet; elytra red-yellow, with dark spots, striae not deep, closely and not very strongly punctured, intervals flat, evenly punctured. L. 2 l. Rather common. *B. affinis*, Brull.

### *Limnebius.*

**A.** Length above  $\frac{1}{2}$  line.

**a.** Forehead more strongly punctured than clypeus.

Oblong. Upper-side black, moderately shiny; posterior angles of thorax and sometimes sides of elytra brown; labrum emarginate. L.  $\frac{2}{3}$ —1 l. Common.

*L. truncatellus*, Thunb.

**b.** Forehead not more strongly punctured than clypeus.

**I.** Thorax and elytra yellow-brown, disc of former darker; somewhat dull.

Oblong. Head black; labrum entire. L.  $\frac{2}{3}$ —1 l. Common.

*L. papposus*, Muls.

**II.** Upper-side black, shiny.

Oval. Labrum entire. L.  $\frac{2}{3}$ — $\frac{4}{5}$  l. Rather common.

*L. nitidus*, Marsh.

**B.** Length  $\frac{1}{3}$  line.

Oval, smooth and shiny. Head black, labrum entire; thorax and elytra yellow-brown, disc of former darker; suture of latter bordered toward apex. Moderately common.

*L. picinus*, Marsh.

***Chaetarthria.***

Nearly globular. Black, shiny, sides rather lighter; under-side pitch-brown. Elytra with a furrow near suture on hinder part. L.  $\frac{1}{2}$ — $\frac{3}{4}$  l. Common.

*C. seminulum*, Payk.

**SPERCHEIDES.**

Outer lobe of maxillae slender; breast not ridged; head emarginate in front.

*Spercheus*, Kug.

***Spercheus.***

Oval, convex. Yellowish-brown; disc of head and of thorax darker; elytra with scattered dark spots and a dark longitudinal band near suture. L. 3 l. Very rare.

*S. emarginatus*, Schall.

**HELOPHORIDES.**

**A.** Maxillary palpi much shorter than head and thorax.

**a.** Last joint of maxillary palpi longer than the penultimate.

**I.** Thorax distinctly broader than long, wider than head with the eyes.

Antennae nine-jointed; abdominal segments flat, the first not ridged, last joint of posterior tarsi not so long as all the rest together.

*Helophorus*, Fab.

**II.** Thorax about as long as, or longer than broad, narrower than head with the eyes.

Antennae seven-jointed; first four abdominal segments transversely raised, the first with a longitudinal ridge; last joint of posterior tarsi as long as all the rest together.

*Hydrochus*, Leach.

**b.** Last joint of maxillary palpi shorter than the penultimate.

Antennae nine-jointed; last joint of maxillary palpi shorter and more slender than the penultimate joint; labrum slightly sinuate in front; eyes prominent; prosternum not ridged between the anterior coxae; abdominal segments not raised transversely.

*Ochthebius*, Leach.

**B.** Maxillary palpi as long as head and thorax.

Antennae nine-jointed ; last joint of maxillary palpi longer and thicker than the penultimate joint ; labrum strongly and narrowly emarginate ; eyes not very prominent ; prosternum ridged between the anterior coxae ; abdominal segments not raised transversely.

*Hydraena*, Kug.

### *Helophorus.*

**A.** Elytra with a short row of punctures at base between first and second striae.

**a.** Alternate interstices on elytra raised into strong ridges.

**I.** Ridges on thorax interrupted.

Oblong-ovate. Brown, usually covered with a dull yellowish-brown crust ; elytra with dark spots ; antennae, palpi and legs yellowish-red. Sides of thorax nearly straight, longitudinal ridges very feeble, interrupted ; elytra with suture and alternate interstices strongly ridged, sutural ridge ceasing near base, where there is a short ridge between suture and short row of punctures. L.  $1\frac{1}{2}$ —2 l. Common. *H. rugosus*, Ol.

**II.** Ridges on thorax not interrupted.

**1.** Thorax not iridescent, length  $1\frac{1}{2}$  lines.

Oblong-ovate, dull. Gray-yellow ; thorax with five furrows, sides scarcely dilated ; elytra rather lighter coloured, with more or less distinct dark spots, with notched furrows, interstices alternately raised and with numerous small black spots. Common. *H. nubilus*, Fab.

**2.** Thorax slightly iridescent ; length 2 lines.

Oblong-ovate, somewhat shiny. Brown, thorax slightly iridescent ; elytra with a more or less distinct triangular dark spot behind middle, and round pale spot before apex. Allied to *H. nubilus*, but usually larger, narrower, the raised longitudinal ridges on the thorax more prominent ; elytra with interstices less raised and pubescent. Rather common. *H. intermedius*, Muls.

**b.** Alternate interstices on elytra scarcely raised into ridges.

Oblong. Head and thorax bronze, latter punctured in wrinkles, sides sinuate; elytra gray, with punctured striae. L.  $2\frac{1}{4}$ —3 l. Common. *H. aquaticus*, Lin.

**B.** Elytra without short row of punctures at base.

**a.** Inner lateral furrows on thorax curved.

**I.** Interstices on thorax granulate.

**1.** Palpi wholly or chiefly light-coloured.

**A A.** Thorax iridescent.

**a a.** Length  $1\frac{3}{4}$ —2 lines.

Oblong. Head and thorax bronze-green; elytra yellowish-gray, with cloudy spots and a pale spot (often indistinct) behind middle. Thorax with lateral ridges more distinctly granulate than inner ones; elytra with crenate striae. Moderately common. *H. Mulsanti*, Rye.

**b b.** Length  $1\frac{1}{2}$  lines.

Oblong. Head and thorax greenish-bronze, latter distinctly narrowed at base, with light yellow anterior and side margins; elytra yellow-brown, with darker spots, with punctured striae, interstices flat, each with a row of fine punctures. Common. *H. griseus*, Herbst.

**c c.** Length  $1\frac{1}{4}$  lines.

Oblong oval. Head and thorax bronze, latter narrowed at base; elytra dark brown-yellow, with indistinct black spots and a distinct dark spot behind middle near suture. Elytra with deeper punctured striae than in *H. griseus*, interstices narrower, legs darker, and thorax more distinctly granulate. Common. *H. granularis*, Lin.

**B B.** Thorax not iridescent.

Oblong-ovate. Brown-bronze, rather shiny; elytra obscurely red-yellow, with some bronze reflection; femora and tarsi brown-yellow at apex. Elytra with strongly punctured striae, interstices convex. L.  $1\frac{1}{2}$ —2 l. Common. *H. aeneipennis*, Th.

**2.** Palpi brownish.

Oblong oval. Head and thorax metallic; elytra brownish-red, with a common black spot (V-shaped, with apex forward) behind middle, and other indistinct dark spots; palpi and legs brownish. Thorax coarsely and closely granulate between the furrows; elytra with deep notched

striae, interstices convex, alternate ones distinctly more raised. L.  $1\frac{1}{2}$  l. Moderately common.

*H. arvernicus*, Muls.

**II.** Interstices on thorax finely punctured.

Oblong. Head and thorax brassy-green, sides of latter straight, palish; elytra brown, with a round pale spot near apex, another near side margin, slightly before middle, and an oblique one from scutellum backward; legs, palpi, and antennae pale. Elytra dilated behind middle. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Moderately common.

*H. dorsalis*, Marsh.

**b.** Inner lateral furrows on thorax straight.

Oblong oval. Head and thorax pitch-brown, latter with narrow, deep, and almost straight furrows, central interstices almost smooth, lateral ones more or less wrinkled, disc convex; elytra brown-yellow, with indistinct spots, with deep notched striae, interstices narrow and convex. L.  $1\frac{1}{4}$  l. Not uncommon.

*H. nanus*, Sturm.

### *Hydrochus.*

**A.** Some interstices on elytra raised into ridges.

**a.** Elytra black, with ten rows of punctures and the alternate interstices raised nearly to apex.

**I.** Body oblong; thorax as long as broad.

Head and thorax black, strongly punctured; latter with five depressions in two transverse rows, sides curved. L.  $1\frac{1}{2}$  l. Not common.

*H. brevis*, Herbst.

**II.** Body elongate; thorax longer than broad.

Head and thorax black, strongly punctured; latter with five depressions, sides almost straight. L.  $1\frac{1}{2}$  l. Moderately common.

*H. carinatus*, Germ.

**b.** Elytra bronze-black or brown, with ten rows of punctures, the alternate interstices raised until beyond middle, the fourth interstice also raised behind.

Elongate. Head and thorax bronze-green or black, strongly punctured; latter longer than broad, with five depressions, sides somewhat rounded. L. 2 l. Common.

*H. elongatus*, Schall.

**B.** None of the interstices on elytra raised into ridges.

Elongate. Upper-side greenish or purplish-bronze, strongly punctured. L.  $1\frac{1}{2}$  l. Rather common.

*H. angustatus*, Germ.

### *Ochthebius*.

**A.** Elytra with strong punctured striae.

**a.** Thorax without transverse furrows prolonged to lateral margin.

**I.** Thorax unicolorous.

**1.** Elytra short and broad.

Broad ovate. Upper-side bronze-brown or coppery-brown, rather shiny; thorax of male black, with bronze side margins, of female entirely bronze. Vertex of head with two connected depressions; thorax almost heart-shaped, in male with a basal depression on each side, in female with four depressions placed in a square on disc, besides the central and lateral furrows; elytra with strong punctured striae, fifth and seventh interstices raised. L. 1 l. Rather common.

*O. exsculptus*, Germ.

**2.** Elytra oblong.

**A A.** Thorax dull.

**a a.** Legs unicolorous brownish-red; palpi brown-red, with last joint darker.

Ovate. Head and thorax bronze; elytra yellow-brown, with or without metallic reflection; legs rust-yellow. Thorax with a short central furrow, bounded before and behind by a transverse line, also with a short impressed line on each side at base and a small raised longitudinal fold on each side at apex. L.  $\frac{3}{4}$  l. Moderately common.

*O. margipullens*, Latr.

**b b.** Legs brown, knees, tarsi and palpi blackish.

Elongate-ovate, slightly convex, dull. Dark bronze-brown; legs brown, knees, tarsi and palpi blackish. Thorax nearly transverse, strongly dilated in front, strongly and closely punctured, with a central furrow, four depressions on disc and lateral furrows; elytra shiny, with strongly and closely punctured striae. L. scarcely  $\frac{3}{4}$  l. Brackish water; scarce.

*O. Poweri*, Rye.

**B B.** Thorax shiny.

**a a.** Thorax with two transverse impressions on disc, without central furrow.

Ovate. Head and thorax bronze; elytra light brown, dull silky, or bronze-blackish; under-side black, with gray hairs; legs rust-yellow. Vertex of head with three depressions; thorax broad, nearly square, somewhat contracted behind, the sides (especially behind) with a transparent, whitish, membranous border, sometimes continued along anterior and posterior margins, its surface flatly arched, with a transverse impression and an impressed line on each side of base; elytra rather inflated, with fine punctured striae. L.  $\frac{2}{3}$  l. Rather common. *O. marinus*, Payk.

**b b.** Thorax without transverse impressions on disc, with central furrow.

**A a.** Disc of thorax without impressions near central furrow.

Ovate, flatly arched. Brown-bronze; apex of elytra light pitch-brown; under-side blackish; legs rust-red. Thorax punctured throughout, with a central furrow and only some shallow impressions at side margin; elytra with regular punctured striae, interstices not particularly raised. L. 1 l. Common. *O. pygmaeus*, Fab.

**B b.** Disc of thorax with two impressions on each side near central furrow.

Ovate. Reddish-brown; with metallic reflection, sides usually lighter; legs red. Thorax distinctly punctured, with a central furrow and two pairs of depressions, side margin broadly separate, with an excision (filled with a membrane) behind; elytra very convex, with strong punctured striae, interstices somewhat raised. L. 1 l. Common. *O. bicolon*, Germ.

**II.** Thorax pitch-black, with sides broadly red.

Broad. Pitch-black; sides of thorax broadly red; legs, antennae and palpi red or reddish. Head feebly punctured, with two or three depressions on vertex; thorax with a bent impression on each side near base; elytra convex, with deep notched striae. L.  $\frac{7}{8}$ —1 l. Moderately common. *O. rufimarginatus*, Steph.

**b.** Thorax with transverse furrows prolonged to lateral margin.

Head and thorax brown-black, shiny, deeply furrowed; former with two frontal depressions, united behind by a transverse furrow, latter with two transverse furrows, scarcely interrupted at sides of disc and prolonged to lateral margins, united by a feeble central furrow and crossed by the two post-ocular furrows; elytra reddish-brown, with tolerably deep, almost square punctures. L.  $\frac{1}{2}$  l. Not uncommon. *O. exaratus*, Muls.

**B.** Elytra with feeble punctured striae.

**a.** Elytra much dilated; length 1 line.

Pitchy-bronze, shining; elytra paler; antennae and legs pitchy-red. Thorax with sides dilated and a deep punctured depression toward anterior angle; elytra considerably dilated, with feeble punctured striae. Not common.

*O. aeneus*, Steph.

**b.** Elytra not much dilated; length  $\frac{3}{4}$  line.

Bright coppery-bronze; legs red-yellow; antennae and palpi pale, darker at apex. Vertex of head rough, with three depressions; thorax smooth, with several depressions on each side of central furrow, margin flat, with a depression in front; elytra with obscure punctured striae. L.  $\frac{3}{4}$  l. Rather common.

*O. aeratus*, Steph.

**C.** Elytra confusedly punctured.

Rather elongate. Shiny bronze, pubescent; anterior and posterior margins of thorax whitish; legs, antennae and palpi red-yellow, apex of latter and the tarsi dark. Vertex of head, with two deep depressions; thorax with a central furrow and four impressions on each side, the two lateral ones connected by an arched stria; elytra minutely punctured, without striae. L.  $1\frac{1}{2}$  l. Rather common.

*O. punctatus*, Steph.

### *Hydraena.*

**A.** Metasternum with three raised lines, the middle one forked behind.

Head black, thorax and elytra brownish-yellow, under-side black. Thorax as long as broad, slightly curved at sides, longitudinal impressions feeble, punctuation strong, with an irregular transverse furrow before apex; elytra



much broader in front than base of thorax, rounded behind, with distinct rows of punctures. L.  $\frac{7}{8}$  l. Rather common.

*H. testacea*, Curt.

**B.** Metasternum without raised lines.

**a.** Elytra with more than six rows of punctures between the suture and the humeral angle.

**I.** Upper-side black, with margins of thorax and elytra brown-yellow.

Somewhat compressed; thorax transverse, strongly punctured, longitudinal impressions indistinct; elytra broader than thorax, with rather strong punctures. L.  $\frac{2}{3}$  l. Not common.

*H. palustris*, Fr.

**II.** Head and thorax blackish, elytra brown.

Somewhat oblong; thorax almost as long as broad, rather strongly punctured, with a short, indistinct central furrow, longitudinal impressions moderately strong; elytra distinctly broader than thorax, rather parallel-sided, each with nine or ten rows of almost square punctures. L. 1 l. Common.

*H. riparia*, Kug.

**III.** Upper-side black or blackish.

**1.** Thorax with two deep transverse impressions, disc punctured more feebly than margins.

Elongate; thorax rather broader than long, longitudinal impressions distinct; elytra rather parallel-sided, each with eight rows of large angular punctures. L.  $\frac{2}{3}$  l. Rare.

*H. angustata*, Sturm.

**2.** Thorax with two indistinct transverse impressions, disc scarcely more feebly punctured than margins.

Broad; thorax almost as long as broad; longitudinal impressions moderately strong; elytra slightly rounded at sides, punctures roundish. L.  $\frac{2}{3}$  l. Rather common.

*H. nigrita*, Germ.

**b.** Elytra with not more than six rows of punctures between the suture and the humeral angle.

**I.** Inner rows of punctures on elytra regular.

**1.** Elytra rounded at apex.

**A A.** Thorax as long as broad.

Elongate. Head blackish; thorax pitchy, sometimes

lighter in front and behind, punctures on disc a little finer than at margins, without transverse impressions; elytra dark brown, scarcely broader than thorax, nearly parallel-sided. L.  $\frac{7}{8}$  l. Rather common. *H. gracilis*, Germ.

**B B.** Thorax distinctly broader than long.

Head black; thorax blackish, lighter in front and behind, disc more finely punctured than margins; elytra oblong-ovate, pitchy, broader than thorax. L.  $\frac{5}{8}$  l. Not common. *H. pulchella*, Germ.

**2.** Elytra obliquely truncate at apex.

Oblong. Head black; thorax brown, anterior and posterior margins lighter, not much broader than long, disc more finely punctured than margins, with two transverse impressions; elytra brown, a little broader than thorax, oblong. L.  $\frac{2}{3}$  l. Not common. *H. atricapilla*, Wat.

**II.** Elytra confusedly punctured.

Short, flat, brown; thorax often lighter in front and behind, rather broader than long, almost uniformly punctured, with two slight impressions; elytra much broader than thorax, ovate. L.  $\frac{5}{8}$  l. Scarce. *H. pygmaea*, Wat.

### SPHAERIDIIDAE.

**A.** Prosternum ending in one point behind; mesosternum much longer than broad.

**a.** Metasternum extending between the intermediate coxae.

Antennae nine-jointed; scutellum nearly an equilateral triangle; tibiae not furrowed. Body very convex.

*Cyclonotum*, Er.

**b.** Metasternum not extending between the intermediate coxae.

**I.** Antennae eight-jointed, club not very compact.

Head transverse oval; scutellum elongate triangular; anterior tibiae furrowed near the apex. Body convex.

*Sphaeridium*, Fab.

**II.** Antennae nine-jointed, club compact.

Scutellum elongate triangular; anterior tibiae furrowed toward the apex. Body convex. *Cercyon*, Leach.

**B.** Prosternum ending in two points behind ; mesosternum broader than long.

Antennae nine-jointed ; anterior tibiae furrowed toward the apex. Body convex.

**a.** Sides of thorax not reflexed ; anterior tibiae emarginate near apex.

Scutellum curvilinear triangular, scarcely longer than broad. *Megasternum*, Muls.

**b.** Sides of thorax reflexed in triangular form ; anterior tibiae not emarginate.

Similar to *Megasternum*, but with prosternum and mesosternum still broader. *Cryptopleurum*, Muls.

### *Cyclonotum.*

Short oval, shiny. Black above, densely punctured ; elytra with a sutural furrow on the hinder part ; under-side and legs dark brown. L. 2 l. Common.

*C. orbiculare*, Fab.

### *Sphaeridium.*

**A.** Base of thorax slightly emarginate on each side, posterior angles rather blunt.

Head and thorax black ; elytra black, with a red spot (often indistinct) at base and a large yellow spot at apex ; punctuation fine and very close. L. 3 l. Common.

*S. scarabaeoides*, Lin.

**B.** Base of thorax moderately emarginate on each side, posterior angles sharp.

**a.** Elytra black, with side margin and a large spot at apex yellow, sometimes also with a red spot at shoulder ; with rudimentary striae of punctures.

Head and thorax black, sides of latter yellow. Punctuation close and fine. L. 2½ l. Common.

*S. bipustulatum*, Fab.

**b.** Elytra black, with side margin generally yellow, but without any well defined yellow spot at apex or any dorsal striae of punctures.

Head and thorax black, sides of latter generally yellow. Punctuation close and fine. L. 2½ l. *S. marginatum*, Fab.

*Cercyon.*

**A.** Mesosternum distinctly separate from metasternum.

**a.** Interstices on elytra distinctly punctured.

**I.** Length  $1\frac{1}{2}$ — $1\frac{3}{4}$  lines.

Oval. Head and thorax shining black; elytra black, passing gradually into reddish at apex, fourth stria almost angular toward the front, making the fifth interstice wider at the base. Not uncommon. *C. obsoletus*, Gyll.

**II.** Length 1— $1\frac{1}{2}$  lines.

**1.** Posterior margin of thorax not bordered.

**A A.** Upper-side very convex.

**a a.** Elytra black at base, passing gradually into red at apex.

Short oval. Head and thorax shining black, latter with a depression in middle of base. Common.

*C. haemorrhoidalis*, Fab.

**b b.** Elytra black, changing suddenly to red behind, suture black.

Oval. Head and thorax shiny black. Common.

*C. haemorrhous*, Gyll.

**B B.** Upper-side moderately convex.

**a a.** Elytra black, with the apex and side margin suddenly red-yellow.

Oval. Head and thorax black, sides of latter red, fourth interstice on elytra as broad as fifth. Moderately common.

*C. aquaticus*, Muls.

**b b.** Elytra brown in the middle, with base, apex, and side margin, red-brown, and a black marking at the base of suture and anterior margin.

Oblong oval. Head and thorax black; elytra with fifth interstice usually rather broader than fourth, their apex prolonged into a blunt tooth beneath; femora brown, knees, tibiae, and tarsi reddish. Common.

*C. flavipes*, Fab.

**c c.** Elytra red-brown, becoming gradually paler toward apex, suture blackish.

Short oval. Head and thorax black, sides of latter gradually and broadly brownish-red. Common.

*C. lateralis*, Marsh.

**C C.** Upper-side feebly arched.

Oval. Upper-side black or chestnut-brown. Head only moderately inclined; front of clypeus somewhat emarginate; striae on elytra deeper behind. Colour variable, elytra sometimes with light spots. Common.

*C. littoralis*, Gyll.

**D D.** Upper-side flat.

Oval. Pitch-black, sides of thorax rather lighter, elytra with apex and hinder part of sides suddenly red-yellow. Rather common.

*C. depressus*, Steph.

2. Posterior margin of thorax finely bordered on each side.

Ovate. Head and thorax black, sides of latter gradually yellowish; elytra red-yellow, with hinder part of suture and a large common spot on disc black. Common.

*C. unipunctatus*, Lin.

**III.** Length  $\frac{3}{4}$ —1 line.

1. Posterior margin of thorax finely bordered on each side.

Oblong oval. Head and thorax black; elytra yellow, suture reddish. Common.

*C. quisquilius*, Lin.

2. Posterior margin of thorax not bordered.

Oblong oval, convex. Head and thorax black; elytra red-brown, with a triangular spot round scutellum and base of side margins black, apex sometimes slightly produced. Common.

*C. melanocephalus*, Lin.

**IV.** Length  $\frac{2}{3}$  line.

1. Posterior margin of thorax not bordered.

**A A.** Elytra reddish-yellow, base blackish.

Oval, convex. Head and thorax black. Not common.

*C. terminatus*, Marsh.

**B B.** Elytra black, with a variable extent of the apex and usually part of the sides red-yellow.

Oblong oval, moderately convex. Head and thorax black, posterior angles of latter distinct. Common.

*C. pygmaeus*, Ill.

2. Posterior margin of thorax finely bordered on each side.

Oval, moderately convex. Head and thorax black, latter reddish at sides, posterior angles rounded; elytra red-yellow, usually with a blackish spot on disc of each. Common.

*C. nigriceps*, Marsh.

- b. Interstices on elytra apparently impunctate.

**I.** Elytra rather dull.

1. Elytra chestnut-brown, gradually changing to brown-red at apex; striae indistinct behind.

Ovate, convex. Head and thorax chestnut-brown, sides of latter often lighter. L.  $\frac{3}{4}$ —1 l. Moderately common.

*C. minutus*, Fab.

2. Elytra black, with a rather sudden red-yellow spot at apex, suture usually blackish; striae continued to apex.

Ovate, very convex. Head and thorax black; mesosternum narrower than in *C. minutus* and body more narrowed behind. L.  $\frac{3}{4}$ —1 l. Moderately common.

*C. lugubris*, Payk.

**II.** Elytra shiny.

Short oval, very convex. Black, apex of elytra often red-brown, striae reaching to apex. Mesosternum punctured, oval, wider than in *C. lugubris*; elytra more narrowed at apex than in *C. minutus*. L.  $\frac{3}{4}$ —1 l. Not very common.

*C. granarius*, Er.

**B.** Mesosternum apparently united with the metasternum.

Oblong-ovate, convex. Black, apex of elytra, except suture, rather suddenly red-yellow, interstices punctured. L. 1 l. Common.

*C. analis*, Payk.

**Megasternum.**

Short ovate, rather strongly convex. Black-brown or brown above. Interstices of elytra more finely punctured than thorax. L. 1 l. Common.

*M. boletophagum*, Marsh.

**Cryptopleurum.**

Short ovate, very convex. Black, elytra gradually passing into brown-red behind. L.  $\frac{2}{3}$ —1 l. Common.

*C. atomarium*, Fab.

## BRACHELYTRA.

**A.** Prothoracic spiracles visible.

**a.** Antennae inserted on upper surface of forehead, near the inner, lower margin of the eye.

Anterior coxae conical, prominent; posterior coxae transverse; posterior trochanters elongate. *Aleocharidae.*

**b.** Antennae inserted under the hinder part of side margin of forehead.

Anterior coxae conical, strongly prominent; posterior coxae obliquely quadrangular; posterior trochanters elongate. *Tachyporidae.*

**c.** Antennae inserted under apex of the side margin or on the anterior margin of forehead, within or before base of mandibles.

Thorax with a lateral marginal line above and beneath. Anterior coxae conical, prominent; posterior trochanters simple. *Staphylinidae.*

**B.** Prothoracic spiracles hidden.

**a.** Posterior coxae conical.

**I.** Antennae inserted under the slightly raised side margin of forehead at or near anterior angles.

Anterior coxae conical, prominent, space behind them usually membranous. *Paederidae.*

**II.** Antennae inserted on the front of the forehead.

Anterior coxae small, only moderately prominent; space behind them horny; posterior trochanters simple. *Stenidae.*

**b.** Posterior coxae transverse.

**I.** Antennae more or less elbowed.

Antennae inserted under the raised side margin of forehead. Anterior coxae elongate, somewhat conical, prominent, space behind them membranous; posterior trochanters simple; second ventral abdominal segment even. *Oxytelidae.*

**II.** Antennae not elbowed.

Antennae inserted under the side margins of forehead; second ventral abdominal segment with a ridgelike prominence in middle of base.

**1.** Head with two ocelli.

Anterior coxae prominent, but rather shorter than in the *Oxytelidae*, space behind them membranous; posterior trochanters more or less elongate. *Homaliidae*.

**2.** Head with at most one ocellum.

**A A.** Anterior coxae almost cylindrical, not very prominent.

Space behind anterior coxae horny; posterior trochanters elongate. *Proteinidae*.

**B B.** Anterior coxae conical, prominent.

Space behind anterior coxae membranous; posterior trochanters elongate. *Phloeocharidae*.

**C C.** Anterior coxae globular, not prominent.

Space behind anterior coxae horny; posterior trochanters simple. *Piestidae*.

**c.** Posterior coxae globular.

Antennae knobbed, with grooves for their reception. Anterior coxae not prominent, space behind them horny; posterior coxae standing apart; second ventral abdominal segment with a small plate entering between the posterior coxae. *Micropeplidae*.

**ALEOCHARIDAE.**

**A.** Inner lobe of maxillae horny on outer-side and membranous with long spines or hair on the inner margin; maxillary palpi moderately elongate, fourth joint generally much shorter than third, and when not so, the third joint not thickened. *Aleocharides*.

**B.** Inner lobe of maxillae horny on outer-side and membranous within, rounded at apex, with a fringe of short, bristly hairs; maxillary palpi with third joint rather strongly thickened and the fourth not much shorter; eyes rather prominent; labial palpi with two joints; anterior tarsi with four joints, hinder pairs with five; first joint of posterior tarsi elongate. *Gyrophaenides*.

**C.** Inner lobe of maxillae entirely horny; maxillary palpi with second and third joints very long, fourth extremely short. *Gymnusides*.



**ALEOCHARIDES.**

**A.** Paraglossae reaching far beyond base of ligula.

Anterior tarsi with four joints, hinder pairs with five. Antennae with eleven joints.

**a.** Labial palpi short.

**I.** Ligula cleft.

**1.** Apex of ligula ending in four points.

Ligula long and narrow, paraglossae very small, narrow and pointed; labial palpi two-jointed; head globular, separated from thorax by a thin neck; thorax scarcely half as broad as elytra, rounded in front, with longitudinal impressions at base; elytra as long as together broad, each with two depressions at base; abdomen broadly bordered; first four joints of posterior tarsi equal in length.

*Autalia*, Leach.

**2.** Apex of ligula ending in two points.

**A A.** Ligula short.

**a a.** Mandibles very slender and produced.

Chiefly distinguished from *Falagria* by the very slender and produced mandibles, of which the right hand one has on the inner-side below the middle a very large strong tooth, on the lower side of which is another and much smaller tooth; left hand mandible attenuate, strongly curved below the middle and with no tooth; labrum transverse, slightly emarginate on each side near anterior angles; last joint of maxillary palpi small, but not so attenuate as in *Falagria*; last joint of labial palpi scarcely half as broad as the first and a little narrowed at apex.

*Borboropora*, Kr.

**b b.** Mandibles not slender and produced.

Paraglossae prominent; labial palpi three-jointed, last joint thickened at apex; head prominent, constricted behind, separated from thorax by a thin neck; thorax narrowed behind, in general deeply furrowed; abdomen broadly bordered; first joint of posterior tarsi longer than the rest.

*Falagria*, Leach.

**B B.** Ligula elongate.

Inner margin of inner lobe of maxillae with the bristles toward apex standing not very closely; third joint of maxillary palpi a little longer and rather thicker than

second; labial palpi with three joints, second rather shorter but scarcely narrower than first; head constricted behind; thorax narrowed from middle forward; abdomen slender, parallel-sided; first joint of posterior tarsi elongate. Male elytra with a fold on each side of suture behind.

*Bolitochara*, Mannerh.

**II.** Ligula entire, elongate.

Third joint of maxillary palpi considerably longer and narrower than second, fourth joint small; labial palpi with three joints, second not much narrower or shorter than first; head not narrowed behind; thorax rather longer than broad, contracted behind, with a central furrow; abdomen parallel-sided; front pairs of tibiae strongly spined, first four joints of posterior tarsi equal in length.

*Phytosus*, Rudd.

**b.** Labial palpi elongate, two-jointed.

**I.** Ligula elongate, entire.

Maxillae elongate, narrow, upper part of inner margin of inner lobe with about twelve short, closely placed spines, and isolated longer ones; third joint of maxillary palpi almost shorter than second, last joint long and thin; head scarcely constricted behind; thorax double as broad as long, sides and base slightly rounded, base with a transverse depression; abdomen parallel-sided, first joint of posterior tarsi not longer than the others. Elytra of male slightly raised near suture behind.

*Silusa*, Er.

**II.** Ligula broad, triangular, bifid at apex.

Maxillary lobes elongate, narrow, the inner one fringed toward base, set with spines toward apex, which is hooked, the outer one pubescent at apex; maxillary palpi with third joint large, nearly oval, fourth joint much shorter than third, awlshaped; labial palpi with first joint rather long, second narrower and somewhat shorter; head elongate, eyes obsolete; thorax scarcely transverse, narrowed toward base; abdomen dilated toward apex; first four joints of posterior tarsi equal in length.

*Actocharis*, Sharp.

**B.** Paraglossae reaching scarcely or not at all beyond base of ligula.

**a.** Antennae with eleven joints.

**I.** Mandibles simply pointed.

**1.** Posterior tarsi with five joints.

**A A.** First two joints of labial palpi about equal in thickness.

Spines on inner maxillary lobe placed not very closely.

**a a.** Ligula cleft; all tarsi with five joints.

**A a.** Head constricted behind.

Ligula elongate, cleft at apex; third joint of maxillary palpi a little longer and stouter than second; second joint of labial palpi a little shorter than first; thorax only a little broader than long, gently narrowed behind; abdomen parallel-sided; legs long, first joint of posterior tarsi as long as last joint.

*Ocalea*, Er.

**B b.** Head not constricted behind.

**A 1.** Third joint of maxillary palpi distinctly longer than second.

Ligula elongate, cleft at apex; second joint of labial palpi scarcely shorter than first; thorax half as broad again as long, sides and base gently rounded, with a transverse depression; abdomen parallel-sided, a little narrowed at extreme apex; first joint of posterior tarsi a little longer than second but much shorter than last joint.

*Ischnoglossa*, Kr.

**B 1.** Third joint of maxillary palpi scarcely longer than second.

Ligula elongate, cleft to middle; second joint of labial palpi scarcely shorter than first; thorax double as broad as long, narrowed in front; abdomen somewhat narrowed at extreme apex only; legs rather short, first joint of posterior tarsi a little longer than the second but much shorter than last joint.

*Thiasophila*, Kr.

**b b.** Ligula entire, elongate; anterior tarsi with four joints, hinder pairs with five joints.

First and second joints of labial palpi very closely connected, about equal in length. Head not constricted behind.

**A a.** Paraglossae slightly prominent; base of thorax scarcely perceptibly emarginate.

Thorax about half as broad again as long, somewhat narrowed behind; abdomen parallel-sided or even a little

broader at apex; first joint of posterior tarsi rather elongate. *Leptusa*, Fairm.

**B b.** Paraglossae scarcely prominent; base of thorax distinctly emarginate on each side.

Thorax double as broad as long; abdomen parallel-sided; first joint of posterior tarsi moderately elongate.

*Euryusa*, Er.

**B B.** Second joint of labial palpi distinctly narrower than first.

**a a.** Labial palpi with more than two joints.

**A a.** Ligula entire.

**A 1.** Abdomen narrowed from base to apex.

Ligula short; labial palpi three-jointed, joints distinctly separate; body broad; posterior angles of thorax sharp right angles; all tarsi five-jointed, first joint of posterior pair elongate. *Homoeusa*, Kr.

**B 1.** Abdomen parallel-sided, with only extreme apex narrowed.

Ligula very short; labial palpi three-jointed, joints distinctly separate; head small, not constricted behind; thorax almost double as broad as long, slightly sinuate on each side of base, posterior angles slightly obtuse; elytra feebly sinuate at posterior angles; all tarsi five-jointed, first joint of posterior pair elongate. *Microglossa*, Kr.

**B b.** Ligula cleft.

**A 1.** Labial palpi with four joints; maxillary palpi with five joints.

Antennae shorter than head and thorax, first three joints elongate; spines scattered all along the inner margin of horny part of inner maxillary lobe; ligula short and broad, cleft to about the middle; head not constricted behind; thorax much broader than long, posterior angles rounded; abdomen parallel-sided or somewhat narrowed behind, rather thick; legs short, tibiae closely covered with bristles, all tarsi with five joints, first joint of posterior pair distinctly longer than second. *Aleochara*, Grav.

**B 1.** Labial palpi with three joints ;  
maxillary palpi with four joints.

**a 1.** Inner margin of inner maxillary  
lobe covered with thick soft hair,  
without spines, but hooked at apex.

Anterior tarsi with four joints, hinder pairs with five ;  
head not constricted behind.

**A 2.** Inner maxillary lobe ending  
in one simple hook ; ligula narrow,  
deeply cleft.

Antennae short, only the third joint elongate, and half  
as long again as second ; third joint of maxillary palpi dis-  
tinctly longer than second ; second joint of labial palpi  
rather shorter than first and third ; thorax more than double  
as broad at base as long ; abdomen much narrowed behind ;  
legs short, first joint of posterior tarsi longer than second.

*Dinarda*, Leach.

**B 2.** Inner maxillary lobe ending in  
three or four hooks ; ligula broad.

**a 2.** Ligula only slightly emargi-  
nate in front.

Antennae long, last joint very long ; third joint of maxil-  
lary palpi as long as, but much narrower than second ;  
labial palpi with second joint shorter than first, and third  
than second ; thorax somewhat narrowed in front ; abdomen  
parallel-sided ; legs long, first joint of posterior tarsi longer  
than second, as long as the last joint. *Atemeles*, Dillwyn.

**b 2.** Ligula cleft nearly to the  
middle.

Antennae longer than head and thorax, third joint longer  
than second ; third joint of maxillary palpi not much longer  
than second ; second joint of labial palpi a little shorter  
than first and third. Thorax with transverse depression  
and longitudinal furrow ; abdomen parallel-sided ; legs  
rather slender ; first joint of posterior tarsi longer than  
second, as long as the last joint. *Myrmedonia*, Er.

**b 1.** Inner margin of inner maxillary  
lobe bearing twelve or more closely-  
placed spines toward apex.

Second joint of antennae not longer than third ; second

joint of labial palpi rather shorter than first and third, head constricted behind; thorax scarcely broader than long, and scarcely more narrowed behind than in front; abdomen parallel-sided; all tarsi with five joints, first joint of posterior tarsi longer than second, as long as the last joint.

*Ilyobates*, Kr.

**c 1.** Inner margin of inner maxillary lobe bearing about six closely-placed spines toward apex.

Head constricted behind.

**A 2.** Third joint of maxillary palpi much thickened; anterior tarsi with four joints, hinder pairs with five joints.

First joint of labial palpi nearly as long as second and third together; thorax rather broader than long, slightly narrowed behind; abdomen parallel-sided; first joint of posterior tarsi only a little longer than second.

*Callicerus*, Grav.

**B 2.** Third joint of maxillary palpi not much thickened; all tarsi with five joints.

Second joint of labial palpi rather shorter than first and third; second joint of antennae rather longer than third; thorax narrowed behind, almost longer than broad; abdomen slender, parallel-sided; legs slender, first joint of posterior tarsi distinctly longer than second, as long as the last joint.

*Calodera*, Mannerh.

**d 1.** Inner margin of inner maxillary lobe with the spines placed not very closely toward apex.

**A 2.** Ligula narrower at base.

**a 2.** First joint of posterior tarsi elongate.

**A 3.** Head constricted behind.

**a 3.** All tarsi with five joints.

Second joint of labial palpi shorter than first and third; antennae slender, second and third joints equal in length; thorax almost longer than broad; abdomen slender, parallel-sided.

*Chilopora*, Kr.

**b 3.** Anterior tarsi with four joints, hinder pairs with five.

Labial palpi slender, first joint as long as the other two together, second rather shorter than third; antennae slender; thorax in general scarcely broader than long; abdomen slender. *Tachyusa*, Er.

**B 3.** Head scarcely or not at all constricted behind.

All tarsi with five joints.

**a 3.** Ligula cleft at apex only; first joint of labial palpi as long as second and third together.

Fourth and fifth joints of antennae not broader than third; head somewhat prominent; thorax not much broader than long, somewhat narrowed behind, narrower than elytra; basal segments of abdomen transversely impressed in front. *Ocyusa*, Kr.

**b 3.** Ligula cleft to about the middle; first joint of labial palpi shorter than second and third together.

Fourth and fifth joints of antennae broader than third; head sunk in thorax; latter large and broad; pubescence (especially on abdomen) silky. *Oxyroda*, Mannerh.

**b 2.** First four joints of posterior tarsi about equal in length.

Second joint of labial palpi shorter than first and third; second and third joints of antennae generally equal in length; anterior tarsi with four joints, hinder pairs with five. *Homalota*, Mannerh.

**B 2.** Ligula broader at base.

Second joint of labial palpi about half as long as third, not much shorter than first; antennae rather short, second joint not much longer than third; thorax not much broader than long, slightly narrowed behind; abdomen very slender, parallel-sided; legs short, all tarsi with five joints, first joint of posterior pair rather longer than second, shorter than last joint. *Phloeopora*, Er.

**b b.** Labial palpi with two joints, first rather strongly thickened, second much narrower.

Ligula entire, very short; spines on inner lobe of maxillae not closely-placed; thorax at least double as broad as long; abdomen slightly narrowed behind; legs short, anterior tarsi with four joints, hinder pairs with five; first joint of posterior tarsi elongate. *Placusa*, Er.

**2.** All tarsi with four joints.

Mandibles dissimilar. Ligula cleft to the base; labial palpi with three joints, second joint much narrower than and about half as long as first, third narrower than second and rather shorter than first; third joint of antennae a little longer than second; thorax slightly narrowed behind; abdomen parallel-sided, rather slender, flat; legs very short, first joint of posterior tarsi double as long as second. *Hygronoma*, Er.

**II.** Mandibles short, split at apex.

Ligula cleft nearly to the base; labial palpi as in *Hygronoma*; first three joints of antennae equal in length, slender; thorax quite half as broad again as long, almost equally narrowed in front and behind, with a broad shallow central furrow, narrowed in front; abdomen parallel-sided; legs as in *Homalota*. *Schistoglossa*, Kr.

**b.** Antennae with ten joints.

**I.** Inner maxillary lobe with spines toward apex.

Ligula small, split to base; labial palpi with first two joints thick, last joint thin, awlshaped; antennae inserted before eyes. *Oligota*, Mannerh.

**II.** Inner maxillary lobe thickly pubescent on inner-side.

Ligula semicircular, with a minute process in middle; maxillary lobes elongate, narrow and straight; maxillary palpi very long, last joint thin, awlshaped, scarcely shorter than third; labial palpi with first joint thick, second rather thick, and third a little shorter, awlshaped; antennae inserted at margin of forehead. *Somatium*, Woll.



The following table will facilitate the determination of the genera of the sub-family *Aleocharides*:—

**A.** Tarsi 4, 5, 5.

**a.** First joint of posterior tarsi as long as second.

**I.** Head constricted behind.

**1.** Labial palpi two-jointed. *Autalia.*

**2.** Labial palpi three-jointed. *Homalota* (part of.)

**II.** Head not constricted behind.

**1.** Apex of mandibles entire.

**A A.** Third joint of maxillary palpi longer and much more slender than second; last joint small. *Phytosus.*

**B B.** Third joint of maxillary palpi almost shorter than second; last joint equal to third. *Silusa.*

**C C.** Third joint of maxillary palpi rather longer and stouter than second; last joint small. *Homalota* (part of.)

**D D.** Third joint of maxillary palpi longer than second, much thickened, nearly oval; last joint shorter, awlshaped. *Actocharis.*

**2.** Mandibles short, apex split. *Schistoglossa.*

**b.** First joint of posterior tarsi longer than second.

**I.** Head constricted behind.

**1.** Second joint of labial palpi rather shorter than first.

**A A.** Mandibles very slender and produced. *Borboropora.*

**B B.** Mandibles not slender and produced.

**a a.** Thorax narrow at base. *Falagria.*

**b b.** Thorax narrowed from middle forward. *Bolitochara.*

**2.** First joint of labial palpi as long, or nearly as long as second and third together.

**A A.** Third joint of maxillary palpi much thickened. *Callicerus.*

**B B.** Third joint of maxillary palpi not thickened.  
*Tachyusa.*

**II.** Head not constricted behind.

**1.** Labial palpi with three joints.

**A A.** First and second joints of labial palpi about equal in breadth.

**a a.** Base of thorax scarcely perceptibly sinuate.  
*Leptusa.*

**b b.** Base of thorax distinctly sinuate on each side.  
*Euryusa.*

**B B.** Second joint of labial palpi distinctly narrower than first.

**a a.** Base of thorax distinctly sinuate on each side.

**A a.** All joints of labial palpi nearly equal in length; legs rather short.

*Microglossa.*

**B b.** Second joint of labial palpi rather shorter than first and third; legs short.

*Dinarda.*

**C c.** Second joint of labial palpi a little shorter than first, and third a little shorter than second; legs long.

*Atemeles.*

**b b.** Base of thorax not sinuate.

*Myrmedonia.*

**2.** Labial palpi with two joints.

*Placusa.*

**B.** Tarsi 5, 5, 5.

**a.** Head constricted behind.

**I.** First and second joints of labial palpi about equal in breadth.  
*Ocalea.*

**II.** Second joint of labial palpi distinctly narrower than first.

**1.** Legs slender.

**A A.** Elytra distinctly sinuate at posterior angles.

**a a.** Elytra coarsely punctured.  
*Ilyobates.*

**b b.** Elytra finely punctured.  
*Calodera.*

**B B.** Elytra scarcely sinuate at posterior angles.

*Chilopora.*

**2.** Legs short.

*Phloeopora.*

**b.** Head not constricted behind.

**I.** Labial palpi with four joints, maxillary palpi with five joints.

*Aleochara.*

**II.** Labial palpi with three joints; maxillary palpi with four joints.

**1.** First and second joints of labial palpi about equal in breadth.

**A A.** Third joint of maxillary palpi distinctly longer than second.

*Ischnoglossa.*

**B B.** Third joint of maxillary palpi scarcely longer than second.

*Thiasophila.*

**2.** Second joint of labial palpi distinctly narrower than first.

**A A.** First joint of labial palpi as long as the other two together.

*Ocyusa.*

**B B.** First joint of labial palpi shorter than the other two together.

**a a.** Third joint of maxillary palpi distinctly longer than second and not stout.

*Homoeusa.*

**b b.** Third joint of maxillary palpi not much longer and rather stouter than second.

*Oxyopoda.*

**C.** Tarsi 4, 4, 4.

**a.** Antennae with eleven joints.

*Hygronoma.*

**b.** Antennae with ten joints.

**I.** Inner maxillary lobe with spines on inner side.

*Oligota.*

**II.** Inner maxillary lobe thickly pubescent.

*Somatium.*

### *Autalia.*

**A.** Upper-side dark yellow-red, with head and apical half of abdomen blackish.

Reddish-yellow-brown, shiny, with fine pubescence; head

and middle of abdomen blackish. Thorax with a short, fine central furrow in front, each side of base with two impressions, the outer one round, the inner one oblong. L. 1 l. Common. *A. impressa*, Ol.

**B.** Upper-side entirely black.

**a.** Central furrow on thorax perceptible in front only.

Similar to *A. rivularis* but with thorax more evidently punctured, central channel perceptible in front only; lateral depressions also not so deep, those at base of elytra shorter; abdomen evidently punctured, apex concolorous. L. 1 l. Not uncommon. *A. puncticollis*, Sharp.

**b.** Central furrow on thorax tolerably deep throughout.

Black, shiny, with fine pubescence; antennae and legs reddish-pitch-brown. Thorax with a tolerably deep central furrow (reaching from base nearly to apex), and two impressions on each side of base, the outer one round, the inner one oblong and reaching to middle. L.  $\frac{4}{5}$  l. Common. *A. rivularis*, Gr.

### *Borboropora.*

Rather flat. Pitch-black, shiny, with gray pubescence; elytra and legs brown. Head broad, transversely sub-quadrate, excavated behind, forehead deeply channeled; thorax narrower than head and elytra, with wide basal depressions and indistinct central furrow; abdomen closely and finely punctured throughout. L.  $1\frac{1}{4}$  l. Rare.

*B. Kraatzi*, Fuss.

### *Falagria.*

**A.** Thorax with a deep central furrow.

**a.** Scutellum without any longitudinal furrow.

Head and elytra dark red-brown; thorax, base of antennae, and legs lighter; abdomen pitch-brown, closely punctured. L.  $1\frac{1}{3}$  l. Rather common. *F. thoracica*, Curt.

**b.** Scutellum with a longitudinal furrow.

**I.** Thorax and elytra very finely, abdomen closely and finely punctured.

Pitch-black; antennae and legs brown; elytra as long as together broad. L.  $1\frac{1}{4}$  l. Common. *F. sulcata*, Payk.

**II.** Thorax and elytra scarcely, abdomen diffusely punctured.

Pitch-black, legs yellow-red; elytra together broader than long. Narrower than *F. sulcata*. L. 1 l. Moderately common. *F. sulcatula*, Gr.

**B.** Thorax with a very faint central furrow.

Brown-red; head and apex of abdomen darker; scutellum with a distinct longitudinal furrow, abdomen closely punctured. L.  $1\frac{1}{4}$  l. Common. *F. obscura*, Gr.

### *Bolitochara.*

**A.** Length  $2\frac{1}{3}$  lines.

Dark brown-red, hinder part of disc of each elytron, fifth and part of sixth abdominal segments and the breast darker; thorax closely and rather strongly punctured. Not very common. *B. lucida*, Gr.

**B.** Length under 2 lines.

**a.** Upper-side yellow-red, the head, fifth and part of sixth abdominal segments and part of elytra blackish.

**I.** Thorax closely and moderately finely punctured.

Antennae red-brown, first three and the last joint red-yellow; elytra generally entirely dark, except the shoulder and apical margin. L.  $1\frac{3}{4}$  l. Not common.

*B. lunulata*, Payk.

**II.** Thorax closely and strongly punctured.

Antennae red-brown, first three and the last joint red-yellow; elytra generally blackish at outer angle only; abdomen with nearly the whole of sixth and often the middle of fourth segment blackish. L.  $1\frac{1}{2}$  l. Not uncommon. *B. bella*, Märk.

**b.** Upper-side pitch-brown, sides of thorax and an oblique line on each elytron lighter.

Antennae red-brown, base yellow-brown, thorax moderately closely and strongly punctured. L.  $1\frac{1}{2}$  l. Common. *B. obliqua*, Er.

### *Phytosus.*

**A.** Elytra light yellow-brown.

Elongate. Head and abdomen brown, latter slightly

paler at apex; thorax and elytra light yellow-brown, former as long as broad and longer than latter; antennae and legs yellow-red. L.  $1-1\frac{1}{4}$  l. Not uncommon.

*P. balticus*, Kr.

**B.** Elytra pitch-black.

Broader than *P. balticus*. Pitchy-black, shiny; thorax, apex of abdomen, antennae and legs reddish. Female black, with mouth, antennae and legs pitchy. Thorax slightly broader than long, not longer than elytra. L. male  $\frac{3}{4}-1$  l.; female  $1-1\frac{1}{4}$  l. Not uncommon.

*P. spinifer*, Curt.

**Silusa.**

Elongate, black; antennae, legs and elytra brown-red, latter blackish at the outer angle and round scutellum, front abdominal segments red-brown at posterior margin. Male with suture of elytra slightly raised behind and sixth abdominal segment ridged above. L.  $1\frac{3}{4}$  l. Not common.

*S. rubiginosa*, Er.

**Actocharis.**

Narrow, linear. Red-yellow, with abdomen (except apex) brown, closely and very obsoletely punctured and pubescent throughout. Head flat, longer than thorax, slightly narrowed in front; thorax narrowed toward base, longer than broad, with a broad central furrow; elytra shorter than thorax. Sixth abdominal segment of male elongate, with a broad longitudinal impression and at apex a semicircular emargination. L.  $\frac{3}{4}$  l. Scarce.

*A. Readingi*, Sharp.

**Ocalea.**

**A.** Elytra pitch-brown; length of body  $2-2\frac{3}{4}$  lines.

**a.** Elytra nearly half as broad again as thorax.

Black-brown; elytra pitch-brown; base of antennae, palpi and legs red-yellow, apex of former more or less brown. Head and thorax finely, not closely punctured; elytra finely and very closely punctured. Antennae rather longer than in *O. castanea*, and not quite so much thickened toward apex. L.  $2\frac{1}{2}-2\frac{3}{4}$  l. Rare. *O. latipennis*, Sharp.

**b.** Elytra not much broader than thorax.

Dark pitch-brown, rather shiny; abdomen black, margins of segments red-brown; base of antennae and legs yellowish-red. Head and thorax moderately closely, extremely finely, indistinctly punctured, elytra also moderately closely but more distinctly so. Penultimate joints of antennae gradually a little broader; thorax slightly broader than long. L. 2 l. Not uncommon. *O. castanea*, Er.

**B.** Elytra yellow-brown; length of body  $1\frac{1}{2}$ — $1\frac{3}{4}$  lines.

Pitch-brown, shiny; elytra yellow-brown; abdomen pitch-black, apex yellow-brown; antennae reddish-yellow; legs yellow-red. Head and thorax rather diffusely, coarsely and shallowly punctured, elytra moderately closely, coarsely so. Penultimate joints of antennae not becoming broader; thorax as long as broad. Common. *O. badia*, Er.

### *Ischnoglossa.*

**A.** Thorax and elytra evenly punctured, very closely and moderately finely.

Brown-red; head and abdomen before the apex pitch-brown, apex of abdomen, antennae and legs reddish. Fifth joint of antennae distinctly broader than fourth; posterior angles of thorax nearly right angles, transverse impression indistinct. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Rare. *I. corticina*, Er.

**B.** Thorax closely and finely punctured, elytra coarsely wrinkled.

Fifth joint of antennae scarcely broader than fourth; posterior angles of thorax blunt but not rounded.

**a.** Thorax dark pitch-brown, with red-brown margins.

Elongate. Head blackish, elytra red-brown, round the scutellum and in the posterior angles darker, abdomen red-brown, fifth segment blackish, the last two brown; legs red-brown. L.  $1\frac{1}{2}$  l. Not uncommon. *I. rufo-picea*, Kr.

**b.** Thorax rust-red.

Elongate. Head dark red-brown; elytra rust-red, abdomen rust-red, fifth segment blackish, the last two reddish-yellow; legs rust-red. L.  $1\frac{2}{3}$  l. Scarce. *I. prolixa*, Gr.

*Leptusa.*

**A.** Thorax dark red-brown, or pitch-brown.

**a.** Abdomen dark red-brown, blackish before the apex, which is lighter.

Narrow, cylindrical, dull. Head dark brown; elytra dark red-brown. Thorax without distinct punctuation; elytra half as long again as thorax, closely and moderately finely punctured; abdomen closely punctured in front, diffusely behind. L.  $1\frac{1}{2}$  l. Not uncommon.

*L. analis*, Gyll.

**b.** Abdomen pitch-black, with the apex reddish.

Elongate, rather shiny. Head and elytra pitchy. Thorax finely and closely punctured; elytra half as long again as thorax, moderately finely and closely punctured; abdomen closely punctured in front, diffusely behind. L.  $1\frac{1}{3}$  l. Rather common.

*L. fumida*, Er.

**B.** Thorax red or yellow-red.

**a.** Head and elytra pitch-black.

Elongate. Head, elytra and abdomen pitch-black, apex of latter red-brown. Thorax distinctly punctured; elytra scarcely longer than thorax, moderately closely and rather strongly punctured; abdomen diffusely punctured in front, impunctate behind. L.  $1\frac{1}{4}$  l. Rather common.

*L. ruficollis*, Er.

**b.** Head and elytra yellow-red.

Elongate, linear, flattened, resembling *Phytosus balticus*. Yellow-red, rather dull, abdomen dark. Elytra very short, antennae long. L.  $1\frac{1}{3}$  l. Very rare; Whitstable.

*L. testacea*, Bris.

*Euryusa.*

Elongate. Head and thorax red-brown; elytra brick-red, darker at base; abdomen red-brown, blackish before apex, which is yellowish-red. L.  $1\frac{1}{2}$  l. Scarce.

*E. laticollis*, Heer.

*Homocusa.*

Red-brown, shiny; abdomen pitch-brown before apex, which is light. Thorax broad and short, rather closely and



finely punctured, pubescent; elytra scarcely so long as thorax, rather more closely and distinctly punctured; abdomen much narrowed behind, diffusely and finely punctured. L.  $1\frac{1}{4}$  l. Not uncommon. *H. acuminata*, Märk.

### *Thiasophila.*

**A.** Five penultimate joints of antennae not strongly transverse.

Brown-red, base and often last joint of antennae and apex of abdomen red-yellow, head and abdomen before apex pitchy. L.  $1\frac{1}{2}$  l. Rather common. *T. angulata*, Er.

**B.** Five penultimate joints of antennae strongly transverse.

Head and thorax pitch-brown, elytra red-brown, often darker at the scutellum and outer posterior angle; abdomen rather darker than in *T. angulata*, punctuation of head and thorax much stronger, base of latter more strongly emarginate, punctuation of elytra scarcely stronger than that of thorax. L.  $1\frac{1}{4}$  l. Not common. *T. inquilina*, Märk.

### *Microglossa.*

**A.** Punctuation of head and thorax very fine, indistinct.

Pitch-black, shiny, with scanty yellowish pubescence; elytra dull pitchy-red, suture broadly bright-red, apex of abdomen and margin of its segments, antennae and legs red. Base of thorax slightly bisinuate, elytra rather diffusely punctured in transverse wrinkles; abdomen distinctly punctured, in front only moderately closely, behind rather diffusely. L.  $1\frac{1}{4}$  l. Common. *M. suturalis*, Sahl.

**B.** Punctuation of head and thorax distinct.

**a.** Abdomen less closely punctured; length  $1\frac{1}{2}$  lines.

**I.** Thorax with sides and posterior angles red.

Similar to *M. pulla*, but more parallel-sided, with punctuation rather closer and much finer throughout. Black, rather shiny, with close, short, yellowish pubescence; sides and posterior angles of thorax, the elytra (except round scutellum and at outer apical angles), base and apex of antennae, margin of abdominal segments and the legs red.

*M. marginalis*, Gyll.

**II.** Thorax entirely black.

- 1.** Elytra yellow-red, with a dark triangular patch at scutellum and at outer posterior angles.

Similar to *M. pulla*, but more parallel-sided, the elytra as above. Common. *M. nidicola*, Fairm.

- 2.** Elytra black, with suture red-brown.

Black, rather shiny, with close, short, yellowish pubescence; suture of elytra and margin of ventral abdominal segments red-brown; base and apex of antennae and the legs red. Punctuation of head rather diffuse, deep; that of thorax moderately close, rather coarse, shallow; that of elytra not closer but deeper and more distinct than on thorax; and that of abdomen rather strong, close in front, rather more diffuse behind. Scarce. *M. pulla*, Gyll.

- b.** Abdomen more closely punctured; length  $1\frac{3}{4}$  lines.

Black, shiny, with very fine pubescence; elytra often red-brown behind; antennae and legs red-brown, former rather lighter at base and apex. Punctuation of head and thorax moderately close, distinct; elytra scarcely longer than thorax, as closely but more strongly punctured; abdomen distinctly punctured, very closely in front, rather more diffusely behind. Not common. *M. gentilis*, Märk.

**Aleochara.**

- A.** Abdomen of male with prominences on upper-side.

Rust-brown; middle of thorax and base of intermediate abdominal segments often darker; antennae and legs red-brown. Antennae slender; elytra rather longer than thorax. Male with a transverse, narrow plate on the second abdominal segment, a round prominence on the middle of the third and an almost crescent-shaped elevation on the sixth. L.  $2\frac{3}{4}$ —3 l. Rare. *A. ruficornis*, Gr.

- B.** Abdomen of male without prominences.

- a.** Length exceeding  $1\frac{1}{4}$  lines.

- I.** Thorax evenly punctured.

- 1.** Antennae strongly spindle-shaped, middle joints more than double as broad as long; length  $2\frac{1}{2}$ —3 lines.

**A A.** Elytra dark red-brown, margins blackish.

Black, shiny; base of antennae, elytra (except margins) and legs red-brown. Elytra shorter than thorax; abdomen slightly narrowed behind, diffusely punctured above. Common. *A. fuscipes*, Fab.

**B B.** Elytra unicolorous, blackish.

Similar to *A. fuscipes* but with upper-side unicolorous black; base of antennae and legs pitch-brown. Rather common. *A. lata*, Gr.

**2.** Antennae not spindle-shaped; length not exceeding  $2\frac{1}{4}$  lines.

**A A.** Abdomen as closely punctured above as elytra.

**a a.** Elytra yellowish-red, with a triangular black spot round scutellum.

Black, shiny; elytra as above; base of antennae and tarsi red-brown. Elytra not much shorter than thorax; abdomen parallel-sided, very closely, evenly punctured above. L. 2 l. Rather common. *A. tristis*, Gr.

**b b.** Elytra black, with a red spot at apex.

Black, shiny; elytra as above; antennae black-brown, base sometimes lighter; legs reddish-yellow. Thorax half as long again as elytra; abdomen rather strongly narrowed behind, very closely, evenly and strongly punctured above. L. 2— $2\frac{1}{4}$  l. Rather common. *A. bipunctata*, Ol.

**B B.** Abdomen more diffusely punctured above than elytra (at least behind).

**a a.** Elytra unicolorous, black or pitch-brown.

**A a.** Antennae shorter than head and thorax; penultimate joints broader than long.

**A 1.** Antennae red-brown at base.

Black, shiny; antennae and legs pitch-brown, base of former and tarsi red-brown. Elytra as long as thorax, very closely and rather strongly punctured, dull; abdomen slightly narrowed behind, rather diffusely and very strongly punctured in front, more diffusely and less strongly so behind. L. 2— $2\frac{1}{4}$  l. Not uncommon.

*A. brevipennis*, Gr.

The variety *fumata*, Gr., has the sides of thorax and the elytra dark brown, latter rather shorter, abdomen scarcely narrowed behind and legs red-yellow. L.  $1\frac{1}{2}$  l.

**B 1.** Antennae unicolorous or nearly so.

**a 1.** Body shiny.

**A 2.** Abdomen punctured behind.

**a 2.** Abdomen more scantily punctured behind than before.

**A 3.** Third joint of antennae rather longer than second.

Black, shiny, with moderately close, upright, gray pubescence; apex of elytra usually somewhat reddish; legs pitch-black, tarsi red-brown. Elytra about as long as thorax, closely, rather coarsely but not deeply punctured; abdomen parallel-sided, base of front segments rather strongly and deeply, apex of these segments and whole of hinder segments diffusely and moderately finely punctured. L. 2 l. Common. *A. lanuginosa*, Gr.

**B 3.** Second and third joints of antennae equal in length.

Black, with some metallic reflection, with brownish pubescence; base of antennae and the legs pitch-brown, tarsi red-brown. Antennae longer and thinner than in *A. lanuginosa*, second and third joints equal in length, fourth joint longer than broad; body flatter, more parallel-sided and less shiny; thorax narrower in proportion; elytra distinctly and thickly punctured and less distinctly sinuate at outer angles; abdomen much more finely punctured. L. 2 l. Rare. *A. villosa*, Mannerh.

**b 2.** Abdomen closely punctured throughout.

Resembling in appearance *A. moesta* but with more slender antennae and much more thickly punctured and shorter elytra; similar to *A. lanuginosa* but smaller, more slender, with yellower legs and with abdomen closely punctured throughout. L. 1½ l. Rare. *A. lygaea*, Kr.

**B 2.** Abdomen impunctate behind.

Deep black, shiny; legs pitch-brown, tarsi red-brown. Elytra about as long as thorax, moderately closely, strongly punctured; abdomen slightly narrowed behind in male, parallel-sided in female, with isolated, fine punctures in front, nearly impunctate behind. L. 1½—2 l. Common. *A. moesta*, Gr.

**b 1.** Body dull.**A 2.** Punctuation rather coarse.

Black, dull, with short gray pubescence; legs pitch-brown, knees and tarsi reddish. Elytra as long as thorax, closely, rather coarsely and deeply punctured; abdomen parallel-sided, diffusely and not very finely punctured. L.  $1\frac{3}{4}$  l. Common. *A. grisea*, Kr.

**B 2.** Punctuation fine.**a 2.** Antennae nearly as long as head and thorax, pitch-brown.

Black, rather dull, with short gray pubescence; legs pitch-brown, knees and tarsi reddish. Elytra fully as long as thorax, distinctly punctured; abdomen parallel-sided, rather closely and distinctly punctured. L.  $1\frac{3}{4}$  l. Common. *A. algarum*, Fauv.

**b 2.** Antennae only somewhat longer than head, red-brown.

Black, dull; with short greenish-gray pubescence; legs pitch-brown, knees and tarsi reddish. Elytra as long as or slightly longer than thorax, closely and finely punctured; abdomen parallel-sided, rather closely and strongly punctured. L.  $1\frac{1}{2}$ —2 l. Common. *A. obscurella*, Gr.

**B b.** Antennae as long as head and thorax, penultimate joints as long as broad.

Narrow. Pitch-black; elytra and antennae pitch-brown, base of latter and legs reddish-brown. Elytra about as long as thorax, closely and rather strongly punctured; abdomen, elongate, parallel-sided, finely and moderately closely punctured at base, more diffusely so at apex; legs slender. L.  $2\frac{1}{4}$ — $2\frac{1}{2}$  l. Rare. *A. procera*, Er.

**b b.** Elytra unicolorous, chestnut-brown, or rust-red.**A a.** Abdomen diffusely punctured at apex.**A 1.** Penultimate joints of antennae as long as broad.

Narrow, similar to *A. procera*, but with elytra chestnut-brown, shorter, rather more diffusely and strongly punctured. Antennae brown, base reddish; legs slender, reddish-brown. L.  $1\frac{2}{3}$  l. Rare. *A. spadicea*, Er.

**B 1.** Penultimate joints of antennae transverse.

**a 1.** Basal dorsal segments of abdomen strongly punctured throughout; posterior margin of last ventral segments and whole of apical segment red-brown.

Broader, more narrowed before and behind than *A. moerens*. Pitch-black, shiny; elytra chestnut-brown; antennae dark-brown, their base and the legs red-yellow. Elytra about as long as thorax, closely, moderately finely punctured; abdomen distinctly narrowed behind, especially in male, diffusely and rather finely punctured behind. L. 2 l. Scarce. *A. mycetophaga*, Kr.

**b 1.** Basal dorsal segments of abdomen closely punctured in front, diffusely behind; apex obscurely reddish.

Black, shiny; elytra reddish-brown; base of antennae obscurely red-yellow; legs reddish. Elytra about as long as thorax, rather closely and distinctly punctured; abdomen somewhat narrowed toward apex, diffusely punctured, except in the transverse impressions at base of second to fifth segments, which are closely punctured. Abdomen more diffusely punctured than in *B. mycetophaga* and less narrowed toward apex. L. 2—2½ l. Rare. *A. fungivora*, Sharp.

**B b.** Abdomen impunctate at apex.

**A 1.** Length 2 lines.

Black, very shiny; elytra chestnut-brown; antennae brown, their base, the anus, and legs red-yellow. Elytra about as long as thorax, closely, moderately finely punctured; abdomen slightly narrowed behind, apical segments nearly impunctate. L. 2 l. Scarce. *A. moerens*, Gyll.

**B 1.** Length 1¼—1½ lines.

Pitch-black, rather shiny, with scanty pubescence; base of antennae, anus, and legs yellow-red; elytra rust-red, as long as thorax. Punctuation slightly more diffuse than in *B. moerens*; abdomen with isolated punctures. Rare. *A. lugubris*, Aub.

**c c.** Elytra black, with a red spot at apex of each near suture.

**A a.** Antennae shorter, penultimate joints scarcely transverse; punctuation closer.

Black, shiny; antennae and legs pitchy-red; elytra with a red apical spot on each. Thorax closely and finely punctured throughout, more than half as broad again as long; elytra as long as thorax, closely punctured; abdomen parallel-sided, finely, not very closely punctured; antennae slender, joints four to ten scarcely transverse. L.  $1\frac{1}{2}$ —2 l. Rare. *A. cuniculorum*, Kr.

**B b.** Antennae longer, penultimate joints transverse; punctuation more diffuse.

Larger than *A. cuniculorum*, with longer and stouter antennae, shorter legs (intermediate tarsi especially shorter), femora darker, more sparingly covered with golden-yellow pubescence, and with a less closely punctured abdomen. Rare; North Devon. *A. maculata*, Bris.

**II.** Thorax diffusely punctured at sides, central line smooth, with a row of larger punctures on each side.

**1.** Elytra with a red spot.

Narrow. Black, shiny; elytra with a sharply defined yellow-red spot at apex of each near suture; antennae black; legs pitch-black, tarsi red-brown, elytra as long as thorax, moderately closely, strongly punctured; abdomen finely punctured, moderately closely in front, more diffusely behind, slightly narrowed behind in male. L.  $1\frac{1}{4}$ — $1\frac{3}{4}$  l. Common. *A. nitida*, Gr.

**2.** Elytra unicolorous.

Similar to *A. nitida* but with elytra unicolorous black, and abdomen strongly and moderately closely punctured. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Not uncommon. *A. bilineata*, Gyll.

**b.** Length not exceeding  $1\frac{1}{4}$  lines.

**I.** Abdomen parallel-sided.

Black, shiny; legs pitch-brown, knees and tarsi red-brown. Thorax diffusely and finely punctured; elytra as long as thorax, moderately closely and strongly punctured, abdomen strongly punctured on front part of basal segments, otherwise smooth; last joint of antennae very long. L.  $1$ — $1\frac{1}{4}$  l. Rare. *A. inconspicua*, Aub.

**II.** Abdomen distinctly narrowed behind.

Black, elytra dull; antennae blackish-brown, base lighter; legs brown. Thorax closely and very finely punctured; elytra slightly longer than thorax, closely and rather strongly punctured; abdomen finely punctured, closely in front, diffusely behind. L.  $\frac{3}{4}$ —1 l. Common.

*A. morion*, Gr.

***Dinarda.*****A.** Length 2 lines.

Black, dull; sides of thorax, elytra, apex of abdomen, base and apex of antennae and legs red-brown; head closely punctured, forehead indistinctly impressed, punctuation of thorax and elytra moderately close and rather strong, that of abdomen somewhat diffuse and coarse. Not common.

*D. Märkeli*, Kies.

**B.** Length  $1\frac{1}{2}$  lines.

Coloured like *D. Märkeli*, but brighter; head distinctly furrowed; punctuation rather closer and finer. Not common.

*D. dentata*, Gr.

***Atemeles.*****A.** Third joint of antennae not much longer than second.

Rust-red; thorax distinctly narrowed in front, distinctly punctured, posterior angles laterally prominent; elytra closely and finely punctured; abdomen almost smooth. L. 2— $2\frac{1}{4}$  l. Common.

*A. emarginatus*, Payk.

**B.** Third joint of antennae double as long as second.

Rust-red; thorax not narrowed in front, almost impunctate, with a deep depression on each side before middle, posterior angles moderately prominent; elytra extremely closely and finely punctured; abdomen distinctly punctured in front. L. 2— $2\frac{1}{4}$  l. Very rare.

*A. paradoxus*, Gr.

***Myrmedonia.*****A.** Elytra as long as, or longer than thorax.**a.** Thorax with scattered, deep punctures.**I.** Length  $3\frac{1}{2}$  lines.



Head and thorax black; elytra (except posterior angles), first five abdominal segments (except a central spot on each), and the base and apex of antennae bright red. Thorax nearly half as broad again as long; elytra strongly punctured; abdomen smooth. Exceedingly rare.

*M. Haworthi*, Steph.

**II.** Length 2 lines.

Head black; thorax red; elytra black; abdomen red, black at apex; antennae blackish-brown, yellowish at apex. Thorax not much broader than long; elytra strongly punctured; abdomen almost smooth. Not common.

*M. collaris*, Payk.

**b.** Thorax closely and finely punctured.

**I.** Thorax less than half as broad again as long.

**1.** Abdomen impunctate above.

**A A.** Length 3 lines.

Pitch-brown; shoulders of elytra and base of abdomen red-brown. Antennae longer than head and thorax, dark brown-red, lighter at base, of the penultimate six joints the basal ones rather longer, the apical rather shorter than broad. Thorax distinctly broader than long; elytra finely punctured. Common.

*M. humeralis*, Gr.

**B B.** Length not exceeding  $2\frac{1}{2}$  lines.

**a a.** Antennae shorter; of the penultimate six joints the basal ones slightly, the apical rather strongly transverse; body deep black-brown.

Thorax nearly as long as broad, elytra very finely punctured. L.  $2\frac{1}{2}$  l. Moderately common. *M. cognata*, Märk.

**b b.** Antennae longer; of the penultimate six joints the basal ones rather longer, the apical rather shorter than broad; body black.

More slender than *M. cognata*. Thorax nearly as long as broad; elytra very finely punctured. L.  $2\frac{1}{3}$  l. Common.

*M. funesta*, Gr.

**2.** Abdomen with second, third and fourth segments closely and finely, fifth diffusely and sixth indistinctly punctured.

Black-brown; antennae, base of elytra and of abdomen

red-brown. Thorax somewhat broader than long; elytra extremely finely punctured, penultimate joints of antennae rather strongly transverse. L.  $2\frac{1}{4}$  l. Moderately common.  
*M. limbata*, Payk.

**II.** Thorax at least double as broad as long.

**1.** Elytra black-brown, with a yellow-brown marking from the shoulder inward.

Shorter than *M. limbata*. Head, thorax and abdomen black-brown, segments of latter red-brown at posterior margin. Elytra finely punctured; abdomen smooth; penultimate joints of antennae strongly transverse. L. 2 l. Moderately common.  
*M. lugens*, Gr.

**2.** Elytra unicolorous black-brown.

Head, thorax and abdomen black-brown; antennae red-brown, base lighter, penultimate joints strongly transverse. Thorax more than double as broad as long; elytra very finely punctured; abdomen smooth. L.  $1\frac{3}{4}$  l. Common.  
*M. laticollis*, Märk.

**c.** Thorax closely and deeply punctured.

Head and thorax black-brown; elytra red-brown, very closely and rather strongly punctured; abdomen red-brown, apex pitch-black, closely punctured in front, nearly smooth behind. Thorax almost as long as broad; fifth abdominal segment with a raised longitudinal fold. Apterous. L. 2 l. Very rare.  
*M. plicata*, Er.

**B.** Elytra shorter than thorax.

Head blackish; thorax, elytra and abdomen red-yellow, latter blackish before apex. Thorax longer than broad, with a distinct central furrow, closely and strongly punctured, elytra more diffusely and finely, abdomen diffusely punctured in front, smooth behind. Apterous. L. 2 l. Common.  
*M. canaliculata*, Fab.

### *Ilyobates.*

**A.** Antennae with six penultimate joints scarcely broader than long.

**a.** Thorax black-brown.

Head and thorax black-brown; elytra and apex of abdomen yellow-red; abdomen pitch-brown; antennae red-

brown; legs pale yellow-red. Punctuation of head and thorax very close, coarse, of elytra rather stronger but more diffuse, of abdomen diffuse and fine. L.  $2-2\frac{1}{2}$  l. Not common. *I. nigricollis*, Payk.

**b.** Thorax red.

Red; antennae red-brown; legs red-yellow. Thorax rounded, punctuation very close and fine; that of elytra close and rather strong, of abdomen diffuse and fine. L.  $2\frac{1}{4}$  l. Scarce. *I. propinqua*, Aub.

**B.** Antennae with six penultimate joints strongly transverse.

**a.** Head and thorax pitch-black.

Pitch-black; elytra dark red-brown; antennae blackish-brown, lighter at base; legs yellow. Punctuation of thorax very fine, not very close, of elytra rather diffuse, strong, of abdomen very diffuse. L.  $1\frac{3}{4}$  l. Rare.

*I. forticornis*, Lac.

**b.** Head and thorax yellowish-red.

Elongate, parallel-sided, yellowish-red, shiny. Punctuation of head and thorax moderately close and very fine, that of elytra rather more distinct, that of abdomen diffuse and extremely fine; pubescence yellowish. L.  $1\frac{2}{3}$  l. Rare; Headly Lane, near Dorking, Surrey. *I. glabriventris*, Rye.

### *Callicerus.*

**A.** Tenth joint of antennae almost as long as the preceding three joints together; eleventh double as long as tenth.

Elongate. Pitch-black, elytra dull pitch-brown; punctuation indistinct; abdomen smooth above. L.  $1\frac{1}{2}$  l. Not uncommon. *C. obscurus*, Gr.

**B.** Tenth joint of antennae about as long as ninth, eleventh double as long as tenth.

Elongate. Pitch-black, elytra red-brown, apex of abdomen yellow-red; punctuation close and fine, abdomen smooth behind. L. 2 l. Not common.

*C. rigidicornis*, Er.

### *Calodera.*

**A.** Thorax and elytra very closely and finely punctured.

**a.** Length  $1\frac{1}{2}$  lines or more.

**I.** Antennae dark brown, penultimate six joints about as long as broad.

Elongate, black, densely pubescent. Thorax longer than broad, with a distinct central furrow; abdomen less closely punctured than head and thorax; legs black-brown, knees, apex of tibiae, and tarsi yellowish. L. 2 l. Scarce.

*C. nigrita*, Man.

**II.** Antennae red, penultimate six joints broader than long.

**1.** Legs red; abdomen very closely and finely punctured.

Dull. Black, finely pubescent. Thorax about as long as broad, with a feeble central furrow. L.  $1\frac{1}{2}$  l. Lee; Cowley.

*C. rubens*, Er.

**2.** Legs dark pitch-brown; abdomen scantily and finely punctured in front.

Black, finely pubescent. Thorax rather longer than broad, without a central furrow. L.  $1\frac{1}{2}$  l. Not uncommon.

*C. riparia*, Er.

**b.** Length 1 line.

Black, thickly pubescent. Antennae dark-brown, penultimate joints rather strongly transverse; abdomen extremely closely and finely punctured. Common. *C. aethiops*, Gr.

**B.** Elytra finely and only moderately closely punctured.

Shiny black. Antennae very robust, penultimate joints strongly transverse; thorax as long as broad; elytra sometimes pitch-brown; abdomen rather diffusely and finely punctured; legs pitchy. L.  $1\frac{1}{4}$  l. Scarce. *C. umbrosa*, Er.

### *Chilopora.*

**A.** Thorax and elytra black.

Head and abdomen black; body pubescent, extremely closely and finely punctured. Antennae dark brown, base lighter, penultimate joints as long as broad; thorax almost longer than broad; legs pitch-brown, tibiae and tarsi yellow-brown. L. 2 l. Common. *C. longitarsis*, Er.

**B.** Thorax and elytra red-brown.

Rather more slender than *C. longitarsis*. Head black-brown, abdomen red-brown, penultimate two segments darker; body pubescent. Thorax and elytra closely and moderately finely, abdomen very closely and finely punctured. Antennae red, base yellow, penultimate joints distinctly longer than broad; thorax longer than broad; legs yellow. L. 2 l. Not common. *C. rubicunda*, Er.

### *Tachyusa.*

**A.** Abdomen more or less narrowed toward base.

**a.** Abdomen distinctly narrowed at base, less closely punctured than the fore parts.

**I.** Antennae yellow-brown at base; legs bright-red.

Pitch-black, shiny. Punctuation of fore parts close and fine, of abdomen extremely fine, diffuse in front, tolerably close behind; thorax almost longer than broad, with a shallow transverse impression at base; apex of abdomen double as broad as base. L.  $1\frac{1}{3}$  l. Moderately common.

*T. constricta*, Er.

**II.** Antennae dark brown at base; legs (except tarsi) pitch-brown.

Black, with bluish reflection, shiny. Punctuation of fore parts very close, fine, that of abdomen even, and rather close and fine; thorax slightly broader than long, with a very shallow transverse basal impression; apex of abdomen half as broad again as base. L.  $1\frac{1}{3}$  l. Very rare.

*T. coarctata*, Er.

**b.** Abdomen scarcely narrowed toward base, almost as closely punctured as the fore parts.

Black, with bluish-gray reflection, shiny; antennae red-brown, base yellow-brown; legs pitch-brown, knees and tarsi yellowish. Punctuation of fore-parts extremely close and fine, that of abdomen nearly as close; thorax almost longer than broad; six penultimate joints of antennae about as long as broad. L.  $1\frac{1}{3}$  l. Not very common.

*T. scitula*, Er.

**B.** Abdomen parallel-sided or narrowed behind.

**a.** Central furrow on thorax not deep.

**I.** Antennae blackish-brown or dark reddish-brown,

rarely somewhat lighter toward base; legs black-brown or pitch-brown, with tarsi or knees and tarsi lighter.

**1.** Abdomen parallel-sided.

**A A.** Antennae and legs blackish-brown, tarsi yellow.

Grayish-black, fore parts with distinct bluish reflection. Punctuation of fore parts extremely close and fine, that of abdomen almost equally close; thorax as long as broad, central furrow usually distinct; of the six penultimate joints of antennae the basal ones distinctly, the apical ones not much longer than broad. L.  $1\frac{3}{4}$  l. Rather common.

*T. flavitarsis*, Sahl.

**B B.** Antennae and legs dark red-brown, base of former somewhat lighter, knees and tarsi yellow-brown.

Black, with gray reflection, shiny. Punctuation of whole body extremely close and fine; thorax almost longer than broad, central furrow shallow; of the six penultimate joints of antennae the basal ones double as long as, the apical ones distinctly longer than broad. L.  $1\frac{1}{2}$  l. Rather common.

*T. umbratica*, Er.

**2.** Abdomen narrowed toward apex.

**A A.** Penultimate joints of antennae double as long as broad; thorax almost longer than broad.

Black, dull; antennae and legs pitch-brown, knees and tarsi yellowish. Punctuation of whole body extremely close and fine; thorax with a shallow central furrow. L.  $1\frac{1}{2}$  l. Moderately common.

*T. atra*, Gr.

**B B.** Penultimate joints of antennae almost broader than long; thorax half as broad again as long.

Black, dull; antennae black-brown; legs pitch-brown, tarsi yellow-brown. As closely and finely punctured as *T. atra*, abdomen more narrowed behind. Thorax generally with a distinct central furrow. L. 1 l. Scarce.

*T. concolor*, Er.

**II.** Antennae and legs red-yellow.

Black, rather shiny; antennae and legs red-yellow; elytra brown. Forehead and thorax broadly channeled,

latter about as long as broad; abdomen linear. L.  $1\frac{1}{2}$  l.  
Rather common. *T. uvida*, Er.

**b.** Thorax with a deep central furrow.

Black, rather dull, somewhat flat, with very fine gray pubescence; legs pitchy. Thorax about as long as broad, narrowed toward base; abdomen closely punctured. L. 1— $1\frac{1}{4}$  l. Rather common. *T. sulcata*, Kies.

### *Ocyusa.*

**A.** Antennae and legs pitch-brown, base of former, knees and tarsi yellow-brown.

Black, shiny. Thorax scarcely broader than long, somewhat convex, tolerably closely, moderately finely punctured, posterior angles prominent, almost right angles; elytra moderately closely, rather strongly punctured in transverse wrinkles; abdomen very finely, not very closely punctured. L.  $1\frac{1}{4}$  l. Common. *O. maura*, Er.

**B.** Antennae and legs unicolorous red-brown.

Similar to *O. maura* but narrower, thorax rather longer, more distinctly narrowed behind, posterior angles less sharp; punctuation rather closer. L.  $1\frac{1}{3}$  l. Not common.

*O. picina*, Aub.

### *Oxypoda.*

**A.** Elytra not shorter than thorax.

**a.** Abdomen gradually narrowed.

**I.** Thorax black or black-brown, margins often lighter.

**1.** Length  $2\frac{3}{4}$  lines.

Pitch-black; extreme side margin of thorax red-brown; elytra yellow-brown, with a triangular black spot round scutellum, outer apical angle often blackish; abdomen with hinder margins of segments and apex red-brown; antennae pitch-black, their base and the legs yellow-brown. Penultimate joints of antennae distinctly longer than broad; thorax slightly convex, a little shorter than elytra. Scarce. *O. spectabilis*, Märk.

**2.** Length 1— $1\frac{3}{4}$  lines.

**A A.** Elytra with a triangular darker spot round scutellum.

**a a.** Elytra rather longer than thorax.

Similar to *O. spectabilis*, but smaller. Black; sides of thorax brownish; elytra yellow-brown, with a triangular spot round scutellum and outer apical angles blackish-brown; abdomen with hinder margins of segments and apex red-brown; antennae blackish-brown, base red-brown; legs reddish-yellow. L.  $1\frac{3}{4}$  l. Rather common.

*O. lividipennis*, Mann.

**b b.** Elytra half as long again as thorax.

**A a.** Intermediate joints of posterior tarsi shorter.

Black; elytra red-brown, with a triangular spot round scutellum and outer apical angles widely blackish; margins of abdominal segments slightly red-brown; antennae blackish, first joint red-brown; legs red-yellow. Penultimate joints of antennae as long as broad. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Common.

*O. vittata*, Märk.

**B b.** Intermediate joints of posterior tarsi longer.

Very similar to *O. vittata* but with apical joint of antennae larger, and posterior tarsi much longer. A single specimen taken at Aberlady, near Edinburgh.

*O. longipes*, Muls.

**B B.** Elytra without the triangular dark spot round scutellum.

**a a.** Second and third joints of antennae equal or nearly so.

**A a.** Elytra distinctly longer than thorax.

**A 1.** Antennae lighter at base.

**a 1.** Antennae rather slender, six penultimate joints nearly equal in length and breadth; body shorter.

Black, pubescence brownish; elytra brown, blackish toward base; margins of abdominal segments red-brown; antennae blackish, base red-brown; legs yellowish-red. Thorax convex, scarcely half as broad again as long, with only slight traces of a central furrow and basal depression; elytra rather longer than thorax; abdomen extremely closely and finely punctured throughout. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Common.

*O. opaca*, Gr.



**b 1.** Antennae long and robust, six penultimate joints becoming slightly broader and longer toward apex; body longer.

Elongate. Blackish-brown; abdomen with apex and margins of ventral segments red-brown; antennae brownish, their base and the legs yellow-red. Thorax slightly convex, one-third broader than long, with a slight basal depression; elytra one-third longer than thorax; abdomen extremely closely and finely punctured, scarcely narrowed toward apex. L.  $1\frac{1}{2}$  l. Common. *O. longiuscula*, Gr.

**B 1.** Antennae unicolorous black.

Elongate, nearly parallel-sided. Black, rather dull, with thin silky pubescence; antennae and legs pitch-black, latter with knees and tarsi scarcely lighter. Elytra rather flat. Colour rather deeper black than in *O. lentula*, antennae longer, with joints not quite so transverse, thorax not so wide, elytra longer, head rather more parallel-sided, and tarsi (especially posterior pair) longer and thinner; antennae shorter and slighter than in *O. longiuscula*, with joints less conic. L.  $1\frac{1}{4}$  l. Rare. *O. rupicola*, Rye.

**B b.** Elytra not or scarcely longer than thorax.

**A 1.** Thorax nearly twice as broad as long; body rather dull.

Broad. Black, dull; elytra and apex of abdomen dark brown; antennae pitch-black, base lighter; legs pitch-brown, femora darker. Thorax only slightly narrowed in front, not very convex, with central furrow and basal depression; abdomen not long, very slightly narrowed behind, extremely closely and finely punctured throughout. L.  $1\frac{1}{4}$  l. Moderately common. *O. lentula*, Er.

**B 1.** Thorax half as broad again as long; body more shiny.

Black, rather shiny; base of antennae, thorax, and elytra brownish; legs yellowish. Thorax and elytra finely and closely punctured but rather shiny, former with a very indistinct central furrow; abdomen only slightly narrowed behind, extremely closely and finely punctured but not altogether dull. Differing from *O. lentula* in its lighter

colour, shorter elytra and narrower head. L.  $1\frac{1}{3}$  l. Rare; Edinburgh. *O. edinensis*, Sharp.

**b b.** Second joint of antennae distinctly longer than third.

**A a.** Antennae lighter at base.

**A 1.** Thorax half as broad again as long, with a more or less distinct central furrow.

Elongate. Brown-black, dull, with silky pubescence; elytra a little lighter; base of antennae and palpi dark red-yellow; legs yellow. Allied to *O. umbrata* but with thorax and elytra not quite so finely punctured, former less transverse, and abdomen less pointed at apex. L.  $1\frac{1}{2}$  l. Somewhat rare. *O. pectita*, Sharp.

**B 1.** Thorax nearly twice as broad as long, without central furrow.

Black, with silky pubescence; base of antennae and elytra brown-yellow; legs red-yellow. Thorax rather short, with a small depression at base; elytra one-third longer than thorax, distinctly punctured. L.  $1\frac{1}{4}$  l. Rather common. *O. umbrata*, Gr.

**B b.** Antennae unicolorous.

Black, dull, with silky pubescence; legs brownish; body spindle-shaped, very closely punctured. Smaller than *O. umbrata*, usually of an uniform sooty-black colour, antennae rather shorter, terminal joint comparatively short and obtusely pointed, thorax with a very indistinct central furrow, elytra rather less strongly notched at posterior outer angle, tarsi (especially posterior pair) shorter. L. 1 l. Not common. *O. nigrina*, Wat.

**3.** Length  $\frac{3}{4}$  line.

Black, rather shiny; thorax and elytra pitch-brown; apex of abdomen dark red-brown; antennae blackish-brown, first joint yellow-brown; legs reddish-yellow. Thorax more than half as broad again as long, slightly convex; elytra scarcely as long as thorax, rather more closely and less finely punctured; abdomen distinctly narrowed, closely punctured at base, almost impunctate at apex. *O. exigua*, Er.

**II.** Thorax red or brown.**1.** Elytra a little longer than thorax.**A A.** Punctuation fine.**a a.** Head dirty red-yellow.

Rather narrow, dull, dirty red-yellow; middle of abdomen blackish; antennae dirty yellowish, with base yellow; legs yellow. Thorax about half as broad again as long, closely and very finely punctured, without central furrow, finely but distinctly pubescent; elytra very closely and finely punctured and pubescent; abdomen somewhat narrowed toward apex, extremely closely and finely punctured. L.  $1\frac{1}{4}$  l. Not common. *O. verecunda*, Sharp.

**b b.** Head blackish.

Elongate. Dirty brown-yellow; head and middle of abdomen blackish; antennae brownish, base lighter; legs yellow. Thorax more than half as broad again as long, with a shallow basal depression; punctuation of fore parts not very fine, that of abdomen extremely close and fine. L.  $1\frac{1}{4}$  l. Scarce. *O. exoleta*, Er.

**B B.** Punctuation coarse, nearly wrinkled.

Elongate. Brownish-red; middle of abdomen blackish; antennae and legs red-yellow. L. 1 l. Scarce.

*O. mutata*, Sharp.

**2.** Elytra half as long again as thorax.

Elongate. Bright yellowish-red; head, neighbourhood of scutellum and outer apical angle of elytra, breast and middle of abdomen blackish; antennae dark-brown, base lighter; legs red-yellow. Thorax half as broad again as long, with a shallow basal depression; punctuation of fore parts moderately fine, that of abdomen very fine. L.  $1\frac{1}{2}$  l. Common.

*O. alternans*, Gr.

**b.** Abdomen parallel-sided.**I.** Abdomen diffusely punctured throughout.

Broad. Black, dull; antennae dark brown, base lighter; legs pitch-brown, tibiae and tarsi often lighter. Thorax half as broad again as long, with a central furrow and basal depression, almost longer than elytra; punctuation of fore parts moderately close, that of abdomen rather diffuse, especially toward apex. L.  $1\frac{1}{3}$  l. Not uncommon.

*O. incrassata*, Muls.

**II.** Abdomen closely punctured, at least at base.**1.** Head light red-brown.

Light red-brown; middle of abdomen blackish; antennae red-brown; legs yellowish-red. Thorax half as broad again as long, scarcely shorter than elytra; third joint of antennae not much longer than fourth; punctuation of head and thorax moderately close, that of elytra less close, that of abdomen tolerably close in front, more diffuse behind. L.  $1\frac{1}{2}$  l. Rare. *O. recondita*, Kr.

**2.** Head pitch-brown or pitch-black.

**A A.** Thorax nearly twice as broad as long, with central furrow and basal depression; length  $1\frac{1}{3}$  lines.

Pitch-brown; thorax, elytra and base of abdomen dark red-brown, apex of latter and antennae red-brown; legs reddish-yellow. Thorax somewhat shorter than elytra; third joint of antennae not much longer than fourth; abdomen very closely punctured throughout. Common.

*O. formiceticola*, Märk.

**B B.** Thorax half as broad again as long, even; length 1 line.

**a a.** Thorax more or less shiny.

**A a.** Antennae dark red-brown, distinctly thickened toward apex.

Elongate. Pitch-black; elytra pitch-brown; abdomen with apex and margins of segments yellow-red; antennae dark red-brown; legs yellow. Third joint of antennae distinctly shorter than second; abdomen closely punctured, a little more diffusely at apex. Common.

*O. haemorrhoea*, Sahl.

**B b.** Antennae light red-brown, strongly thickened toward apex.

Elongate. Pitch-brown; elytra brown; abdomen with apex and margins of segments reddish-yellow; antennae light red-brown; legs yellow. Structure similar to *O. haemorrhoea*, but body less shiny, pubescence closer, abdomen with silky reflection. Rare. *O. amoena*, Fair.

**b b.** Thorax dull.

Black-brown; thorax, elytra and apex of abdomen brown;

legs red-yellow. Body spindle-shaped, closely and very finely punctured; thorax dull. L. 1 l. Rare.

*O. Waterhousei*, Rye.

**B.** Elytra shorter than thorax.

**a.** Base of abdomen lighter than middle.

**I.** Body yellow, middle segments of abdomen blackish at base.

**1.** Antennae slightly thickened toward apex.

Elongate. Yellow-red; fifth abdominal segment blackish at base; rather dull; clothed with yellowish silky pubescence. Thorax without basal depression; posterior angles nearly right angles; elytra almost a third-part shorter than thorax; antennae reaching base of thorax. L. 1 l. Scarce.

*O. soror*, Th.

**2.** Antennae strongly thickened toward apex.

Antennae reddish-yellow, legs yellow, third joint of former somewhat shorter than second. Punctuation of elytra scarcely less close and fine than that of thorax; abdomen extremely finely punctured, with silky reflection. L. 1 l. Common.

*O. pallidula*, Mann.

**II.** Body red-brown; middle of abdomen blackish.

Elongate, rather parallel-sided, not shiny. Antennae red-brown, legs yellow, third joint of former distinctly shorter than second; elytra a little narrower and rather more coarsely punctured than the thorax; abdomen closely and finely punctured, with close, not altogether fine pubescence. L. 1 l. Common.

*O. brachyptera*, Steph.

**b.** Base of abdomen not lighter than middle.

**I.** Abdomen not very finely punctured, without silky reflection.

Nearly parallel-sided. Black, dull; thorax varying from dark reddish to nearly black; elytra dark reddish; antennae, legs and apex of abdomen dark red-yellow; punctuation close and fine. Similar to *O. brachyptera*, but with antennae scarcely so large in proportion and elytra a little longer. L. 1¼ l. Dumfries.

*O. tarda*, Sharp.

**II.** Abdomen extremely finely punctured, with silky reflection.

Blackish; thorax, elytra and antennae brownish, base of

latter lighter; legs reddish-yellow; margins of abdominal segments somewhat red-brown. Punctuation of elytra less close and fine than that of thorax; third joint of antennae a little shorter than second. L.  $\frac{3}{4}$  l. Scarce.

*O. misella*, Kr.

### *Homalota.*

**A.** Abdomen parallel-sided.

**a.** Thorax about as long or nearly as long as broad.

**I.** Six penultimate joints of antennae longer than, or about as long as broad.

**1.** Sixth abdominal segment of male with a tubercle on upper-side.

Sixth segment of abdomen nearly smooth.

**A A.** Length  $1\frac{3}{4}$  lines or more.

**a a.** Tenth joint of antennae longer than broad.

**A a.** Thorax distinctly narrowed behind; abdomen unicolorous black.

Flat. Black-brown, rather shiny; legs yellowish. Antennae and legs slender, each joint of former considerably longer than broad; elytra about one-third longer than thorax; basal segments of abdomen rather closely punctured. L. 2 l. Not uncommon. *H. currae*, Kr.

**B b.** Thorax scarcely narrowed behind; margins of abdominal segments red-brown.

Rather flat and narrow. Black-brown, base of antennae and legs yellow, apex of former red-brown. Antennae long; elytra a little longer than thorax; basal segments of abdomen very closely punctured. L.  $1\frac{3}{4}$ —2 l. Scarce.

*H. languida*, Er.

**b b.** Tenth joint of antennae about as long as broad.

**A a.** Head with a distinct longitudinal impression; thorax with a distinct central furrow.

Rather flat and narrow, somewhat shiny. Head, thorax, and abdomen pitchy; elytra dark-brown; legs and base of antennae yellow, apex of latter pitch-brown. Thorax nar-

rowed distinctly behind; elytra a little longer than thorax; basal segments of abdomen rather closely punctured.—L. 2 l. Not common. *H. insecta*, Th.

**B b.** Head with an indistinct depression in front; thorax with a not very distinct central furrow.

Linear, rather dull. Head, thorax, and abdomen pitch-brown, elytra and antennae brown, base of latter and legs yellow. Thorax slightly narrowed behind; elytra scarcely longer than thorax; base of abdomen closely punctured. L.  $1\frac{3}{4}$  l. Not common. *H. pavens*, Er.

**B B.** Length not exceeding  $1\frac{1}{2}$  lines.

**a a.** Body fragile.

**A a.** Head narrowed in front; elytra scarcely longer than thorax.

Flat, shiny. Head, thorax, and abdomen black-brown, antennae and elytra brown, legs yellow. Tenth joint of antennae scarcely longer than broad; thorax a little narrowed behind; base of abdomen rather diffusely punctured. L.  $1\frac{1}{2}$  l. Loch Rannoch. *H. Eichoffi*, Scrib.

**B b.** Head nearly square; elytra half as long again as thorax.

Flat, scarcely shiny. Head, thorax, and abdomen black-brown; antennae and elytra brown; legs yellow. Tenth joint of antennae longer than broad; thorax scarcely narrowed behind; base of abdomen not very closely punctured. L.  $1\frac{1}{3}$  l. Common. *H. cambrica*, Woll.

**b b.** Body more robust.

Somewhat flat and shiny. Head, thorax, and abdomen black-brown, antennae and elytra brown, legs yellow. Tenth joint of antennae slightly broader than long; head narrowed in front; thorax a little narrowed behind; elytra a little longer than thorax; punctuation rather diffuse. L.  $1\frac{1}{2}$  l. Rare. *H. planifrons*, Wat.

**2.** Sixth abdominal segment of male without a tubercle.

**A A.** All abdominal segments distinctly punctured.

*a a.* Antennae not at all thickened toward apex; length 1 line or less.

*A a.* Length 1 line.

*A 1.* Sixth abdominal segment more diffusely punctured than basal ones.

*a 1.* Antennae elongate, yellowish, joint five half as long again as four, last joint only a little longer than tenth; apex of abdomen yellowish.

Flat. Head and thorax black-brown; elytra dark-brown, paler toward apex; legs red-yellow. Head slightly narrowed in front, with a distinct impression; thorax gently narrowed behind, with a distinct central furrow. Rare; Scotland. *H. eximia*, Sharp.

*b 1.* Antennae slender, pitchy, joint five about equal to four, last joint about one-third longer than tenth; abdomen entirely black.

Flat. Head and thorax black; elytra pitchy; legs red-yellow. Head nearly square, with a distinct depression; thorax a little narrowed behind, with a slight central furrow, rising from a shallow basal depression. Not uncommon. *H. fragilis*, Kr.

*B 1.* Abdomen very closely and finely punctured all over.

Flat. Black; antennae pitchy, slender; legs reddish-brown. Head nearly square, with an indistinct depression; thorax scarcely narrowed behind, central furrow not very distinct. Scarce. *H. longula*, Heer.

*B b.* Length not exceeding  $\frac{3}{4}$  line.

*A 1.* Antennae nearly as long as head, thorax, and elytra; abdomen closely punctured all over.

Linear, flat. Dark brown, elytra paler, antennae and legs yellowish. L.  $\frac{3}{4}$  l. Very rare.

*H. delicatula*, Sharp.

*B 1.* Antennae rather longer than head and thorax; abdomen more diffusely punctured toward apex.

Linear, rather flat. Head pitchy; thorax and elytra



brownish, the latter lighter; abdomen pitchy, its apex, the antennae, and legs reddish-yellow. L.  $\frac{3}{5}$  l. Not uncommon in Scotland.

*H. subtilissima*, Kr.

**b b.** Antennae slightly thickened toward apex; length exceeding 1 line.

**A a.** Body not densely pubescent.

**A 1.** Thorax a little broader than long.

**a 1.** All abdominal segments equally closely punctured.

Not very flat, rather shiny. Black; antennae, elytra, and apex of abdomen pitch-brown; legs brownish. Punctuation of abdomen much coarser than on front of body. L.  $1\frac{1}{4}$  l. Scarce; sea shore.

*H. littorea*, Sharp.

**b 1.** Sixth abdominal segment rather more diffusely punctured than basal segments.

Flat. Head and thorax black-brown, elytra rust-red, abdomen black-brown, its apex, the antennae, and legs reddish-yellow. L.  $1\frac{1}{3}$  l. Scarce.

*H. imbecilla*, Wat.

**B 1.** Thorax about as long as broad.

**a 1.** Thorax not narrowed behind.

Head, thorax, and abdomen black; elytra rust-red; antennae pitchy, elongate; legs bright yellow. Head narrow. All abdominal segments very closely and finely punctured. L.  $1\frac{1}{3}$  l. Scarce.

*H. luteipes*, Er.

**b 1.** Thorax a little narrowed behind.

All abdominal segments closely punctured.

**A 2.** Legs yellowish, femora darker; body black, very shiny.

Antennae pitchy, moderately long. Male with a distinct impression above. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Common.

*H. labilis*, Er.

In a robust variety the legs are black, except the knees and tarsi.

**B 2.** Legs blue-black, tarsi and small spot at knees red-brown; body blue-black, less shiny than *H. labilis*.

Antennae blue-black. Head with a distinct impression in both sexes. L.  $1\frac{1}{2}$  l. Scarce.

*H. coerulea*, Sahl.

**B b.** Body densely pubescent.

**A 1.** Thorax nearly as long as broad, much narrower than, and about three-quarters as long as elytra.

Grayish-black, rather dull; antennae pitchy, legs red-brown, tarsi rather short and stout; all abdominal segments very closely punctured. L.  $1\frac{1}{2}$  l. Rather common; sea-coast, local.

*H. plumbea*, Wat.

**B 1.** Thorax a little broader than long, scarcely narrower than and nearly as long as elytra.

Linear, dull. Head, thorax and abdomen black, elytra brownish, antennae red-brown, legs red-yellow. Posterior tarsi long and slender, their first joint nearly double as long as second. Punctuation extremely close and fine (resembling, with the pubescence, that of an *Oxyypoda*).—L.  $1\frac{1}{4}$ — $1\frac{1}{3}$  l. Moderately common; Hammersmith.

*H. fallax*, Kr.

**B B.** Abdomen with basal segments rather closely punctured, fifth often more diffusely than fourth, sixth segment nearly smooth.

**a a.** Elytra one-third longer than thorax.

**A a.** Length 2 lines.

**A 1.** Thorax about one-third broader than long.

Broad, rather dull and flat. Head and thorax black-brown; elytra yellowish; abdomen black-brown, margins of segments and apex lighter; base of antennae and legs yellowish. Male with upper-plate of seventh abdominal segment emarginate in middle of posterior margin, the under-plate much produced and turned upward, sides of produced part suddenly narrowed in middle, apex narrow and emarginate. Not uncommon.

*H. luridipennis*, Mann.

**B 1.** Thorax almost as long as broad.

Linear, variable in colour. Head black, with an impression on vertex; thorax blackish or reddish-brown; elytra brownish-red; abdomen black, apex and margins of segments lighter; legs reddish-yellow; antennae pitchy, moderately slender, joint ten slightly transverse. Male

with under-plate of seventh segment of abdomen produced and narrowed toward apex, apex truncate and slightly emarginate; apex of upper-plate not emarginate. Not uncommon.

*H. londinensis*, Sharp.

**B b.** Length not exceeding  $1\frac{3}{4}$  lines.

**A 1.** Body rather broad.

Head and thorax brownish-black; elytra obscure pitch-brown; abdomen black; legs red-brown; antennae pitch-black, base lighter, joint ten about as long as broad. Male with under-plate of seventh abdominal segment much produced, narrowed toward apex, which is formed by the junction of two gentle curves. L.  $1\frac{3}{4}$  l. Not uncommon.

*H. hygrotopora*, Kr.

**B 1.** Body rather narrow and elongate.

**a 1.** Thorax about as long as broad; antennae rather long.

Rather shiny. Head and thorax black, elytra varying from reddish-brown to pitchy; abdomen black, apex pale; legs yellow; antennae dark-brown, base lighter. Male with under-plate of seventh abdominal segment narrow, projecting considerably beyond upper-plate, apex gently rounded; female with upper-plate of this segment slightly emarginate in middle. L.  $1\frac{1}{2}$  l. Common.

*H. elongatula*, Gr.

**b 1.** Thorax one quarter broader than long; antennae a little more slender and a little shorter than in *H. elongatula*.

Similar to *H. elongatula* but very variable. Second joint of antennae rather longer in proportion to third, and each joint somewhat more narrowed toward base. Male with under-plate of seventh abdominal segment broader, shorter and more evenly rounded than in *H. elongatula*, and projecting but little beyond upper-plate; female with upper-plate of this segment not emarginate. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common.

*H. volans*, Scrib.

**b b.** Elytra not, or but little longer than thorax.

**A a.** Thorax not very closely punctured.

**A 1.** Abdomen with segments two to four finely, closely and evenly, five and six more diffusely but distinctly punctured.

Linear; similar to *H. elongatula* but darker and more shiny, elytra shorter, punctuation of abdomen closer and more even. Male with under-plate of seventh abdominal segment prominent. L.  $1\frac{3}{4}$  l. Scotland; mountain species.

*H. clavipes*, Sharp.

**B 1.** Abdomen with segments two to four diffusely punctured, five still more diffusely so and six nearly smooth.

Rather narrow and elongate. Deep black, legs and antennae pitchy, base of latter obscurely paler. Tenth joint of antennae a little broader than long. L.  $1\frac{1}{3}$  l. Rather common; hill species.

*H. tibialis*, Heer.

**B b.** Thorax very closely punctured.

Linear, dullish. Brown-black, antennae and legs pitchy-yellow. Head not narrowed in front; elytra scarcely one-fourth longer than thorax; fifth abdominal segment rather closely punctured; posterior tarsi long and slender, first joint nearly twice as long as second. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Common.

*H. gregaria*, Er.

**C C.** Abdomen with basal segments diffusely punctured, apical ones nearly smooth.

**a a.** Punctuation of elytra not coarse, thorax not more than one-third broader than long.

**A a.** Thorax distinctly narrowed behind.

Black; elytra brownish, base of antennae and apex of abdomen pale, legs yellowish. Punctuation distinct but not very close; pubescence yellow; thorax about as long as broad; posterior tarsi rather long and moderately stout. L.  $1\frac{2}{3}$  l. Common; sea coast.

*H. vestita*, Gr.

**B b.** Thorax scarcely or not at all narrowed behind.

**A 1.** Thorax finely punctured.

**a 1.** Elytra not much longer than thorax; second abdominal segment without a tubercle.

**A 2.** Last joint of antennae twice as long as tenth joint.

**a 2.** Length  $1\frac{3}{4}$ —2 lines.

Colour rather variable. Black; elytra pitchy or brown,

legs pitchy-yellow. Antennae moderately stout, but little thickened toward apex; thorax scarcely one-third broader than long; elytra a little longer than thorax. Scarce.

*H. nitidula*, Kr.

The variety *nitidiuscula*, Sharp, is lighter coloured, not quite so shiny, and narrower, especially toward front; antennae a little thinner; thorax longer and narrower; elytra scarcely longer than thorax. North of Scotland.

**b 2.** Length  $1\frac{1}{2}$ — $1\frac{2}{3}$  lines.

Black; elytra brownish or pitchy, legs brownish-yellow, femora not darker than tibiae. Antennae stout, distinctly thickened toward apex; thorax one-third broader than long, without central furrow; elytra not much longer than thorax. Not uncommon.

*H. oblongiuscula*, Sharp.

**B 2.** Last joint of antennae three times as long as tenth.

Black; elytra bright brownish; antennae bright reddish-yellow at base, darker at apex, stout, thickened toward apex, variable in the length of joints; thorax sometimes as long as broad, at others one-third broader than long, with a short central furrow proceeding from an impression in middle of base; elytra rather strongly punctured. L.  $1\frac{3}{4}$ — $2\frac{1}{8}$  l. Scarce.

*H. silvicola*, Fuss.

**b 1.** Elytra one-third longer than thorax; second abdominal segment with a small tubercle above.

Black, shiny; elytra blackish at base and margins, yellow on disc, finely punctured; legs pitchy-yellow, femora always darker than tibiae. Thorax with an impression in middle of base. L.  $1\frac{3}{4}$  l. Common.

*H. vicina*, Steph.

**B 1.** Thorax distinctly punctured.

**a 1.** Thorax one-third broader than long.

Shiny, narrow. Head and thorax pitch-black, elytra yellowish-brown, base and margins darker, abdomen pitch-black, margins of segments paler; antennae brownish, lighter at base; legs yellow. Thorax not narrowed behind, disc with a broad impression in male; elytra a little longer than thorax. Seventh abdominal segment of male with

granulations (of which one on each side at apex is larger and thickened in front), and with its posterior margin slightly produced in the middle. L.  $1\frac{2}{3}$  l. Very rare; Inverness-shire. *H. crassicornis*, Gyll.

**b 1.** Thorax only a little broader than long.

Rather shiny. Head black; thorax pitchy-yellow, slightly narrowed behind; elytra yellow-brown, a little longer than thorax; abdomen pitchy; antennae pitchy, base yellow, long and moderately stout; legs yellow. Seventh abdominal segment in male with granulations (of which one on each side at apex is longer) and with its posterior margin nearly truncate. L.  $2-2\frac{1}{4}$  l. Not uncommon. *H. pagana*, Er.

**b b.** Punctuation of elytra coarse; thorax half as broad again as long.

Black, shiny; antennae pitchy, slender and rather long; legs pitchy-yellow. Thorax not narrowed behind, with an impression before middle of base; elytra one-third longer than thorax. L.  $1\frac{2}{3}$  l. Common. *H. graminicola*, Gr.

**II.** Six penultimate joints of antennae slightly transverse.

**1.** Head strongly punctured.

**A A.** Length not exceeding  $1\frac{1}{2}$  lines.

**a a.** Elytra scarcely one-third longer than thorax.

Brown-black; antennae, apex of abdomen and legs yellowish. Rather shiny, with fine yellow pubescence. Upper plate of seventh abdominal segment in male a little flattened on each side. L.  $1\frac{1}{3}-1\frac{1}{2}$  l. Common.

*H. Halobrectha*, Sharp.

**b b.** Elytra half as long again as thorax.

Rather flat and dull, with yellow pubescence. Black, legs pitchy. Punctuation rather finer but more distinct than in *H. Halobrectha*. Male with upper-plate of seventh abdominal segment truncate at apex with an indistinct projection in middle. L.  $1\frac{1}{3}$  l. Not uncommon.

*H. puncticeps*, Th.

**B B.** Length  $1\frac{3}{4}$  lines.

Blackish ; elytra dark brown ; apex of abdomen, legs and base of antennae red, apex of latter dark brown. Penultimate joints of antennae less transverse than in *H. Halobrectha* and *puncticeps* ; elytra longer than in former, punctuation more diffuse and shallow but rather coarser than in latter. Upper-plate of seventh abdominal segment in male truncate at apex, but with an indistinct projection in middle. Very rare ; Isle of Wight.

*H. princeps*, Sharp.

2. Head finely punctured or nearly smooth.

*A A.* Length exceeding 1 line.

*a a.* Legs pitch-brown.

*A a.* Abdomen with basal segments diffusely punctured, apical ones almost or quite smooth.

*A 1.* Length  $1\frac{1}{3}$  lines or more.

*a 1.* Seventh abdominal segment in male with sides of dorsal plate raised, apical margin also raised but not so distinctly, apex broadly but indistinctly emarginate ; in female dorsal and ventral plates simple, apex broadly rounded.

Linear, rather flat and dull, punctuation fine. Black, elytra dark brown. Antennae moderately stout, very little thickened toward apex ; thorax one-third broader than long ; elytra one-third longer than thorax. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Scarce.

*H. occulta*, Er.

The variety, *fungivora*, Th., is smaller, with the antennae more thickened toward apex ; thorax a little less transverse and more narrowed behind ; apex of upper-plate of seventh abdominal segment in male nearly straight.

*b 1.* Seventh abdominal segment in male with apical margin of dorsal plate a little thickened, emarginate in middle and gently rounded on each side ; in female apex of dorsal plate with a distinct triangular notch in the middle, apex of ventral plate obtusely-pointed in middle.

Black, alutaceous; antennae and elytra pitch-black. Antennae short and stout, scarcely thickened toward apex; thorax fully one-third broader than long, not narrowed behind; elytra one-fourth longer than thorax. L.  $1\frac{1}{3}$  l. Not common; Scotland. *H. picipes*, Th.

**c 1.** Seventh abdominal segment in male with a curved transverse row of irregular tubercles, three on each side, before apex, and a triangular notch in the middle of the somewhat thickened apical margin; in female apex of dorsal plate slightly emarginate in middle.

Black, moderately shiny; elytra black-brown. Antennae rather short, distinctly thickened toward apex; thorax fully one-third broader than long, a little narrowed behind; elytra one-third longer than thorax. L.  $1\frac{1}{3}$  l. Rare.

*H. excellens*, Kr.

**d 1.** Seventh abdominal segment in male with a deep triangular excision at apex, side margins distinctly raised, apical margin less distinctly raised but furnished with four longitudinal folds; in female apex a little emarginate in middle.

Black, shiny; elytra dark brown. Antennae rather short and stout, thickened toward apex; thorax more than one-third broader than long, scarcely narrowed behind; elytra one-third longer than thorax. L.  $1\frac{1}{2}$  l. Scarce.

*H. monticola*, Th.

**B 1.** Length  $1\frac{1}{5}$  lines.

Black, shiny; elytra pitchy-yellow, darker toward base and angles. Antennae rather stout, distinctly thickened toward apex; thorax fully one-third broader than long, not narrowed behind; elytra half as long again as thorax. Punctuation fine. Male scarcely distinguishable from female. Rare; Scottish mountains. *H. subglabra*, Sharp.

**B b.** Abdomen with basal segments closely and distinctly punctured; from the fourth onward distinctly granulate.

Somewhat flat, dull. Black; antennae yellow at base,



dark at apex, where they are thickened. Thorax nearly one-third broader than long, a little narrowed behind, indistinctly punctured; elytra nearly half as long again as thorax, granulate; tarsi and knees pale, posterior tarsi stout and rather short. L.  $1\frac{1}{2}$  l. Common.

*H. incana*, Er.

**C c.** Abdomen with basal segments closely and distinctly punctured, the fifth more diffusely, the sixth nearly smooth.

Linear, head and thorax dull. Black; antennae yellow at base, dark at apex, where they are thickened. Thorax nearly as long as broad, somewhat narrowed behind, with a broad central impression and indistinct punctuation; elytra less than one-third longer than thorax, granulate; femora darker than tibiae and tarsi, posterior tarsi short and stout. L.  $1\frac{1}{4}$  l. Rather common.

*H. nigella*, Er.

**b b.** Legs yellow.

**A a.** Abdomen unicolorous black.

**A 1.** Elytra brown; apex of abdomen almost smooth; head and thorax very dull.

Head and thorax black, antennae yellow at base, pitchy at apex. Thorax nearly as long as broad, somewhat narrowed behind; elytra a little longer than thorax; sixth abdominal segment nearly smooth. L.  $1\frac{2}{3}$  l. Moderately common.

*H. aequata*, Er.

**B 1.** Elytra reddish-yellow; apex of abdomen rather diffusely punctured; head and thorax rather dull.

Linear, rather flat. Head black; thorax varying from black to red, nearly as broad as long, very little narrowed behind, with a distinct central furrow; elytra not much longer than thorax. Punctuation close and fine. Antennae pitchy with basal joints reddish-yellow. Sixth abdominal segment rather diffusely punctured. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Moderately common.

*H. angustula*, Gyll.

**B b.** Abdomen black, with apex lighter.

**A 1.** Central furrow on thorax distinct and broad.

Rather shiny. Black; elytra brown; antennae light at

base. Thorax about one-fourth broader than long, slightly narrowed behind; elytra a little longer than thorax; fifth and sixth abdominal segments nearly smooth. L.  $1\frac{1}{2}$  l. Not very common. *H. linearis*, Gr.

**B 1.** Central furrow on thorax indistinct or absent.

**a 1.** Antennae conspicuously hairy.

Rather flat and broad, shiny. Black; elytra brownish; antennae light at base. Thorax more than one-third broader than long, a little narrowed behind; elytra rather longer than thorax; sixth abdominal segment almost smooth, sides of abdomen hairy. L.  $1\frac{2}{3}$  l. Rare.

*H. pilicornis*, Th.

**b 1.** Antennae not conspicuously hairy.

**A 2.** Head but little narrower than thorax.

Linear, rather flat. Black-brown; elytra brownish-yellow; antennae yellow. Thorax about one-fourth broader than long, distinctly narrowed behind; elytra one-third longer than thorax. L.  $1\frac{1}{3}$  l. Not very common.

*H. debilis*, Er.

**B 2.** Head much narrower than thorax.

Black-brown; elytra dark brown; antennae red-yellow at base, darker at apex. Thorax fully one-third broader than long, but little narrowed behind; elytra scarcely one-fourth longer than thorax. L.  $1\frac{1}{2}$  l. Rare; Scotland.

*H. fallaciosa*, Sharp.

**B B.** Length 1 line or less.

**a a.** Elytra one-fourth longer than thorax.

Linear, flat. Head and abdomen pitchy, latter pale at apex; thorax and elytra brownish-yellow; antennae and legs pale-yellow, former stout and thickened toward apex. L. 1 l. Very rare.

*H. deformatis*, Kr.

**b b.** Elytra shorter than thorax.

Pitchy-black, elytra somewhat paler; legs yellowish. L.  $\frac{3}{5}$  l. Not common; very local.

*H. caesula*, Er.

**III.** Six penultimate joints of antennae strongly transverse.

**1.** Body convex or rather convex.

**A A.** Elytra shorter than thorax.

Narrow. Lighter or darker reddish-brown; abdomen pitchy; antennae and legs yellow. Antennae stout, thickened toward apex. Male with a tubercle at base of each elytron. L.  $1\frac{1}{3}$  l. Common. *H. circellaris*, Gr.

**B B.** Elytra longer than thorax.

**a a.** Length over 1 line.

**A a.** Head and thorax distinctly punctured.

Flat, moderately broad. Head pitchy; thorax and elytra reddish-yellow; abdomen reddish-yellow, more or less pitchy in the middle, almost smooth; antennae reddish-yellow, stout, much thickened toward apex; legs yellow. L.  $1\frac{2}{3}$  l. Very rare; Monk's Wood. *H. elegantula*, Bris.

**B b.** Head and thorax indistinctly punctured or smooth.

**A 1.** Thorax reddish-brown, slightly narrowed behind.

Rather narrow. Head pitchy; elytra and abdomen (except before apex) reddish-yellow; antennae and legs yellow, former stout and thickened toward apex. Abdomen smooth. L.  $1\frac{1}{3}$  l. A single specimen taken at Mickleham.

*H. rufo-testacea*, Kr.

**B 1.** Thorax pitch-black, scarcely narrowed behind.

Narrow, shiny, almost impunctate. Head black; elytra yellowish-brown; abdomen pitchy, paler at apex; antennae and legs yellow, former stout, thickened toward apex. L.  $1\frac{1}{4}$  l. Very rare.

*H. splendens*, Kr.

**b b.** Length scarcely 1 line.

Shiny, almost impunctate. Pitchy; head and abdomen blackish, legs pitchy-yellow; antennae pitchy, moderately stout, a little thickened toward apex. Rare.

*H. aegra*, Heer.

**2.** Body very flat.

**A A.** Seventh segment of abdomen not armed.

**a a.** Head very broad, indistinctly and dif-

fusely punctured, straight behind; length of body  $\frac{4}{5}$  line.

Black; base of antennae and tibiae yellow; femora pitchy. Rather common. *H. immersa*, Er.

**b b.** Head broad, distinctly and closely punctured, narrowed behind the prominent eyes; length of body  $1\frac{1}{4}$  lines.

**A a.** Thorax coarsely and closely punctured.

Shiny. Pitch-black; base of antennae, elytra (except apical angles), and legs yellow. Thorax more than half as broad again as long, sides much rounded, considerably narrowed behind, with a broad distinct impression on disc. Very rare. *H. cribriceps*, Sharp.

**B b.** Thorax indistinctly but closely punctured.

Dull. Black; elytra brown; antennae and femora pitchy, tibiae yellow. Thorax about one-fourth broader than long, a little narrowed in front and rather more so behind, with an indistinct central furrow. Common.

*H. plana*, Gyll.

**B B.** Apex of seventh abdominal segment armed with a long spine in the middle and with a smaller spine on each side.

Narrow, parallel-sided. Pitchy, legs yellow, tarsi short. L.  $\frac{3}{4}$  l. Common. *H. cuspidata*, Er.

**b.** Thorax slightly transverse, its sides evenly rounded.

**I.** Six penultimate joints of antennae not, or only slightly transverse.

**1.** Sixth abdominal segment diffusely punctured or smooth.

Thorax about half as broad again as long.

**A A.** Length exceeding 1 line.

**a a.** Elytra about as broad and as long as thorax; antennae dull red-yellow.

Somewhat flat and parallel-sided. Pitch-black; elytra rather paler; legs dirty yellow. Antennae moderately long, scarcely thickened toward apex; thorax with an impression before middle of base and a more or less distinct

central furrow. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Common in moss on Scottish hills.

*H. eremita*, Rye.

**b b.** Elytra rather broader and about one-third longer than thorax ; antennae pitchy, lighter at base.

Black-brown ; legs dirty yellow. Head with a distinct furrow ; thorax with an indistinct impression before middle of base and a fine central furrow ; fifth abdominal segment moderately closely punctured. L.  $1\frac{1}{3}$  l. Rare.

*H. Aubei*, Bris.

**B B.** Length 1 line.

**a a.** Elytra about one-third longer than thorax.

Black-brown ; legs red-brown ; antennae red-brown, base lighter, moderately long and stout, scarcely thickened toward apex. Head round, with a fine channel in male ; thorax with an indistinct double impression before middle of base ; fifth abdominal segment very diffusely punctured. Not very common.

*H. gemina*, Er.

**b b.** Elytra scarcely longer than thorax.

Black-brown ; elytra rather lighter ; antennae red-brown at apex, lighter at base, legs dull red-yellow. Head much narrowed in front ; thorax sometimes with an impression before base ; fifth abdominal segment diffusely punctured. Scotland.

*H. curtipennis*, Sharp.

**2.** Sixth abdominal segment closely punctured.

Thorax about one-third broader than long.

**A A.** Head not broadened behind the eyes.

**a a.** Length scarcely 1 line.

Rather narrow and elongate. Black-brown ; antennae and elytra brown ; legs yellowish. Antennae longer than head and thorax, only slightly thickened toward apex. Very rare.

*H. vilis*, Er.

**b b.** Length  $\frac{1}{2}$ — $\frac{2}{3}$  line.

Linear, flat. Black-brown or brown, with head and intermediate abdominal segments darker ; antennae and legs red-yellow. Thorax transverse, with an indistinct central furrow and basal depression ; abdomen closely and finely punctured throughout. Less elongate than *H. vilis*, thorax

shorter, abdomen a little less closely punctured. Scarce.

*H. difficilis*, Bris.

**B B.** Head considerably broadened behind the eyes.

**a a.** Seventh abdominal segment with apex of dorsal plate triangularly emarginate in middle.

**A a.** Abdomen black, more or less pale toward apex, closely and finely punctured throughout.

**A 1.** Base of thorax with a distinct depression in middle.

**a 1.** Elytra a little longer than thorax.

Head black; thorax and elytra pitchy or brown; antennae and legs yellowish, former rather short, a little thickened toward apex. Colour variable. Upper surface of head convex. L. 1 l. Common. *H. analis*, Gr.

**b 1.** Elytra as long as thorax.

Coloured like *H. analis*. Male with upper surface of head broadly impressed and ventral plate of seventh abdominal segment considerably produced, with a bunch of five or six black hairs at apex. Female with notch of seventh abdominal segment broader and deeper than in *H. analis*. L. scarcely 1 l. Scottish hills.

*H. cavifrons*, Sharp.

**B 1.** Base of thorax with an indistinct depression in the middle.

Flatter and more parallel-sided than *H. analis*. Pitchy, antennae and legs yellowish. Elytra a little longer than thorax. Punctuation closer than in *H. analis* and *cavifrons*; sexual characters as in latter. L. scarcely 1 l. On banks of Nith, Scotland.

*H. simillima*, Sharp.

**B b.** Abdomen unicolorous black; more closely and distinctly punctured than *H. analis*.

Coloured like a dark *H. analis*. Male with the head more or less distinctly channeled; seventh abdominal segment with a much deeper and wider notch than in that species, and its ventral plate distinctly produced and

bearing five or six hairs at apex. L. 1 l. Not common, local; near London. *H. soror*, Kr.

**b b.** Apex of dorsal plate of seventh abdominal segment not notched in either sex, but scarcely completely rounded.

Very similar to *H. soror*, but with the legs, antennae and apex of abdomen of a clearer yellow. Elytra rather longer than in *H. analis*. L. 1 l. Not common.

*H. decipiens*, Sharp.

**II.** Six penultimate joints of antennae strongly transverse.

**1.** Antennae much thickened toward apex.

**A A.** Thorax dark brown.

Parallel-sided. Brown; antennae, legs, and apex of abdomen yellow. Punctuation indistinct; very finely pubescent. Thorax about one-third broader than long; elytra a little longer than thorax. L.  $\frac{4}{5}$  l. Rather common; local.

*H. exilis*, Er.

**B B.** Thorax reddish-yellow.

**a a.** Abdomen red-yellow, darker before apex.

**A a.** Head and elytra red-yellow.

Punctuation and pubescence finer than in *H. exilis*, and elytra a little shorter. L.  $\frac{2}{3}$  l. Rare. *H. pallens*, Redt.

**B b.** Head and elytra brown.

Thorax about half as broad again as long; elytra fully half as long again as thorax. L.  $\frac{3}{4}$  l. Scarce; Reigate.

*H. palleola*, Er.

**b b.** Abdomen black, apex paler.

Not very parallel-sided. Head black; elytra reddish-yellow. Head round, narrower than elytra; thorax about one-third broader than long, with an indistinct central furrow at base; elytra a little longer than thorax. L.  $\frac{3}{4}$  l. Edinburgh.

*H. validiuscula*, Kr.

**2.** Antennae a little thickened toward apex.

Head and thorax black; elytra brown, abdomen black, with apex paler, antennae and legs yellowish. Head round; thorax about one-third broader than long; elytra a little longer than thorax; basal segments of abdomen with fine and indistinct punctuation and rather distinct pubes-

cence; apical segments smooth. L. scarcely  $\frac{3}{4}$  l. Common in ants' nests at Rannoch. *H. parallela*, Mannh.

**c.** Thorax distinctly transverse.

**I.** Penultimate joints of antennae not, or only moderately transverse.

**1.** Thorax coarsely punctured.

**A A.** Thorax yellowish.

Flat, shiny. Yellowish; apex of antennae, head and more or less the abdomen blackish. Sides of thorax nearly straight; base of abdomen tolerably closely punctured. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Common. *H. depressa*, Gyll.

**B B.** Thorax black or pitchy.

**a a.** Thorax one-third broader than long; length of body 2— $2\frac{1}{4}$  lines.

Black; elytra reddish-brown; antennae and legs yellowish, sides of thorax rounded in front; base of abdomen diffusely punctured; antennae stout. L. 2— $2\frac{1}{4}$  l. Rare.

*H. hepatica*, Er.

**b b.** Thorax half as broad again as long; length of body  $1\frac{2}{3}$  lines.

Narrower than *H. hepatica*, with more slender antennae. Pitch-black; antennae, elytra, and legs reddish-yellow; apex of abdomen and margins of segments reddish. Sides of abdomen gently rounded in front; abdomen almost impunctate. L.  $1\frac{2}{3}$  l. Very rare; Tilgate Forest.

*H. exarata*, Sharp.

**2.** Thorax finely punctured.

**A A.** Penultimate joints of antennae as long as, or longer than broad.

**a a.** Apical joint of antennae not quite so long as ninth and tenth joints together.

Head and thorax blackish, with a dull brassy appearance; elytra dirty brownish, dull, roughly punctured; abdomen black, shiny; antennae black, with yellowish base; legs dirty yellowish. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Not very common.

*H. aquatica*, Th.

**b b.** Apical joint of antennae longer than ninth and tenth joints together.



**A a.** Elytra yellow, distinctly darker round scutellum and at apical angles.

Very similar to *H. xanthoptera*; antennae darker, rather shorter, and not quite so stout. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Common.

*H. aeneicollis*, Sharp.

**B b.** Elytra brown or brownish, indistinctly darker round scutellum and at apical angles.

**A 1.** Elytra rather closely and finely punctured.

Head, thorax and abdomen black, shiny; antennae and legs yellow, former darker toward apex. Male with apex of seventh abdominal segment crenulate. L.  $1\frac{2}{3}$ —2 l. Common.

*H. xanthoptera*, Steph.

**B 1.** Elytra closely and more or less strongly punctured.

**a 1.** Antennae yellow at base, more or less brown toward apex; elytra rather strongly punctured.

Broader than *H. xanthoptera*, with darker elytra and the fourth joint of antennae longer. Male with apex of seventh abdominal segment entire. L. 2 l. Rare; Scotland.

*H. incognita*, Sharp.

**b 1.** Antennae pitchy, with three basal joints dark yellow; elytra strongly punctured.

Black, shiny; elytra shiny brown; legs yellow. Male with apex of seventh abdominal segment crenulate. L. 2 l. Rare; Scotland.

*H. valida*, Kr.

**B B.** Penultimate joints of antennae more or less transverse.

**a a.** Length from  $1\frac{1}{2}$  to  $1\frac{3}{4}$  lines.

**A a.** Antennae with joints 5 to 10 distinctly transverse; apical joint as long as, or longer than 9 and 10 together.

**A 1.** Abdomen with segments 2 to 4 diffusely punctured, 5 and 6 almost smooth.

Black, shiny; elytra brownish; legs yellow. Antennae stout, joint 5 much broader than 4. L.  $1\frac{2}{3}$ — $1\frac{3}{4}$  l. Common.  
*H. succicola*, Th.

**B 1.** Abdomen with segments 2 to 4 tolerably closely, 5 and 6 diffusely punctured.

**a 1.** Elytra yellowish, with a tolerably well defined dark patch at scutellum and near each outer apical angle.

Head, thorax and abdomen black; legs yellow. Antennae pitchy at base, slightly and gradually thickened from joint 3. L.  $1\frac{1}{2}$  l. Common. *H. trinotata*, Kr.

**b 1.** Elytra dark yellow, with indistinct markings at scutellum and apical angles.

Head, thorax and abdomen pitch-black, legs yellowish. Antennae rather more slender than in *H. trinotata*, less thickened toward apex, with longer apical joint. Male with apex of seventh abdominal segment not crenulate. L.  $1\frac{1}{2}$  l. Edinburgh. *H. hybrida*, Sharp.

**B b.** Antennae with joints 5 to 10 transverse, but not strongly so; apical joint as long as or longer than 9 and 10 together.

Abdomen with segments 2 to 4 not closely punctured, 5 more diffusely so, 6 nearly smooth.

**A 1.** Elytra yellowish, with dark markings.

**a 1.** Antennae pitchy, base yellow.

Linear. Head, thorax and abdomen black; legs yellow. Dark markings on elytra tolerably distinct. L.  $1\frac{1}{2}$  l. Not very common. *H. xanthopus*, Th.

**b 1.** Antennae entirely black.

Head, thorax and abdomen black, moderately shiny; legs red-brown, femora darker than tibiae. Dark markings on elytra large and well defined. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Not uncommon. *H. triangulum*, Kr.

**B 1.** Elytra unicolorous.

**a 1.** Antennae yellowish at base; legs yellow.

Rather flat, the fore parts dull. Black; elytra brownish. Antennae rather stout; joint 4 scarcely broader than 3, joint 5 much broader than 4. L. about  $1\frac{1}{2}$  l. Common.

*H. fungicola*, Th.

**b 1.** Antennae entirely blackish; legs pitchy.

More convex than *H. fungicola*, with the fore parts not so dull, head narrower. L.  $1\frac{1}{2}$  l. Rare.

*H. ignobilis*, Sharp.

**C c.** Antennae with joints 4 and 5 about as broad as long, joints 6 to 10 rather broader than long; apical joint about half as long again as 10.

Rather flat, scarcely shiny. Black; elytra pitch-brown; legs dark yellow. Thorax usually with a distinct central furrow on the hinder half; abdomen with segments 2 to 4 diffusely punctured, 5 very diffusely, 6 nearly smooth. L.  $1\frac{2}{3}$  l. Scotland.

*H. diversa*, Sharp.

**b b.** Length from 1 to  $1\frac{1}{2}$  lines.

**A a.** Elytra pale yellow, with darker markings.

**A 1.** Antennae pitchy, lighter at base; penultimate joints rather strongly transverse; apical joint about half as long again as joint 10.

Rather broad and short. Head, thorax and abdomen black or pitch-black; legs pale yellow. Fifth abdominal segment punctured at base, almost smooth at apex. L.  $1\frac{1}{3}$  l. Moderately common.

*H. boletobia*, Th.

**B 1.** Antennae entirely yellow, penultimate joints very transverse, apical joint fully as long as ninth and tenth joints together.

Head black; thorax pitchy or pitchy-red; abdomen pitch-black; legs pale yellow. Fifth abdominal segment nearly impunctate. L.  $1\frac{1}{4}$  l. Rather common; Cambridge Fens.

*H. nigrītula*, Gyll.

**B b.** Elytra chestnut-brown, with shoulders yellow.

Similar to *H. nigrītula*, but with thorax more strongly

punctured, abdomen more pointed behind and joints of antennae less strongly transverse. L.  $1-1\frac{1}{4}$  l. Cirencester.

*H. humeralis*, Kr.

**C c.** Elytra unicolorous brown or black.

**A 1.** Penultimate joints of antennae distinctly transverse, although not strongly so.

**a 1.** Abdomen with fifth and sixth segments impunctate.

**A 2.** Thorax rather strongly punctured, somewhat broader than long.

Convex, shiny. Black; elytra black-brown; legs and base of antennae reddish-yellow, apex of latter pitchy. Thorax with two impressions on disc; elytra tolerably strongly punctured. L.  $1\frac{1}{2}$  l. Moderately common.

*H. sodalis*, Er.

**B 2.** Thorax finely punctured, much broader than long.

Rather broad and convex, shiny. Black; elytra dark brown; base of antennae and legs pitchy-yellow. Elytra finely punctured. L.  $1\frac{1}{3}$  l. Moderately common.

*H. coriaria*, Kr.

**b 1.** Abdomen closely and finely punctured throughout.

Short. Black, rather shiny; elytra and antennae brown, base of latter and the legs red-yellow. Thorax almost double as broad as long, closely and extremely finely punctured, generally with a shallow central furrow; elytra closely and finely punctured, almost half as long again as thorax. L. 1 l. Rare.

*H. atrata*, Mann.

**B 1.** Penultimate joints of antennae only slightly transverse.

**a 1.** Body rather convex; abdomen somewhat narrowed behind.

Not very shiny. Black; elytra dark brown; base of antennae and legs yellowish, former with joints four to six each about as long as broad. Abdomen with second to fourth segments closely, fifth diffusely punctured, sixth

impunctate; male with four teeth at apex of seventh abdominal segment. L.  $1\frac{1}{4}$  l. Moderately common.

*H. gagatina*, Baud.

**b 1.** Body flattish; abdomen not narrowed behind.

**A 2.** Apical joint of antennae about three times as long as tenth.

Fore parts somewhat dull. Black; elytra and base of antennae brownish; legs yellow. Abdomen with segments two to five closely punctured, sixth segment diffusely or not at all punctured. L.  $1\frac{1}{4}$  l. Not common.

*H. divisa*, Märk.

**B 2.** Apical joint of antennae about twice as long as tenth.

Rather dull. Black; elytra and antennae pitch-black; legs pitchy-yellow, femora darker than tibiae. Abdomen with segments two to four closely punctured, fifth and sixth segments almost impunctate. L.  $1\frac{1}{4}$  l. Not uncommon.

*H. nigricornis*, Th.

**C 1.** Penultimate joints of antennae nearly as long as broad.

**a 1.** Thorax and elytra rather dull, former one-fourth part broader than long, latter about half as long again as thorax.

Rather narrow. Black; elytra black-brown; legs pitchy-yellow. Abdomen with second to fourth segments very diffusely punctured, fifth and sixth impunctate. Male with apex of dorsal plate of seventh abdominal segment indistinctly emarginate, and of ventral plate rounded. L.  $1\frac{1}{3}$  l. Not uncommon in Scotland, scarce in England.

*H. ravilla*, Er.

**b 1.** Thorax and elytra shiny; former one-third broader than long, latter about one-third longer than thorax.

Black; elytra blackish-brown; legs dirty yellow. Abdomen with second to fourth segments rather closely, fifth diffusely punctured, sixth impunctate. Male with apex of dorsal plate of seventh abdominal segment distinctly emar-

ginate, and of ventral plate nearly straight, with angles rounded. L. 1—1 $\frac{1}{4}$  l. Moderately common.

*H. palustris*, Kies.

**c c.** Length from  $\frac{1}{2}$  to 1 line.

**A a.** Thorax closely and finely punctured.

Linear. Black; elytra pitchy-black; legs pitchy. Head large; tenth joint of antennae longer and less transverse than ninth; thorax scarcely one-third broader than long; elytra half as long again as thorax. L. scarcely 1 l. Not uncommon.

*H. corvina*, Th.

**B b.** Thorax diffusely and extremely finely punctured.

**A 1.** Elytra fully half as long again as thorax.

Rather flat and parallel-sided, shiny. Pitch-black; elytra pitch-brown; legs dirty yellow. Thorax more than half as broad again as long. L. 1 l. Very rare. Mickleham.

*H. puberula*, Sharp.

**B 1.** Elytra one-third longer than thorax.

**a 1.** Thorax but little narrower than elytra.

Black, shiny; elytra black or pitchy; legs pitchy. Thorax about one-third broader than long. L.  $\frac{2}{3}$  l. Rare.

*H. atomaria*, Kr.

**b 1.** Thorax distinctly narrower than elytra.

Similar to *H. atomaria*, but more fragile; thorax less transverse; antennae thinner. L.  $\frac{1}{2}$  l. Rare.

*H. perexigua*, Sharp.

**II.** Penultimate joints of antennae strongly transverse.

**1.** Length 2—2 $\frac{1}{4}$  lines.

Broad and robust, a little narrowed before and behind, fore parts scarcely shiny. Cinnamon-brown; abdomen black; antennae pitchy, with yellowish base; legs reddish-yellow. Thorax twice as broad as long; only basal segments of abdomen diffusely punctured, the rest smooth. Common.

*H. cinnamomea*, Gr.

**2.** Length 1 $\frac{3}{4}$  lines.

Similar in colour to *H. cinnamomea*; abdomen with segments 2 to 4 rather closely punctured, 5 more diffusely so, 6 nearly smooth. Thorax twice as broad as long. Rather common. *H. hospita*, Märk.

**3.** Length 1—1½ lines.

**A A.** Thorax reddish-brown or reddish-yellow; abdomen lighter at base and apex than in middle.

**a a.** Basal segments of abdomen rather closely and strongly punctured.

Somewhat convex. Reddish-yellow; head and abdomen before apex blackish. Thorax nearly twice as broad as long. L. 1⅓—1½ l. Not uncommon. *H. scapularis*, Sahl.

**b b.** Basal segments of abdomen diffusely and finely punctured.

**A a.** Head nearly as broad as thorax.

Parallel-sided, rather convex. Head blackish; thorax reddish-brown; elytra yellowish-red; antennae short and very stout, pitchy, paler at base; legs yellow. Thorax more than half as broad again as long. L. 1⅓ l. Very rare; Scotland. *H. subterranea*, Muls.

**B b.** Head much narrower than thorax.

Less robust than *H. subterranea*. Reddish; head and abdomen before apex pitch-black; elytra darker toward apical angles; base of antennae and legs yellowish, former short and stout. Thorax about twice as broad as long. L. 1¼ l. Very rare; near London. *H. dilaticornis*, Kr.

**B B.** Thorax black or brown-black; abdomen unicolorous black or brown-black.

**a a.** Elytra yellowish or brownish-yellow, lateral margins rather darker.

Rather broad and flat. Head black; base of antennae and legs yellowish, former short and stout. Thorax about twice as broad as long. L. 1¼ l. Near London.

*H. testaceipes*, Heer.

**b b.** Elytra dark brown or brown-black.

**A a.** Antennae blackish, base sometimes a little paler; basal segments of abdomen moderately closely punctured.

Head black; legs brownish-yellow. Punctuation tolerably close. Antennae scarcely thickened after the sixth joint. L. 1 l. Rather common. *H. oblita*, Er.

**B b.** Antennae pitchy, first three joints yellowish; basal segments of abdomen diffusely punctured.

Head brown-black; legs yellow, basal joint of posterior tarsi very short, last joint about as long as the other four together. Antennae thickened from third joint to apex. L. 1 l. Very rare. *H. autumnalis*, Er.

**4.** Length  $\frac{3}{4}$ —1 line.

**A A.** Antennae short and stout, joint 4 slightly transverse.

Rather robust, with fine pubescence, moderately shiny. Black; antennae and elytra pitch-black; legs dirty yellow. Thorax fully half as broad again as long; elytra about one-third longer than thorax; abdomen with segments 2 to 4 rather diffusely punctured, 5 and 6 nearly smooth. L.  $\frac{3}{4}$ —1 l. Common. *H. sericea*, Muls.

**B B.** Antennae only moderately stout, joint 4 about as long as broad.

**a a.** Thorax with fine but rather rough pubescence.

Similar to *H. sericea*, but with closer punctuation and pubescence and rather longer elytra. L.  $\frac{3}{4}$  l. Rare; Scotland. *H. subtilis*, Scrib.

**b b.** Thorax with delicate pubescence.

**A a.** Antennae a little thickened toward apex; punctuation of thorax and elytra diffuse.

Similar to *H. sericea*, but blacker, more shiny, with rather longer antennae, and apex of seventh abdominal segment crenulate in male. L.  $\frac{3}{4}$  l. Rare; Scotland.

*H. indubia*, Sharp.

**B b.** Antennae shorter than in *H. indubia*, more thickened toward apex; punctuation of thorax and elytra rather close.

Similar to *H. sericea*, but darker, flatter, rather broader but more narrowed in front, pubescence closer and elytra



rather longer. Male with apex of seventh abdominal segment not crenulate. L.  $\frac{3}{4}$  l. Rare; Scotland.

*H. indiscreta*, Sharp.

**5.** Length  $\frac{2}{3}$  line.

**A A.** Thorax one-third broader than long.

Similar to *H. sericea*, but blacker, with thorax and elytra closely and finely punctured and closely and extremely finely pubescent; antennae also shorter. Elytra about one-fourth longer than thorax. Rather dull. Rare; Scotland.

*H. mortuorum*, Th.

**B B.** Thorax fully half as broad again as long.

Black. Rather parallel-sided and flat. Similar to *H. mortuorum*, but narrower and more shiny. Punctuation fine but distinctly rough. Common in Scotland, not common in England.

*H. atricolor*, Sharp.

**6.** Length  $\frac{1}{2}$  line.

Narrow; punctuation and pubescence fine and rather close. Black; elytra dark brown; legs dirty yellow. Thorax about one-third broader than long. Rather common. Local.

*H. inquinula*, Gr.

**B.** Abdomen rather narrowed toward apex; posterior angles of thorax distinct.

Thorax twice as broad as long; elytra about one-third longer than thorax.

**a.** Body dull.

Brown-black; base of antennae, legs, and apex of abdomen lighter. Thorax flat, with a distinct central furrow; abdomen closely and finely punctured, less closely toward apex. L.  $1\frac{1}{4}$  l. Common.

*H. anceps*, Er.

**b.** Body tolerably shiny.

**I.** Antennae with joints 5 to 10 each as long as broad; abdomen with segments 2 to 4 diffusely punctured, 5 and 6 smooth.

Rather broad and robust, narrowed in front and behind. Black; base of antennae, legs and apex of abdomen reddish-yellow, base of latter pitchy; elytra brownish or reddish-brown. L.  $1\frac{2}{3}$  l. Common.

*H. flavipes*, Gr.

**II.** Antennae with joints 5 to 10 each distinctly broader than long; abdomen with segments 2 to 4

diffusely punctured, 5 punctured at base only, 6 smooth.

Coloured like *H. flavipes*. L.  $1\frac{1}{2}$  l. Moderately common. *H. confusa*, Märk.

**C.** Abdomen more or less distinctly narrowed toward apex; posterior angles of thorax rounded.

**a.** Thorax but little narrowed toward the front.

**I.** Abdomen only a little narrowed toward apex and closely punctured.

**1.** Body more or less shiny.

**A A.** Antennae moderately long and thick, a little thickened toward apex; apical joint about as long as joints 9 and 10 together.

**a a.** Thorax about one-third broader than long.

Rather narrow. Black; legs pitchy-brown. L.  $\frac{4}{5}$ —1 l. Common. *H. nigra*, Er.

**b b.** Thorax more than half as broad again as long.

Similar to *H. nigra*, but broader, with rougher punctuation. Antennae and head rather shorter; punctuation of abdomen not closer but more distinct. L.  $\frac{3}{4}$  l. Rather common. *H. germana*, Sharp.

**B B.** Antennae rather long and slender, scarcely at all thickened toward apex; apical joint more than double as long as joint 10.

Black; elytra dark brown; legs dark yellow. Head broader than in *H. nigra*; thorax about one-third broader than long, with a distinct central furrow; elytra about one-third longer than thorax. L. 1 l. Rare.

*H. hodierna*, Sharp.

**2.** Body rather dull or dull.

**A A.** Elytra dark brown; abdomen closely and distinctly punctured at base, only moderately closely at apex.

Black; base of antennae dark brown; legs dirty yellow. Thorax about half as broad again as long; elytra about one-fourth longer than thorax. L.  $\frac{3}{4}$  l. Rare. *H. celata*, Er.

**B B.** Elytra black; abdomen closely, finely and evenly punctured.

**a a.** Thorax about one-third broader than long; elytra about one-fourth longer than thorax.

Narrower and flatter than *H. celata*. Black, legs pitchy-yellow. Antennae rather long. L.  $\frac{3}{4}$  l. Not very common.  
*H. sordidula*, Er.

**b b.** Thorax more than half as broad again as long; elytra fully one-third longer than thorax.

Broader and more parallel-sided than *H. sordidula*; antennae (especially apical joint) shorter, punctuation not quite so close and fine. Black; legs pitchy-yellow. L.  $\frac{2}{3}$  l. Scarce.  
*H. canescens*, Sharp.

**II.** Abdomen distinctly narrowed toward apex.

**1.** Legs yellow or reddish.

**A A.** Elytra fully half as long again as thorax.

Moderately shiny. Black; elytra brownish; antennae hairy, pitchy at apex, their base and the legs yellow. Thorax about one-third broader than long. Middle tibiae with a distinct bristle at middle of outer-side; posterior tibiae with a small, indistinct bristle on middle of outer-side and finely fringed on inner-side. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Not common.  
*H. marcida*, Er.

**B B.** Elytra not more than one-third longer than thorax.

**a a.** Elytra yellow, or brownish-yellow, rather darker round scutellum and toward sides.

**A a.** Abdomen distinctly narrowed toward apex, segment five diffusely and six very diffusely punctured; intermediate tibiae with a short, indistinct bristle about the middle, posterior tibiae without bristles.

Rather flat and shiny. Black; base of antennae dark yellow; legs and elytra yellow. Antennae long and rather stout, joint four longer than broad. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Not common.  
*H. intermedia*, Th.

**B b.** Abdomen strongly narrowed toward apex, closely punctured throughout; hinder

pairs of tibiae each with two long hairs and also rather thickly fringed.

Rather flat, shiny. Black; elytra brownish-yellow, apex of abdomen pitchy; legs dark yellow, femora brown. Antennae long and stout, joint 4 small, distinctly broader than long. L.  $1\frac{1}{2}$  l. Common. *H. longicornis*, Gr.

**b b.** Elytra brown or black.

**A a.** Length 1 line or less.

**A 1.** Antennae much longer than head and thorax.

Rather narrow, moderately shiny. Black; elytra dark brown; legs dirty yellow. Antennae rather long, joint 10 about as long as broad, apical joint oblong, quite as long as 9 and 10 together. Thorax about one-third broader than long; elytra but little longer than thorax; sixth abdominal segment very diffusely punctured, margins of segments fringed. Hinder pairs of tibiae each with one bristle. L. 1 l. Not uncommon in Scotland. *H. macrocera*, Th.

**B 1.** Antennae shorter than head and thorax.

Black, rather shiny; base of antennae and femora pitchy; tibiae and tarsi red-yellow. Thorax transverse, rather convex, channeled; abdomen with second to fourth segments closely, fifth and sixth diffusely punctured. L.  $\frac{3}{4}$  l. Rare. *H. fimorum*, Bris.

**B b.** Length  $1\frac{1}{4}$  lines or more.

**A 1.** Thorax not quite twice as broad as long, tibiae without bristles.

Broad, especially the head, fore parts not very shiny. Black; legs reddish, femora pitchy. Elytra about one-fourth longer than thorax and much more strongly punctured. L.  $1\frac{1}{2}$  l. Not common. *H. cadaverina*, Bris.

**B 1.** Thorax not more than half as broad as long; hinder pairs of tibiae each with two fine bristles, the basal one being shorter.

**a 1.** Fore parts rather shiny; abdomen somewhat narrowed toward apex.

Black; elytra brownish; legs yellow. Elytra one-third

longer and distinctly broader than thorax; antennae moderately long and stout; slightly thickened toward apex. L.  $1\frac{1}{4}$ — $1\frac{1}{3}$  l. Scarce. *H. laevana*, Muls.

**b I.** Head and thorax dull, almost brassy, elytra dull brownish; abdomen distinctly narrowed toward apex.

Black; elytra dark brown; legs yellow. Elytra one-third longer and a little broader than thorax; antennae rather long, scarcely thickened toward apex. L.  $1\frac{1}{4}$  l. Not common in England, moderately common in Scotland. *H. cinnamoptera*, Th.

**2.** Legs pitchy.

**A A.** Length  $1\frac{1}{4}$  lines or more.

**a a.** Fore parts deep black, not very shiny.

Abdomen black and shiny, not much narrowed, except at apex; knees and tarsi reddish. Thorax about half as broad again as long. Punctuation tolerably strong. L.  $1\frac{1}{3}$  l. Not very common. *H. villosula*, Kr.

**b b.** Fore parts dull brassy-black.

Abdomen black and shiny, scarcely narrowed toward apex. Thorax about one-third broader than long, a little narrower than elytra. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common. *H. atramentaria*, Gyll.

**B B.** Length 1 line.

**a a.** Antennae distinctly thickened toward apex; thorax about one-third broader than long; hinder pairs of tibiae each with two fine, rather short bristles.

Shiny. Black; elytra pitch-black, about one-third longer than thorax. L. 1 l. Not very common.

*H. setigera*, Sharp.

**b b.** Antennae only slightly thickened toward apex; thorax nearly half as broad again as long; hinder pairs of tibiae each with two fine bristles, the basal one being much the shorter.

Shiny. Black; elytra pitch-black, a little longer than thorax. Head rather small; thorax a little narrower in front than behind; punctuation rather closer than in *H. setigera*. L. 1 l. Common. *H. parva*, Sahl.

**b.** Thorax distinctly narrowed in front.

**I.** Entire abdomen closely punctured.

**1.** Elytra yellow, with triangular black patch round scutellum.

**A A.** Length  $1\frac{2}{3}$  lines.

Black; elytra clear yellow, with black markings; antennae pitchy, rather long and stout, slightly thickened toward apex; legs yellow. Thorax fully half as broad again as long. Punctuation close and fine. Intermediate tibiae with one bristle; posterior tibiae without bristles. Common.

*H. melanaria*, Sahl.

**B B.** Length  $1\frac{1}{3}$ — $1\frac{1}{2}$  lines.

Black; elytra livid yellow, with black markings; legs pitchy-yellow. Antennae moderately long and stout, but little thickened toward apex, penultimate joints a little shorter than broad. Thorax nearly half as broad again as long. Punctuation close and distinct. Hinder pairs of tibiae each with one bristle. Not uncommon.

*H. testudinea*, Er.

**2.** Elytra dark brown or black.

**A A.** Penultimate joints of antennae about as long as broad.

**a a.** Thorax nearly twice as broad as long; first joint of posterior tarsi not much longer than second.

Black; legs pitchy-yellow. Punctuation close and fine. Hinder pairs of tibiae each with one bristle. L.  $1\frac{1}{4}$  l. Common.

*H. aterrima*, Gr.

**b b.** Thorax about one-third broader than long; first joint of posterior tarsi as long as next two joints together.

Black-brown; elytra dark brown; base of antennae and legs yellowish. Punctuation like that of an *Oxyroda*. L. 1 l. Rather common.

*H. pygmaea*, Gr.

**B B.** Penultimate joints of antennae somewhat transverse.

**a a.** Thorax one-third broader than long, without central furrow.

Black; elytra dark brown or blackish; legs yellowish

with femora pitchy. Less elongate than *H. pygmaea*, first joint of posterior tarsi not elongate. L. 1 l. Common.

*H. muscorum*, Bris.

**b b.** Thorax more than half as broad again as long, with a fine central furrow, variable in length.

Black; legs pitchy-yellow. Head rather small; antennae shorter than in *H. muscorum*. Hinder pairs of tibiae each with a distinct bristle just below the knee. L. 1 l. Not common.

*H. pilosiventris*, Th.

**II.** Apical segments of abdomen diffusely or not at all punctured.

**1.** Body only moderately broad.

**A A.** Length exceeding 1 line, or if not, antennae entirely black.

**a a.** Elytra at least one-fourth longer than thorax.

**A a.** Thorax about twice as broad as long.

Rather shiny. Head black; thorax black-brown; elytra reddish-yellow; abdomen blackish, apex paler; base of antennae and legs yellow. Thorax with a central furrow. L.  $1\frac{1}{3}$  l. Common.

*H. fusca*, Sahl.

**B b.** Thorax about half as broad again as long.

**A 1.** Head small and round.

Not very shiny. Black; elytra black-brown; legs pitchy-yellow; abdomen narrowed from behind middle to apex, which is pitchy, and distinctly punctured. Thorax with a moderately distinct central furrow. L.  $1-1\frac{1}{4}$  l. Not uncommon.

*H. subsinuata*, Er.

**B 1.** Head broad.

**a 1.** Antennae black; elytra chestnut-brown, broadly darkened at base, sides and scutellum.

Black, shiny; legs yellowish, slightly clouded; elytra as above. Head nearly as broad as thorax, latter more than half as broad again as long, convex, unchanneled, extremely finely and rather diffusely punctured, with an admixture of wide shallow punctures; elytra about one-third longer

than thorax, duller than rest of body, being more closely, though coarsely and shallowly punctured; abdomen strongly and diffusely punctured, especially toward apex. L. 1 l. Very rare.

*H. Sharpi*, Rye.

**b l.** Antennae dirty yellowish; elytra shiny yellow, blackish round scutellum.

Head black; thorax pitchy; abdomen black, with lighter apex; legs yellow. L.  $1\frac{1}{4}$  l. Rare.

*H. montivagans*, Woll.

**b b.** Elytra not much longer than thorax.

**A a.** Antennae blackish; elytra brownish.

Head and thorax black, sides of latter sometimes pitchy; abdomen black, with apex sometimes paler; legs yellow. Thorax about one-third or one-half broader than long, very finely, not closely punctured. L.  $1\frac{1}{4}$  l. Rare; sandy sea coasts.

*H. orbata*, Er.

**B b.** Antennae reddish-yellow; elytra blackish.

Black; legs yellowish. Antennae scarcely at all thickened toward apex, hairy; head small, rounded; thorax as broad and almost as long as elytra. L.  $1\frac{1}{4}$  l. Common.

*H. fungi*, Gr.

The variety *dubia*, Sharp, has shorter antennae and thorax, the former having the tenth joint almost transverse.

**B B.** Length 1 line or less; antennae pale, at least at base.

**a a.** Antennae yellowish; elytra chestnut-brown.

Similar to *H. fungi*, but narrower in middle, with antennae rather stouter, and punctuation of thorax and elytra rather closer and finer. Sides of thorax paler than disc; apex of abdomen pale. L. 1 l. Rather common.

*H. clientula*, Er.

**b b.** Antennae blackish-brown, paler at base; elytra blackish.

Similar to *H. fungi*, but broader in proportion. Head, thorax, and abdomen black; legs red-brown. L.  $\frac{3}{4}$  l. Rare.

*H. orphanæ*, Er.



**2.** Body short and broad.

**A A.** Elytra one-third longer than thorax; abdomen distinctly punctured.

Scarcely shiny. Black; legs pitchy-yellow. Head short and much narrower than thorax, which is nearly twice as broad as long. L.  $\frac{2}{3}$  l. Rare. *H. cribrata*, Kr.

**B B.** Elytra about as long as thorax; abdomen indistinctly punctured.

Very broad and short. Dark brown; base of antennae and legs reddish-yellow. Head short and much narrower than thorax, which is more than twice as broad as long. Pubescence distinct. Abdomen flat above, convex beneath, sides rounded. L. 1 l. Rare; Chatham. *H. notha*, Er.

**Placusa.**

**A.** Abdomen extremely closely and finely punctured throughout.

**a.** Length 1 line.

Black; elytra generally yellow-brown; base of antennae and legs yellow. Male with two small tubercles before apex of seventh abdominal segment, apical margin produced into two spines on each side and finely toothed in middle. Scarce. *P. infima*, Er.

**b.** Length  $1\frac{1}{3}$ — $1\frac{1}{2}$  lines.

Rather flat. Black; base of antennae and the legs yellowish, posterior femora darker; elytra brownish-yellow. Thorax narrower than elytra, transversely convex, not quite twice as broad as long, base sinuate on each side, posterior angles nearly right angles. Male with two tubercles before apex of seventh abdominal segment, apical margin produced on each side into a curved spine, between which spines are three linear teeth, the outer ones being bifid. Rare. *P. denticulata*, Sharp.

**B.** Abdomen closely punctured at base, less closely at apex.

Black; elytra brown, base darker; base of antennae and legs yellow. Male with upper-plate of seventh abdominal segment produced into a spine on each side, its apical margin thickened in middle. L.  $\frac{4}{5}$ —1 l. Not uncommon. *P. pumilio*, Er.

*Phloeopora.*

**A.** Elytra brick-red ; abdomen pitch-brown, with apex red.

Head and thorax pitch-brown ; antennae red-brown, lighter at base ; legs red. Abdomen very closely punctured. L.  $1\frac{1}{3}$  l. Common. *P. reptans*, Gr.

**B.** Elytra black, with reddish apex ; abdomen black.

Head and thorax black ; antennae and legs red-brown, former lighter at base. Narrower, more convex and less closely punctured than *P. reptans*. L.  $1\frac{1}{4}$  l. Not common. *P. corticalis*, Gr.

*Hygronoma.*

Black ; elytra blackish on basal third part, the rest clear yellow ; antennae brownish-yellow, lighter at base ; legs yellow, tarsi short and flat. L.  $1\frac{1}{4}$  l. Common.

*H. dimidiata*, Gr.

*Schistoglossa.*

Scarcely shiny. Black ; antennae and legs red-brown. L.  $1\frac{1}{2}$  l. Rare. *S. viduata*, Er.

*Oligota.*

**A.** Antennae with four apical joints gradually larger.

Pitch-black, shiny ; elytra and apex of abdomen red-brown ; antennae and legs red. L.  $\frac{1}{2}$  l. Rather common.

*O. inflata*, Mann.

**B.** Antennae with three larger apical joints.

**a.** Apical segments of abdomen bright yellow.

Narrow, linear, similar to *O. pusillima* but with brown elytra and punctuation finer and closer ; legs entirely pale. L. scarcely  $\frac{1}{2}$  l. Not common.

*O. parva*, Kr.

**b.** Apex of abdomen brownish.

**I.** Antennae and legs pitch-brown.

Broader than *O. pusillima*. Black, shiny ; apex of abdomen brownish ; antennae and legs pitch-brown. Abdomen slightly narrowed toward apex. L.  $\frac{1}{2}$  l. Rather common.

*O. atomaria*, Er.

**II.** Antennae and legs red-brown or yellow-red.

**1.** Abdomen parallel-sided.

Black, shiny; apex of abdomen brownish; antennae and legs red-brown. L.  $\frac{1}{2}$  l. Rather common.

*O. pusillima*, Gr.

**2.** Abdomen slightly narrowed toward apex.

Larger and broader than *O. pusillima*, thorax more transverse, elytra longer and broader; antennae and legs yellow-red, club of former broader than in *O. atomaria*. Common.

*O. ruficornis*, Sharp.

**Somatium.**

**A.** Elytra black; abdomen tolerably strongly narrowed toward apex.

**a.** Antennae rust-brown, lighter at base, with the last four joints forming a club.

Black; legs rust-brown. L.  $\frac{1}{2}$  l. Rare.

*S. granarium*, Er.

**b.** Antennae yellow, with the last three joints forming a club, the eighth joint being scarcely larger than the preceding ones.

Black; legs rust-brown. L.  $\frac{1}{2}$  l. Not uncommon.

*S. flavicorne*, Lac.

**B.** Elytra yellow-red; abdomen slightly narrowed toward apex.

Head, thorax, and base of abdomen pitch-brown; apex of latter, legs and base of antennae yellow-red. L.  $\frac{1}{2}$  l. Not common.

*S. apicatum*, Er.

**GYROPHAENIDES.**

**A.** Elytra scarcely longer than thorax.

Ligula entire, semi-circular. Thorax almost three times as broad as long; penultimate joints of antennae very strongly transverse.

*Encephalus*, Westw.

**B.** Elytra somewhat longer than thorax.

**a.** Ligula entire, rounded.

Thorax about twice as broad as long; elytra about half as long again as thorax.

*Gyrophæna*, Mann.

**b.** Ligula split.

Thorax more than twice as broad as long; elytra more than half as long again as thorax. *Agaricochara*, Kr.

### *Encephalus.*

Shiny, impunctate. Black; elytra brownish in middle; legs and antennae yellow. L. 1 l. Moderately common.

*E. complicans*, Steph.

### *Gyrophæna.*

**A.** Length  $1\frac{1}{4}$ — $1\frac{1}{3}$  lines.

**a.** Elytra closely and finely punctured; antennae short.

Head black; thorax pitch-brown, margins lighter; elytra and abdomen red-yellow, outer apical angles of former and middle of latter pitch-brown; breast red-brown; antennae and legs yellow. Thorax punctured rather closely and moderately strongly in two rows, with isolated stronger punctures; abdomen distinctly narrowed behind, almost impunctate; penultimate joints of antennae very slightly transverse. L.  $1\frac{1}{4}$  l. Moderately common.

*G. gentilis*, Er.

**b.** Elytra scarcely perceptibly punctured; antennae long.

Head pitch-brown; thorax brown, margins reddish-yellow; elytra yellow, outer apical angles darker; abdomen red-yellow, middle pitch-brown; antennae and legs yellow. Thorax with isolated not very strong punctures, the two rows scarcely perceptible; abdomen distinctly narrowed behind, in male impunctate, in female closely and finely punctured toward apex; penultimate joints of antennae as long as broad. L.  $1\frac{1}{3}$  l. Not uncommon.

*G. pulchella*, Heer.

**B.** Length 1 line.

**a.** Elytra punctured.

**I.** Penultimate joints of antennae almost longer than broad.

Pitch-black; thorax, elytra, apex of abdomen and antennae brown, base of latter and legs yellow. Thorax diffusely punctured in two distinct rows; elytra extremely finely shagreened and diffusely, distinctly punctured; abdomen distinctly narrowed behind, impunctate. Less

shiny and darker in colour than *G. pulchella*, thorax and elytra shorter in proportion, punctuation on latter stronger. Common. *G. affinis*, Mann.

**II.** Penultimate joints of antennae strongly transverse.

**1.** Antennae entirely red-yellow, fourth joint small, fifth to tenth joints about equal in breadth.

**A A.** Dorsal series of punctures on thorax distinct.

Pitch-black; elytra (except outer apical angle), base and apex of abdomen red-yellow, antennae and legs yellow. Thorax with isolated strong punctures in two rows; elytra confusedly punctured in wrinkles, especially behind; abdomen impunctate. Common. *G. nana*, Payk.

**B B.** Dorsal series of punctures on thorax obsolete.

Red-yellow; head black-brown; thorax dark red-yellow; metasternum and abdomen before apex brown. Head diffusely and strongly punctured on each side; thorax finely and tolerably closely, evenly punctured, usual dorsal series obsolete; abdomen nearly impunctate. Slightly smaller than *G. laevipennis*. Rare. *G. puncticollis*, Th.

**2.** Antennae brownish, with base red-yellow, fourth joint broader than third, fifth to tenth joints gradually somewhat thickened.

Yellow or yellow-brown; head and middle of abdomen pitch-black; thorax brown, lighter at sides. Forehead strongly punctured; thorax as in *G. affinis*, but more scantily punctured; elytra nearly impunctate in front, indistinctly punctured in wrinkles behind; abdomen impunctate. Moderately common. *G. congrua*, Er.

**b.** Elytra impunctate.

Pitch-black; elytra (except outer apical angles), antennae and legs red-yellow; margins of thorax and the abdomen brownish. Thorax very diffusely punctured in two rows; abdomen impunctate; penultimate joints of antennae slightly transverse. Common. *G. laevipennis*, Kr.

**C.** Length  $\frac{1}{2}$ — $\frac{2}{3}$  line.

**a.** Elytra yellow or red-yellow.

**I.** Elytra impunctate.

Black; elytra (except outer apical angles), base of antennae and the legs yellow. Thorax diffusely punctured in two rows; penultimate joints of antennae rather strongly transverse. L.  $\frac{2}{3}$  l. Moderately common. *G. lucidula*, Er.

**II.** Elytra diffusely but distinctly punctured.

Red-yellow; vertex of head, outer apical angle of elytra and middle of abdomen brown. Thorax distinctly punctured in middle, but not in rows; penultimate joints of antennae rather strongly transverse. L.  $\frac{1}{2}$  l. Common.

*G. minima*, Er.

**b.** Elytra pitch-black or pitch-brown.

**I.** Six penultimate joints of antennae equal in breadth, strongly transverse, elytra moderately closely and finely punctured.

Pitch-black; antennae and legs yellow. Thorax and elytra broader than in *G. minima*, former tolerably closely punctured, especially in middle; abdomen very finely, indistinctly punctured. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Common. *G. manca*, Er.

**II.** Six penultimate joints of antennae becoming gradually broader, last of them strongly transverse; elytra extremely finely shagreened, with isolated indistinct punctures.

Oblong. Pitch-black; antennae and legs yellowish. Thorax with a few larger and many smaller, scarcely visible punctures; abdomen impunctate. L.  $\frac{2}{3}$  l. Not uncommon.

*G. strictula*, Er.

**Agaricochara.**

Rather shiny. Head black; thorax red-brown; elytra yellow-brown, with a triangular spot at the outer apical angle blackish; base of antennae and legs yellow, apex of former red-brown. Thorax and abdomen smooth. L.  $\frac{1}{2}$  l. Rather common.

*A. lacvicollis*, Kr.

**GYMNUSIDES.****A.** All tarsi with four joints.

Ligula entire, moderately long; labial palpi with two joints.

*Diglossa*, Hal.

**B.** Anterior tarsi with four joints, hinder pairs with five.

Ligula entire, short; labial palpi with two joints.

*Myllaena*, Er.

**C.** All tarsi with five joints.

Ligula split; mandibles two-toothed; labial palpi with three joints.

*Gymnusa*, Karst.

**D.** All tarsi with three joints.

Ligula split; mandibles, three-toothed; labial palpi with three joints.

*Deinopsis*, Matth.

### *Diglossa.*

Dull black, slightly pubescent; legs and palpi dusky red; antennae brown; punctuation very fine. L. 1 l. Not uncommon.

*D. mersa*, Hal.

### *Myllaena.*

**A.** Thorax and elytra black.

**a.** Posterior angles of thorax strongly prominent.

Broad. Black, dull; margins of abdominal segments, base of antennae and the legs red-brown, femora generally darker. All joints of antennae more than double as long as broad; abdomen short, much narrowed behind. L.  $1\frac{1}{4}$  l. Common.

*M. dubia*, Gr.

**b.** Posterior angles of thorax not prominent.

**I.** Length  $\frac{1}{2}$ — $\frac{3}{4}$  line.

**1.** Penultimate joints of antennae twice as long as broad.

**A A.** Posterior angles of thorax almost right angles; length  $\frac{3}{4}$  line.

Broad. Black, dull; margin of abdominal segments, base of antennae and the legs red-brown, femora generally darker. Thorax rather narrower than in *M. dubia*, base only slightly bisinuate; abdomen short, much narrowed behind. Common.

*M. intermedia*, Er.

**B B.** Posterior angles of thorax obtuse; length  $\frac{1}{2}$  line.

Similar to *M. intermedia*, but a little narrower in front,

thorax more strongly rounded at sides, more narrowed behind; antennae rather shorter. Moderately common.

*M. minuta*, Gr.

2. Penultimate joints of antennae scarcely longer than broad.

Black, dull; antennae and legs pitch-brown. Narrower and more parallel-sided than *M. minuta*, abdomen only slightly narrowed behind. L.  $\frac{1}{2}$ — $\frac{3}{4}$  l. Not uncommon.

*M. gracilis*, Mat.

## II. Length $1\frac{1}{4}$ lines.

1. Antennae red-brown; apex of abdomen lighter than base.

Similar to *M. Kraatzi*, but rather flatter, more brownish-black, pubescence closer, with silky reflection; suture and outer margin of elytra sometimes extremely narrowly red-brown; abdomen with extreme margins of front segments red-brown, hinder segments brownish; legs generally brownish, tarsi red-yellow. Not uncommon. *M. elongata*, Mat.

2. Antennae pitch-brown; abdomen unicolorous black.

Elongate. Black, dull; antennae and legs pitch-brown. Thorax with base straight, posterior angles obtuse; abdomen elongate, gradually gently narrowed behind; penultimate joints of antennae about double as long as broad. Rare.

*M. Kraatzi*, Sharp.

**B.** Thorax and elytra red-yellow.

Broad. Red-yellow; head and abdomen (except margins of segments) pitch-brown. Thorax one-third longer than elytra, posterior angles slightly obtuse; abdomen not strongly narrowed behind; all joints of antennae longer than broad. L.  $\frac{3}{4}$ —1 l. Common. *M. brevicornis*, Mat.

## *Gymnusa.*

**A.** Rather shiny; body not variegated with yellow pubescence.

Black; first joint of antennae red; tarsi red-brown. Punctuation close. L.  $2\frac{1}{2}$  l. Very rare.

*G. brevicollis*, Payk.

**B.** Shiny; body variegated with yellow pubescence.

Black; first joint of antennae scarcely lighter than the



rest; tarsi brownish. Punctuation not very close. L.  $2\frac{1}{2}$  l.  
Not common. *G. variegata*, Kies.

### *Deinopsis.*

Black, dull; antennae scarcely lighter at base; legs blackish, knees and tarsi brownish. Punctuation and pubescence close and fine; posterior angles of thorax sharp right angles, prominent; elytra about one-third longer than thorax. L.  $1\frac{3}{4}$  l. Not uncommon. *D. erosa*, Steph.

## TACHYPORIDAE.

**A.** Antennae with ten joints; tarsi with four joints.

Third joint of maxillary palpi not much longer, but broader than second, fourth less than half as long as third, very narrow and pointed; ligula truncate at apex, with a small process in the middle, bearing a bristle at each anterior angle; labial palpi three-jointed, the first joint small, second ovate, third thin. First tarsal joint elongate, next three very small. *Hypocyptus*, Mann.

**B.** Antennae with eleven joints; tarsi with five joints.

**a.** Ligula with a broad process in front, excised in middle.

Maxillary palpi elongate, third joint shorter than second and fourth, latter gradually pointed, ending in a membranous tip; labial palpi three-jointed, first joint large, dilated at base, third slender, somewhat narrowed at base; antennae hairy; first joint of hinder tarsi elongate. *Trichophya*, Mann.

**b.** Ligula simple.

**I.** Elytra confusedly punctured or scratched.

**1.** Abdomen not bordered.

Third joint of maxillary palpi longer than second and fourth, latter much narrower than third, gradually bluntly pointed; ligula with a deep triangular excision in middle; labial palpi with each joint narrower than preceding one; joints of tarsi gradually shorter. *Conurus*, Steph.

**2.** Abdomen bordered.

**A A.** Tibiae but little longer than tarsi.

**a a.** Mesosternum not ridged.

**A a.** Fourth joint of hinder tarsi much shorter than third.

Second and third joints of maxillary palpi about equal in length; fourth joint about half as long as and much narrower than third, pointed; ligula rather deeply excised in middle, paraglossae distinct and equal in length to ligula; labial palpi with each joint narrower than preceding one. *Tachyporus*, Gr.

**B b.** Fourth joint of hinder tarsi not much shorter than third.

Third joint of maxillary palpi more than twice as long as second, fourth joint scarcely narrower than and one-third as long as third, gradually bluntly pointed; other mouth parts as in *Tachyporus*. *Lamprinus*, Heer.

**b b.** Mesosternum ridged.

**A a.** Antennae hairy.

Third joint of maxillary palpi rather broader and shorter than second, fourth joint rather longer and at the base scarcely narrower than third, pointed; ligula slightly excised in middle, paraglossae shorter than ligula; labial palpi with each joint narrower than preceding one; joints of hinder tarsi gradually shorter, first very elongate. *Habrocerus*, Er.

**B b.** Antennae simple.

Third joint of maxillary palpi about half as long as second and fourth, latter narrower than third and slightly attenuated toward apex; ligula as in *Habrocerus*; third joint of labial palpi narrower and almost double as long as second; joints of hinder tarsi gradually shorter, first very elongate. Second abdominal segment simple. *Cilea*, Duv.

**B B.** Tibiae half as long again as tarsi.

Maxillary palpi rather elongate, joints equal in breadth, third joint rather shorter than second and fourth, latter bluntly rounded at apex; ligula with an excision in middle, paraglossae about as long as ligula; joints of labial palpi equal in breadth, second rather shorter than first and third. Second ventral segment of abdomen raised in middle. *Tachinus*, Gr.

**II.** Elytra smooth, generally with three rows of punctures.

Thorax smooth, with a row of four punctures along the anterior margin, another along posterior margin, and three punctures along each side margin. Disc either impunctate or with two or more punctures.

**1.** Last joint of labial palpi as broad as, or broader than second.

**A A.** Maxillary palpi short; anterior tarsi dilated in male.

Ligula slightly excised in middle, paraglossae shorter than ligula. Head roundish. *Megacronus*, Steph.

**B B.** Maxillary palpi elongate; anterior tarsi not dilated in male.

Ligula as in *Megacronus*. *Bolitobius*, Leach.

**2.** Last joint of labial palpi much narrower than second.

**A A.** Fourth joint of maxillary palpi about as long as third and slightly narrower.

Ligula slightly excised in middle; paraglossae shorter than ligula. *Bryoporus*, Kr.

**B B.** Fourth joint of maxillary palpi only half as long as, and much narrower than third.

Ligula as in *Bryoporus*. *Mycetoporus*, Mann.

### *Hypocyptus.*

**A.** Club of antennae not abrupt; seventh joint nearly as long as eighth.

Black, shiny; antennae and legs yellow-brown; side margins of thorax with a pale yellowish appearance; apex of abdomen generally pitch-brown. Posterior angles of thorax nearly right angles; elytra half as long again as thorax. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Common. *H. longicornis*, Payk.

**B.** Club of antennae abrupt, eighth joint distinctly longer than seventh.

**a.** Elytra unicolorous black or pitch-brown.

**I.** Elytra one-third longer than thorax; apex of abdomen red-brown.

Black, shiny; antennae red-yellow; front pairs of legs red-brown; posterior legs yellowish-brown, their femora pitch-brown; sides of thorax broadly, base narrowly pale; apex of abdomen red-brown. L.  $\frac{1}{2}$  l. Rare.

*H. pulicarius*, Er.

**II.** Elytra half as long again as thorax; abdomen (except margin of segments) unicolorous.

**1.** Antennae (except base) and legs (except tarsi) pitch-black.

**A A.** Posterior angles of thorax obtuse but scarcely rounded.

Similar to *H. laeviusculus*, but more shiny, being rather more finely punctured and pubescent. Thorax more distinctly narrowed behind. L.  $\frac{1}{4}$  l. Rare.

*H. pygmaeus*, Kr.

**B B.** Posterior angles of thorax right angles.

Black, tolerably shiny; sides of thorax narrowly pale; margins of abdominal segments generally red-brown. L.  $\frac{1}{3}$  l. Moderately common.

*H. laeviusculus*, Mann.

**2.** Antennae and legs (except posterior femora) unicolorous red-yellow.

**A A.** Abdomen black, with only apical margins of segments reddish.

Barely so large as *H. laeviusculus*, with antennae shorter and stronger; body more shiny. L.  $\frac{1}{3}$  l. Not uncommon.

*H. seminulum*, Er.

**B B.** Abdomen with apex broadly yellow-red.

Black, shiny; antennae, legs and last two or three segments of abdomen yellow-red. Thorax diffusely punctured, side margin pale, posterior angles nearly rounded. L.  $\frac{2}{5}$  l. (? Brit.)

*H. apicalis*, Bris.

**b.** Elytra red-brown, with anterior angles blackish-brown.

Black; elytra as above; antennae and legs red-yellow; abdomen red-brown, darker at base and lighter at apex; sides of thorax broadly, base narrowly pale. L.  $\frac{1}{2}$  l. Rather common.

*H. discoideus*, Er.

### *Trichophya.*

Black; elytra black-brown; antennae dark brown; legs

yellow-brown. Head triangular, thorax twice as broad as long. L.  $1\frac{1}{2}$  l. Not uncommon. *T. pilicornis*, Gyll.

### *Conurus.*

**A.** Length 2 lines.

**a.** Elytra black-brown, with a red-yellow spot at base.

Black-brown; posterior angles of thorax, an oblique spot at base of each elytron, base and apex of antennae and the legs red-yellow; margins of abdominal segments red-brown. Punctuation extremely close and fine; posterior angles of thorax sharp right angles, somewhat prominent; elytra half as long again as thorax; penultimate joints of antennae distinctly longer than broad. Common.

*C. littoreus*, Lin.

**b.** Elytra unicolorous black-brown or dark red-brown.

Black-brown; elytra sometimes dark red-brown; basal margin of thorax and margins of abdominal segments red-brown; base and apex of antennae and the legs red-yellow. Punctuation not so close as in *C. littoreus*; sides of thorax more strongly rounded; elytra one-third longer than thorax; penultimate joints of antennae scarcely longer than broad. Common.

*C. pubescens*, Gr.

**B.** Length  $1-1\frac{1}{4}$  line.

**a.** Elytra unicolorous.

**I.** Elytra distinctly longer than thorax.

**1.** Thorax black-brown.

Similar in form, colour and punctuation to *C. pubescens*, but with penultimate joints of antennae generally distinctly broader than long and posterior angles of thorax rather more pointed and more strongly produced. L.  $1\frac{1}{4}$  l. Rather common.

*C. immaculatus*, Steph.

**2.** Thorax yellow-brown.

Unicolorous yellow-brown. Punctuation as in *C. pedicularius*, but antennae rather more slender, posterior angles of thorax less distinctly prominent and elytra distinctly longer. L. 1 l. Common.

*C. lividus*, Er.

**II.** Elytra almost shorter than thorax.

Pitch-black; posterior margin of thorax, the elytra and margins of abdominal segments generally red-brown; an-

tennae and legs red-yellow. More shiny than *C. immaculatus*, punctuation not so close, head impunctate; posterior angles of thorax almost right angles, rather strongly prominent; penultimate joints of antennae somewhat broader than long. L. 1 l. Rather common. *C. pedicularius*, Gr.

**b.** Elytra with a red spot.

Black, shiny; elytra with a reddish spot at base, generally continued along suture; abdomen with apex and margins of segments reddish-brown; antennae yellow-brown, middle darker; legs yellowish-red. Head and thorax diffusely, scarcely perceptibly punctured, latter with posterior angles bluntly rounded, only slightly produced; elytra moderately closely and finely punctured, one-third longer than thorax; penultimate joints of antennae slightly transverse. L. 1 l. Scarce. *C. bipunctatus*, Gr.

### *Tachyporus.*

**A.** Head red-yellow.

**a.** Basal half of elytra black.

Red-yellow; basal half of elytra, breast and apex of abdomen black. Elytra half as long again as thorax. L.  $1\frac{2}{3}$  l. Common. *T. obtusus*, Lin.

**b.** Base of elytra only narrowly black.

Red-yellow; base of elytra (narrowly), breast, base of front abdominal segments and whole of seventh black. Elytra half as long again as thorax. L.  $1\frac{2}{3}$  l. Not common. *T. formosus*, Mat.

**B.** Head black or dark brown.

**a.** Abdomen black, except posterior margins of segments.

**I.** Thorax entirely red-yellow or yellowish-red.

**1.** Length  $1\frac{2}{3}$  lines.

**A A.** Black line at side of elytra feeble or absent; antennae unicolorous red-yellow.

Head black, mouth yellow-red; elytra yellowish-red, with neighbourhood of scutellum and sides (latter feebly) black, one-third longer than thorax. Not uncommon.

*T. solutus*, Er.

**B B.** Black line at side of elytra distinct; antennae brownish toward apex.

Head black ; elytra reddish-yellow, with spot round scutellum and a streak at side margin blackish. Common.  
*T. chrysomelinus*, Lin.

**2.** Length  $1\frac{1}{4}$  lines.

**A A.** Elytra without black line at side.

Head black ; elytra pale straw-colour, with a sharply defined black spot round scutellum. Rather common.  
*T. pallidus*, Sharp.

**B B.** Elytra with a black line at side.

**a a.** Elytra nearly half as long again as thorax, their ground colour red-yellow.

Head black, front of mouth yellowish ; elytra red-yellow, with a small spot round scutellum and a narrow, rather sharply defined streak at side black ; antennae brownish, first four joints yellow-red. Not uncommon. *T. tersus*, Er.

**b b.** Elytra one-third longer than thorax, their ground colour dark red-brown.

Head black ; elytra dark red-brown, neighbourhood of scutellum, base and side margin blackish ; antennae dark brown, base red-brown. Common. *T. humerosus*, Er.

**II.** Thorax black, with sides lighter.

**1.** Elytra darker round scutellum ; antennae red-yellow.

Thorax with light side margin broader behind and rather sharply defined ; elytra yellow-red, with a spot round scutellum and the side margin black ; legs red-yellow, posterior femora often blackish at base. L.  $1\frac{2}{3}$  l. Common.  
*T. hypnorum*, Fab.

**2.** Elytra not darker round scutellum.

Thorax black, sides (especially behind) rather broadly, base narrowly yellowish-brown ; elytra brown, side margin (almost to apex) black ; legs yellowish-brown, femora darker. L.  $1\frac{1}{3}$  l. Common. *T. pusillus*, Gr.

**b.** Abdomen chiefly red-brown or brown.

**I.** Thorax with apical half black and hinder half red-yellow.

Head black, mouth red-yellow ; elytra black, with hinder half or third part red-yellow ; abdomen red-brown, basal

segments blackish in front; antennae red-brown, base red-yellow. L.  $1\frac{1}{4}$  l. Rather common. *T. transversalis*, Gr.

**II.** Thorax yellowish-red, with disc dark-brown.

Narrow, rather flat. Red-brown; head, breast, disc of thorax, and base of abdominal segments generally dark-brown; antennae unicolorous red-brown. L.  $1\frac{1}{4}$  l. Common. *T. brunneus*, Lin.

### *Lamprinus.*

Head black; thorax and elytra red-yellow, latter darker round scutellum and along suture; abdomen pitch-black, margins of segments brown; antennae rust-brown, short, and rather broad; penultimate joints transverse; legs red-yellow. L. 2 l. Rare. *L. saginatus*, Gr.

### *Habrocerus.*

Pitch-black; antennae and legs reddish-yellow. Penultimate joints of antennae longer than broad. L.  $1\frac{1}{4}$  l. Moderately common. *H. capillaricornis*, Gr.

### *Cilea.*

Black; thorax with a broad border at sides and a very narrow one at base and apex yellow; elytra with suture and apex, and a spot near base of side margin, yellowish; legs yellow. L.  $1\frac{1}{3}$  l. Common. *C. silphoides*, Lin.

### *Tachinus.*

**A.** Elytra tolerably evenly and confusedly punctured.

**a.** Apex of elytra not darker than disc.

**I.** Length  $2\frac{1}{2}$ — $3\frac{1}{3}$  lines.

**1.** Anterior margin of thorax paler than disc; elytra nearly twice as long as thorax.

**AA.** First four joints of antennae entirely bright red-brown.

Black; margins of thorax, the elytra, base of antennae, and legs bright red-brown. Punctuation close and fine. Penultimate dorsal abdominal segment of male produced in middle, the process slightly emarginate; of female trilobed,



middle lobe shortest, obtusely pointed. L. 3— $3\frac{1}{3}$  l. Common.  
*T. humeralis*, Gr.

**B B.** Second and third joints of antennae blackish at apex.

Similar to *T. humeralis*, but with posterior margin of thorax scarcely bordered with brown; elytra with a dark brown shade, except a larger or smaller triangular space round scutellum; antennae a little shorter and punctuation finer. Male with penultimate dorsal segment of abdomen less produced; middle lobe of same segment in female more narrowly pointed. L. 3 l. Not common.

*T. proximus*, Kr.

**2.** Anterior margin of thorax not paler than disc; elytra about half as long again as thorax or less.

**A A.** Apical margin of elytra pale.

**a a.** First joint of antennae blackish.

Black; elytra chestnut-brown, with a more or less extensive blackish shade (sometimes entirely blackish, except shoulder and apical margin); antennae with first three joints pale at base only; legs red-brown. Elytra more than half as long again as thorax. Penultimate dorsal abdominal segment of male as in *T. humeralis*, of female middle lobe gradually sharply pointed, as long as lateral ones. L. 3 l. Not very common.

*T. flavipes*, Fab.

**b b.** First joint of antennae pale.

**A a.** Thorax entirely black.

Pitch-black; shoulders and apical margin of elytra pitch-brown; base of antennae and legs brown-red. Elytra scarcely half as long again as thorax. Penultimate dorsal segment of abdomen in male produced into four sharp points, central pair much longer, in female trilobed, middle lobe suddenly pointed, rather shorter than lateral ones. L.  $2\frac{1}{2}$ — $2\frac{3}{4}$  l. Common.

*T. rufipes*, De G.

**B b.** Sides of thorax pale.

**A 1.** Elytra half as long again as thorax.

Black; sides and base of thorax, a small humeral spot and posterior margin on elytra, base of antennae and legs red-brown. Penultimate dorsal abdominal segment of male produced into four slightly rounded points, central

pair considerably longer. L.  $2\frac{1}{2}$  l. A specimen taken in Inverness-shire.

*T. frigidus*, Er.

**B 1.** Elytra not much longer than thorax.

Black; thorax with side margin tolerably broadly, and base very narrowly yellowish; a small humeral spot and apical margin of elytra, base of antennae and legs yellow-brown. Penultimate dorsal abdominal segment of male produced into four points, central pair much longer; of female with four long sharp teeth. L. 3 l. Not common.

*T. pallipes*, Gr.

**B B.** Elytra black at apex.

**a a.** Elytra not much longer than thorax.

Black; sides of thorax narrowly, base of elytra (except near scutellum and sometimes with a narrow black spot in middle of each), base of antennae, and the legs red-yellow. Punctuation closer and less fine than in *T. pallipes*, antennae shorter. Penultimate dorsal segment of abdomen in male produced into four equally long points, in female also produced into four long sharp teeth. L. 3 l. Scarce.

*T. scapularis*, Steph.

**b b.** Elytra more than half as long again as thorax.

**A a.** Antennae unicolorous red.

Pitch-black; thorax with base of sides and extreme posterior margin reddish; a triangular spot at shoulder of elytra, antennae and legs red. Penultimate dorsal abdominal segment of male produced into four not very long points, division between central pair rather deep; of female produced into four moderately long teeth, central pair placed somewhat far apart. L.  $2\frac{3}{4}$  l. Not uncommon.

*T. bipustulatus*, Fab.

**B b.** Antennae pitch-black, with base red-brown.

Black; sides of thorax somewhat reddish at base; an oblong spot at shoulder of elytra red, base of antennae red-brown; legs pitch-brown. Elytra double as long as thorax. Penultimate dorsal abdominal segment of male produced into four bluntly rounded teeth, division between central pair not deep; of female ending in four long, narrow teeth, outer pair much longer than inner. L. 3 l. Common.

*T. subterraneus*, Lin.

**II.** Length  $1\frac{1}{2}$ —2 lines.

1. Elytra with light markings; antennae pitch-black, with first joint red-yellow.

**A A.** Markings on elytra red-brown; body broader.

Pitch-black; sides and base of thorax, a narrow streak along outer margin of elytra (usually indistinct behind) and their apical margin, base of antennae and legs red-brown. Penultimate dorsal abdominal segment of male ending in four short teeth, central pair distinctly longer than lateral ones; of female ending in four rather long teeth, outer pair stronger but scarcely longer than inner. L.  $1\frac{3}{4}$ —2 l. Rather common. *T. laticollis*, Gr.

**B B.** Markings on elytra yellowish-brown; body narrower.

Similar to *T. laticollis*, but less convex, the light markings on thorax and elytra yellowish-brown, lateral streak on latter distinct. Division between central pair of teeth on penultimate dorsal abdominal segment of male only half as wide as in that species; outer pair of teeth in female stronger and longer than inner. L.  $1\frac{1}{2}$  l. Common.

*T. marginellus*, Fab.

2. Elytra unicolorous pitch-black; antennae unicolorous red.

Rather convex. Pitch-black; sides of thorax brown-red; antennae and legs red. Penultimate dorsal abdominal segment of male ending in four short teeth, central pair longer; of female ending in four equally long and narrow teeth. L.  $1\frac{1}{2}$  l. Moderately common. *T. collaris*, Gr.

**b.** Elytra red, apical margin blackish.

Black; elytra as above; first four joints of antennae red-brown; legs pitch-black, tarsi red-brown. Elytra strongly punctured. L. 3 l. Very rare. *T. rufipennis*, Gyll.

**B̄.** Elytra partly impunctate, partly punctured in rows.

Elongate. Pitch-black; apical margin of elytra pitch-brown; antennae and legs dark-red. L.  $3\frac{1}{2}$ —4 l. Not common. *T. elongatus*, Gyll.

### *Megacronus.*

**A.** Thorax red.

**a.** Elytra as long as thorax, diffusely and rather strongly punctured.

Yellow-red; head and abdomen (except apex) black; antennae brownish in middle. L.  $2\frac{3}{4}$  l. Very rare.

*M. formosus*, Gr.

**b.** Elytra almost half as long again as thorax, moderately closely and finely punctured.

Red-brown; head, breast and abdomen (except margins of segments and the apex) pitch-black. L.  $3\frac{1}{4}$  l. Rare.

*M. inclinans*, Gr.

**B.** Thorax black.

**a.** Antennae blackish, first three and last two joints yellow-brown.

Black; elytra brick-red; penultimate abdominal segments red; legs red-yellow, with anterior coxae black-brown. Eighth abdominal segment black. L.  $3-3\frac{1}{4}$  l. Scarce.

*M. cingulatus*, Mann.

**b.** Antennae blackish, first four joints and the last one yellow-brown.

Black; elytra brick-red; apex of abdomen (including eighth segment) red; legs (including anterior coxae) yellow-red. Thorax rather more narrowed behind and rather less in front than in *M. cingulatus*. L.  $2\frac{1}{2}-2\frac{3}{4}$  l. Not uncommon.

*M. analis*, Payk.

### ***Bolitobius.***

**A.** Elytra black, with a humeral spot and the apical margin whitish.

Head black; thorax red-yellow; abdomen red-yellow, with black apex; antennae blackish, first four joints and last one yellow; legs yellow. L.  $2\frac{1}{2}-3$  l. Common.

*B. atricapillus*, Fab.

**B.** Elytra brown or yellow, with outer apical angles black.

**a.** Elytra yellow-brown, with a spot round scutellum, and a large triangular spot in apical angles, black-brown; dorsal row containing about eight or ten punctures.

Head black; thorax yellow-brown, generally darker on disc; abdomen reddish; antennae and legs yellow-brown. L.  $2\frac{1}{4}$  l. Common.

*B. trinotatus*, Er.

**b.** Elytra reddish-yellow, with the apical angles black-brown; dorsal row containing about twelve or fourteen punctures.

Head black-brown; thorax reddish-yellow; abdomen red-brown; antennae dark brown, lighter at base; legs yellow. L.  $1\frac{3}{4}$  l. Rather common. *B. exoletus*, Er.

**c.** Elytra brownish-yellow, with an imperfectly defined blackish-brown spot in apical angles; dorsal row containing about six punctures.

Head black; thorax brownish-yellow, with disc darker; abdomen brownish-red, base of segments often darker; antennae brownish, lighter at base; legs yellowish. L. 1—2 l. Common. *B. pygmaeus*, Fab.

### *Bryoporus.*

**A.** Thoracic punctures approximated to anterior and posterior margins.

**a.** Elytra with three distinct rows of punctures, interstices with isolated punctures.

Reddish-yellow-brown; head, breast and base of abdominal segments pitch-black; antennae dark brown, their base and the legs red-yellow; eyes convex. L.  $2\frac{1}{2}$  l. A dark variety (pitch-black, edges of thorax and elytra and margins of abdominal segments lighter) taken on Grayvel.

*B. rugipennis*, Pand.

**b.** Elytra with only about five, somewhat indistinct punctures placed in the striae.

Yellow-red; head reddish-pitchy; abdomen pale chestnut-brown; antennae (except first three joints) black. Smaller and narrower than *B. rugipennis*. Rare.

*B. Hardyi*, Crotch.

**B.** Thoracic punctures placed somewhat far from anterior and posterior margins.

Pitch-black, shiny; thorax black or chestnut-brown; elytra, mouth, margins of segments and the apex of abdomen chestnut-brown; legs reddish; antennae pitchy, first three joints red, apical joint rather longer than the others. L.  $2\frac{3}{4}$  l. Rare.

*B. cernuus*, Gr.

*Mycetoporus.***A.** Head black.

**a.** Basal and apical punctures on thorax placed far from margin.

**I.** Elytra with three dorsal rows of numerous punctures on each, the middle one irregular.

Spindle-shaped. Dark pitch-brown; base and narrow side margin of thorax, posterior margin and shoulders of elytra, margins of abdominal segments, antennae and legs red-brown. L. 2 l. Scarce. *M. lucidus*, Er.

**II.** Elytra with only one dorsal row of punctures on each, with or without some punctures forming traces of a second row.

**1.** Thorax red, its disc with two punctures (behind one another) on each side; antennae red-yellow, brownish before apex.

Oblong. Black; legs red-yellow; thorax and elytra red, latter black at sides. Elytra with some punctures inward from the dorsal row; abdomen nearly impunctate above. L. 2 l. Not common. *M. punctus*, Gyll.

**2.** Thorax black, with disc impunctate; antennae black-brown, with first four joints and apical joint red-yellow.

Oblong. Black; elytra dark-red; margins of abdominal segments usually red-brown; legs red-yellow. Elytra with only one dorsal row of punctures; abdomen distinctly but scantily punctured. L.  $1\frac{3}{4}$ —2 l. Not uncommon.

*M. splendens*, Marsh.

**b.** Basal and apical punctures on thorax placed rather near margin.

**I.** Disc of thorax with two or three punctures.

**1.** Thorax black; elytra bright red.

Elongate. Black, shiny; base of antennae and the legs yellow-red, anterior coxae and posterior femora brown-black. Sides less parallel than in *M. lepidus*, thorax broader behind, with elytra still broader and abdomen more attenuated, latter more strongly punctured; antennae and legs rather longer. L. 2 l. Rather common.

*M. longulus*, Mamm.

**2.** Thorax and elytra concolorous, or nearly so.

Varying in colour from pitch-brown, with base of thorax and shoulders red-brown, and the first four joints of antennae and the legs yellow-red, to unicolorous reddish. Elytra with one or two punctures besides the dorsal row. L.  $1\frac{1}{2}$ —2 l. Rather common. *M. lepidus*, Gr.

**II.** Disc of thorax impunctate.

**1.** Antennae not broad.

**A A.** Elytra with only one dorsal row of punctures.

Broad, depressed. Pitch-black; basal and narrow side margins of thorax (or only posterior angles), apical margin and a humeral spot on elytra, and the base and apex of antennae red-yellow; apical margin of abdominal segments and the legs red-brown, anterior coxae and posterior femora darker. L.  $1\frac{1}{2}$  l. Not common. *M. Reyi*, Pand.

**B B.** Elytra with an abbreviated row of punctures besides, and inward from dorsal row.

Oblong. Black; apical margin of elytra (and sometimes also the suture), base of antennae and legs brownish-yellow. Elytra shorter than in *M. Reyi*, and joints of antennae not so transverse; more parallel-sided than *M. clavicornis*, with abdomen less strongly punctured, and apical punctures on thorax closer to margin. L.  $1\frac{1}{2}$  l. Not common.

*M. nanus*, Gr.

**2.** Antennae broad.

Black, shiny; head pitchy, mouth red; thorax and elytra red-yellow, latter with a single punctured stria on each; extreme apex of abdomen reddish; legs and base of antennae red-yellow, apex of latter black and thickened, the middle joints transverse. Elytra with only one dorsal row of punctures. L.  $1\frac{2}{3}$ —2 l. Not uncommon.

*M. clavicornis*, Steph.

**B.** Head red-yellow, blackish on vertex.

**a.** Length 1— $1\frac{1}{2}$  lines.

Elongate. Reddish-yellow; base of elytra (to a variable extent), abdomen, except margins of segments, and breast pitch-black. Antennae long, first joint only light coloured; disc of thorax impunctate; elytra with only one dorsal row of punctures. Common. *M. splendidus*, Gr.

**b.** Length 2 lines.

Elongate. Yellowish; extreme vertex of head, rarely the base of elytra, base of abdominal segments, and breast dark brown. Antennae long, first three joints lighter disc of thorax impunctate; elytra with only one dorsal row of punctures. Punctuation of abdomen coarser and more diffuse than in *M. splendidus*, and thorax wider. Rather common. *M. longicornis*, Kr.

### STAPHYLINIDAE.

**A.** Lateral margin of thorax simple; antennae inserted under apex of side margin of forehead. *Quediides*.

**B.** Thorax with a distinct upper and lower lateral margin.

**a.** Antennae inserted within base of mandibles.

*Staphylinides*.

**b.** Antennae inserted before base of mandibles.

*Xantholinides*.

### QUEDIIDES.

**A.** Antennae elbowed.

**a.** Last joint of labial palpi thick, half-ovate.

Mandibles with three teeth toward base. Third joint of maxillary palpi rather shorter and thicker at apex than second, fourth large, double as long, narrowed from middle; ligula rounded, entire, paraglossae scarcely longer than ligula; first joint of antennae as long as next four joints together. Thorax smooth, with two punctures before middle of disc. *Acylophorus*, Nordm.

**b.** Last joint of labial palpi very large, hatchet-shaped.

Mandibles with one tooth at base. Third joint of maxillary palpi rather shorter and thicker at apex than second, fourth half as long again, bluntly pointed from middle; ligula rounded, entire, paraglossae distinctly longer than ligula. Thorax smooth, with three punctures on each side of disc before middle, and others at margins. *Euryporus*, Er.

**B.** Antennae not elbowed.

**a.** Prothoracic spiracle conspicuous; second joint of labial palpi thickened.



Third joint of maxillary palpi longer than second, double as long as fourth, which is much narrower and sharply pointed; ligula rounded, entire, paraglossae rather longer than ligula. Thorax smooth, with a pair of punctures before middle of disc and a feebler pair at anterior margin.

*Heterothops*, Kirby.

**b.** Prothoracic spiracle covered by a triangular projection from thorax; palpi threadlike.

Last joint of palpi one-third or more longer than preceding one; ligula rounded, entire, paraglossae longer than ligula. Thorax smooth, with some punctures at side margin, a pair at anterior margin, and usually two more on each side of disc before middle.

*Quedius*, Leach.

### *Acylophorus.*

Deep black and shiny; legs black, with tarsi brownish at base, lighter at apex. Elytra rather diffusely, coarsely punctured. L. 4 l. Rare.

*A. glabricollis*, Boisd.

### *Euryporus.*

Shiny black; base of antennae and tarsi reddish. Elytra shorter than thorax, closely and strongly punctured. L. 4—4½ l. Very rare.

*E. picipes*, Payk.

### *Heterothops.*

**A.** Thorax pitch-brown.

Head and elytra black, apex of latter red-yellow; abdomen black, margins of segments and apex red-brown; base of antennae and legs red-yellow, penultimate joints of former scarcely shorter than broad. Head oblong ovate; elytra scarcely longer than thorax; punctuation only moderately close and fine. L. 1¾ l. Rather common.

*H. dissimilis*, Gr.

**B.** Thorax black.

**a.** Elytra black; penultimate joints of antennae as long as broad.

**I.** Posterior margin of elytra reddish; base of antennae red-brown.

Head and abdomen black, apex of latter scarcely lighter;

legs red-brown. Head short ovate; elytra as long as thorax; punctuation not very close and fine. L.  $2\frac{1}{3}$  l. Moderately common. *H. binotata*, Steph.

**II.** Elytra and antennae unicolorous black.

Head and abdomen black; legs brownish-yellow. Head ovate; elytra as long as thorax; punctuation rather diffuse and fine. L.  $1\frac{3}{4}$  l. Scarce. *H. quadripunctula*, Gr.

**b.** Elytra pitch-brown, with apex reddish; penultimate joints of antennae broader than long.

Head and abdomen black, latter with margin of segments and apex red-brown; legs and base of antennae red-brown. Head short ovate; elytra a little longer than thorax; punctuation close and fine. L. 2 l. Rare. *H. praevia*, Er.

### *Quedius.*

**A.** Lower marginal projection from thorax of horny consistence.

**a.** Antennae sawlike.

Black; elytra dull, with red-brown humeral angles; apical joint of antennae yellow. Head much smaller than thorax, latter much broader than long; elytra narrower but rather longer than thorax. L. 8—10 l. Very rare.

*Q. dilatatus*, Fab.

**b.** Antennae simple.

**I.** Elytra black, with reflexed margin yellow.

Head, thorax and abdomen black; antennae black, with first joint red-brown, third joint much longer than second, penultimate joints longer than broad; legs dark pitch-brown. L. 5 l. Moderately common. *Q. lateralis*, Gr.

**II.** Reflexed margin concolorous with rest of elytra.

**1.** Elytra distinctly and confusedly punctured.

**A A.** Eyes tolerably large.

Thorax with a row of three impressions on each side of disc before middle.

**a a.** Antennae entirely dark.

**A a.** Scutellum impunctate.

**A I.** Penultimate joints of antennae not strongly transverse.

Black ; elytra sometimes red ; antennae black or pitch-brown, third joint much longer than second, penultimate joints a little broader than long ; legs blackish pitch-brown, tarsi lighter. Elytra moderately finely, not very closely punctured ; abdomen closely and strongly punctured, more diffusely so behind. L. 3—5 l. Common.

*Q. fulgidus*, Gr.

**B 1.** Penultimate joints of antennae strongly transverse.

**a 1.** Thorax without lateral impressions ; elytra not strongly punctured.

Black, shiny ; elytra red ; antennae and legs black, tibiae and tarsi lighter. Head nearly globose, temples very prominent and not punctured, frontal setae (as in *Q. laevigatus*) approximated to the neck, almost in the same transverse line with temporal angle, anterior setigerous puncture placed below eyes in the genal line itself ; posterior tarsi rather short and thick. Rare. L.  $3\frac{1}{2}$  l. *Q. brevicornis*, Th.

**b 1.** Thorax with lateral impressions ; elytra strongly punctured.

Black, shiny ; elytra red ; antennae and legs black, tarsi pitchy-red. Head orbiculate-oval, frontal setae placed far before temporal angle and both genal punctures placed above the raised line ; head and thorax very indistinctly punctured at base. Rare. *Q. puncticollis*, Th.

**B b.** Scutellum very diffusely punctured.

Very closely allied to *Q. fulgidus*, but with punctures on scutellum ; abdomen rust-red, first two segments blackish. Scarce. L. 4— $4\frac{1}{2}$  l. *Q. truncicola*, Fairm.

**b b.** Antennae black-brown, with first three joints red-yellow.

Black ; elytra red-brown or dark brown with reddish suture ; apex of abdomen and legs red-yellow. Antennae shorter than in *Q. fulgidus*, with penultimate joints more strongly transverse ; elytra and abdomen more diffusely punctured. L.  $3\frac{1}{2}$ —4 l. Not uncommon. *Q. cruentus*, Ol.

**c c.** Antennae red-yellow.

Pitch-black ; antennae (especially at base), legs and apical margins of last abdominal segments red-yellow.

Elytra and abdomen diffusely, rather strongly punctured. L.  $3\frac{1}{2}$  l. Not common. *Q. xanthopus*, Er.

**B B.** Eyes rather small, round or rotundate-oval, almost shorter than temples.

**ā a.** Frontal seta placed far from neck; thorax with a row of three impressions on each side of disc before middle.

**A a.** Penultimate joints of antennae longer than broad.

Red-brown; head pitch-black; disc of thorax and upper-side of abdomen (except apical margins of segments) pitch-brown. Head orbiculate-oval, ocular seta remote from eyes; elytra rather closely and moderately strongly punctured; dorsal abdominal segments without erect apical setae. L. 4 l. Very rare. *Q. longicornis*, Kr.

**B b.** Penultimate joints of antennae somewhat broader than long.

Red-brown; head and disc of thorax black; base of abdominal segments and usually outer apical angle of elytra pitch-brown. Genae scarcely margined in front; third joint of antennae only a little longer than second; elytra diffusely and rather strongly punctured. L. 3 l. Rare. *Q. scitus*, Gyll.

**b b.** Frontal seta approximated to neck; thorax with a single impression on each side of disc.

Short. Dark pitch-brown; elytra, margins of abdominal segments, antennae and legs red-brown. Penultimate joints of antennae somewhat broader than long; elytra diffusely and rather finely punctured; genae margined throughout. L. 2— $2\frac{1}{2}$  l. Rather common. *Q. brevis*, Er.

**2.** Elytra very indistinctly punctured or impunctate, with some more distinct punctures arranged in rows.

**A A.** Elytra with a row of diffusely placed indistinct punctures in middle and another near suture, otherwise impunctate; antennae black, with first three joints red brown.

Black; elytra, margin of abdominal segments and legs red-brown. Antennae rather short, penultimate joints

rather strongly transverse; abdomen diffusely, moderately finely punctured. L.  $3\frac{1}{2}$ —4 l. Not uncommon.

*Q. laevigatus*, Gyll.

**B B.** Elytra with a row of diffusely placed punctures in middle, another near suture and a third row between them; antennae entirely black.

Black; suture and apical margin of elytra (often also the side) reddish-yellow; legs pitch-black or pitch-brown, with red-brown knees and tarsi. Penultimate joints of antennae distinctly broader than long; abdomen diffusely, moderately finely punctured. L.  $3\frac{1}{2}$  l. Common.

*Q. impressus*, Panz.

**B.** Lower marginal projection from thorax of parchment-like consistence.

**a.** Labrum rounded in front, entire.

**I.** Scutellum punctured.

**1.** Elytra usually chestnut-brown, distinctly shorter than thorax; head with one impression near inner margin of each eye and four behind it.

Black; first joint of antennae and tarsi red-brown. Penultimate joints of antennae distinctly longer than broad; elytra and abdomen closely and finely punctured.

L. 5 l. Common.

*Q. molochinus*, Gr.

**2.** Elytra black, rather longer than thorax; head with four impressions near inner margin of each eye and one large and some smaller ones behind it.

Broader than *Q. molochinus*. Black; antennae, tibiae and tarsi red-brown. Eyes rather large. Penultimate joints of antennae half as long again as broad; elytra and abdomen very closely and finely punctured. L. 5 l. Common.

*Q. tristis*, Gr.

**II.** Scutellum impunctate.

Coloured like *Q. tristis*, with antennae similarly formed. Head with three impressions near inner margin of each eye and one large and some smaller impressions behind it. Elytra and abdomen rather more diffusely and strongly punctured. Eyes smaller. L.  $4\frac{1}{2}$ —5 l. Common.

*Q. fuliginosus*, Gr.

**b.** Labrum bilobed.**I.** Length 4 lines.

Black; elytra, antennae, and legs red-brown. Head with one impression near inner margin of each eye and two impressions behind it; antennae slender, penultimate joints as long as broad; elytra closely and rather strongly punctured; abdomen closely and finely punctured. Common.

*Q. picipes*, Mann.

**II.** Length 2—3½ lines.**1.** Penultimate joints of antennae distinctly longer than broad.

Head with one impression near inner margin of each eye and two impressions behind it.

**A A.** Thorax red-yellow, with disc sometimes brownish.

Head pitch-black; elytra, antennae and legs red-yellow; abdomen blackish, iridescent. Elytra and abdomen closely and finely punctured. L. 3½ l. Rather common.

*Q. nigriceps*, Kr.

**B B.** Thorax pitch-black.

Pitch-black; elytra and femora blackish-brown; antennae, tibiae and tarsi dark red-brown. Punctuation of elytra moderately close and fine, of abdomen diffuse and rather strong. Thorax rather broader than long. L. 3½ l. Common.

*Q. peltatus*, Er.

**2.** Penultimate joints of antennae as long or nearly as long as broad.

**A A.** Third joint of antennae considerably longer than second.

Head with one impression near inner margin of each eye and two impressions behind it.

**a a.** Elytra and abdomen diffusely and rather strongly punctured.

Pitch-black; elytra dark pitch-brown, with apical margin red-brown; antennae and legs red-brown, second and third joints of former usually blackish-brown in middle. L. 3 l. Common.

*Q. umbrinus*, Er.

**b b.** Elytra and abdomen moderately closely and finely punctured.

**A a.** Elytra blackish-brown, with suture and side margin red-brown, shorter than thorax.

Head blackish; thorax and abdomen blackish or dark brown; base of antennae and legs yellow, apex or former red-brown. L.  $2\frac{1}{2}$  l. Common. *Q. maurorufus*, Gr.

**B b.** Elytra pitchy, with margins and a large shoulder spot red-brown, as long as thorax.

Head, thorax and abdomen pitch-black or pitch-brown, latter with margins of segments and apex lighter; base of antennae and legs red-yellow, apex of femora red-brown. L.  $2\frac{3}{4}$  l. Not uncommon. *Q. suturalis*, Kies.

**B B.** Third joint of antennae not much, or scarcely longer than second.

**a a.** Scutellum punctured.

**A a.** Length 3— $3\frac{1}{2}$  lines.

Pitch-black; antennae and legs red-yellow. Head with one impression near inner margin of each eye and two impressions behind it; elytra and abdomen closely and finely punctured. Rather common. *Q. rufipes*, Gr.

**B b.** Length  $2\frac{3}{4}$  lines.

**A I.** Thorax brassy-black or black; antennae red-yellow.

**a I.** Elytra brassy-red, with pubescence more or less reddish; abdomen with four longitudinal interrupted bands of ashy pubescence.

Black, shiny; head and thorax brassy-black, former with four frontal impressions; elytra brassy-red; margins of abdominal segments and legs red, posterior femora dark; antennae and palpi red-yellow. Common.

*Q. semiaeneus*, Steph.

**b I.** Elytra dark bronze-green with dusky pubescence; abdomen without longitudinal stripes.

Elongate. Head, thorax and abdomen black; antennae and legs red-yellow. Punctuation close and fine. Not uncommon. *Q. attenuatus*, Gyll.

**B 1.** Thorax bright tawny-red ; antennae pitch-brown.

Pitchy-red, shiny ; head black, somewhat orbiculate ; thorax bright glossy tawny-red ; elytra pitch-black, suture and apex paler, finely punctured ; abdomen with base of anterior segments blackish ; legs red-yellow. Not common.

*Q. fulvicollis*, Steph.

**C c.** Length 2—2½ lines.

Very like *O. attenuatus* and similarly coloured, except elytra, which are brownish-black. Rather narrower and more convex ; punctuation rather less close. Ventral abdominal segments usually bordered with red-brown. Common.

*Q. boops*, Gr.

**b b.** Scutellum impunctate.

**A a.** Head with four impressions between eyes and two behind each of them.

Bronze-green ; antennae rather short, dark red-brown, their first joint and the legs brownish-yellow ; margins of abdominal segments brownish. Punctuation of elytra rather diffuse and strong, of abdomen rather fine and diffuse ; base and sides of segments of latter with longer yellow pubescence than the middle and apex. L. 2½ l. Not uncommon.

*Q. scintillans*, Gr.

**B b.** Head with one impression near inner margin of each eye and two impressions behind it.

Black-bronze, shiny ; antennae and legs red-yellow. Elytra rather diffusely and strongly punctured, not very closely covered with strong, golden-yellow pubescence ; abdomen finely punctured, with fine brown pubescence and a spot of golden-yellow hairs on either side of each segment. L. 2—2¼ l. Not uncommon.

*Q. auricomus*, Kies.

**3.** Penultimate joints of antennae considerably broader than long.

Pitchy ; antennae red-brown, base lighter, third joint scarcely longer than second ; knees, tarsi, apex of abdomen and margins of segments yellow-brown. Head oblong ; eyes very small, with one impression near inner margin of each and two impressions behind it ; scutellum diffusely punctured ; punctuation of elytra diffuse, moderately strong,



of abdomen moderately close and not very fine, latter with fine gray pubescence. L.  $2\frac{1}{4}$ — $2\frac{1}{2}$  l. Not uncommon.

*Q. chrysurus*, Kies.

### STAPHYLINIDES.

**A.** Fourth joint of maxillary palpi shorter than third.

**a.** Thorax smooth.

Antennae rather far apart, with first six joints horny, without pubescence, next four joints strongly transverse and gradually broadened. Ligula emarginate at apex. Thorax broader than long, narrowed toward base, upper and lower side marginal lines scarcely confluent; middle coxae rather far apart, first joint of hinder tarsi elongate.

*Creophilus*, Kirby.

**b.** Thorax hairy.

**I.** Antennae somewhat thickened toward apex, penultimate joints strongly transverse.

First five joints of antennae horny, without pubescence. Ligula emarginate at apex. Thorax broader than long, narrowed toward base, upper and lower side marginal lines confluent; middle coxae rather far apart; first joint of hinder tarsi not very elongate.

*Emus*, Leach.

**II.** Antennae threadlike, penultimate joints slightly sawlike.

Antennae with first four joints horny. Ligula emarginate at apex. Thorax narrowed toward base, with acute anterior angles, upper and lower side marginal lines confluent; middle coxae moderately far apart; first joint of hinder tarsi elongate.

*Leistotrophus*, Perty.

**B.** Fourth joint of maxillary palpi as long as, or longer than third.

First four joints of antennae horny, bearing long hairs, rest covered with fine pubescence; upper and lower side marginal lines of thorax confluent.

**a.** Ligula emarginate in front.

**I.** Antennae and abdomen short, latter slightly narrowed at apex.

Thorax parallel-sided; middle coxae placed near or close

to one another; hinder tarsi short, first joint longest, rest gradually shorter. *Staphylinus*, Lin.

**II.** Antennae and abdomen elongate, latter parallel-sided.

Thorax as long or longer than broad, parallel-sided, or slightly narrowed behind; middle coxae approximated; hinder tarsi slender, first joint elongate. Last joint of labial palpi truncate at apex or more or less hatchet-shaped.

*Ocypus*, Kirby.

**b.** Ligula entire.

Head with four impressions between eyes. Thorax narrower than elytra, anterior angles bent downward; middle coxae generally divided by a narrow space; femora unarmed; first and last joints of hinder tarsi longer than the rest. Last joint of palpi either slightly thickened in middle and thence pointed, or gradually pointed from base.

*Philonthus*, Leach.

### *Creophilus.*

Shiny. Black; elytra and abdomen covered with black hairs, former with a broad band of, and latter variegated at sides and base of middle segments with ashy-gray pubescence; middle ventral segments of abdomen covered with ashy-gray pubescence. L. 7—9 l. Common.

*C. maxillosus*, Lin.

The variety *ciliaris*, Steph., has the black hairs replaced by yellow.

### *Emus.*

Black, thickly covered with pubescence, which on the head, thorax, and apical half of abdomen is golden-yellow, on basal half of abdomen, and elytra, sides and basal margin of thorax blackish, and on apical half of elytra ashy-gray. L. 9—11 l. Very rare.

*E. hirtus*, Lin.

### *Leistotrophus.*

**A.** Palpi and legs (except part of femora) red-yellow; antennae with first five joints red-yellow, rest black-brown.

Black; upper-side covered with a thick, close-lying brown and grayish, cloudy pubescence, with rows of black spots on abdomen; under-side of abdomen black, with a band of fine, silver-gray pubescence at base of each segment. L. 6—8 l. Common. *L. nebulosus*, Fab.

**B.** Palpi and legs black; antennae yellowish-brown, darker at base and apex.

More parallel-sided than *L. nebulosus*, with similar pubescence; apical dorsal segments of abdomen with a band of fine silver-gray pubescence at base. L. 5—6 l. Common. *L. murinus*, Lin.

### *Staphylinus.*

**A.** Elytra black or dark blue.

**a.** Legs black, with a yellow ring before apex of femora.

Black; clothed with a thick pubescence, which on the upper-side is brown-gray and spotted, on the under-side silvery, middle of each dorsal segment of abdomen with a triangular spot of yellow pubescence, bounded by two black spots; humeral margin of elytra yellow; first four joints entirely or on upper-side yellow-brown. L. 5—6 l. Common. *S. pubescens*, De G.

**b.** Legs red, with tibiae blackish.

Head, thorax and elytra dark-blue, with black hairs; abdomen black, with black hairs and a broad band of golden or silvery hairs at the base of sixth and seventh segments, visible only when fully extended; antennae red at base and apex, blackish in middle. L. 6—6½ l. Scarce. *S. fulvipes*, Scop.

**B.** Elytra red or red-brown.

**a.** Head nearly triangular.

**I.** Antennae black, with base red-brown.

Head, thorax, scutellum, and abdomen black, with black hairs, segments 2 to 5 of latter with a triangular spot on each side and segment 6 with a broad band of silvery pubescence, legs red-brown. L. 6 l. Not common. *S. stercorarius*, Ol.

**II.** Antennae pitch-brown.

Head and thorax dark bronze-green, with yellowish pubescence; abdomen black, with three triangular spots at

the base of segments 2 to 5 and a rather broad band at the base of the two penultimate dorsal and all the ventral segments of ashy-gray pubescence, visible only when the abdomen is fully extended; legs red-brown. L. 5—5½ l. Rare. *S. latebricola*, Gr.

**b.** Head roundish quadrangular.

**I.** Scutellum covered with golden-yellow pubescence.

Dull. Head, thorax and abdomen black; palpi, base and apex of antennae and legs red; forehead between eyes and a triangular spot on each side of second, fifth and sixth abdominal segments with yellow pubescence. L. 5—6 l. Rather common. *S. erythropterus*, Lin.

**II.** Scutellum covered with black pubescence.

Dull. Head, thorax and abdomen black; base of antennae and legs red; forehead between eyes, anterior angles and basal margin of thorax, apical margin of second abdominal segment and a more triangular spot on each side of the following dorsal and ventral segments covered with golden-yellow pubescence. L. 6—7 l. Common.

*S. caesareus*, Ceder.

### *Ocypus.*

**A.** Mandibles with a tooth in the middle.

**a.** Last joint of labial palpi cylindrical.

**I.** Head and thorax black or dark blue.

**1.** Winged; elytra about equal in length to thorax.

**A A.** Fore parts deep dull black.

Abdomen deep black; antennae usually rust-brown at apex. Punctuation and pubescence very fine. L. 11—14 l. Common. *O. olens*, Müll.

**B B.** Fore parts dark blue, rather dull.

Abdomen black; antennae and legs black, former brownish at apex. L. 7—10 l. Very rare. *O. cyaneus*, Payk.

**2.** Apterous; elytra distinctly shorter than thorax.

**A A.** Legs black.

Black, dullish. Thorax one-fourth longer than elytra, with a smooth central line. L. 6—9 l. Rather common.

*O. similis*, Fab.

**B B.** Legs red-yellow.

Black, dullish; base and last three joints of antennae red-yellow. Thorax almost half as long again as elytra, with a smooth central line. L. 5—7 l. Rather common.

*O. brunripes*, Fab.

**II.** Head and thorax more or less bronze.

- 1.** Thorax rather diffusely, finely punctured; antennae black.

Winged. Head and thorax black-bronze, shiny; elytra and abdomen black, dull; legs black, tarsi pitch-brown. Penultimate joints of antennae rather broader than long; thorax about as long as elytra. L. 5—6 l. Not common.

*O. fuscatus*, Gr.

- 2.** Thorax very closely, finely punctured, with a smooth, raised central line; antennae red-brown, often blackish at base.

Winged, somewhat shiny. Head and thorax bronze; elytra brownish; abdomen black; legs black-brown, tarsi (and sometimes tibiae) red-brown. Upper-side covered with rather long yellow-gray hairs, forming five longitudinal lines on abdomen. L.  $4\frac{1}{2}$ —7 l. Common.

*O. cupreus*, Rossi.

- b.** Last joint of labial palpi hatchet-shaped.

- I.** Head and thorax closely, coarsely punctured, often with smooth central line; antennae red-brown, often pitchy in middle.

Black; legs red-brown. Elytra not much longer than thorax, somewhat bluish. L. 9—10 l. Not common.

*O. pedator*, Gr.

- II.** Head and thorax diffusely and strongly punctured, with smooth central line; antennae black, often red-brown at apex.

Black; tarsi pitch-brown. Elytra rather longer than thorax. L. 6—8 l. Rather common.

*O. ater*, Gr.

- B.** Mandibles without any tooth in middle.

- a.** Antennae black, usually rust-brown at apex; legs black, with tarsi (and often tibiae) rust-brown.

Black, dull. Head generally broader than thorax, punctured more diffusely in front than behind; thorax rather

narrower behind than elytra, very closely, rather strongly punctured, with smooth raised central line; elytra and abdomen extremely closely, finely punctured. L. 5—6½ l. Common. *O. morio*, Gr.

**b.** Antennae black, with base red-yellow; legs red-yellow.

Black, dull. Whole body evenly, extremely closely, finely punctured. Head scarcely broader than thorax, which is not narrowed behind and as broad as elytra. L. 7 l. Moderately common. *O. compressus*, Marsh.

### *Philonthus.*

**A.** Thorax without rows of impressions on disc.

**a.** Head and thorax shiny black; elytra with several lateral setae.

Elytra bronze-green; scutellum black, impunctate; abdomen, antennae and legs black. Head of female as broad as, of male broader than thorax. Punctuation of elytra moderately close, strong; that of abdomen rather more diffuse. L. 5—5½ l. Rather common. *P. splendens*, Fab.

**b.** Head and thorax bronze-green; elytra with at most one or two lateral setae.

**I.** Elytra bronze.

Abdomen, antennae and legs black. Head usually rather narrower than thorax. Punctuation of elytra rather more diffuse, of abdomen rather closer and in both cases a little finer than in *P. splendens*. Anterior tarsi strongly dilated in male, moderately in female. L. 4—5 l. Rather common. *P. intermedius*, Boisd.

**II.** Elytra dark-green or bluish.

Abdomen, antennae and legs black. Head distinctly narrower than thorax. Elytra and abdomen closely and distinctly punctured. Scutellum bluish-black, closely punctured. Anterior tarsi slightly dilated in both sexes. L. 4½ l. Common. *P. laminatus*, Creutz.

**B.** Thorax with a row of four impressions on each side of disc.

**a.** Elytra not longer than thorax, more or less shiny; head generally ovate or triangular and narrower than thorax; lateral seta of thorax placed in margin itself.

**I.** Thorax more or less bronze or blackish-green; length 4—6 lines.

**1.** Head rounded quadrangular.

**A A.** Anterior tarsi of male strongly dilated.

Head and thorax bronze-black, shiny; elytra greenish-bronze; abdomen, antennae and legs black; pubescence brownish-gray. Penultimate joints of antennae much broader than long; thorax with at most one setigerous puncture on each side before middle beside dorsal rows; elytra closely, abdomen rather more diffusely punctured; abdomen with four setae in a transverse row on fifth segment. L. 4—6 l. Common. *P. aeneus*, Rossi.

**B B.** Anterior tarsi of male only slightly dilated.

**a a.** Penultimate joint of antennae transverse; penultimate abdominal segment of male emarginate.

**A a.** Elytra blackish-bronze.

Black, shiny; elytra blackish-bronze; pubescence black. Thorax with lateral impressions; punctuation more diffuse than in *P. aeneus*; head smaller than in *P. carbonarius*. Thorax with two setigerous punctures on each side in middle beside dorsal rows; fifth abdominal segment with six, fourth with two setae. *P. succicola*, Th.

**B b.** Elytra greenish-bronze.

Black; head and thorax brassy-black; elytra brassy (a little greener than in *P. aeneus*). Joints of antennae from fifth to eleventh gradually shorter but scarcely broader; thorax with lateral impressions; elytra scarcely longer than thorax, thickly punctured and pubescent; abdomen diffusely punctured, rather more closely at base of each ventral segment. Male with apex of seventh ventral abdominal segment emarginate. L. 5—5½ l. Rare.

*P. addendus*, Sharp.

**b b.** Penultimate joint of antennae not broader than long; penultimate abdominal segment of male entire.

Black, shiny; elytra blackish-bronze; abdomen versicolorous, pubescence scanty, brown, anus, margins of ventral segments and legs pitch-brown. Head narrower than thorax; elytra closely punctured; thorax without lateral

impressions. Thoracic punctures as in *P. succicola*; fourth abdominal segment without setae toward lateral margin.

*P. carbonarius*, Gyll.

2. Head roundish or ovate.

**A A.** Of the seven penultimate joints of antennae the basal joints about double as long as, the apical ones a little longer than broad.

**a a.** Antennae entirely black.

**A a.** Head and thorax strongly shining; anterior tarsi slightly dilated in both sexes.

Black; thorax and elytra somewhat bronze, latter dullish, closely punctured. L. 5—6 l. Not common.

*P. scutatus*, Er.

**B b.** Head and thorax dullish; anterior tarsi simple in both sexes.

Slender. Black; thorax and elytra blackish-green, latter dull, moderately closely, very finely punctured. L. 5—6 l. Rather common.

*P. decorus*, Gr.

**b b.** Antennae black, with first joint entirely, or on under-side, yellow-brown.

Black; fore-parts blackish-green. Elytra and abdomen closely and rather finely punctured. Anterior tarsi moderately dilated in male, simple in female. L. 5 l. Common.

*P. politus*, Fab.

**B B.** Of the seven penultimate joints of antennae the basal joints rather longer than broad, and the apical ones slightly broader than long.

Black; fore-parts with greenish reflection. Thorax a little broader than long; elytra closely and rather strongly, abdomen less closely punctured. Anterior tarsi simple in both sexes. L.  $4\frac{1}{2}$  l. Scarce.

*P. lucens*, Mann.

**II.** Thorax shining black (with or without yellow sides); length  $2\frac{3}{4}$ —4 lines.

**I.** Anterior tarsi of male dilated.

**A A.** Head roundish, as broad as, or slightly narrower than thorax.

**a a.** Legs black.

Black; elytra black-green. Penultimate joints of antennae a little longer than broad; elytra rather diffusely



and strongly, abdomen somewhat more diffusely punctured. Anterior tarsi strongly dilated in both sexes. L. 3—4 l. Not common. *P. atratus*, Gr.

**b b.** Legs yellow-brown, femora darker.

Black; elytra somewhat bronze-black. Penultimate joints of antennae as long as broad; elytra and abdomen closely and rather finely punctured. Anterior tarsi of male strongly, of female scarcely dilated. Apical ventral segments of abdomen usually bordered with red-brown. L. 3 l. Not very common. *P. umbratilis*, Gr.

**B B.** Head ovate, much narrower than thorax.

**a a.** Sides of thorax yellow.

Black; elytra blackish-green; first joint of antennae on under-side and legs yellow, apex of ventral abdominal segments often red-brown. Penultimate joints of antennae rather longer than broad. Punctuation of elytra close and distinct, of abdomen rather close and fine. Anterior tarsi of male strongly, of female less dilated. L. 4 l. Common. *P. marginatus*, Fab.

**b b.** Thorax unicolorous.

**A a.** Antennae unicolorous black; legs black-brown or dirty yellowish-brown.

**A 1.** Elytra bronze-green (with or without red apex), covered (like abdomen) with blackish hairs; anterior tarsi of male strongly, of female more feebly dilated.

Head, thorax and abdomen black. Penultimate joints of antennae a little broader than long. Punctuation of elytra and abdomen only moderately close and fine. L. 3—3½ l. Common. *P. varius*, Gyll.

**B 1.** Elytra pitch-black, with greenish-gray reflection (very rarely dark reddish), covered (like abdomen) with rather rough and long gray hairs; anterior tarsi of male slightly dilated, of female simple.

Head, thorax and abdomen black, latter versicolorous, with apex of ventral and sometimes of last dorsal segments dirty yellow-brown. Antennae shorter than in *P. varius*, penultimate joints as broad as long. Punctuation of elytra

close and moderately fine, of abdomen less close. L.  $2\frac{3}{4}$  l. Not uncommon.

*P. albipes*, Gr.

**B b.** Antennae blackish-brown, with first and often second joint red ; legs red.

Head, thorax and abdomen black ; elytra red, distinctly shorter than thorax. Penultimate joints of antennae a little broader than long. Elytra and abdomen rather closely and finely punctured. Anterior tarsi of male strongly, of female more feebly dilated. L. 3 l. Not uncommon.

*P. lepidus*, Gr.

**2.** Anterior tarsi simple in both sexes.

**A A.** Elytra diffusely punctured.

**a a.** Forehead without central depression ; elytra strongly punctured ; legs pitch-brown.

Black, shiny ; elytra bronze ; apex of ventral abdominal segments usually red-brown. Penultimate joints of antennae scarcely broader than long ; head large, frontal impressions almost in a transverse line with ocular ones. L. 3 l. Common.

*P. sordidus*, Gr.

**b b.** Forehead with central depression ; elytra finely punctured ; legs reddish or yellowish-brown.

Elongate. Black, shiny ; elytra greenish-bronze ; apex of abdominal segments finely bordered with red-brown. Penultimate joints of antennae as long as broad ; head large, frontal impressions far apart, placed before ocular ones. L. 3— $3\frac{1}{2}$  l. Common.

*P. fimetarius*, Gr.

**B B.** Elytra closely punctured.

**a a.** Abdomen unicolorous black beneath.

Deep black ; elytra greenish-bronze ; antennae and legs brown-black. Head and thorax deeper black than in *P. cephalotes*, elytra more closely and deeply punctured. L. 3 l. Scarce.

*P. nigriventris*, Th.

**b b.** Abdomen black, with apex of ventral segments red-brown.

Elongate. Black, shiny ; elytra bronze, strongly punctured ; legs pitch-brown or red-brown. Penultimate joints of antennae rather broader than long ; head large ; forehead with a shallow central depression, frontal impressions nearly in a line, curved backward. L.  $3\frac{1}{4}$ —4 l. Common.

*P. cephalotes*, Gr.

**III.** Thorax red-brown, except a blackish spot before middle of disc.

Elongate. Head and abdomen black-brown; elytra, apex of abdominal segments, legs and antennae red-brown, latter darker in middle and rather short, with penultimate joints rather strongly transverse. Head large. Punctuation of elytra rather close and fine, of abdomen not so close. Anterior tarsi simple in both sexes. L.  $3\frac{1}{2}$ —4 l. Rare.

*P. fuscus*, Gr.

**b.** Elytra distinctly longer than thorax, dull; head square, broader than thorax; lateral seta of thorax placed apart from margin.

**I.** Abdomen black, with longitudinal lines of gray pubescence.

Black; head and thorax silky looking; elytra dull, brownish-black, with reflexed margin yellowish, almost half as long again as thorax; abdomen extremely closely and finely punctured, with faint lustre; legs red-brown. Head large; thorax narrowed behind. L.  $3\frac{1}{2}$ —4 l. Common.

*P. xantholoma*, Gr.

The variety *variolosus*, Sharp, has the head very large, with punctuation proportionately stronger, front of thorax wider, causing its base to appear more narrowed, and ventral abdominal segments diffusely and coarsely punctured.

**II.** Abdomen red-brown or rust-red, without longitudinal stripes.

**1.** Elytra finely punctured.

Black, shiny, slightly pilose; elytra obscure, dull bluish; abdomen red-brown; legs pale griseous; antennae dark, with base of first three joints and the apical joint dull red. Head large, especially in male, flat, irregularly punctured; thorax punctured at sides; elytra downy, finely punctured. L.  $4\frac{1}{2}$  l. Not common.

*P. fucicola*, Curt.

**2.** Elytra distinctly and coarsely punctured.

Differing from *P. fucicola* in having a much larger and flatter head, lighter and longer antennae, rust-red abdomen and distinctly punctured elytra. L.  $5\frac{1}{2}$ —6 l. Rare.

*P. cicatricosus*, Er.

**C.** Thorax with a row of five impressions on each side of disc.

*a.* Legs black, or dark brown, with anterior coxæ sometimes lighter.

Anterior tarsi of male strongly, of female slightly dilated.

*I.* Head tolerably large, roundish or rounded quadrangular.

*1.* Elytra unicolorous ; legs pitch-black or dark brown.

*A A.* Abdomen not very closely or finely punctured.

*a a.* Elytra bronze-green (rarely red).

Head, thorax, abdomen and antennæ black. Elytra moderately closely and finely punctured. Penultimate joints of antennæ as broad as, or slightly broader than long ; anterior tibiae with spines. Legs sometimes yellowish-brown, like those of *P. debilis*, which species however has finer punctuation and longer pubescence. Seventh abdominal segment of male broadly, triangularly excised. L.  $2\frac{1}{2}$ —4 l. Not uncommon. *P. ebeninus*, Er.

The variety *corruscus*, Gr., is large, with red elytra.

*b b.* Elytra black.

Black ; head rather more oblong than in *P. ebeninus*, with rather shallower punctuation ; thorax a little shorter, with dorsal punctures equally distant, elytra a little narrower ; abdomen more closely and finely punctured. Anterior tibiae with spines. L.  $3\frac{1}{2}$  l. Moderately common.

*P. corvinus*, Er.

*B B.* Abdomen closely, very finely punctured.

Black ; elytra bronze-black ; legs brownish, with pitch-black femora. Penultimate joints of antennæ rather broader than long ; elytra moderately closely and finely punctured ; anterior tibiae without spines. L.  $3\frac{1}{2}$  l. Moderately common.

*P. fumigatus*, Er.

*2.* Elytra black, with suture and a spot at shoulder dark red ; legs black-brown, with anterior coxæ red-yellow.

Head, thorax, abdomen and antennæ black, latter fine, with penultimate joints distinctly longer than broad ; elytra closely and finely punctured ; anterior tibiae without spines. L.  $3\frac{1}{2}$ — $2\frac{2}{3}$  l. Moderately common.

*P. sanguinolentus*, Gr.

**II.** Head small, ovate.**1.** Legs, including anterior coxae, black.

Deep black; elytra with a dark red spot near apex. Penultimate joints of antennae nearly as broad as long; punctuation of elytra close and rather deep, of abdomen less close; pubescence black. L.  $3\frac{1}{2}$  l. Moderately common. *P. bipustulatus*, Panz.

**2.** Legs black or pitch-brown, with anterior coxae wholly or partly brownish.**A A.** Antennae black, with first joint yellow-brown beneath.

Deep black; legs pitch-brown, with coxae and usually also femora of anterior pair dirty yellow-brown. Penultimate joints of antennae longer than broad. Punctuation of elytra stronger and less close than in *P. varians*, that of abdomen much finer, even, and very close. L.  $3\frac{1}{2}$  l. Common. *P. scybalarius*, Nord.

**B B.** Antennae unicolorous black.**a a.** Penultimate six joints of antennae distinctly longer than broad; elytra dull black, with a red patch (often indistinct or even absent) running obliquely from shoulder.

Deep black. Punctuation of elytra and abdomen close and moderately fine, that of latter more diffuse behind. Seventh abdominal segment of male acutely triangularly excised. L.  $2\frac{1}{2}$ —3 l. Common. *P. varians*, Payk.

**b b.** Penultimate six joints of antennae nearly broader than long; elytra rather shiny, blackish-brown, reddish at apex.

Head, thorax, abdomen, legs, and antennae black; punctuation of elytra only moderately close, that of abdomen finer. L. 2— $2\frac{1}{2}$  l. Not common. *P. agilis*, Gr.

**b.** Legs light-brown or yellowish.**I.** Thorax about as broad as long.**1.** Penultimate joints of antennae rather broader than long.**A A.** Anterior tarsi strongly dilated in male, slightly in female.

**a a.** Antennae pitch-brown; elytra blackish-brown.

Head, thorax and abdomen black; legs brownish. Elytra rather longer than thorax, not very closely and deeply punctured; abdomen rather closely, finely punctured. Distinguished from the form of *P. ebeninus* with light legs by its size, finer punctuation, longer pubescence, and stronger palpi. L. 2—2½ l. Not uncommon.

*P. debilis*, Gr.

**b b.** Antennae red-yellow; elytra pitch-black, with suture, apex, and sometimes side margin reddish-yellow.

Head, thorax and abdomen pitch-black; legs red-yellow. Elytra as long as thorax, not very closely, rather strongly punctured; abdomen not very closely, rather finely punctured. L. 2—2½ l. Common.

*P. discoideus*, Gr.

**B B.** Anterior tarsi scarcely or not at all dilated in either sex.

**a a.** Elytra rather longer than thorax.

Pitch-black; first joint of antennae, legs (including front pairs of coxae), margin of ventral segments of abdomen and its apex red-yellow. Punctuation of elytra moderately close, rather coarse, of abdomen moderately close and fine, more diffuse behind. L. 2⅓—2½ l. Moderately common.

*P. ventralis*, Gr.

**b b.** Elytra distinctly shorter than thorax.

Elongate. Black; elytra pitch-black; first joint of antennae and legs red-yellow. Punctuation moderately close and strong, of abdomen moderately close, fine. L. 2½—2⅔ l. Moderately common.

*P. vernalis*, Gr.

**2.** Penultimate joints of antennae distinctly longer than broad.

Elongate. Black; elytra blackish-green; legs red-brown, with coxae pitch-brown. Elytra longer than thorax, closely and rather strongly punctured; abdomen closely, moderately finely punctured. Anterior tarsi of male strongly dilated, of female simple. L. 3½ l. Common.

*P. quisquiliarius*, Gyll.

The variety *dimidiatus*, Er., has the elytra (except base), first joint of antennae, and front pairs of legs red.

**II.** Thorax half as long again as broad.

**1.** Elytra pitchy ; length  $2\frac{1}{2}$  lines.

Elongate. Pitch-black, elytra more or less pitch-brown toward apex, legs and antennae reddish-yellow, latter with penultimate joints distinctly broader than long. Punctuation of elytra rather diffuse and deep, of abdomen diffuse, fine. Anterior tarsi simple in both sexes. Scarce.

*P. splendidulus*, Gr.

**2.** Elytra yellow-brown ; length  $1\frac{1}{2}$ — $1\frac{3}{4}$  lines.

Elongate. Head and abdomen pitch-black, latter with margin of segments and its apex yellow-brown ; thorax pitch-brown ; antennae yellow-brown, their base and the legs yellow. Penultimate joints of antennae scarcely broader than long. Punctuation of elytra diffuse and deep, of abdomen not very close, very fine. Anterior tarsi scarcely dilated in male. Not uncommon.

*P. thermarum*, Aub.

**D.** Thorax with a row of six impressions on each side of disc.

**a.** Length  $3\frac{1}{3}$ — $3\frac{1}{2}$  lines.

**I.** Legs reddish-yellow, with coxae black.

Black ; head and thorax with a gray silky reflection ; elytra dark greenish. Penultimate joints of antennae longer than broad ; thorax rather narrower than elytra, latter closely and rather finely punctured. Anterior tarsi of male moderately strongly, of female slightly dilated. L.  $3\frac{1}{2}$  l. Not common.

*P. fumarius*, Gr.

**II.** Legs black, with tarsi brownish.

Deep black ; head and thorax with gray silky reflection. Penultimate joints of antennae distinctly longer than broad ; thorax not much narrower behind than elytra, latter closely, very finely punctured. Anterior tarsi of male rather strongly, of female slightly dilated. L.  $3\frac{1}{3}$  l. Rather common.

*P. nigrita*, Nord.

**b.** Length 2— $2\frac{1}{2}$  lines.

Penultimate joints of antennae about as long as broad.

**I.** Thorax distinctly narrowed in front.

**1.** Antennae unicolorous black-brown ; elytra dull gray-black.

Gray-black ; head and thorax silky looking ; legs, except

anterior coxae, reddish-yellow. Punctuation of elytra very close and fine, of abdomen extremely close and fine. Anterior tarsi of male strongly, of female slightly dilated. L.  $2\frac{1}{2}$  l. Common. *P. micans*, Gr.

2. Antennae black, with first three joints yellow-red; elytra rather shiny, yellow-red.

Head, thorax and abdomen black; head and thorax very shiny; legs, including anterior coxae, yellowish-red. Punctuation of elytra close and fine, of abdomen close and distinct. Anterior tarsi of male strongly, of female scarcely dilated. L.  $2\frac{1}{2}$  l. Common. *P. fulvipes*, Fab.

The variety *rubripennis*, Steph., has the entire antennae, femora, and tibiae pitch-black.

**II.** Thorax scarcely or not at all narrowed in front.

1. Thorax nearly half as long again as broad.

Punctuation of elytra rather diffuse and strong, of abdomen rather close and fine.

**A A.** Elytra shorter than thorax.

Very similar to *P. nigrifulus*, but with larger head, and the base of antennae and legs (especially the anterior pair) lighter, generally dirty yellow. L.  $2\frac{1}{3}$  l. Common.

*P. trossulus*, Nord.

**B B.** Elytra distinctly longer than thorax.

Pitch-black, shiny; elytra blackish-green; base of antennae and legs pitch-brown or yellow-brown. Anterior tarsi simple in both sexes. L. 2 l. Moderately common.

*P. nigrifulus*, Gr.

2. Thorax rather longer than broad.

Somewhat cylindrical. Deep black; elytra greenish-black. Punctuation of elytra close and fine, of abdomen moderately close and fine. Anterior tarsi of male strongly, of female slightly dilated. L.  $2\frac{1}{3}$  l. Very rare.

*P. pullus*, Nord.

**E.** Thorax with a row (usually irregular) of many impressions on each side of disc and scattered punctures at the sides.

**a.** Sides of thorax with numerous (30 or 40) punctures.

Black; elytra greenish-black. Penultimate joints of



antennae scarcely longer than broad. Punctuation of elytra close and rather fine, of abdomen stronger and less close. Anterior tarsi of male strongly, of female slightly dilated. L. 4 l. Scarce. *P. punctus*, Gr.

**b.** Sides of thorax with few (rarely more than twelve) punctures.

Black ; elytra greenish-bronze. Penultimate joints of antennae rather broader than long. Punctuation of elytra close and rather strong, of abdomen more diffuse. Anterior tarsi of male moderately strongly dilated, of female simple. L.  $3\frac{1}{2}$ —4 l. Not uncommon. *P. puella*, Nord.

**F.** Thorax punctured all over, except on a longitudinal central line.

**a.** First joint of posterior tarsi as long as fifth joint.

Dull black, with golden-yellow pubescence on elytra and abdomen ; mouth red ; antennae and legs pitchy-red or red. Head and thorax closely and rather deeply punctured, latter with a raised central line ; elytra and abdomen closely and finely punctured. Elytra half as long again as thorax. L.  $2\frac{1}{2}$  l. Rather common. *P. sericeus*, Holme.

**b.** First joint of posterior tarsi much shorter than fifth joint.

**I.** Second joint of antennae triangularly dilated.

Black ; head and thorax with silky appearance, elytra and abdomen with dull gray reflection ; base of antennae and legs (except femora) reddish-brown. Penultimate joints of antennae distinctly longer than broad. Punctuation of head very close, that of thorax rather diffuse, deep, that of elytra and abdomen extremely close and fine. Elytra longer than thorax. L. 2 l. Rather common.

*P. cinerascens*, Gr.

**II.** Second joint of antennae not triangularly dilated.

Elytra about as long as thorax.

**1.** Antennae lighter at base and apex than in middle.

Similar to *P. villosulus* but rather flatter ; antennae with third, fourth and fifth joints dark brown, first two joints and apex lighter, of the six penultimate joints the basal ones distinctly longer than and the apical ones almost as long as broad ; legs red-brown ; punctuation of sides of head, thorax

and elytra closer; that of abdomen much closer. L. 2 l.  
Rare. *P. signaticornis*, Muls.

**2.** Antennae unicolorous red-yellow.

Elongate. Black; elytra dark chestnut-brown, more or less yellow-brown toward apex; antennae and legs red-yellow. Six penultimate joints of antennae all broader than long. Punctuation of head diffuse and strong; that of thorax irregular, rather diffuse, strong; that of elytra not very close, fine; that of abdomen close and very fine. L. 2 l. Not common. *P. villosulus*, Steph.

**3.** Antennae pale at base, rest dark.

**A A.** Elytra blackish, apex only reddish.

Black; elytra as above; antennae dark brown, first three joints yellow-brown; legs brownish, tarsi paler. Of the six penultimate joints of antennae the basal ones distinctly longer than broad, the apical ones only slightly broader than long. Punctuation of head and thorax closer than in *P. villosulus*, that of elytra and abdomen rather stronger; margins of abdominal segments scarcely lighter coloured. L. 2 l. Not common. *P. procerulus*, Gr.

**B B.** Elytra reddish, with black base.

Black; elytra as above; antennae black-brown, first three joints reddish; legs reddish, anterior coxae black-brown, femora often dark. Of the six penultimate joints of antennae basal ones longer than, apical ones as long as broad. Punctuation of head moderately close, rather fine, central line smooth; that of thorax irregular, rather close, and deep; that of elytra not very close, distinct. Anterior tarsi of male only slightly dilated. L. 2 l. Not common.

*P. prolixus*, Er.

## XANTHOLINIDES.

**A.** Antennae considerably elbowed.

Head oblong, furrowed longitudinally; thorax oblong, somewhat narrowed behind; elytra with overlapping sutural margins; middle coxae placed far apart; anterior tarsi simple; first joint of hinder pairs of tarsi about as long as, or very little longer than second.

**a.** Tarsi rather long.

Labrum bilobed; ligula rounded, entire; maxillary palpi threadlike, last joint usually longer than third, gradually pointed; labial palpi threadlike, joints gradually increasing in length. *Xantholinus*, Dahl.

**b.** Tarsi rather short.

Labrum deeply emarginate; ligula rounded, slightly emarginate in middle; maxillary palpi with last joint pointed, scarcely shorter, but much narrower than third; last joint of labial palpi rather longer, and much narrower than second. Upper side marginal line of thorax continued under shoulder, without uniting with lower one.

*Leptacinus*, Er.

**B.** Antennae only slightly elbowed.

Head not furrowed; upper side marginal line of thorax running along whole of margin and not united with lower one; elytra with sutural margins not overlapping; middle coxae approximated; anterior tarsi strongly dilated; first joint of hinder pairs of tarsi elongate.

**a.** Elytra with a deeply impressed sutural stria.

Labrum emarginate in middle; ligula rounded, entire; last joint of maxillary palpi almost half as long again as third joint; gradually pointed from middle; last joint of labial palpi almost double as long as second (which is about equal in length to first), gradually pointed from middle. Head roundish quadrangular; thorax oblong, parallel-sided, with a pair of impressions in middle and another pair in the anterior angles, nearer the anterior than the side margin. *Baptolinus*, Kr.

**b.** Elytra without any distinct sutural stria.

Labrum with several slight emarginations and a deep excision in middle; ligula rounded, entire; last joint of maxillary palpi shorter and narrower than third, gradually pointed; last joint of labial palpi somewhat longer and narrower than second, bluntly pointed. Head long-ovate; thorax oblong, with a pair of impressions between middle and anterior margin, and another pair between middle and posterior margin, nearer former, besides some punctures near side margins. *Othius*, Leach.

### *Xantholinus.*

**A.** Upper side marginal line of thorax running under shoulder to anterior marginal line.

**a.** Thorax with a pair of straight rows of punctures on disc and a curved one on each side.

**I.** Head coarsely punctured.

**1.** Elytra bright red.

Head, thorax and abdomen black; antennae and legs pitch-brown, tarsi reddish. Head punctured all over diffusely, very finely, with scattered, coarse, deep punctures at sides; thorax diffusely and extremely finely punctured, each of the rows formed of about six or eight strong punctures; elytra irregularly, diffusely punctured. L. 5—6 l. Common. *X. glabratus*, Gr.

**2.** Elytra black or pitch-brown.

**A A.** Antennae and legs pitchy; elytra black, with a greenish reflection.

Deep black, strongly shining. Body distinctly broader than *X. ochraceus*; head a little shorter, the punctuation less close but rather strong at sides, the punctures oblong and often confluent; thorax with extremely fine, scattered punctuation, the dorsal rows formed generally of six and the side rows of a larger number of strong punctures; elytra diffusely, rather deeply punctured, usually with two regular rows of punctures on the outer part. L. 3½ l. Common. *X. punctulatus*, Payk.

**B B.** Antennae and legs red-brown; elytra pitchy or dark brown.

**a a.** Thorax with dorsal and side rows each containing from eight to ten or even twelve not very strong punctures.

Black, moderately shiny; sides of head moderately closely, strongly punctured, with also a finer scattered punctuation; thorax without scattered fine punctuation but shewing when strongly magnified, extremely fine, transverse striation; elytra not very closely, rather irregularly punctured, usually in rows toward outer margin. L. 3 l. Not uncommon. *X. ochraceus*, Gyll.

**b b.** Thorax with dorsal rows containing only five or six rather strong punctures; those of side rows somewhat more numerous.

Similar to *X. ochraceus*, but with thorax and elytra rather darker; antennae stronger; head smaller, more dif-

fusely punctured, shiny, with the engraved lines on the under-side running from the angles of the mouth continuing separate to the neck; thorax more shiny, with extremely fine, scattered punctuation; elytra also rather diffusely but more distinctly punctured. L. 3 l. Not uncommon.

*X. atratus*, Heer.

**II.** Head with scattered, fine punctuation.

- 1.** Antennae distinctly thickened toward apex, second joint somewhat longer than third.

Black, shiny; elytra and legs red-brown; antennae dark red-yellow. Head almost without furrows behind bases of antennae, somewhat dilated behind, with at most one lateral impression; thorax scarcely narrowed toward base, with dorsal rows composed of about eight punctures; elytra diffusely punctured, somewhat in rows at sides. L.  $3\frac{1}{2}$  l. Rare.

*X. glaber*, Nordm.

- 2.** Antennae threadlike, second joint equal to third.

**A A.** Thorax dark brown with bronze reflection, with the base lighter.

Head and upper-side of abdomen dark pitch-brown; elytra, antennae and legs red-brown; scutellum dark red-brown. Thorax with dorsal rows composed of about ten regularly placed, fine punctures; elytra almost shorter than thorax, diffusely, rather strongly and deeply punctured. L.  $3\frac{3}{4}$  l. Rare.

*X. distans*, Kr.

**B B.** Thorax red-brown, with base blackish-brown.

Red-brown; elytra yellow-brown; head and upper-side of abdomen black-brown. Thorax with dorsal rows rather irregular, composed of twelve or more fine punctures; elytra moderately diffusely, rather strongly punctured, slightly longer than in *X. distans*. L. 4 l. Not very common.

*X. tricolor*, Fab.

**C C.** Thorax bronze-black.

**a a.** Elytra shining bronze-black.

Head and abdomen bronze-black; antennae red-brown, with first joint pitch-black; legs pitch-brown. Head parallel-sided; thorax with dorsal rows composed of about ten, not very fine punctures; punctuation of elytra closer

and more feeble than in *X. linearis*. L.  $3\frac{1}{2}$ —4 l. Common.  
*X. longiventris*, Heer.

**b b.** Elytra pitch-brown or brown.

Head and abdomen bronze-black; antennae red-brown; legs pitch-brown. Head somewhat dilated at sides; thorax with dorsal rows composed of about twelve fine punctures; elytra shorter than in *X. longiventris*, punctuation rather numerous, partly in rows, and somewhat stronger than that of thorax. L.  $3\frac{1}{2}$  l. Common. *X. linearis*, Ol.

**b.** Each side of thorax with a deep, slightly curved, punctured furrow, disc smooth.

Deep black; elytra red; antennae and legs pitchy, tarsi reddish. Head with scattered, deep, oblong punctures; elytra with a more or less regular row of punctures on disc and near suture and scattered punctures in interval. L. 4 l. Not uncommon. *X. fulgidus*, Fab.

**B.** Upper side marginal line of thorax continued only to hinder margin of prosternum.

Flat. Black; elytra and legs red-yellow; antennae red-brown. Head diffusely and finely punctured, more strongly at sides, posterior angles not rounded off; thorax diffusely and finely punctured, with two rows of about seven or eight rather fine punctures on each side. L.  $3\frac{1}{2}$  l. Very rare. *X. lentus*, Gr.

### *Leptacinus.*

**A.** Scutellum with two or three impressions; length  $2\frac{2}{3}$  lines; body broad.

Pitch-black, shiny; elytra brownish, lighter behind, with outer apical angle pale yellowish; antennae and legs red-brown, third joint of former almost shorter than second. Head diffusely and strongly punctured behind eyes; thorax with dorsal rows composed of five or six punctures, and the slightly curved lateral rows of five punctures; elytra with several rather irregular rows of fine punctures. Moderately common. *L. parumpunctatus*, Gyll.

**B.** Scutellum smooth; length not exceeding  $2\frac{1}{2}$  lines; body narrower.

**a.** Thorax with dorsal rows composed of from twelve to sixteen punctures.

Pitch-black, shiny; elytra brownish, lighter behind, with outer apical angle pale yellowish; antennae and legs red-brown, second and third joints of former about equal in length. Head closely and rather strongly punctured; thorax with lateral rows composed of numerous punctures; elytra punctured in tolerably regular rows, especially outward. L.  $2\frac{1}{3}$ — $2\frac{1}{2}$  l. Moderately common.

*L. batychrus*, Gyll.

**b.** Thorax with dorsal rows composed of eight or ten punctures.

**I.** Elytra entirely dark brown; length  $1\frac{2}{3}$ —2 lines.

Head, thorax and abdomen pitch-black; antennae and legs red-brown. More elongate than *L. batychrus*, with sides of head less closely and more finely punctured, and lateral rows of punctures on thorax more regular. Common.

*L. linearis*, Gr.

**II.** Elytra brown, with apical half brown-yellow; length  $1\frac{1}{2}$  lines.

Head, thorax and abdomen pitch-black; antennae and legs red-brown. Narrower than *L. linearis*, head more diffusely punctured at sides. Elytra in proportion strongly punctured; apex of abdomen often red-brown. Common.

*L. formicetorum*, Märk.

### ***Baptolinus.***

Reddish; head, elytra, and fifth and sixth abdominal segments pitch-black. L. 3 l. Rather common.

*B. alternans*, Payk.

### ***Othius.***

**A.** Length  $4\frac{1}{2}$ — $5\frac{1}{2}$  lines.

Pitch-black; elytra, apex of abdomen, antennae, and legs red-brown. Common.

*O. fulvipennis*, Fab.

**B.** Length  $2\frac{1}{3}$ — $2\frac{1}{2}$  lines.

**a.** Elytra distinctly longer than thorax.

Pitch-black; a very narrow border at apex of elytra (and sometimes their suture), legs, and antennae yellow-brown, first three joints of latter pitch-brown. Middle pair of

impressions on thorax placed nearer to the anterior margin than to the hinder pair. Rather common.

*O. punctipennis*, Lac.

**b.** Elytra distinctly shorter than thorax.

**I.** Thorax reddish-yellow; elytra yellow-brown.

Head black; abdomen pitch-black; antennae and legs reddish-yellow. Middle pair of impressions on thorax placed nearer to the anterior margin than to the hinder pair. Common.

*O. melanocephalus*, Gr.

**II.** Thorax pitch-black; elytra dirty brown.

Head and abdomen pitch-black, apex of latter dirty brown; antennae and legs yellow-brown. Middle pair of impressions on thorax placed about as far from anterior margin as from hinder pair. Common.

*O. myrmecophilus*, Kies.

### **PAEDERIDAE.**

**A.** Fourth joint of hinder tarsi simple.

**a.** Second joint of hinder tarsi longer than first.

**I.** Fifth joint of hinder tarsi not so long as the first four together.

Labrum short, bilobed; maxillary palpi with third joint rather longer than second, fourth small and narrow, gradually pointed; ligula bilobed, paraglossae not much longer than ligula; first joint of labial palpi reaching to about base of ligula, second longer, cylindrical, third about as long as first, much narrower than second. Legs short and powerful; anterior tarsi with first four joints forming an almost roundish plate.

*Lathrobium*, Gr.

**II.** Fifth joint of hinder tarsi as long as the first four together.

Labrum rather narrow, bilobed; maxillary palpi with third joint rather longer than second, fourth not much narrower at base than third, narrowed toward front, truncate at apex; ligula bilobed, paraglossae longer than ligula; labial palpi as in *Lathrobium*.

*Achenium*, Leach.

**b.** First joint of hinder tarsi longer than second.

**I.** Antennae elbowed.



Labrum two-toothed ; maxillary palpi with third joint not much longer than second, gradually thickened toward apex, fourth thin, small, and pointed ; ligula bilobed, paraglossae not longer than ligula ; labial palpi with first joint reaching to apex of ligula, second longer, slightly curved, third only about half as long as second and much narrower.

*Cryptobium*, Mann.

**II.** Antennae not elbowed.

**1.** Anterior tarsi simple ; thorax much narrowed in front.

**A A.** Labrum large, with two strong teeth at apex ; legs long.

Maxillary palpi with third joint rather longer than second, fourth very small ; ligula bilobed, the lobes separated by a horny plate, paraglossae scarcely longer than ligula ; labial palpi with second joint about one-third longer than first, slightly dilated outward before middle, third much narrower and scarcely half as long. *Stilicus*, Latr.

**B B.** Labrum ending in four teeth at apex ; legs rather short.

Maxillary palpi with third joint not much longer than second, rather strongly thickened, fourth small and fine ; ligula with its middle portion horny, ending in three strong teeth in front ; paraglossae strong and distinctly longer than ligula ; labial palpi with second joint almost double as long as first, scarcely thickened ; third small and fine.

*Scopaeus*, Er.

**2.** Anterior tarsi slightly dilated ; thorax more or less quadrangular.

Labrum two-toothed at apex ; palpi and ligula as in *Stilicus*.

*Lithocharis*, Dej.

**B.** Fourth joint of hinder tarsi bilobed.

**a.** Fourth joint of maxillary palpi scarcely perceptible.

Labrum two-toothed in middle ; ligula bilobed, the lobes separated by a wide excision, paraglossae slightly longer than ligula ; labial palpi with second joint distinctly longer than first, third much shorter and narrower.

*Sunius*, Leach.

**b.** Fourth joint of maxillary palpi stout, obtuse.

Labrum with a semicircular emargination in middle; maxillary palpi with third joint not much longer than second, gradually and rather strongly thickened toward apex, fourth about half as broad again as third, roundish in front; ligula bilobed, paraglossae scarcely longer than ligula; second joint of labial palpi rather longer and narrower than first, third much shorter and narrower than second.

*Paederus*, Gr.

### *Lathrobium*.

**A.** Head narrower or not much broader than thorax.

**a.** Thorax black or pitch-brown.

**I.** Length 4 lines.

**1.** Elytra unicolorous black.

Black; apex of abdomen, especially beneath, antennae and legs reddish. Elytra rather diffusely and finely punctured, rather broader and longer than thorax. Common.

*L. brunnipes*, Fab.

**2.** Elytra with anterior half black and apical half dusky-red, limits of colour not very sharply defined.

Head, thorax and abdomen black; antennae red-brown; legs yellow-red. Punctuation rather more diffuse and finer than in *L. elongatum*; that of under-side of head rather diffuse and fine. Elytra only a little broader and scarcely longer than thorax. Common.

*L. boreale*, Hoch.

**3.** Elytra bright red, with a rather sharply defined black base.

Head, thorax and abdomen black; antennae red-brown; legs yellow-red. Thorax and elytra closely punctured, latter distinctly broader and longer than former; under-side of head rather closely and distinctly punctured. Common.

*L. elongatum*, Lin.

**4.** Elytra dirty brown, with black base.

Head, thorax and abdomen black, antennae brownish-red; legs red-yellow, with coxae pitch-brown. Thorax and elytra rather closely and distinctly punctured, latter not much broader and only as long as former. Common.

*L. fulvipenne*, Gr.

**II.** Length  $2\frac{2}{3}$ — $3\frac{1}{2}$  lines.

1. Elytra red or reddish, with black base.

**A A.** Head as broad as thorax; length  $3\frac{1}{4}$ — $3\frac{1}{2}$  lines.

**a a.** Head evenly, strongly, and closely punctured; elytra rather diffusely and finely punctured, in middle in irregular oblique rows.

Head, thorax and abdomen black; basal third-part of elytra black; antennae and legs red-brown. Thorax closely and strongly punctured; elytra slightly broader and rather longer than thorax. L.  $3\frac{1}{4}$  l. Rare. *L. rufipenne*, Gyll.

**b b.** Head deeply punctured, closely at sides, more diffusely in middle; elytra strongly punctured in rows.

Head and thorax pitch-brown or brown; abdomen brownish, usually with reddish-brown apex; base of elytra brownish; antennae reddish; legs red-yellow. Thorax rather closely and strongly punctured, distinctly half as long again as broad; elytra slightly broader and almost shorter than thorax. L.  $3\frac{1}{2}$  l. Rather common.

*L. multipunctum*, Gr.

**B B.** Head distinctly narrower than thorax; length  $2\frac{2}{3}$  lines.

Head, thorax and abdomen black; antennae dark brown; legs red-yellow, with anterior coxae brownish and hinder coxae pitch-black. Punctuation of head very close and interrupted only by a narrow smooth space on middle of forehead, of thorax close and strong, and of elytra moderately close and strong. Thorax rather longer than broad, elytra slightly broader and a little longer than thorax. Scarce.

*L. angustatum*, Lac.

2. Elytra black, at most with a reddish-yellow spot in outer apical angle.

**A A.** Elytra almost one-third longer than thorax.

**a a.** Antennae and legs unicolorous pitch-brown.

Black, fore parts moderately shiny, abdomen dull. Head considerably narrower than thorax, latter scarcely longer than broad, closely and finely punctured; elytra almost

one-third broader than thorax, closely and rather finely punctured. L.  $3\frac{1}{2}$  l. Moderately common.

*L. quadratum*, Payk.

**b b.** Antennae pitch-brown, their first joint, and the legs red-yellow.

Similar to *L. quadratum*, but slightly more elongate and usually with outer apical angle of elytra red-yellow. L. 3 l. Common.

*L. terminatum*, Gr.

**B B.** Elytra scarcely as long as or shorter than thorax.

**a a.** Apical joint of palpi black.

Similar to *L. punctatum* but somewhat narrower and more cylindrical, with a smaller head and a shorter, proportionately broader and rather more closely and finely punctured thorax; antennae and legs somewhat darker; seventh abdominal segment of male not thickened in middle beneath, but more deeply emarginate than in *L. punctatum*. Edinburgh.

*L. atripalpe*, Scrib.

**b b.** Palpi entirely rust-red.

**A a.** Thorax rather longer than broad; elytra rather diffusely and strongly punctured.

Linear. Black; antennae rust-red; legs red-brown. Head distinctly narrower than thorax, diffusely and strongly punctured. L. 3 l. Not common. *L. punctatum*, Zett.

**B b.** Thorax distinctly half as long again as broad; elytra moderately closely punctured, in irregular rows.

Linear. Black; antennae red-brown, legs pitch-brown, with rust-red tarsi. Head as broad as thorax, closely punctured, more diffusely so in middle. L.  $2\frac{3}{4}$  l. Rather common.

*L. filiforme*, Gr.

**III.** Length  $1\frac{3}{4}$ —2 lines.

Linear. Black or pitchy; antennae and legs red. Head broader than thorax, diffusely, rather strongly punctured; thorax more than half as long again as broad, rather closely and deeply punctured; elytra distinctly shorter than thorax, rather diffusely and indistinctly punctured. Rather common.

*L. longulum*, Gr.

**b.** Thorax brownish-yellow.

Linear. Brownish-yellow ; fore parts shiny, abdomen dull ; latter darker brown above, except at apex, extremely closely and finely punctured ; elytra distinctly shorter than thorax. L.  $2\frac{1}{2}$  l. Very rare. *L. pallidum*, Nord.

The variety *Jansoni*, Crotch, is darker in colour, with stronger punctuation and its elytra scarcely shorter than thorax.

**B.** Head considerably broader than thorax.

Flat, elongate. Black ; elytra bright red, with basal third part black ; antennae dark red-brown ; legs black, with tarsi pitch-brown. Thorax half as long again as broad ; elytra half as broad again as, and about one-third longer than thorax, punctured closely and deeply in tolerably regular rows, especially at base ; abdomen extremely closely and finely punctured. L.  $3\frac{1}{2}$  l. Scarce.

*L. angusticolle*, Lac.

**Achenium.****A.** Head and thorax shiny black.

Elytra red-yellow, with black base ; abdomen black, with red-yellow apex ; legs red-yellow. Punctuation of head and thorax rather closer than in *A. humile*, that of elytra, especially at base, more regularly arranged in rows ; latter distinctly longer than thorax. L.  $3\frac{1}{2}$ —4 l. Common.

*A. depressum*, Gr.

**B.** Head and thorax red-brown.

Elytra brown-yellow ; abdomen pitch-black, with yellowish-red apex ; legs red-yellow. Thorax rather diffusely and finely punctured ; elytra diffusely punctured in indistinct rows, not much longer than thorax. L. 3— $3\frac{1}{2}$  l. Not common.

*A. humile*, Nic.

**Cryptobium.**

Narrow. Black, shiny ; antennae brownish, first joint very long ; legs, including anterior coxae, reddish-yellow. Thorax half as long again as broad, with two longitudinal rows of numerous punctures on disc, space between them smooth, sides irregularly, rather diffusely punctured. L.  $2\frac{1}{2}$  l. Common.

*C. fracticorne*, Payk.

*Stilicus.*

**A.** Punctuation of thorax close and deep, not wrinkled; body very slender; length 3 lines.

Black; thorax, scutellum, mesosternum, anterior legs and base of intermediate legs red; the rest of intermediate legs and the posterior legs pitch-black, tarsi yellow-brown; antennae red-brown; elytra pitch-black, apical angles or extreme apex yellow. Not uncommon. *S. fragilis*, Gr.

**B.** Punctuation of thorax more or less wrinkled; body less slender; length 2—2 $\frac{2}{3}$  lines.

**a.** Smooth middle line of thorax effaced in front.

Black, head and thorax dull; antennae and legs brown-red, coxae dark brown; elytra dark pitch-brown, gradually lighter at apex, rather diffusely and (especially behind) finely punctured, somewhat shiny. L. 2 $\frac{2}{3}$  l. Common.

*S. rufipes*, Germ.

**b.** Smooth middle line of thorax more or less distinct throughout.

**I.** Elytra not lighter at apex.

Black; antennae brown-red; legs red-yellow, hinder coxae blackish, apex of femora (especially hinder ones) blackish-brown. Punctuation closer than in *S. rufipes*, the difference between that of basal and apical parts of elytra less perceptible. L. 2 $\frac{2}{3}$  l. Rather common. *S. subtilis*, Er.

**II.** Elytra pitchy, lighter at apex.

**1.** Elytra rather closely and strongly punctured.

**A A.** Legs red-yellow, with all coxae pitch-brown.

Black; antennae yellow-brown. Smooth middle line of thorax distinctly raised. L. 2 $\frac{1}{2}$  l. Scarce. *S. similis*, Er.

**B B.** Legs clear yellow, apex of hinder femora blackish.

Black; antennae yellow-brown. L. 2 $\frac{1}{3}$  l. Not common.

*S. geniculatus*, Er.

**2.** Elytra rather diffusely and finely punctured.

**A A.** Legs yellowish, with apex of femora and the tibiae brownish.

Black; antennae yellow-brown. L.  $2\frac{1}{4}$  l. Common.

*S. affinis*, Er.

**B B.** Legs (including anterior coxae) yellowish-red.

Black; antennae yellowish-red. L. 2 l. Rather common.

*S. orbiculatus*, Payk.

### *Scopaeus.*

**A.** Penultimate joints of antennae distinctly longer than broad; elytra not quite one-third longer than thorax.

Rather flat and slender. Pitch-brown, apex of elytra and of abdomen yellowish; antennae and legs reddish-yellow. Punctuation very fine and especially close on abdomen, pubescence very thick. Base of thorax with two rather distinct depressions and a ridge between them; elytra distinctly one-third broader than thorax; abdomen slightly dilated behind middle and then rather strongly narrowed. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Scarce. *S. Erichsoni*, Kol.

**B.** Penultimate joints of antennae scarcely broader than long; elytra only slightly longer than thorax.

**a.** Body pitch-black.

Elongate. Pitch-black; apex of elytra and of abdomen generally brownish; antennae and legs reddish-yellow. Punctuation very close and fine; pubescence fine. Base of thorax with two small depressions and a little ridge, often interrupted, between them; elytra rather broader than thorax; abdomen scarcely dilated behind middle. L.  $1\frac{1}{4}$ — $1\frac{1}{3}$  l. Rather common. *S. minutus*, Er.

**b.** Body red-brown.

Narrower than *S. minutus*, less shiny, punctuation closer and finer, pubescence closer, gray, delicate, abdominal segments less divided, legs thinner, tarsi shorter. L. scarcely  $1\frac{1}{4}$  l. Rare; Slapton Ley. *S. Ryei*, Woll.

### *Lithocharis.*

**A.** Head brown or red-brown.

**a.** Second joint of antennae shorter than third.

**I.** Length  $3\frac{1}{4}$  lines.

Pitch-brown, elytra brown-red; abdomen blackish; an-

tennae and legs red-brown. Third joint of antennae half as long again as second; head and thorax very closely punctured; elytra almost half as long again as thorax, very closely, finely punctured. Rare. *L. castanea*, Gr.

**II.** Length 2—2½ lines.

**1.** Thorax with a narrow but distinct impunctate central line.

Pitch-black, rather shiny; elytra, antennae, legs and anus rust-red. Head orbiculate, closely punctured, thorax less closely punctured, elytra half as long again as thorax, slightly brownish at scutellum. L. 2½ l. Scarce.

*L. maritima*, Aub

**2.** Thorax evenly punctured throughout.

Broader and flatter than *L. fuscula*. Reddish-brown, rather shiny; apex of abdomen reddish-yellow; fore parts very closely and finely punctured, elytra somewhat in wrinkles. L. 2¼ l. A specimen taken near Dumfries.

*L. diluta*, Er.

**b.** Second joint of antennae about equal to third.

**I.** Elytra half as long again as thorax.

Rust-red, slightly shiny; head brown. Head and thorax very closely, elytra not very closely and finely punctured, thorax with an impunctate central line. L. 2 l. Not uncommon.

*L. fuscula*, Mann.

**II.** Elytra not much longer than thorax.

Red-brown; head and thorax rather darker. More cylindrical than *L. fuscula*, rather more shiny, with punctuation of head and thorax coarser and a little more diffuse, less in wrinkles, central line on latter impunctate; elytra rather less closely punctured. L. 2 l. Moderately common.

*L. brunnea*, Er.

**B.** Head black or blackish.

**a.** Thorax red-brown or pitchy.

Elytra much longer than thorax.

**I.** Thorax with an impunctate central line.

**1.** Thorax pitch-black.

Dark pitchy; elytra rather lighter; antennae and legs rust-red, former with six basal joints slightly brown. L. 2 l. Rare.

*L. picca*, Kr.



2. Thorax red-brown or brown.

**A A.** Eyes small, shorter than temples.

**a a.** Abdomen red-brown.

Red-brown, dull; head blackish; thorax reddish; antennae and legs red-yellow. Head and thorax very closely and finely punctured, smooth central line on latter indistinct; elytra half as long again as thorax, very closely and finely punctured. L. 2 l. Rare. *L. ripicola*, Kr.

**b b.** Abdomen dark brown.

Dull; very closely and finely punctured throughout. Similar to *L. ochracea*, but antennae red-brown, penultimate joints not longer than broad; head black; thorax dark red-brown, a little shorter; elytra red-brown, with posterior angles dark brown, more strongly punctured; abdomen dark brown, lighter at apex, especially beneath; legs red-brown. L. 1½ l. Rare. *L. apicalis*, Kr.

**B B.** Eyes tolerably large, not shorter than temples.

Dull. Head black; thorax red-brown; elytra dirty yellow-brown; abdomen brown, apex and margin of segments yellow-brown; antennae and legs yellow. Punctuation very close and fine; thorax with slightly raised central line; penultimate joints of antennae almost longer than broad. L. 1½ l. Common. *L. ochracea*, Gr.

**II.** Thorax evenly punctured throughout.

Pitch-black, dull; antennae brown, second to sixth joints blackish; legs pitch-brown, tarsi yellow-brown. Punctuation very close and fine; thorax without trace of raised central line, as long as broad; elytra half as long again as thorax. L. 1½ l. Rather common. *L. obsoleta*, Nord.

**b.** Thorax blood-red.

**I.** Elytra not much longer than thorax.

Pitch-black, shiny; thorax red; elytra brownish-red, nearly blackish in middle; apex of abdomen red-brown; antennae and legs reddish-yellow. Punctuation not very close, distinct; head oval; thorax with rather broad, impunctate central line. L. 1½ l. Common.

*L. melanocephala*, Fab.

**II.** Elytra one-third longer than thorax.

Pitch-black, shiny; head black, thorax blood-red; elytra pitchy, with sides reddish; antennae yellowish-red, darker in middle. Head closely punctured toward eyes and almost impunctate on hinder part of disc; thorax closely punctured. Broader than *L. melanocephala*, thorax more square, punctuation closer. L.  $1\frac{1}{2}$  l. Rather common.

*L. propinqua*, Bris.

### *Sunius.*

**A.** Elytra slightly longer than thorax.

**a.** Elytra black, with apical third part yellowish.

Head, thorax and abdomen black, posterior margin of ventral segments of latter pitch-brown; antennae and legs yellowish. L.  $2\frac{1}{4}$  l. Not common. *S. filiformis*, Latr.

**b.** Elytra black, with a narrow yellow apical margin.

Head, thorax and abdomen black, segments of latter with extremely fine yellow border; antennae and legs yellowish. L. 2 l. Not uncommon. *S. intermedius*, Er.

**B.** Elytra about half as long again as thorax.

**a.** Elytra brownish, with a large black spot in middle, often reaching base.

Head, thorax and abdomen black; antennae and legs yellowish. Thorax more narrowed at base than in *S. angustatus*. L. 2 l. Common. *S. diversus*, Aub.

**b.** Elytra black, with apical half (less toward sides) yellowish-brown.

Head, thorax and abdomen black, basal segments of latter finely bordered with yellow. Thorax rather strongly narrowed behind. L.  $1\frac{2}{3}$  l. Common.

*S. angustatus*, Payk.

### *Paederus.*

**A.** Tibiae red-yellow; scutellum red.

**a.** Antennae brownish, first four joints and last two yellow; thorax only slightly narrowed behind, as broad as elytra.

Head black; thorax red, nearly globular; elytra blue, not much longer than thorax; abdomen with first five segments red and apex black; legs red-yellow, apex of

femora blackish, of tarsi brownish. L.  $3\frac{1}{2}$  l. Common.

*P. littoralis*, Gr.

**b.** Antennae blackish, with yellow base; thorax distinctly narrowed behind, a little narrower than elytra.

Head black; thorax and mesosternum red; elytra blue, not much longer than thorax; abdomen with first five segments red and apex black; legs red-yellow, apex of femora blackish, that of tarsal joints and the last joint usually brownish. L.  $3\frac{2}{3}$  l. Common.

*P. riparius*, Lin.

**B.** Tibiae and scutellum dark brown or blackish.

**a.** Elytra about half as broad again and half as long again as thorax.

Coloured like *P. riparius*, but with mesosternum, scutellum, tibiae, and apex of tarsi blackish. Thorax not much narrowed behind. L.  $3\frac{1}{2}$  l. Not common.

*P. fuscipes*, Curt.

**b.** Elytra not much broader and longer than thorax.

Elongate. Coloured (except scutellum and legs) like *P. riparius*. Punctuation diffuse and strong. Thorax slightly narrowed behind. L. 3 l. Moderately common.

*P. caligatus*, Er.

### **STENIDAE.**

**A.** Tarsi with four joints.

Labrum very broad, with more or less closely placed sharp teeth in front; maxillary palpi with first joint elongate, not much shorter than second, third almost as long as first and second together, fourth very small and inconspicuous; ligula broad, entire, paraglossae soldered to ligula; labial palpi, with first joint small and narrow, second rather longer, strongly dilated, third not much shorter, very fine. Antennae inserted at some distance from eyes, which are small.

*Evaesthetus*, Gr.

**B.** Tarsi with five joints.

**a.** Paraglossae soldered to ligula throughout.

Labrum four times as broad as long, margin entire; maxillary palpi more elongate than in *Stenus*, with third joint less thickened toward apex; ligula bilobed, the parts further separated than in *Stenus*; labial palpi rather shorter

than in *Stenus*, with last joint double as long. Antennae inserted at inner margin of eyes, which are larger.

*Dianous*, Leach.

**b.** Paraglossae free.

Labrum three times as broad as long, margin entire; maxillary palpi slender, second joint half as long again as first, third joint about one-third longer than second, gradually thickened toward apex; fourth joint extremely small; ligula bilobed, small; labial palpi with first joint long and narrow, second shorter and thicker, third very small; mentum with middle of anterior margin produced. Antennae inserted at inner margin of eyes, which are large.

*Stenus*, Latr.

***Evaesthetus.***

**A.** Thorax with two fine, straight, longitudinal furrows behind middle of disc.

**a.** Punctuation extremely close.

Pitchy, rather dull; head, antennae, and legs red. L.  $\frac{4}{5}$ —1 l. Common. *E. scaber*, Gr.

**b.** Punctuation close.

Reddish-pitchy, slightly shiny; head, antennae and legs red. L.  $\frac{3}{4}$  l. Rather common. *E. laeviusculus*, Mann

**B.** Thorax with two deep, slightly curved, longitudinal furrows behind middle of disc.

Pitch-brown, slightly shiny; head, antennae, and legs red; apical margin of abdominal segments reddish. Punctuation extremely close, fine. L.  $\frac{1}{2}$  l. Rather common.

*E. ruficapillus*, Lac.

***Dianous.***

Blackish-blue, moderately shiny, with fine whitish pubescence; elytra with a round, red spot behind middle, half as long again as thorax. L.  $2\frac{1}{2}$  l. Rather common.

*E. coeruleascens*, Gyll.

***Stenus.***

**A.** Fourth tarsal joint simple or bifid, not broader than third joint.

**a.** Abdomen bordered.**I.** Elytra with a reddish-yellow spot on each.**1.** Legs black.

**A A.** Maxillary palpi black, with first joint and base of second joint yellow.

Black, slightly metallic, with short whitish pubescence; the red spot on elytra placed nearer to suture than to side margin. L.  $2\frac{1}{3}$  l. Rather common. *S. biguttatus*, L.

**B B.** Maxillary palpi black, with only first joint yellow.

Very similar to *S. biguttatus*, but rather stouter built, with the frontal furrows shallower and the red spot on elytra placed equally distant from suture and side margin. L.  $2\frac{1}{2}$  l. Common. *S. bipunctatus*, Er.

**2.** Legs chiefly yellow.

**A A.** Length 2 lines.

Black, with short, whitish pubescence; antennae brown; apical half of femora blackish. Common.

*S. guttula*, Müll.

**B B.** Length  $2\frac{2}{3}$  lines.

Black, dull, with very fine, whitish pubescence; antennae brown; femora blackish at apex. Common.

*S. bimaculatus*, Gyll.

**II.** Elytra unicolorous.**1.** Legs entirely black.

**A A.** Thorax with central furrow either absent or abbreviated before and behind, and without distinct oblique depressions on disc.

**a a.** Maxillary palpi with whole of first joint and at least half of second joint yellow.

**A a.** Abdomen moderately closely and strongly punctured, gradually more finely behind, with a small ridge in middle of each segment.

Deep black, not very shiny, scantily pubescent. Thorax with shallow furrow in middle; fore parts closely and strongly punctured. L.  $2\frac{1}{2}$  l. Common. *S. Juno*, Fab.

**B b.** Abdomen diffusely and rather strongly punctured, segments not ridged.

More slender than *S. Juno*. Black, somewhat shiny. Thorax with a rather shallow furrow in middle; fore parts moderately closely and very strongly punctured. L.  $2\frac{1}{3}$  l. Not common.

*S. asphaltinus*, Fab.

**b b.** Maxillary palpi with first joint and at most base of second joint yellow or brownish.

**A a.** Length  $1\frac{2}{3}$ — $2\frac{1}{2}$  lines.

**A 1.** Tarsi long.

**a 1.** Base of abdomen closely and distinctly punctured.

More slender than *S. Juno*. Black, shiny; maxillary palpi with base of second joint yellow. Forehead somewhat hollowed; thorax one-third longer than broad, with a distinct central furrow, abbreviated behind and before; fore parts closely and strongly punctured; punctuation of abdomen not much feebler behind, segments with a longitudinal ridge in front. L.  $2\frac{1}{3}$ — $2\frac{1}{2}$  l. Not uncommon.

*S. ater*, Mann.

**b 1.** Base of abdomen diffusely and strongly punctured.

Black; pubescence scanty, whitish. Forehead hollowed; thorax oblong, with abbreviated central furrow; punctuation of fore parts close, that of abdomen diffuse and strong at base, closer and finer at apex. L.  $1\frac{2}{3}$  l. Scarce.

*S. longitarsis*, Th.

**B 1.** Tarsi short.

**a 1.** Head only a little broader than thorax.

Broad. Black, rather shiny, pubescence scanty. Fore parts rather closely, abdomen somewhat diffusely punctured; thorax not much longer than broad; elytra rather longer than thorax. L.  $1\frac{2}{3}$  l. Moderately common.

*S. incrassatus*, Er.

**b 1.** Head considerably broader than thorax.

**A 2.** Abdomen closely punctured.

**a 2.** Third joint of antennae one-third longer than fourth; second joint of maxillary palpi entirely black.

Black; pubescence very scanty; fore parts dull, closely punctured; abdomen rather shiny, moderately closely punctured. Thorax oblong, not much longer than broad, with an indistinct central furrow and indistinctly impressed at sides; elytra scarcely longer than thorax. L.  $1\frac{2}{3}$ —2 l. Common. *S. foveiventris*, Fairm.

**b 2.** Third joint of antennae scarcely longer than fourth; second joint of maxillary palpi yellow at base.

Rather flat. Black; legs more or less pitchy; pubescence extremely short and fine. Fore parts dull, abdomen somewhat shiny; punctuation close. Head nearly as broad as elytra taken together, forehead scarcely hollowed; thorax as long as broad, strongly rounded at sides, with a feeble impression on each side; elytra not much longer than thorax. L.  $2\frac{1}{2}$  l. Not common. *S. opacus*, Er.

**B 2.** Abdomen diffusely punctured.

Black, with scanty gray pubescence; antennae, legs and palpi black, first joint of latter yellow. Head narrower than elytra, vertex even, eyes not very prominent; thorax elongate, closely punctured, somewhat in wrinkles; elytra scarcely longer than thorax, not very closely punctured; abdomen diffusely punctured, middle ridges strongly raised. Allied to *S. cinerascens*, but larger and more shiny. L. 2 l. Rare. *S. Shepherdi*, Crotch.

**B b.** Length  $1\frac{1}{4}$ — $1\frac{1}{2}$  lines.

**A 1.** Frontal furrows shallow.

Elytra rather strongly and deeply punctured.

**a 1.** Forehead not very convex.

**A 2.** Second joint of hinder tarsi scarcely longer than third.

Lead-black, rather shiny, pubescence tolerably close. Forehead not depressed, with furrows broad and shallow, interstice broad, slightly arched; elytra only slightly longer than thorax; abdomen diffusely and finely punctured. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Not common. *S. cinerascens*, Er.

**B 2.** Second joint of hinder tarsi sensibly longer than third.

Lead-black, rather shiny, pubescence close. Forehead

evenly slightly depressed, furrows almost effaced, interstice nearly flat; thorax evenly arched; elytra distinctly longer than thorax; abdomen moderately closely and finely punctured. L.  $1\frac{1}{2}$  l. Rare. *S. morio*, Gr.

**b 1.** Forehead very convex.

Lead-en-black, rather shiny. Frontal furrows rather shallow, interstice much arched; thorax flattened on hinder half, often with traces of a central furrow; elytra rather longer than thorax. Punctuation of fore parts strong and moderately close, that of abdomen diffuse, rather strong toward base and rather fine toward apex. Second joint of hinder tarsi much shorter than first and not much longer than third. L.  $1\frac{1}{4}$  l. Not uncommon. *S. atratulus*, Er.

**B 1.** Frontal furrows broad and deep.

**a 1.** Body lead-en-black.

Lead-en-black, first joint of palpi brownish. Interstice of frontal furrows distinctly arched; elytra finely punctured; abdomen finely, rather diffusely punctured. Second joint of hinder tarsi not much shorter than first and distinctly longer than third. L.  $1\frac{1}{2}$  l. Rare. *S. incanus*, Er.

**b 1.** Body deep black.

Deep black, very shiny; first joint of palpi red-yellow. Interstice of frontal furrows raised and shiny; thorax very slightly longer than broad, strongly but not closely punctured, with central furrow not reaching much beyond middle; elytra a little longer than thorax, strongly, rather diffusely punctured, with a slight elevation between suture and shoulders. L.  $1\frac{1}{2}$  l. Common. *S. melanopus*, Marsh.

**B B.** Thorax with a central furrow throughout.

**a a.** Thorax rather longer than broad, somewhat shorter than elytra.

Lead-en-black, not very shiny, pubescence close. Antennae short, fourth joint as long as third. Forehead quite flat; abdomen closely and distinctly punctured. L.  $1\frac{2}{3}$  l. Rather common. *S. canaliculatus*, Gyll.

**b b.** Thorax half as long again as broad, scarcely shorter than elytra.

Lead-en-black. Antennae rather elongate, third joint almost half as long again as third. Forehead almost without trace of furrows; abdomen moderately closely and



finely punctured. L. 2 l. Not uncommon. *S. aemulus*, Er.

**C C.** Thorax with a distinct oblique impression on each side of disc behind middle.

**a a.** Elytra nearly half as long again as thorax.

Black, scantily pubescent. Frontal furrows deep; antennae short, third joint distinctly longer than fourth; thorax a little broader than long; elytra nearly half as long again as thorax, punctuation close and rather strong; abdomen short, moderately closely and finely punctured. L. 1—1½ l. Common. *S. pusillus*, Steph.

**b b.** Elytra scarcely longer than thorax.

Similar to *S. pusillus*, but with thorax not so flat, rather more shiny and less closely punctured, with depressions feebler; elytra shorter, not quite so flat, rather more strongly and not quite so closely punctured and more contracted at shoulders. L. 1—1¼ l. Scarce. *S. exiguus*, Er.

**2.** Legs at least partly yellow-brown or red-brown.

**A A.** Third joint of antennae half as long again as fourth; length 2¼—2½ lines.

**a a.** Maxillary palpi yellow, at most with brown apex.

**A a.** Antennae red-brown, with first two joints blackish; legs reddish-yellow, with knees blackish and tarsi brownish.

Black, dull; palpi entirely yellow. Frontal furrows rather sharp; thorax distinctly longer than broad, with distinct traces behind of a central furrow. Punctuation very close. L. 2½ l. Common. *S. speculator*, Lac.

**B b.** Antennae blackish-brown; legs reddish-yellow, with apex of femora (to a larger extent than in *S. speculator*), base and apex of tibiae and tarsi brownish-black.

Black, dull; apex of palpi brown. A little more slender and convex than *S. speculator*, frontal furrows a little deeper, central furrow on thorax distinct, punctuation of fore parts rather stronger and not quite so close, that of abdomen rather finer and more diffuse. L. 2½ l. Common.

*S. providus*, Er.

The variety *Rogeri*, Kr. has the elytra, which in *providus*

are distinctly longer than the thorax, scarcely so long as that part.

**b b.** Maxillary palpi black, with base yellow.

**A a.** Body deep black; second joint of palpi entirely black.

Deep black, shiny; first joint of palpi, and base of femora abruptly, yellow; middle of tibiae brownish-yellow. Surface very uneven; head with shiny central ridge and two interrupted lateral elevations; thorax with an interrupted central furrow rather behind middle and a transverse depression in front; elytra very coarsely and closely punctured; abdomen rather coarsely punctured at base and sides of segments. L.  $2\frac{1}{2}$  l. Rare. *S. Guynemeri*, Duv.

**B b.** Body leaden-black; second joint of palpi yellow at base.

Leaden-black, rather shiny; antennae generally brown in middle; first and base of second joint of palpi yellow; legs coloured as in *S. providus*. Rather narrower than *S. speculator*, with broader head, narrower thorax and stronger, more diffuse punctuation. Central furrow on thorax not very distinct. L.  $2\frac{1}{4}$ — $2\frac{1}{2}$  l. Not common.

*S. lustrator*, Er.

**B B.** Third joint of antennae not much longer than fourth; length  $1\frac{1}{4}$ — $1\frac{2}{3}$  lines.

**a a.** Legs pitch-black, with basal half of femora and sometimes apex of tibiae red-brown.

**A a.** Thorax rather longer than broad, as long as elytra, with a tolerably distinct central furrow.

Black, dull; palpi with first and basal half of second joint yellow. Frontal furrows deep; punctuation of fore parts close and strong, of abdomen moderately close, rather strong. L.  $1\frac{2}{3}$  l. Not common. *S. proditor*, Er.

**B b.** Thorax as long as broad, distinctly shorter than elytra.

Less slender than *S. proditor*. Leaden-black, slightly shiny; second joint of palpi almost entirely black. Frontal furrows broad and shallow; punctuation of fore parts moderately close and deep, of abdomen not very close and

moderately fine; elytra rather convex. Fourth tarsal joint heart-shaped. L.  $1\frac{1}{2}$  l. Not uncommon. *S. argus*, Gr.

**b b.** Legs entirely red-brown or red-yellow.

**A a.** Elytra as long as, or slightly longer than thorax.

**A 1.** Abdomen rather broadly bordered, finely and not very closely punctured.

Black; rather shiny; palpi brown, with first joint yellow; antennae brownish-black, third joint scarcely longer than fourth. Thorax as long as broad. L.  $1\frac{1}{3}$  l. Rather common. *S. vafellus*, Er.

**B 1.** Abdomen finely bordered, moderately closely, rather strongly punctured.

Convex. Black, rather shiny; palpi brown, with first joint yellow; antennae brownish, third joint distinctly longer than fourth. Thorax distinctly longer than broad. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Common. *S. fuscipes*, Gr.

**B b.** Elytra half as long again as thorax.

Black, rather dull; palpi reddish-yellow; antennae brown, club only darker, third joint rather longer than fourth. Frontal furrows wide and shallow; thorax distinctly broader than long. L.  $1$ — $1\frac{1}{4}$  l. Not uncommon. *S. circularis*, Gr.

**c c.** Legs red-brown, with knees blackish.

Black, slightly shiny; palpi brownish-yellow, with third joint blackish; antennae pitch-black, third joint rather longer than fourth. Frontal furrows deep; thorax scarcely broader than long. L.  $1\frac{1}{4}$  l. Common. *S. declaratus*, Er.

**b.** Abdomen not bordered.

**I.** Abdomen with four ridges (intermediate ones more distinct) in middle of base of second, third and fourth dorsal segments.

**1.** First joint of posterior tarsi twice as long as second.

Black, with slight leaden reflection, rather shiny; first joint of palpi yellow-brown; antennae and legs black, tarsi rather elongate. Forehead with shallow furrows, interstice convex; thorax broadest before middle; abdomen short, diffusely punctured. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Common.

*S. crassiventris*, Th.

The variety *littoralis*, Th., is smaller, with legs pitchy, and punctuation rather closer and stronger.

2. First joint of posterior tarsi scarcely longer than second.

Deep black, dull; first joint of palpi yellow; antennae brown; legs brown-red. Forehead almost entirely even; thorax broadest in middle; abdomen distinctly narrower than elytra, latter very closely, former rather closely punctured. L.  $1\frac{1}{4}$  l. Not uncommon. *S. opticus*, Gr.

**II.** Abdominal dorsal segments without basal ridges.

1. Legs black.

Elongate, cylindrical. Black, with some gray reflection, not very shiny; first joint of palpi yellow; antennae blackish. Frontal furrows shallow, interstice slightly convex; elytra rather longer than thorax; abdomen long, closely and strongly punctured. L. 2 l. Not very common. *S. nigritulus*, Gyll.

2. Legs (except knees) red-brown.

Similar to *S. nigritulus* but deeper black, antennae red-brown, black at base, frontal furrows deep, interstice convex, punctuation of fore parts not quite so close, and elytra scarcely as long as thorax. L.  $1\frac{2}{3}$  l. Common. *S. unicolor*, Er.

**B.** Fourth tarsal joint bifid to base, broader than third joint.

**a.** Abdomen bordered.

- I.** Legs black (tarsi and sometimes femora rather lighter).

Disc of thorax with two oblique depressions.

- 1.** Maxillary palpi black-brown, with first joint yellow.

**A A.** Abdomen narrowed at apex only.

**a a.** Antennae red-brown; sixth abdominal segment of male with a deep triangular notch.

Leaden-black, somewhat dull, pubescence close; antennae red-brown, with first joint black; tarsi blackish-brown. Frontal furrows shallow; punctuation rather close and deep;

abdomen narrowly bordered. L.  $2\frac{1}{2}$  l. Common.

*S. binotatus*, Ljung.

**b b.** Antennae red-yellow ; sixth abdominal segment of male with a broad, deep, somewhat, semicircular notch.

Similar to *S. binotatus* but more robust ; antennae longer and lighter coloured ; palpi rather more yellowish at base of joints ; head and thorax wider ; elytra longer ; legs stouter and punctuation finer and not so close. L. 3 l. Rather common.

*S. pubescens*, Steph.

**B B.** Abdomen narrowed almost from base.

Somewhat elongate and flat, not very shiny. Leaden-black ; base of palpi and the antennae red-yellow, latter with first joint black and the apex brown. Head as broad as thorax, frontal furrows wide, their interstice convex ; thorax with sides rounded, with two impressions behind middle ; elytra as long as thorax, uneven ; pubescence close, whitish ; punctuation close. Rather more shiny than *S. pubescens*, fore parts broader and antennae darker at base. L. 3 l. Rare.

*S. major*, Muls.

**2.** Maxillary palpi yellow, with or without apical joint darker.

**A A.** Thorax rather longer than broad, somewhat closely punctured ; frontal furrows shallow ; pubescence close.

Leaden-black. Very similar to *S. binotatus*, but rather flatter ; antennae red-yellow (except first joint) ; tarsi reddish-yellow, third joint bilobed. Punctuation rather finer and shallower. L.  $2\frac{1}{2}$  l. Rather common.

*S. pallitarsis*, Steph.

**B B.** Thorax scarcely longer than broad, only moderately closely punctured ; frontal furrows moderately deep ; pubescence thin.

Flatter and less elongate than *S. binotatus*. Black, rather shiny ; last joint of palpi brown ; antennae red-yellow, with first joint blackish and club brown ; femora pitchy. Abdomen distinctly bordered. L. 2 l. Common.

*S. bifoveolatus*, Gyll.

**II.** Legs yellowish or red-brown, with or without darker coxae and knees.

**1.** Head rather broader than thorax.

Disc of thorax with two oblique depressions.

**A A.** Elytra as long as thorax.

Black, rather shiny; palpi and antennae yellow, latter with first joint pitch-brown and club brownish; coxae and apex of femora blackish, tarsi short, first joint rather longer than second, third almost triangular. L.  $1\frac{3}{4}$  l. Not common.  
*S. brevicornis*, Th.

**B B.** Elytra somewhat longer than thorax.

**a a.** Antennae (including first joint) yellow, with brownish club; body shiny.

Black, pubescence thin; palpi yellow; knees pitch-brown, tarsi short and broad. Elytra pitchy in fresh specimens. L. 2 l. Moderately common.

*S. picipennis*, Er.

**b b.** Antennae reddish-yellow, with first joint pitch-black, and club brownish; body only moderately shiny.

Leaden-black; palpi reddish-yellow; knees blackish; tarsi short, first joint equal in length to second, third joint triangular. L. 2 l. Common.  
*S. rusticus*, Er.

**2.** Head about half as broad again as thorax.

**A A.** Thorax broadest rather before middle.

**a a.** Antennae with at least the middle red-yellow.

**A a.** Thorax with two oblique depressions but no central furrow.

Apterous. Shiny, black, pubescence thin; palpi and antennae yellow, first joint of latter pitch-black; coxae black, knees brown, tarsi short and broad. L.  $2\frac{1}{3}$  l. Common.  
*S. tempestivus*, Er.

**B b.** Thorax with a more or less distinct central furrow.

**A 1.** Maxillary palpi blackish, with first joint and base of second joint yellow.

**a 1.** Femora blackish from middle; apex of tibiae and tarsi yellowish.

Bronzy-black, rather shiny; antennae brownish, with

first and second joints blackish and third red-yellow; apical half of femora and base of tibiae blackish, rest of tibiae and tarsi yellowish; first tarsal joint very elongate. Frontal furrows almost effaced; punctuation of fore parts close and strong, that of abdomen not very close, stronger at base than at apex. L.  $2\frac{1}{4}$  l. Not uncommon.

*S. subaeneus*, Er.

**b 1.** Femora yellowish-brown until beyond middle; apex of tibiae red-brown, tarsi black-brown.

Similar to *S. subaeneus*, but with less bronze reflection, punctuation closer and rather fine, abdomen closely and evenly punctured throughout; antennae rather shorter, red-brown in middle; knees black. L.  $2\frac{1}{4}$  l. Rather common.

*S. impressipennis*, Duv.

**B 1.** Maxillary palpi yellow, with third joint brown, either entirely or at apex.

**a 1.** Thorax distinctly longer than broad.

Elongate. Blackish, not very shiny; third joint of palpi brownish at apex only; antennae and legs yellow, former with first joint and base of second pitch-brown, club brownish; coxae pitch-brown, knees brownish, tarsi slender, third joint simple. Frontal furrows broad and rather shallow. L. 2 l. Not common. *S. geniculatus*, Gr.

**b 1.** Thorax about as long as broad.

Black, rather shiny; antennae yellow, with first joint pitch-brown and club brownish; coxae pitch-black, apical half of femora and nearly whole of tibiae brown, third tarsal joint scarcely longer than broad. Frontal furrows broad and rather deep. L.  $1\frac{2}{3}$  l. Common. *S. palustris*, Er.

**C 1.** Maxillary palpi entirely red-yellow.

**a 1.** Pubescence long and loose.

Dark bronze-black, shiny; antennae very long, hairy, reddish, first joint dark brown at apex, third joint double as long as fourth; legs slender, apex of intermediate and half of posterior femora pitch-brown, tarsi narrow, fourth joint small. Punctuation very strong. Frontal furrows broad and deep. L.  $2\frac{1}{2}$  l. A specimen taken on the Cheviots. *S. glacialis*, Heer.

**b 1.** Pubescence short and close lying.

**A 2.** Thorax with an impression before and another behind middle on each side of central furrow; coxae black.

**a 2.** Knees yellow.

Black, with greenish-bronze lustre; antennae slender, yellow, brownish at apex; legs yellow, knees not darker. Frontal furrows broad and rather deep. Thorax rather longer than broad. L. 2 l. Common. *S. impressus*, Germ.

**b 2.** Knees black.

Black, with very feeble bronze reflection, very scantily pubescent; antennae and palpi red-yellow, first joint of former darker; legs red-yellow, posterior knees distinctly black. Head half as long again as thorax, strongly punctured, with frontal furrows wide, vertex impunctate; thorax slightly longer than broad, tolerably closely, unequally punctured; elytra a third-part longer than thorax, tolerably closely and strongly punctured, with three indistinct impressions; abdomen widely margined, punctured strongly at base and finely at apex. L. 2 l. Moderately common. *S. annulatus*, Crotch.

**B 2.** Thorax with an indistinct oblique depression on each side of abbreviated central furrow; coxae reddish-yellow.

Black, rather shiny; antennae and legs reddish-yellow, club of former brownish. Frontal furrows broad and rather deep. Thorax almost broader than long. L.  $1\frac{2}{3}$  l. Common. *S. Erichsoni*, Rye.

**b b.** Antennae entirely blackish-brown.

Black, rather shiny; palpi pitch-black, first joint and base of second yellow; legs red-brown, coxae black, apex of femora and nearly whole of tibiae black-brown, tarsi slender, third joint much longer than broad. Frontal furrows deep; thorax scarcely longer than broad. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Not common. *S. fuscicornis*, Er.

**B B.** Thorax broadest in middle.

**a a.** Abdomen very slightly bordered; antennae unicolorous yellow.

Black, rather shiny, cylindrical; palpi and legs yellow.



Punctuation close and strong. L.  $1\frac{2}{3}$  l. Moderately common. *S. pallipes*, Gr.

**b b.** Abdomen broadly bordered; antennae yellow, with first joint black.

Apterous, elongate, rather flat. Black; palpi and legs yellow. Punctuation rather diffuse and fine. L.  $1\frac{2}{3}$  l. Common. *S. flavipes*, Steph.

**b.** Abdomen not bordered.

**I.** Elytra with a red spot on each.

Black, rather shiny; palpi yellow, third joint rather darker; antennae yellow, brownish at apex; legs black, middle of femora and apex of tibiae red-yellow, tarsi brownish. Punctuation close and strong. L.  $2\frac{1}{3}$  l. Rare. *S. Kiesenwetteri*, Ros.

**II.** Elytra unicolorous.

**1.** Palpi unicolorous yellow or red-yellow.

**A A.** First joint of antennae red-yellow.

**a a.** Tibiae with only apex yellow-brown.

Black, rather shiny; antennae unicolorous reddish-yellow, legs with coxae black, femora yellow at base, widely blackish at apex, tibiae dark brown, with yellow-brown apex and tarsi yellowish. Punctuation close and strong. L.  $2\frac{2}{3}$  l. Common. *S. cicindeloides*, Gr.

**b b.** Tibiae yellowish from near middle to apex.

Similar to *S. similis*, but darker and more shiny; legs stouter, anterior femora pitchy on upper-side just before apex, hinder pairs of femora pitch-black on entire apical half, and corresponding tibiae dark until beyond middle; coxae pitchy-red; punctuation of metasternum rather coarse but somewhat obsolete, that of elytra feebler, and that of abdomen very fine and close. L.  $2\frac{1}{2}$  l. Not uncommon. *S. solutus*, Er.

**B B.** First joint of antennae black.

**a a.** Legs yellow, with coxae black, trochanters, knees, and apex of tarsal joints black-brown.

Leaden-black; antennae (except first joint) yellow. Punctuation close and rather strong. L.  $2\frac{1}{2}$  l. Common. *S. similis*, Herbst.

**b b.** Legs black, with tarsi red-yellow.

Leaden-black; antennae (except first joint) red-yellow. Punctuation close and deep. L.  $2\frac{1}{3}$  l. Common.

*S. tarsalis*, Ljung.

**2.** Palpi darker at apex than at base.

**A A.** Middle of antennae yellow.

**a a.** Legs red-brown, knees rather darker, tarsi reddish-yellow.

Leaden-black; palpi yellow, second joint brownish at apex, third joint brown with yellow base; antennae yellow, first joint black, second black-brown, club brownish. Punctuation close and strong. L.  $1\frac{4}{5}$  l. Common.

*S. paganus*, Er.

**b b.** Legs red-brown, tarsi not lighter.

Leaden-black; palpi and antennae coloured as in *S. paganus*. More shiny than that species and *S. latifrons*, with punctuation not quite so close and less strong, forehead more distinctly raised in middle, and thorax rather less suddenly and more slightly narrowed behind. L.  $1\frac{2}{3}$  l. A single specimen taken at Holme Bush, Sussex.

*S. oscillator*, Rye.

**B B.** Middle of antennae pitch-brown.

**a a.** Legs red-brown.

Leaden-black; palpi pitch-brown, first joint and base of second yellow; antennae short, brownish, base and apex blackish. Elytra not much longer than thorax. Punctuation close and deep. L.  $1\frac{2}{3}$  l. Common. *S. latifrons*, Er.

**b b.** Legs black, tibiae with a broad red-yellow ring at base.

Black, shiny; palpi black-brown, first joint yellow; antennae pitch-brown, black at apex. Elytra half as long again as thorax, broad, strongly convex. Punctuation close and rather coarse. L. 1 l. Not uncommon.

*S. fornicatus*, Steph.

### OXYTELIDAE.

**A.** Intermediate coxae placed very far apart, on sides of breast.

Mentum divided by a deep cleft; maxillary palpi with

first joint small, second almost as long as third and fourth together, fourth rather shorter than third, slightly narrowed toward apex; ligula narrow, emarginate in middle, paraglossae not longer than ligula; labial palpi with second joint three times as long as first, third transverse, almost crescent-shaped. Tarsi with five joints, first small.

*Oxyporus*, Fab.

**B.** Intermediate coxae placed near each other or not far apart.

**α.** Tarsi with three joints.

**I.** Anterior tibiae with two rows of spines.

Mentum simple; maxillary palpi with third joint rather longer and broader than second, fourth small, awl-shaped; paraglossae shorter than ligula; labial palpi with joints gradually diminishing in breadth, second rather shorter than third. Antennae elbowed; thorax not fitting closely to elytra, posterior angles rounded; intermediate coxae placed near each other.

*Bledius*, Leach.

**II.** Anterior tibiae with one row of spines.

**1.** Scutellum large.

Mentum very slightly emarginate in front; maxillary palpi with third joint not much longer than second, fourth much shorter and narrower than third; ligula slightly emarginate on each side at apex, paraglossae distinctly longer than ligula; joints of labial palpi nearly equal in length, but rather strongly diminishing in breadth. Antennae slightly elbowed; thorax with side and basal margins rounded; intermediate coxae placed somewhat apart.

*Platystethus*, Mann.

**2.** Scutellum small.

**A A.** Intermediate coxae placed somewhat apart.

Mentum simple; third joint of maxillary palpi not much longer than second, fourth joint much narrower but only a little shorter than third; paraglossae longer than ligula, which is slightly emarginate on each side at apex; labial palpi with each joint distinctly narrower than preceding one, second joint almost half as long again as first and rather longer than third. Thorax generally with a straight longitudinal furrow and a slightly curved one on each side. First tarsal joint distinctly longer than second.

*Oxytelus*, Mann.

**B B.** Intermediate coxae placed close to each other.

Mentum simple; maxillary palpi with third joint rather longer than second, fourth scarcely half as long as third and much narrower; ligula slightly emarginate at apex, distinctly shorter than paraglossae; labial palpi with joints diminishing in breadth, second a little shorter than first and equal in length to third. Thorax with a rather broad, raised longitudinal line in middle and a slight depression on each side of this. *Haploderus*, Steph.

**III.** All tibiae without spines.

Intermediate coxae placed near each other.

**1.** Elytra truncate at apex.

**A A.** Scutellum distinct.

Mentum simple; maxillary palpi with last joint longer and at base scarcely narrower than third, gradually pointed; ligula slightly emarginate at apex, distinctly shorter than paraglossae; labial palpi as in *Trogophloeus*. Thorax with two shallow longitudinal furrows, the raised interstice forming an anchor-shaped prominence at base.

*Ancyrophorus*, Kr.

**B B.** Scutellum hidden.

Mentum with slightly produced anterior angles; maxillary palpi with third joint half as long again as second, fourth joint much shorter and narrower than third; ligula slightly emarginate at apex, as long as paraglossae; labial palpi with joints diminishing in breadth, second rather longer than first and third. Thorax more or less heart-shaped, with two slightly curved longitudinal impressions, often deepened at each end. *Trogophloeus*, Mann.

**2.** Elytra obliquely truncate at sutural angle.

Mentum simple; third joint of maxillary palpi much larger than second, strongly thickened, fourth very small; ligula nearly straight in front, a little shorter than paraglossae; joints of labial palpi diminishing in breadth, second about as long as first, rather longer than third. Thorax not much more narrowed behind than in front, almost without impressions. *Thinobius*, Kies.

**b.** Tarsi with five joints.

**I.** Antennae with last three joints abruptly thickened.

Mentum simple; maxillary palpi short, third joint much larger than second, slightly thickened, fourth scarcely shorter than third and rather narrower at base, rather strongly narrowed from middle; ligula very slightly emarginate in front, with two short, strong spines in middle; paraglossae soldered to ligula; labial palpi with second joint equal in breadth to first and a little broader and shorter than third. Thorax transverse, with a slightly raised smooth central line and notched side margin; scutellum small, transverse; intermediate coxae placed near each other, all tibiae without spines.

*Syntomium*, Curt.

**II.** Antennae threadlike or gradually somewhat thickened toward apex, or with last five joints abruptly thickened.

**1.** Intermediate coxae placed somewhat apart.

Mentum simple; maxillary palpi with joints about equal in breadth, third joint rather shorter than second, fourth about as long as second and third together, gradually narrowed at apex; ligula rather deeply emarginate in front, as long as paraglossae; joints of labial palpi about equal in breadth, first rather longer than second and rather shorter than third, latter gently narrowed toward apex. Thorax with a longitudinal depression in middle and two shorter ones at base; scutellum rather large, oblong triangular; anterior tibiae with fine spines.

*Coprophilus*, Latr.

**2.** Intermediate coxae placed near each other.

**A A.** Anterior tibiae with spines.

**a a.** Head not constricted behind; second joint of labial palpi slightly thickened, double as long as third.

Third joint of maxillary palpi distinctly shorter than second; ligula emarginate in middle and on each side of front, paraglossae very fine, scarcely distinct from ligula. Antennae with last five joints abruptly thickened; thorax with a slightly raised smooth central line and a row of more distinct punctures on each side; elytra punctured in rows; scutellum distinct.

*Compsophilus*, Kr.

**b b.** Head distinctly constricted behind; second joint of labial palpi only as long as third.

Mentum simple ; third joint of maxillary palpi scarcely longer than second, fourth almost as long as second and third together ; ligula somewhat emarginate in front, anterior angles much produced ; paraglossae free at apex but scarcely longer than ligula. Antennae gradually thickened toward apex ; thorax slightly raised longitudinally in middle ; elytra with three indistinct raised longitudinal lines ; scutellum distinct. *Acrognathus*, Er.

**B B.** Anterior tibiae without spines.

Mentum simple ; joints of maxillary palpi about equal in breadth, third rather shorter than second ; ligula rather deeply emarginate ; paraglossae free at apex but scarcely longer than ligula ; joints of labial palpi about equal in breadth, second rather shorter and third rather longer than first. Antennae slightly thickened toward apex, third joint almost longer than first ; thorax much narrower than elytra ; scutellum distinct. *Deleaster*, Er.

### *Oxyporus.*

Head black ; thorax red ; elytra black, with a large reddish-yellow spot on shoulder ; abdomen with first five segments red, and apex black ; antennae reddish-yellow, apex brown. L.  $2\frac{1}{2}$ —4 l. Rather common. *O. rufus*, Lin.

### *Bledius.*

**A.** Thorax with a distinct central furrow.

**a.** Thorax of male produced into a horn in front.

**I.** Length  $2\frac{3}{4}$ — $3\frac{1}{2}$  lines.

**1.** Thorax rather diffusely punctured.

**A A.** Elytra blackish-brown or reddish-brown, with a large blackish triangular spot round scutellum ; sides of forehead produced into a long horn in male.

Head, thorax and abdomen black, apex of latter generally red-brown ; antennae and legs red-brown, sometimes darker. L.  $2\frac{3}{4}$  l. Moderately common. *B. taurus*, Germ.

**B B.** Elytra red, with base scarcely blackish ; sides of forehead raised only into a blunt knob in male.

Head, thorax and abdomen black; antennae and legs pitchy. L.  $3\frac{1}{4}$ — $3\frac{1}{2}$  l. Common. *B. spectabilis*, Kr.

**2.** Thorax closely punctured.

Black; elytra red, to a greater or less extent round scutellum blackish; antennae and legs reddish-brown or pitchy. Male with a long horn on each side of forehead. L.  $2\frac{3}{4}$  l. Scarce. *B. tricornis*, Herbst.

**II.** Length 2 lines.

Black; antennae pitch-brown, lighter at base; legs red-brown or brown. Thorax rather diffusely and strongly punctured. Male with a knob on each side of forehead. Scarce. *B. unicornis*, Germ.

**b.** Front of thorax not produced.

**I.** Forehead produced into a long horn on each side.

Black; mouth, elytra (except along suture), antennae and legs red-brown; thorax generally pitch-brown, rather diffusely and strongly punctured. L.  $2\frac{1}{3}$  l. Not uncommon. *B. bicornis*, Germ.

**II.** Forehead not produced at sides.

**1.** Thorax black.

**A A.** Antennae lighter at base or in middle.

**a a.** Thorax rather diffusely and finely punctured, with fine central furrow.

**A a.** Elytra black.

**A 1.** Elytra half as broad again and nearly double as long as thorax.

Black; antennae often brownish at apex, first two joints generally brownish-yellow; palpi blackish at apex; legs with coxae and femora brownish-black, trochanters, tibiae and tarsi brownish-yellow. Thorax obsoletely punctured, elytra finely and closely so. L.  $1\frac{3}{4}$  l. Rather common.

*B. subterraneus*, Er.

**B 1.** Elytra not much broader than and only half as long again as thorax.

**a 1.** Legs reddish-yellow.

Black; antennae pitch-brown; at base reddish-yellow; palpi brownish at apex. Thorax finely but not obsoletely

punctured, not much narrower than elytra. L.  $1\frac{3}{4}$  l. (? Brit.)  
*B. pallipes*, Gr.

**b 1.** Legs brown or brown-yellow.

Black, shiny; first joint of antennae red-yellow, second more or less pitchy, longer and stouter than third, which (with the rest) is pitch-black; fourth joint shorter than third, next three joints gradually wider, penultimate three joints widening toward apex, very transverse, apical joint suddenly blunt, wide and about half as long again as tenth. Thorax dull, posterior angles somewhat prominent, rather obtuse; elytra very closely and rather strongly punctured. L.  $1\frac{3}{4}$  l. Scarce. *B. fuscipes*, Rye.

**B b.** Elytra straw-coloured, with base and suture to a greater or less extent black.

Head, thorax and abdomen black, antennae with first two joints generally blackish, middle brown-yellow, last three joints thick and brownish; palpi blackish; legs black, trochanters, tibiae and tarsi brownish-yellow. Elytra closely and finely punctured, half as long again as thorax. L.  $1\frac{1}{2}$  l. Common. *B. arenarius*, Payk.

**C c.** Elytra lighter or darker red-brown, with suture blackish.

Head, thorax and abdomen black; antennae reddish-yellow at base, blackish-brown, at apex; palpi reddish; legs (including coxae) reddish-yellow. Elytra closely and deeply punctured, not much longer than thorax. L.  $1\frac{3}{4}$  l. Moderately common. *B. opacus*, Block.

**b b.** Thorax strongly and rather closely punctured, with deep central furrow.

Black; elytra often dark red on sides; antennae dark brown, with base yellow-brown; legs red-yellow, with coxae blackish. Elytra closely and deeply punctured, at least one-third longer than thorax. L. 2 l. Moderately common. *B. fracticornis*, Payk.

**B B.** Antennae unicolorous.

**a a.** Elytra black; legs red, with coxae dark brown and femora brownish at base.

Head, thorax and abdomen black; antennae pitch-brown. Thorax and elytra rather closely and strongly punctured,



latter much longer than former. L.  $1\frac{3}{4}$  l. Rare.

*B. femoralis*, Gyll.

**b b.** Elytra red ; legs (including anterior coxae) red.

Head, thorax and abdomen black ; antennae red. Thorax rather diffusely and deeply punctured ; elytra only slightly longer than thorax. L.  $1\frac{1}{2}$  l. Moderately common.

*B. longulus*, Er.

**2.** Thorax reddish pitch-brown.

Pitch-brown ; elytra yellow, suture slightly brown ; antennae yellow, with apex brownish ; legs (including coxae) yellow. Thorax diffusely, finely and shallowly punctured ; elytra more than half as long again as thorax. L.  $1\frac{1}{2}$  l. Not uncommon.

*B. atricapillus*, Germ.

**B.** Thorax with smooth central longitudinal space but no furrow.

**a.** Thorax rather closely and strongly punctured.

Black, shiny ; elytra (except a small triangular spot round scutellum), antennae, legs (including coxae) and apex of abdomen red. Elytra very little longer than thorax. L.  $1\frac{3}{4}$  l. Not uncommon.

*B. crassicollis*, Lac.

**b.** Thorax diffusely and obsoletely punctured.

Black, not very shiny ; elytra (except a badly defined narrow line along suture), legs (including coxae) and antennae reddish, latter red-yellow at base ; thorax brownish-black above, reddish beneath. Elytra somewhat longer than thorax. L.  $1\frac{1}{2}$  l. Not common.

*B. erraticus*, Er.

### *Platystethus.*

**A.** Elytra with a feeble sutural furrow ; thorax about as broad as elytra.

**a.** Transverse impression dividing neck from head distinct ; thorax finely punctured.

**I.** Anterior angles of thorax rounded ; transverse impressions on head deep, bent in male, straight in female.

Black ; elytra brown or brownish ; legs yellow, femora often brown. Anterior margin of forehead in male nearly

straight, with a small tooth in middle. L.  $1\frac{1}{2}$ —2 l. Common. *P. arenarius*, Fourc.

**II.** Anterior angles of thorax sharp; transverse impressions on head fine.

Black; elytra often brownish, with yellow disc; legs pitch-brown, tarsi and sometimes tibiae yellow. Anterior margin of forehead in male with a long horn on each side. L.  $1\frac{1}{3}$ — $1\frac{2}{3}$  l. Rather common. *P. cornutus*, Gr.

**b.** Transverse impression dividing neck from head almost effaced; thorax very coarsely punctured.

Black; elytra often brownish; femora generally blackish, tibiae often brownish, tarsi yellow. L. 1— $1\frac{1}{4}$  l. Not uncommon. *P. capito*, Heer.

**B.** Elytra with a deep sutural furrow; thorax rather broader than elytra.

**a.** Scutellum with a strong impression on each side in front.

Black; elytra rarely pitchy; legs yellow, femora generally pitch-brown. Transverse impression on head effaced; thorax rather closely and strongly punctured, more diffusely in middle. L.  $1\frac{1}{4}$  l. Scarce. *P. nodifrons*, Sahl.

**b.** Scutellum with a narrow impression on each side in front.

Black, very shiny; elytra often brown; femora generally brown, tibiae and tarsi yellow. Transverse impression on head effaced, thorax with diffuse punctuation at sides only. L. 1 l. Not common. *P. nitens*, Sahl.

### *Oxytelus.*

**A.** Side margin of thorax finely notched.

**a.** Forehead impunctate in front; elytra black; body broader.

**I.** Antennae blackish; sides of thorax distinctly notched; legs red-brown.

Black or pitch-black; not very shiny. Forehead rather closely punctured and wrinkled behind. L.  $2\frac{1}{4}$  l. Common.

*O. rugosus*, Fab.

**II.** Antennae black, with first joint red, and next

three red-brown; sides of thorax feebly notched; legs reddish-yellow.

Shiny, black. Forehead diffusely punctured behind, shiny. L. 2 l. Rare. *O. fulvipes*, Er.

**b.** Forehead rather diffusely and finely punctured in front; elytra (except round scutellum) reddish; body narrower.

Head, thorax and abdomen black; antennae dark pitch-brown, with first joint blackish and next three generally red-brown. Head rather diffusely punctured. L. 2 l. Moderately common. *O. insecatus*, Gr.

**B.** Side margin of thorax not notched.

**a.** Elytra with an impressed line at side; abdomen with lateral bristles.

**I.** Antennae scarcely thickened toward apex; eyes large.

**1.** Last joint of maxillary palpi linear, scarcely shorter than penultimate, which is scarcely thickened; elytra yellow.

Head, thorax, abdomen and antennae pitch-black; first four joints of latter and the legs yellow. Forehead punctured, with a short longitudinal furrow behind, almost smooth in front. Sixth ventral abdominal segment of male bisinuate at apex, with central lobe produced. L. 2½ l. Rare. *O. piceus*, Lin.

**2.** Last joint of maxillary palpi pointed, shorter than penultimate, which is thickened; elytra pitch-black or reddish-brown.

Black, shiny; antennae black, with first four joints dark brown above and at apex, red-brown beneath; legs yellow. Forehead rather diffusely punctured, with a deep, short longitudinal furrow behind, impunctate and dull in front. L. 2 l. Common. *O. sculptus*, Gr.

**II.** Antennae thickened toward apex; eyes small.

Black, shiny; elytra, first four joints of antennae and the legs yellow. Forehead punctured, with three impressions. Sixth ventral abdominal segment of male with two tubercles at posterior margin, and clypeus with a little tooth on each side in front. L. 2 l. Common. *O. laqueatus*, Marsh.

**b.** Elytra without impressed line at side ; abdomen without distinct bristles.

**I.** Length  $1\frac{3}{4}$ —2 lines.

**1.** Body rather dull ; head finely punctured and longitudinally wrinkled.

Black ; elytra somewhat brownish ; legs yellow. Thorax shiny, rather strongly punctured, posterior angles not very obtuse. Sixth abdominal segment of male with a transverse depression behind middle and two pale tubercles at apical margin. L.  $1\frac{3}{4}$ —2 l. Common.

*O. sculpturatus*, Gr.

**2.** Body shiny ; head diffusely, rather finely punctured.

Black ; elytra generally pitch-brown ; legs yellow, femora generally brownish in middle. Head without impressions, posterior angles of thorax obtuse. L. 2 l. Common.

*O. inustus*, Gr.

**II.** Length not exceeding  $1\frac{2}{3}$  lines.

**1.** Thorax shiny, rather strongly but diffusely punctured and wrinkled longitudinally at sides.

**A A.** Antennae red-yellow, with base blackish.

Black, shiny ; antennae, tibiae and tarsi red-yellow, base of former and the femora blackish ; punctuation scanty. Forehead diffusely punctured, with a depression on each side in front. Sixth abdominal segment of male with two tubercles at apex. L.  $1\frac{1}{2}$  l. Rather common.

*O. maritimus*, Th.

**B B.** Antennae black.

Black, rather shiny ; elytra brown, legs yellow. Head rather diffusely punctured, longitudinally wrinkled at sides ; the middle one of the three furrows on thorax deep, the lateral ones shallow ; elytra almost half as long again as thorax, closely and rather strongly punctured and wrinkled ; abdomen diffusely, very finely punctured. L. 1— $1\frac{1}{3}$  l. Common.

*O. nitidulus*, Gr.

**2.** Thorax finely longitudinally wrinkled all over.

**A A.** Length  $1\frac{2}{3}$  lines.

Black, dull ; elytra often dark brownish ; legs yellow, femora sometimes darker in middle. Fore parts quite

closely and finely wrinkled longitudinally, elytra also diffusely and finely punctured, rather longer than thorax; abdomen rather closely and distinctly punctured. Furrows on thorax shallow. Common. *O. complanatus*, Er.

**B B.** Length not exceeding 1 line.

**a a.** Seventh ventral abdominal segment of male simple.

**A a.** Base of forehead without smooth spots.

Black, dull; legs usually yellow, with femora brownish in middle, sometimes darker. Fore parts extremely finely wrinkled longitudinally; elytra also with diffuse, very obsolete punctuation; abdomen moderately closely, very finely punctured. L.  $\frac{3}{4}$ —1 l. Common.

*O. tetracarinatus*, Block.

**B b.** Base of forehead with two small, slightly raised, rather smooth spots in middle.

Black, rather shiny; legs yellowish. Fore parts very finely wrinkled longitudinally, elytra also diffusely punctured; abdomen without distinct punctuation. L. 1 l. Not common.

*O. speculifrons*, Kr.

**b b.** Seventh ventral abdominal segment of male with two ridges (obtuse in front) before apex.

Similar to *O. tetracarinatus*; abdomen closely, distinctly punctured, apex of seventh ventral abdominal segment of male truncate, eighth broadly emarginate in middle, unarmed. L. 1 l. Scarce. *O. Fairmairei*, Pand.

### *Haploderus.*

Black; elytra lighter or darker brown; legs yellow; antennae blackish-brown, first joint red-brown. Anterior tibiae emarginate on outer-side before apex. L. 2 l. Common.

*H. caelatus*, Gr.

### *Ancyrophorus.*

**A.** Antennae as long as head and thorax; body shiny.

Black; elytra brownish; legs yellow-brown, femora darker in middle. Elytra almost three times as long as thorax. L.  $1\frac{1}{2}$  l. Moderately common. *A. omalinus*, Er.

**B.** Antennae much longer than head and thorax; body not very shiny.

Black; tibiae pitch-brown, tarsi red-brown, sometimes lighter. Elytra rather more than double as long as thorax. L. 2 l. Not uncommon. *A. longipennis*, Fairm.

### *Trogophloeus.*

**A.** Anterior angles of thorax strongly spined.

Black, shiny; first joint of antennae, thorax, elytra and legs pitchy-red. Antennae shorter and stouter than in *T. arcuatus* and *bilineatus*; head more produced behind eyes; thorax smaller and scarcely heart-shaped, with punctation very coarse and lateral depressions less conspicuous and not so complicated; elytra wider, longer and much more coarsely punctured. A single specimen taken by the River Mersey. *T. spinicollis*, Rye.

**B.** Anterior angles of thorax not spined.

**a.** Length 1 line or more.

**I.** Elytra rather strongly punctured.

**1.** Antennae black, first joint reddish; palpi pitch-brown.

Much broader than *T. bilineatus*. Black; legs blackish-brown, knees and tarsi yellow-brown. Thorax with two depressions in middle, before each of these a feeble depression, and behind them a slightly curved transverse furrow ending in a depression on each side; elytra distinctly double as broad as thorax. L.  $1\frac{1}{2}$  l. Not uncommon.

*T. arcuatus*, Steph.

**2.** Antennae dark red-brown, first and second joints red; palpi red.

Pitch-black; legs (including coxae) reddish-yellow; elytra often brownish. Thorax with two narrow, slightly curved longitudinal impressions; elytra nearly half as long again as thorax and about half as broad again as its base. L.  $1\frac{1}{2}$  l. Common. *T. bilineatus*, Steph.

**II.** Elytra finely punctured.

**1.** Head not much narrower than thorax.

**A A.** Elytra distinctly half as long again as thorax.

Black; antennae dark red-brown, first joint reddish, next ones also more or less reddish; palpi red, third joint generally blackish; legs red, femora generally brownish in middle. Thorax with two longitudinal impressions in middle and a feebler depression on each side. L.  $1\frac{1}{4}$  l. Common. *T. Erichsoni*, Sharp.

**B B.** Elytra not much longer than thorax.

Narrower than *T. Erichsoni*. Black; antennae blackish or dark red-brown, with red base; legs brownish-red, femora generally darker in middle. Thorax dull, with two shallow, slightly curved longitudinal impressions, effaced in front. L. 1 l. Common. *T. elongatulus*, Er.

**2.** Head much narrower than thorax.

Black; antennae, palpi and legs reddish. Thorax with two very feeble longitudinal impressions (almost effaced) and a slight prominence between them at base. L.  $1-1\frac{1}{4}$  l. Not uncommon. *T. fuliginosus*, Gr.

**b.** Length under 1 line.

**I.** Legs more or less blackish or pitch-brown.

**1.** Elytra very closely and finely punctured.

**A A.** Thorax with two slightly curved narrow longitudinal impressions.

Black; first joint of antennae usually pitch-brown; trochanters, knees and apex of tibiae brown, tarsi reddish-yellow. L.  $\frac{4}{5}$  l. Common. *T. corticinus*, Gr.

**B B.** Thorax without impressions.

Black; first joint of antennae pitch-brown; legs pitch-brown, knees and tarsi yellow-brown. L.  $\frac{3}{4}$  l. Not uncommon. *T. halophilus*, Kies.

**2.** Elytra closely and rather strongly punctured.

Black; base of antennae pitch-brown; legs blackish, knees, apex of tibiae and tarsi yellow-brown. Thorax with four rather distinct depressions on disc. L.  $\frac{2}{3}$  l. Rare.

*T. foveolatus*, Sahl.

**II.** Legs yellow.

**1.** Antennae brownish with yellow base.

**A A.** Thorax not much broader than long, narrowed behind; elytra yellow-brown.

Head, thorax and abdomen blackish-brown; legs yellow. Thorax with two shallow longitudinal impressions or four indistinct depressions. L.  $\frac{3}{4}$  l. Rather common.

*T. pusillus*, Gr.

**B B.** Thorax rather broader than long, only slightly narrowed behind; elytra black-brown.

Elongate. Blackish; legs yellow. Thorax with two or four indistinct depressions. L.  $\frac{3}{4}$  l. Moderately common.

*T. tenellus*, Er.

**2.** Antennae entirely yellow.

Narrower than *T. tenellus*. Blackish; elytra brown; legs yellow. Thorax scarcely broader than long, not much narrowed behind, with two indistinct impressions. L.  $\frac{3}{4}$  l. Rare.

*T. subtilis*, Er.

### *Thinobius*.

**A.** Antennae brownish or blackish.

**a.** Thorax without impressions.

**I.** Head scarcely narrower than thorax; length 1 line.

Black, rather dull; elytra dark brown; antennae and legs dirty brown-yellow, former rather lighter at base, latter with tibiae and tarsi gradually lighter. Common excision at apex of elytra not so strong as in *T. longipennis*. Loch Rannoch.

*T. major*, Kr.

**II.** Head rather narrower than thorax; length  $\frac{1}{2}$  line.

Black, dull; elytra pitch-brown; antennae and legs blackish-brown, former often brown at base, latter with knees and tarsi lighter. Common excision at apex of elytra strong. Scarce.

*T. longipennis*, Heer.

**b.** Thorax with two oblique depressions at base and a slight elevation in middle.

Black, dull. Elytra rather more than half as long again as thorax, common excision at apex only feeble. L.  $\frac{1}{2}$  l. Not uncommon.

*T. brevipennis*, Kies.

**B.** Antennae yellow.

**a.** Antennae with joints 4 to 8 about equal in size; head and thorax dull.

Black; elytra dark red-brown; antennae and legs red-



yellow, posterior femora darker. Thorax not quite half as broad again as long. L.  $\frac{3}{4}$  l. Rare. *T. brunneipennis*, Kr.

*b.* Antennae with joint 5 rather longer than 4 and 6, distinctly longer than broad, 7 and 8 about equal in length, scarcely longer than broad; head and thorax slightly shiny.

Blackish; thorax dark red-brown; elytra yellow-brown; antennae and legs yellow. Thorax about half as broad again as long. L.  $\frac{4}{5}$  l. Scarce. *T. linearis*, Kr.

### *Syntomium.*

Greenish-bronze, shiny; apex of antennae and legs reddish-brown, former hairy. Head, thorax and elytra coarsely and deeply punctured. L. 1 l. Common.

*S. aeneum*, Müll.

### *Coprophilus.*

Black, shiny; elytra generally pitch-brown; legs red-brown. Side margin of thorax indistinctly notched; elytra with rather irregular punctured furrows. Resembling a large *Oxytelus*. L. 3 l. Rather common.

*C. striatulus*, Fab.

### *Compsochilus.*

Brownish-yellow, not very shiny; head brownish, breast and abdomen before apex dark brown, apex itself red-brown; palpi and legs yellow. Thorax slightly longer than broad; elytra almost half as long again as thorax, rather strongly punctured in rows. L. 1 l. Very rare.

*C. palpalis*, Er.

### *Acrognathus.*

Reddish-yellow, dull; head blackish, thorax reddish-brown. Thorax rather longer than broad, diffusely punctured; elytra about half as long again as thorax, finely punctured in not very regular rows. Pubescence of foreparts yellow, of abdomen blackish. L. 3 l. Very rare.

*A. mandibularis*, Gyll.

### *Deleaster.*

Rather dull. Head and abdomen blackish, thorax and

elytra reddish-yellow; antennae red, all the joints longer than broad; legs reddish-yellow. Thorax rather broader than long, diffusely punctured, with an impression before scutellum and two feebler ones near side margins; elytra double as long and broad as thorax, finely and rather closely punctured. L. 3 l. Scarce. *D. dichrous*, Gr.

In variety *Leachi*, Curt., the elytra are brown at apex.

### HOMALIIDAE.

**A.** First joint or first two joints of posterior tarsi longer than succeeding ones.

**a.** Maxillary palpi threadlike.

**I.** Mandibles with two teeth on each.

**1.** Tarsal claws with a small membranous appendage on inner-side; last joint of maxillary palpi longer than penultimate one.

Labrum parchmentlike, slightly emarginate in front, generally with a membranous border; maxillary lobes membranous. Head with two oblique furrows; elytra broader than thorax; abdomen flat, suddenly narrowed at apex; tibiae without spines, first joint of posterior tarsi elongate. *Anthophagus*, Gr.

**2.** Tarsal claws simple; last joint of maxillary palpi distinctly smaller than penultimate one.

Labrum parchmentlike, straight in front, without membranous border; otherwise resembling *Anthophagus*.

*Geodromicus*, Redt.

**II.** Mandibles with one tooth on each before middle.

Labrum horny at base, broadly membranous at apex; maxillary lobes elongate, horny; third joint of maxillary palpi exceedingly small, fourth almost one-third longer than second. Forehead with a slight depression on each side, ocelli rather farther from one another than from the eyes; thorax narrower than elytra; tibiae without spines, first joint of posterior tarsi elongate. *Lesteva*, Latr.

**III.** Mandibles rather short, without teeth.

**1.** First joint of posterior tarsi rather longer than second.

Labrum entirely horny; maxillary lobes short, membranous; second joint of maxillary palpi longer than third, fourth rather shorter than second and third together. Forehead bordered, slightly impressed; thorax as broad as elytra; tibiae with spines. *Acidota*, Leach.

2. First and second joints of posterior tarsi about equal in length.

**A A.** Tibiae without spines.

**a a.** Head not constricted behind, forehead not bordered.

Maxillary lobes elongate, horny; last joint of maxillary palpi rather longer than second and nearly double as long as third. Forehead almost even, ocelli double as far from each other as from eyes; thorax about as broad as elytra, which are wide and long. *Olophrum*, Er.

**b b.** Head constricted behind; forehead bordered.

Maxillary lobes membranous, inner one smaller, outer one much dilated toward apex; last joint of maxillary palpi longer than second and more than double as long as third; ligula with anterior margin hairy. Forehead slightly impressed; thorax as broad as elytra, which cover the greater part of abdomen. *Lathrimaeum*, Er.

**B B.** Tibiae with spines.

Maxillary lobes as in *Lathrimaeum*, but inner one scarcely so small; last joint of maxillary palpi about double as long as third; ligula with anterior margin not hairy. Forehead not bordered in front, with shallow impressions; elytra covering greater part of abdomen.

*Deliphrum*, Er.

**IV.** Mandibles short, one of them with one tooth in middle, the other without any.

Maxillary lobes membranous, not very short, outer one not dilated; second joint of maxillary palpi rather longer than third and rather shorter than fourth. Antennae slender, all joints much longer than broad; forehead not bordered, with a short longitudinal furrow before ocelli; thorax rather narrower than elytra; tibiae without spines, first three joints of posterior tarsi gradually shorter.

*Arpedium*, Er.

**V.** Mandibles short, one of them with one tooth, the other with two slight teeth.

Last joint of maxillary palpi twice as long as penultimate; antennae slightly thickened toward apex; elytra dilated behind, emarginate at apex, shorter than thorax; abdomen strongly dilated before apex; legs rather short, tibiae indistinctly spined, fifth tarsal joint not much longer than the rest. *Micralymma*, Westw.

**VI.** Mandibles rather long, with outer-side slightly emarginate before middle.

Labrum horny, with a broad emargination, bordered by a membrane, excised in front. Inner maxillary lobe small, outer one somewhat dilated; maxillary palpi short and broad, last joint somewhat longer and narrower than third. Head almost entirely even, ocelli very small, three times as far from each other as from the eye; elytra covering only a small part of abdomen; tibiae without spines, posterior tarsi almost longer than tibiae, first joint very elongate.

*Philorinum*, Kr.

**b.** Last joint of maxillary palpi small and pointed.

Labrum entirely horny; mandibles long, with a tooth rather before middle; maxillary lobes elongate, inner one fringed with spines at apex; maxillary palpi with third joint thickened; first joint of labial palpi rather longer than second. Forehead with two small depressions, ocelli tolerably large, not quite twice as far from each other as from eyes; side margin of thorax extremely finely notched, strongly rounded before middle; tibiae without spines, first two joints of posterior tarsi about equal in length to each other; a little longer than third and fourth.

*Coryphium*, Kirby.

**B.** First four joints of posterior tarsi about equal in length.

**a.** Last joint of maxillary palpi small and pointed.

Labrum entirely horny; mandibles and maxillary lobes as in *Coryphium*, but rather less elongate; third joint of maxillary palpi more thickened than in that genus and fourth joint rather smaller; first joint of labial palpi double as long as second. Forehead with two impressions between eyes; sides of thorax produced into a sharp angle rather before middle; tibiae without spines. *Eudectus*, Redt.

**b.** Maxillary palpi threadlike.

**I.** Mandibles short, one of them with a small tooth before middle, the other without any.

Maxillary lobes membranous; last joint of maxillary palpi about as long as second and third together. Tibiae with very fine spines, tarsi short. *Homalium*, Gr.

**II.** Mandibles without teeth.

**1.** Tibiae with spines.

Mandibles rather long, strongly curved; maxillary lobes very similar to those of *Anthobium*, maxillary palpi as in *Homalium*; third joint of labial palpi not much longer than second. Head larger than in *Anthobium*; ocelli almost double as far from each other as from eyes; elytra covering only first two abdominal segments; tarsi short.

*Eusphalerum*, Kr.

**2.** Tibiae without spines.

Mandibles short; inner maxillary lobe membranous, with spines at apex, outer lobe with a membranous dilatation on inner-side; maxillary palpi as in *Homalium*; third joint of labial palpi about double as long as second. Head much smaller and narrower than thorax, ocelli rather farther from each other than from eyes; elytra long, covering greater part of abdomen, tarsi short. *Anthobium*, Leach.

***Anthophagus.***

**A.** Head and thorax pitch-black, diffusely and rather finely punctured.

Elytra yellow-brown; abdomen black; first two joints of antennae and legs yellow-brown. L.  $1\frac{1}{2}$ —2 l. Not common. *A. alpinus*, Payk.

**B.** Head and thorax red, rather closely and strongly punctured.

Elytra and abdomen reddish-yellow; latter more or less blackish before apex; antennae and legs reddish-yellow. L.  $2\frac{1}{4}$  l. Moderately common. *A. testaceus*, Gr.

***Geodromicus.***

**A.** Elytra more than double as long as thorax.

Black; antennae and legs pitch-black. L.  $2\frac{1}{4}$  l. Not uncommon. *G. nigrita*, Müll.

**B.** Elytra not quite double as long as thorax.

Blackish-brown; base of antennae and legs reddish-yellow. Impressions on head rather stronger than in *G. nigrita*; thorax with a central furrow. L. 2 l. Not uncommon. *G. globulicollis*, Mann.

### *Lesteva.*

**A.** Elytra more than double as long as thorax.

Black, elytra blackish-brown; antennae and legs brownish-red, former rather longer than head and thorax, with first joint and apex of second often darker. Punctuation close and deep. Thorax narrowed behind middle, with posterior angles right angles. L. 2 l. Common.

*L. longaelitrata*, Goeze.

**B.** Elytra not more than double as long as thorax.

**a.** Pubescence yellowish.

Pitch-brown; abdomen blackish; antennae and legs red. Punctuation rather more diffuse and stronger than in *L. longaelitrata*; antennae longer and lighter coloured; thorax longer; pubescence stronger. L.  $2\frac{1}{8}$  l. Not uncommon.

*L. Sharpi*, Rye.

**b.** Pubescence gray.

**I.** Punctuation very close and fine.

Black; antennae brownish-yellow; legs reddish-yellow, femora generally dark brown. Rather broader than *L. longaelitrata*; punctuation finer; pubescence closer. L. 2 l. Not common. *L. pubescens*, Mann.

**II.** Punctuation strong and deep, only moderately close.

**1.** Thorax rather broader than long, sides not suddenly narrowed in middle.

Apterous. Pitch-black or pitch-brown; antennae and legs red. Elytra not quite double as long as thorax; oblique frontal impressions rather deep. L.  $1\frac{3}{4}$ —2 l. Common. *L. punctata*, Er.

**2.** Thorax not transverse, sides suddenly narrowed about middle, with an impression at point of contraction.

Similar to *L. punctata*, but with antennae (especially third joint) longer; head less closely applied to thorax, depressions deeper and more irregular; punctuation coarser and not so close; elytra longer. L. 2 l. Scarce.

*L. muscorum*, Duv.

### *Acidota.*

**A.** Thorax slightly convex, disc not impressed; length 3 lines.

Dark chestnut-brown, sometimes lighter; antennae and legs red. Elytra half as long again as thorax, punctured in tolerably regular rows. Not common. *A. crenata*, Fab.

**B.** Thorax flat, disc with two shallow longitudinal impressions; length  $2\frac{1}{3}$  lines.

Yellowish-red. Elytra half as long again as thorax, punctured in rows on inner part, irregularly at sides and apex. Scarce. *A. cruentata*, Mann.

In *A. ferruginea*, Er., which is smaller, the elytra are only a little longer than thorax.

### *Olophrum.*

**A.** Sides of thorax gently rounded, posterior angles rounded; elytra double as long as thorax.

**a.** Elytra confusedly punctured; scutellum smooth; body brown-red.

Convex. Antennae reddish, lighter at base; legs red. Thorax nearly double as broad as long. L.  $2\frac{1}{4}$  l. Common.

*O. piceum*, Gyll.

**b.** Elytra punctured somewhat in rows toward base and suture; scutellum with isolated punctures; body pitch-brown.

Slightly convex. Antennae brownish, with first joint red-brown, rarely entirely red-brown; legs red-brown. Thorax half as broad again as long. L. 2 l. Not very common.

*O. fuscum*, Gr.

**B.** Sides of thorax sinuate behind middle, posterior angles slightly prominent; elytra more than double as long as thorax.

Narrower than *O. fuscum*, somewhat convex. Pitch-black; antennae and legs pitch-brown, former at base,

latter often entirely red-brown. L.  $2\frac{1}{3}$  l. A single specimen taken at Braemar. *O. consimile*, Gyll.

### *Lathrimaerum.*

**A.** Thorax with a central furrow; head pitch-brown.

Reddish-yellow-brown; head pitch-brown; apex of antennae brownish; legs red-yellow. Thorax almost double as broad as long, closely and deeply punctured, with a small depression behind middle and a central furrow before this; elytra closely and strongly punctured, in tolerably regular rows. L.  $1\frac{1}{2}$  l. Common.

*L. atrocephalum*, Gyll.

**B.** Thorax without central furrow; head yellow-red.

Light yellow-red; apex of antennae brownish; legs yellow. Thorax slightly narrower than in *L. atrocephalum*, closely and strongly punctured, with a scarcely perceptible depression behind middle; elytra strongly punctured in somewhat less regular rows. L.  $1\frac{2}{3}$  l. Common.

*L. unicolor*, Steph.

### *Deliphrum.*

**A.** Body black, margins of thorax and elytra yellow.

Base of antennae and legs yellow. Thorax double as broad as long, closely and finely punctured, with a fine central furrow, side margin with an impression before middle, and a shallow furrow behind it. L.  $1\frac{1}{2}$  l. Not uncommon.

*D. tectum*, Payk.

**B.** Body dark brown-red.

First four joints of antennae red-yellow, rest blackish; legs red. Thorax about half as broad again as long, rather diffusely, finely punctured, with two more or less distinct impressions on middle and a shallow transverse depression before scutellum, side margin without any distinct impression in middle. L.  $2\frac{1}{4}$  l. Rare.

*D. crenatum*, Gr.

### *Arpedium.*

Pitch-brown, not very shiny; antennae and legs reddish-yellow. Thorax scarcely broader than long, diffusely and finely punctured, with an indistinct impression before scutellum and a deep depression on each side before middle;



elytra about half as long again as thorax. L.  $1\frac{2}{3}$  l. Moderately common. *A. brachypterum*, Gr.

### *Micralymma.*

Black, rather dull, alutaceous, with fine brown pubescence; antennae before base and the knees brown. Thorax and elytra not very deeply punctured. L.  $1\frac{1}{2}$  l. Rather common. *M. brevipennis*, Gyll.

### *Philorinum.*

Blackish-brown; elytra often yellowish-brown; first four joints of antennae and legs reddish-yellow. Head, thorax and elytra equally closely punctured, somewhat in wrinkles; thorax about half as broad again as long; elytra distinctly double as long as thorax. L 1 l. *P. humile*, Er.

### *Coryphium.*

Pitch-black; base of antennae and legs reddish-yellow. Seven penultimate joints of antennae scarcely differing from one another. L.  $1\frac{1}{2}$  l. Scarce. *C. angusticolle*, Steph.

### *Eudectus.*

Black, rather shiny; knees and tarsi pitchy. Punctuation close and strong; pubescence very fine; thorax rather short, with sides strongly angularly dilated. L.  $1\frac{1}{8}$  l. A single specimen taken on summit of Ben-a-Bhuird, Braemar. *E. Whitei*, Sharp.

### *Homalium.*

**A.** Body elongate, parallel-sided; elytra not dilated at apex; abdomen obtuse at apex, parallel-sided.

**a.** Last joint of posterior tarsi longer than the rest together.

**I.** Impressions before ocelli not very small, roundish or linear.

**1.** Abdomen distinctly impressed within lateral margin.

**A A.** Last joint of maxillary palpi at most double as long as penultimate; thorax with two deep dorsal depressions.

**a a.** Forehead with two deep, roundish depressions before ocelli.

**A a.** Length  $1\frac{1}{2}$ —2 lines.

**A 1.** Disc of thorax closely punctured.

**a 1.** Sides of thorax rounded in front.

**A 2.** Apex of antennae blackish.

Black, shiny; elytra yellowish-brown; antennae with first joint reddish-yellow, next three joints reddish, rest blackish; legs reddish-yellow. Punctuation of fore parts rather close and strong; thorax half as broad again as long, sides rounded in front, slightly narrowed behind. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Common. *H. rivulare*, Payk.

**B 2.** Antennae entirely yellow-red.

Pitch-brown, rather shiny; antennae (which are short), palpi and legs entirely yellow-red. Forehead scantily punctured in front, more closely toward base, with a longitudinal depression on each side; neck alutaceous; thorax transverse, sides rounded before middle, rather closely and deeply punctured, space at posterior angles alutaceous; elytra more than double as long as thorax, rather closely and deeply punctured in wrinkles; abdomen alutaceous. L.  $1\frac{3}{4}$  l. Rare. *H. rugulipenne*, Rye.

**b 1.** Sides of thorax scarcely rounded.

Black, rather shiny; first five joints of antennae and the legs red. Thorax closely and deeply punctured, sides scarcely rounded; elytra twice as long as thorax, closely punctured, somewhat in wrinkles. Similar to *H. rivulare* but with head, thorax and elytra less shiny, more closely punctured. L.  $1\frac{1}{2}$  l. Rare. *H. septentrionis*, Th.

**B 1.** Disc of thorax diffusely or not at all punctured.

**a 1.** Forehead nearly impunctate.

Flat. Black, shiny; elytra lighter; base of antennae and the legs reddish. Forehead and thorax nearly impunctate, latter transverse; elytra finely punctured; fourth, fifth and sixth joints of antennae oblong. L. 2 l. Moderately common. *H. laeviusculum*, Gyll.

**b 1.** Forehead scantily punctured.

Pitch-black, shiny; antennae brown; first joint red, next

five joints rather darker; legs red. Forehead scantily and finely punctured between eyes; neck alutaceous; thorax transverse, sides somewhat rounded before middle, slightly narrowed in front, disc diffusely, sides more closely punctured, curved lateral depressions deep in front; elytra more than twice as long as thorax, closely but not very strongly punctured; abdomen indistinctly punctured. L.  $1\frac{1}{2}$ —2 l. Rather common. *H. riparium*, Th.

**B b.** Length 1— $1\frac{1}{4}$  lines.

Black-brown or reddish-brown, rather dull; sides of body and suture of elytra rust-red; antennae blackish, with first six joints red. Head finely reticulated and tolerably closely punctured, with feeble depressions; thorax transverse, a little narrowed behind, sides rounded, disc with four depressions, the two hinder ones larger, posterior angles impressed; elytra twice as long as thorax, tolerably strongly punctured and longitudinally wrinkled; abdomen closely and finely punctured. Not common.

*H. Allardi*, Fairm.

**b b.** Forehead with two deep longitudinal depressions before ocelli.

Black, rather shiny; elytra pitch-brown; antennae and legs red-brown, former generally darker at base. Punctuation of fore parts close and rather fine, abdomen impunctate; thorax more than half as broad again as long, sides gently rounded, slightly narrowed in front, depressions on disc oblong ovate, strong. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common.

*H. fossulatum*, Er.

**c c.** Forehead with two small deep longitudinal impressed lines before ocelli.

**A a.** Thorax red-brown; elytra scarcely twice as long as thorax.

Red-brown, rather shiny; head black. Fore parts closely punctured. Broader than *H. caesum*; sides of thorax less rounded, narrowed behind, depressions on disc strong. L. 1— $1\frac{1}{4}$  l. Rather common. *H. nigriceps*, Kies.

**B b.** Thorax black; elytra distinctly twice as long as thorax.

Black, not very shiny; elytra dark brown; antennae yellowish-brown, base blackish; legs yellow. Punctuation

of head and thorax very close; thorax half as broad again as long, narrowed behind, depressions on disc oblong, strong. L.  $1\frac{1}{4}$  l. Common. *H. caesum*, Gr.

**d d.** Forehead with two small, deep oblong depressions before ocelli.

**A a.** Elytra brownish, distinctly more than twice as long as thorax, closely and rather strongly punctured but not distinctly wrinkled.

Black, rather shiny; elytra brownish; antennae blackish-brown; legs yellow. Punctuation close, that of elytra rather stronger than on head and thorax, that of abdomen scarcely visible; thorax almost twice as broad as long, slightly narrowed behind, depressions on disc tolerably strong, rather narrow and long. L.  $\frac{3}{4}$ —1 l. Rather common. *H. oxyacanthae*, Gr.

**B b.** Elytra black or dark pitch-brown, scarcely more than twice as long as thorax, closely and rather strongly punctured, slightly wrinkled.

Black, moderately shiny; antennae blackish; legs yellowish, base of femora pitch-brown. Punctuation of head and thorax close and deep, that of abdomen scarcely visible; thorax about half as broad again as long, slightly narrowed behind, depressions on disc oblong, strong. L.  $\frac{3}{4}$ —1 l. Rare. *H. exiguum*, Gyll.

**B B.** Last joint of maxillary palpi almost three-times as long as penultimate; thorax with two not very deep dorsal depressions.

Flatter and more parallel-sided than *H. rivulare*. Black, somewhat shiny; legs and first five joints of antennae reddish-yellow. Head with isolated punctures, forehead with a distinct linear impression before ocelli; thorax rather diffusely punctured, without central furrow, depressions on disc shallow; elytra rather finely but distinctly punctured. L.  $1\frac{1}{2}$  l. Scarce. *H. monilicorne*, Gyll.

**2.** Abdomen scarcely impressed within lateral margin.

**A A.** Anterior margin of thorax with two depressions; elytra pitch-brown.

Elongate, flat. Black, shiny; elytra pitch-brown; legs and first five joints of antennae reddish-yellow. Penultimate five joints of latter very strongly transverse, almost equal in breadth; punctuation of head irregular, rather diffuse, that of elytra finely wrinkled; thorax rather closely punctured, with indistinct central furrow; depressions on disc very shallow, anterior margin with two depressions. L. 1—1 $\frac{1}{3}$  l. Rather common. *H. planum*, Payk.

**B B.** Anterior margin of thorax without depressions; elytra brown.

Narrower than *H. planum*. Black, shiny; elytra brown; antennae yellowish-red, brown toward apex; legs red. Forehead scantily punctured, with an impressed line before each ocellum; thorax transverse, sides somewhat rounded before middle, slightly narrowed toward base, disc finely and not very closely punctured, scarcely channeled, very finely alutaceous, anterior margin without depressions; elytra almost twice as long as thorax, very finely alutaceous and scantily punctured; abdomen indistinctly punctured. L. scarcely 1 l. Rare. *H. pineti*, Th.

**II.** Impressions before ocelli very small, puncture-like.

**1.** Antennae reddish-yellow at base, brownish at apex; elytra scarcely visibly punctured.

Flat. Black, dull, with silky reflection; thorax and elytra red-brown; legs and basal half of antennae reddish-yellow, apex of latter brownish. Punctuation scarcely visible; thorax almost double as broad as long, depressions on disc not very deep. L.  $\frac{4}{5}$  l. Common. *H. pusillum*, Gr.

**2.** Antennae entirely yellow; elytra diffusely but distinctly punctured.

Flat. Pitchy, somewhat shiny; antennae and legs yellow, former with apical joints distinctly more thickened. Thorax with anterior angles rounded, dorsal depressions deep; elytra very finely alutaceous, diffusely but distinctly punctured. L.  $\frac{4}{5}$  l. *H. punctipenne*, Th.

**b.** Last joint of posterior tarsi shorter than the rest together.

**I.** Antennae scarcely reaching middle of thorax, thick, pubescent.

Labrum bilobed; forehead without impressions before ocelli.

**1.** Thorax black or pitch-black.

**A A.** Elytra extremely closely and finely punctured, without wrinkles.

Elongate, flat. Blackish-brown, not very shiny; elytra red, darker round scutellum; antennae and legs reddish-yellow. Fore parts very closely and finely punctured; scutellum finely, rather closely punctured; depressions on disc of thorax shallow. L.  $1\frac{1}{2}$  l. Rather common.

*H. deplanatum*, Gyll.

**B B.** Elytra closely and finely punctured, with fine longitudinal wrinkles.

Black; elytra dark chestnut-brown; antennae and legs reddish, middle of former sometimes darker. Very similar to *H. deplanatum* but rather broader, more shiny, more diffusely punctured. L.  $1\frac{1}{2}$  l. Common.

*H. concinnum*, Marsh.

**2.** Thorax yellow-red.

Elongate, flat, scarcely pubescent. Yellow-red, shiny; head and apex of abdomen somewhat darker. Fore parts closely punctured; thorax even. Antennae longer than in *H. concinnum*, head and thorax duller. L.  $1\frac{1}{2}$  l. Rare.

*H. testaceum*, Er.

**II.** Antennae pilose, with last five joints equal in breadth.

Dorsal depressions on thorax indistinct; body finely and scantily pubescent.

**1.** Abdomen entirely black; disc of thorax black.

**A A.** Forehead without impressions before ocelli; tibiae not toothed.

**a a.** Thorax with feeble dorsal depressions, sides feebly rounded.

**A a.** Punctuation of elytra partly in rows; length 1 line.

Elongate, rather flat. Pitch-black, rather shiny; legs and first five joints of antennae yellow, rest of latter blackish. Punctuation of head moderately close, fine, that of thorax and elytra close, deep, on latter arranged here

and there in rows; thorax not much broader than long; abdomen diffusely, extremely finely punctured; depressions on disc of thorax shallow. Common. *H. vile*, Er.

**B b.** Punctuation of elytra confused throughout; length  $1\frac{1}{4}$  lines.

Black, shiny; first five joints of antennae and the legs yellow-red; antennae scarcely longer than head and thorax, latter with two oblong gentle depressions. Similar to *H. vile*, but broader, with punctuation stronger, thorax more shiny and antennae stouter. Not common.

*H. brevicorne*, Er.

**b b.** Thorax without dorsal depressions, sides rather strongly rounded.

Lighter in colour than *H. vile* and *brevicorne*, punctuation stronger than in former and not so close; narrower than latter, thorax with scarcely a trace of depressions on disc, punctuation of elytra not so close, abdomen less shiny, antennae with two basal joints not so stout and penultimate joints less transverse. L.  $1-1\frac{1}{4}$  l. Rare.

*H. gracilicorne*, Fairm.

**B B.** Forehead with impressions before ocelli; anterior tibiae toothed.

**a a.** Mesosternum not ridged.

**A a.** Thorax evenly narrowed before and behind, finely punctured; basal joints of antennae pitch-black.

Black, shiny; legs red, femora sometimes darker; antennae pitch-black, more or less reddish toward apex, gradually slightly thickened. Head rather diffusely punctured behind, smooth in front, with two small deep longitudinal impressed lines before ocelli; thorax evenly narrowed before and behind, moderately closely and finely punctured, depressions on disc indistinct; elytra moderately closely punctured (near suture in tolerably regular rows), interstices with fine scratches. L. 2 l. Rather common.

*H. florale*, Payk.

**B b.** Thorax distinctly more narrowed before than behind, rather strongly punctured; basal joints of antennae reddish-yellow.

Black, shiny; side margin of thorax and shoulders of

elytra reddish-brown, rest of latter blackish-brown; legs and base of antennae reddish-yellow, latter gradually slightly thickened. Head rather diffusely and deeply punctured, with two small, deep, puncturelike impressions before ocelli; depressions on disc of thorax shallow; elytra punctured as in *H. florale*, the scratches on interstices still stronger. L.  $1\frac{1}{2}$  l. Rare. *H. nigrum*, Gr.

**b b.** Mesosternum finely ridged.

Black, shiny; legs and first five joints of antennae red-yellow, rest of latter dark brown, joints distinctly broader than long. Head diffusely and finely punctured, with two small, deep impressions before ocelli; thorax evenly narrowed before and behind, rather diffusely, moderately finely punctured, depressions on disc shallow; elytra rather closely and strongly punctured, the punctures placed alternately closely in tolerably regular rows and diffusely in irregular rows. L.  $2-2\frac{1}{4}$  l. Rare. *H. salicis*, Gyll.

**2.** Thorax and abdomen red-brown, with apex of latter black.

Red-brown; head, breast, suture and apex of elytra and apex of abdomen black; apex of antennae brown; legs reddish-yellow. Head closely and rather strongly punctured, without impressions before ocelli; thorax longer than in *H. salicis*, closely and rather strongly punctured, depressions on disc indistinct; elytra with almost regular rows of punctures, interstices diffusely and finely punctured. L.  $1\frac{1}{4}$  l. Rather common. *H. iopterum*, Steph.

**B.** Body short and broad; elytra dilated toward apex; abdomen short, ovate, pointed at apex.

**a.** Forehead without raised line; tibiae spined; elytra punctured in rows.

Deep black, moderately shiny; legs reddish-yellow; antennae with first joint red-brown, next five or six pitch-brown and rest blackish, gradually somewhat broader. Punctuation of head diffuse, indistinct, that of thorax moderately close and fine, depressions on disc shallow; scutellum smooth; elytra with tolerably regular rows of punctures; interstices finely wrinkled. Thorax with a slight central furrow, more distinct in front. L.  $\frac{3}{4}$  l. Common. *H. striatum*, Gr.

**b.** Forehead with a raised line on each side from base of



antennae to ocelli ; tibiae not spined ; elytra confusedly punctured.

**I.** Elytra not dilated at sides ; body closely and finely pubescent.

Red-brown ; head and apex of elytra brown ; legs yellow ; antennae reddish-yellow, gradually thickened toward apex. Punctuation of fore parts close, rather deep, that of abdomen very fine. Thorax without any trace of depressions on disc, sides not notched. L.  $1\frac{1}{4}$  l. Not uncommon.

*H. pygmaeum*, Payk.

**II.** Elytra inflated, almost bare.

Pitch-brown ; margins of thorax, base of elytra and sides of abdomen often red-brown ; legs reddish-yellow ; antennae red-brown, four penultimate joints strongly transverse. Punctuation of fore parts rather close, deep, that of abdomen scarcely visible. Thorax without any trace of depressions on disc, sides finely notched. L. 1 l. Rare.

*H. inflatum*, Gyll.

### *Eusphalerum.*

Black ; side margins of thorax, elytra and apex of abdomen lighter or darker brownish-yellow ; antennae and legs reddish-yellow. L.  $1\frac{1}{2}$  l. Rather common.

*E. primulae*, Steph.

### *Anthobium.*

**A.** Upper-side black, elytra brown or red-yellow.

**a.** Elytra brown, three times as long as thorax.

Black ; elytra brown ; base of antennae and legs reddish-yellow. Apex of elytra in female produced at suture. L. 1 l. Common.

*A. minutum*, Fab.

**b.** Elytra red-yellow, rather more than twice as long as thorax.

Similar to *A. minutum* but with thorax finely and less closely punctured, with a fine central furrow ; elytra shorter, red-yellow. L. 1 l. A specimen taken at Rannoch.

*A. lapponicum*, Mann.

**B.** Upper-side reddish-yellow, elytra paler.

**a.** Thorax closely punctured.

Elytra about double as long as thorax ; apical margin

straight; abdomen entirely reddish-yellow. L. 1 l. Common.  
*A. ophthalmicum*, Payk.

**b.** Thorax diffusely punctured.

**I.** Metasternum black.

Elytra about double as long as thorax, apical margin straight; abdomen of male black, of female red, black-brown before apex. L.  $\frac{3}{4}$  l. Common.

*A. torquatum*, Marsh.

**II.** Metasternum reddish-yellow.

Elytra rather more than double as long as thorax, apical margin slightly rounded; abdomen of male blackish, with brownish apex. L.  $\frac{1}{2}$  l. Common.

*A. sorbi*, Gyll.

## PROTEINIDAE.

**A.** Forehead without any ocellum.

**a.** Antennae with last three joints larger than rest; posterior angles of thorax entire.

Maxillary lobes about equal; third joint of maxillary palpi distinctly narrower and rather shorter than second, fourth only half as broad as third and distinctly as long as second and third together.

*Proteinus*, Latr.

**b.** Antennae with only last joint larger than rest; posterior angles of thorax emarginate.

Outer maxillary lobe much larger than inner; third joint of maxillary palpi scarcely narrower or shorter than second, fourth as wide as third and nearly as long as second and third together.

*Megarthritis*, Kirby.

**B.** Forehead with one ocellum.

Antennae with last three joints somewhat thickened, apical one strong. Outer maxillary lobe strongly dilated beyond middle on outer-side; joints of maxillary palpi gradually narrower, second and fourth about equal in length, third shorter.

*Phloeobium*, Er.

### *Proteinus.*

**A.** Length  $\frac{2}{3}$ —1 line.

**a.** Antennae entirely pitch-brown.

Similar to *P. brachypterus*, but with shorter thorax and

longer elytra, which are more strongly punctured and have shoulders generally brownish. L. 1 l. Common.

*P. brevicollis*, Er.

**b.** Antennae black, with first joint reddish-yellow.

Short and broad. Black; legs reddish-yellow. Thorax more than double as broad as long, without distinct punctuation; elytra more than double as long as thorax, rather closely and finely punctured. L.  $\frac{3}{4}$  l. Common.

*P. brachypterus*, Fab.

**c.** Antennae black, with first two joints reddish-yellow.

Similar to *P. brachypterus*, but with elytra more brownish and thorax gradually narrowed from base forward. L.  $\frac{2}{3}$  l. Moderately common.

*P. macropterus*, Gyll.

**B.** Length  $\frac{1}{3}$  line.

Brownish-black; antennae (except club) and legs reddish-yellow. Posterior angles of thorax sharp; elytra three times as long as thorax. Not uncommon.

*P. atomarius*, Er.

### *Megarthus*.

**A.** Upper-side black or blackish-brown.

**a.** Sides of thorax gently rounded; emargination of posterior angles forming an obtuse angle with side and basal margins.

Black, dull; antennae blackish-brown, with first two joints darker; legs red, femora often blackish. L. 1 l. Rather common.

*M. depressus*, Payk.

**b.** Sides of thorax with an obtuse angle behind middle and a distinct prominence not far from anterior angles; emargination of posterior angles slightly curved, forming tolerably sharp angles with side and basal margins.

**I.** Last two segments and apical margin of preceding segment of abdomen (sometimes also lateral margins of all segments) reddish; lateral teeth of thorax feeble.

Similar to *M. sinuatocollis*, but with thorax and elytra lighter, pitch-brown, former with distinct reddish sides, apical margin of latter often pale; abdomen as above; much less shiny, the punctuation being very close. Male with

intermediate femora very slightly thickened and their tibiae scarcely perceptibly curved, posterior pair simple. L. 1 l. Not uncommon. *M. affinis*, Mill.

**II.** Abdomen black; lateral teeth of thorax strong.

Black, rather dull; legs red; sides of thorax somewhat reddish. Male with hinder pairs of femora thickened and their tibiae considerably curved. L. 1 l. Common.

*M. sinuatocollis*, Lac.

**c.** Sides of thorax with an obtuse angle behind middle only; emargination of posterior angles sharply right angled, forming also right angles with side and basal margins.

Blackish-brown, rather dull; side margins of thorax, apical margin of elytra and apex of abdomen red-brown; first joint of antennae and legs red; apical margin of forehead sharply raised; punctuation strong. L. 1 l. Common.

*M. denticollis*, Beck.

**B.** Upper-side rust-red.

Head black, apical margin of forehead sharply raised; antennae brownish at apex. L. 1 l. Not very common.

*M. hemipterus*, Ill.

### *Phlocobium.*

Brownish-yellow; dull; antennae (except last joint) blackish. Anterior margin of head strongly dilated; posterior margin of thorax with a little tooth on each side. L. 1 l. Common.

*P. clypeatum*, Müll.

## PHLOEOCHARIDAE.

**A.** Fourth joint of maxillary palpi longer than third.

Mandibles with two strong teeth before middle. Anterior tarsi simple.

*Pseudopsis*, Newm.

**B.** Fourth joint of maxillary palpi shorter than third.

Mandibles with one tooth before middle. Anterior tarsi slightly dilated.

*Phloeocharis*, Mann.

### *Pseudopsis.*

Black; smooth; antennae and legs brown. L. 1½ l. Scarce.

*P. sulcata*, Newm.

***Phloeocharis.***

Blackish-brown; margin of abdominal segments and often also elytra brown-red; mouth, antennae and legs yellow. Pubescence yellowish-gray, rather thick. L.  $\frac{3}{4}$  l. Rather common. *P. subtilissima*, Mann.

**PIESTIDAE.**

Mandibles of female simple, of male with a long horn on outer-side; outer maxillary lobe dilated on outer-side; last joint of maxillary palpi double as long as third; forehead with a horn on each side in male; abdomen bordered; anterior tibiae with fine spines, tarsi short, with five joints. *Prognatha*, Latr.

***Prognatha.***

Pitch-black, shiny; base of antennae, legs and a large spot on shoulder of elytra brown-red, latter often entirely yellow-brown. Elytra with four or five punctured striae (abbreviated behind) beside sutural stria. L. 2 l. Rather common. *P. quadricornis*, Kirby.

**MICROPEPLIDAE.**

Mentum constricted before apex. Thorax, elytra and abdomen with raised ribs; antennae with nine joints, clubbed, received into grooves; posterior coxae placed slightly apart; tarsi with three joints. *Micropeplus*, Latr.

***Micropeplus.***

**A.** Elytra with suture and five longitudinal lines (the outer ones abbreviated) rather strongly raised; interstices deeply punctured, almost in rows.

Black, dull; base of antennae and legs red. L. 1 l. Common. *M. porcatus*, Payk.

**B.** Elytra with suture and four longitudinal lines (the outermost placed at sides of elytra) raised; interstices strongly and deeply punctured.

**a.** Forehead with one not very strong raised longitudinal line; sixth abdominal segment with central longitudinal ridge running to middle of segment.

Pitch-brown; head, middle of thorax and of abdomen darker; antennae and legs reddish-yellow. Prominence in middle of base of fourth dorsal abdominal segment ridge-like. L. 1 l. Common. *M. staphylinoides*, Marsh.

**b.** Forehead with three distinct raised lines; sixth abdominal segment with central ridge ending as a tubercle at base.

Blackish-brown; sides of thorax and elytra brown; antennae and legs reddish-yellow. Much duller than *M. staphylinoides*, punctuation feebler. Prominence in middle of base of fourth dorsal abdominal segment tubercular. L. 1 l. Common. *M. margaritae*, Duv.

**C.** Elytra with suture and three longitudinal lines raised; interstices quite smooth.

Black, moderately shiny; sides of thorax brownish; base of antennae and legs red. L.  $\frac{3}{4}$  l. Rare.

*M. tesserula*, Curt.

## CLAVICORNIA.

**A.** Antennae regular and, if very fine, with an abrupt club; tarsal claws not unusually large.

**a.** Prosternum horny.

**I.** Posterior coxae not dilated, or if so, tarsi with three or four joints.

**1.** Anterior coxae conical, prominent.

**AA.** Elytra leaving greater part of abdomen uncovered.

Antennae more or less abruptly clubbed, last joint very large; mandibles acute; maxillary palpi generally with from three to five joints, very long, last joint very long, club-like; abdomen bordered, with five or six ventral segments; posterior coxae transverse, approximated; femora clubbed, tibiae slender, tarsi three-jointed, simple, often with only one claw. *Pselaphidae*.

**BB.** Elytra leaving at most the apical segments of abdomen uncovered.

**aa.** Labial palpi very short.

**Aa.** Tarsi with five joints.

**A 1.** Fourth joint of maxillary palpi very small.

Antennae eleven-jointed, gradually thickened, with large apical joints; mandibles acute; maxillary palpi four-jointed, long, third joint very large, fourth very small, often indistinct; eyes prominent, granulate; elytra covering abdomen, latter with six ventral segments; wings absent; posterior coxae conical, placed apart; femora clubbed, tibiae slender.

*Scydmaenidae.*

**B 1.** Fourth joint of maxillary palpi not small.

Antennae eleven-jointed, with five larger apical joints, often very slender; both lobes of maxillae membranous; body boat-shaped; thorax fitting closely to elytra, latter abbreviated, obliquely truncate at apex; abdomen with from five to seven ventral segments, first one large; anterior coxae approximated, hinder pairs far apart, enclosed; femora elongate, tibiae more or less long.

*Scaphidiidae.*

**B b.** Tarsi with three joints.

**A 1.** Wings with a sort of stalk; abdomen with five, six, or seven ventral segments.

Antennae very slender, with abrupt three-jointed club; labrum large; maxillae with two lobes, stem much developed, produced; bases of labial palpi produced at apex; metathorax very large; elytra sometimes truncate at apex and abbreviated; wings thickly fringed with long hairs; tarsi with a bristle between claws; hinder pairs of coxae placed apart, posterior pair often much dilated.

*Trichopterygidae.*

**B 1.** Wings without stalk; abdomen with three ventral segments.

Antennae rather short, with three-jointed club; labrum large; maxillae with one lobe, stem produced; bases of labial palpi produced; elytra covering apex of abdomen; wings fringed; tarsi with bristle between claws; hinder pairs of coxae placed apart, posterior pair dilated.

*Sphaeriidae.*

**C c.** Tarsi with four joints.

Antennae slender, with from nine to eleven joints, club

three or five-jointed; maxillae with one lobe; elytra not covering apex of abdomen; hinder pairs of coxae placed apart.

*Corylophidae.*

**b b.** Labial palpi not very short.

**A a.** Posterior coxae dilated.

Antennae nine-jointed, very thin, with abrupt two-jointed club; maxillae with two lobes; tarsi four-jointed; insects capable of rolling up into almost a perfect ball.

*Clambidae.*

**B b.** Posterior coxae not dilated.

**A 1.** Posterior trochanters not projecting from femora.

Club of antennae with from three to five joints, in latter case its second joint small; episterna of metathorax wholly or nearly entirely covered by reflexed margin of elytra; posterior coxae approximated; abdomen with six ventral segments; number of tarsal joints variable.

*Anisotomidae.*

**B 1.** Posterior trochanters projecting from femora.

Antennae either gradually or abruptly clubbed; elytra often abbreviated; episterna of metathorax not covered; abdomen with six ventral segments; posterior coxae approximated; tarsi nearly always five-jointed.

*Silphidae.*

**2.** Anterior coxae globular or cylindrical.

**A A.** Antennae elbowed.

Antennae with first joint very long, club compact, three-jointed; mandibles very strong; abdomen with five ventral segments; anterior coxae cylindrical, enclosed, posterior coxae placed apart; legs broad and flat, tarsi five-jointed, short; body without pubescence; elytra almost always abbreviated, leaving last two segments of abdomen uncovered, apex truncate, each normally bearing the following striae, viz: a sutural stria, five dorsal striae (numbered from toward suture), an oblique stria on shoulder (humeral stria), an inner lateral stria, placed nearer apex than humeral stria and sometimes attached to latter, and an outer lateral stria, placed at base, outward from humeral stria; all these striae are in various cases absent or abbreviated; the reflexed margin of elytra also sometimes bears one or two striae.

*Histeridae.*



**B B.** Antennae not elbowed.

**a a.** Tibiae with a ring of closely-placed spines at apex; posterior coxae contiguous.

Club of antennae oblong, three-jointed; maxillae with two lobes; elytra convex, covering whole of abdomen, latter with five ventral segments, all free; anterior coxae globular, posterior pair placed close together; tarsi five-jointed, first three joints dilated, thickly covered with hairs beneath, fourth joint very small. *Phalacridae.*

**b b.** Tibiae without ring of spines at apex; posterior coxae generally placed apart.

**A a.** Anterior coxae cylindrical.

**A 1.** Fourth tarsal joint smaller than second and third.

Club of antennae compact, two or three-jointed; elytra generally truncate behind, sometimes considerably abbreviated; abdomen with five ventral segments, all free; posterior coxae placed more or less apart; tarsi five-jointed, either first and fourth or only fourth joint (usually latter) small, posterior tarsi of male rarely four-jointed. *Nitidulidae.*

**B 1.** Fourth tarsal joint not smaller than second and third.

Maxillae with two lobes; elytra covering abdomen, latter with five ventral segments, all free; tarsi five-jointed, first joint small, last one very long, with a slender lobe, bearing two bristles at apex, between claws. *Trogositidae.*

**B b.** Anterior coxae globular.

**A 1.** Anterior tarsi with same number of joints in both sexes.

**a 1.** Tarsi with five or four joints.

**A 2.** First three or four abdominal segments fixed together.

Antennae with ten or eleven joints, variously formed; abdomen with five ventral segments; tarsi with four simple joints. *Colydiidae.*

**B 2.** Abdomen with five ventral segments, all free.

**a 2.** All abdominal segments about equally large.

Antennae sometimes scarcely thickened toward apex, sometimes with three larger apical joints; legs placed more or less apart; tarsi five-jointed, posterior pair in male sometimes four-jointed. *Cucujidae.*

**b 2.** First abdominal segment larger than the rest.

Club of antennae loose, usually three, rarely two-jointed; legs placed apart; tarsi five-jointed, posterior pair in male often with only four joints. *Cryptophagidae.*

**C 2.** First two abdominal segments fixed together.

Club of antennae three-jointed, somewhat flattened; last joint of maxillary palpi generally hatchet-shaped; legs placed apart; tarsi generally apparently four-jointed. *Erotylidae.*

**b 1.** Tarsi apparently or really with three joints.

**A 2.** First and second tarsal joints broad, produced beneath base of succeeding joint and thickly covered with hairs on under-side.

**a 2.** Tarsi with three joints; socket-holes of anterior coxae generally closed.

Antennae short, inserted before eyes, with a three-jointed, flattened club; last joint of maxillary palpi hatchet-shaped; posterior coxae apart, ridgelike border of intercoxal process generally continued on to first abdominal segment as a fine raised line, curved toward apex or side margin, or in a semi-circle round coxae; body convex, hemispherical or short oval. *Coccinellidae.*

**b 2.** Tarsi with four joints, third very small; socket-holes of anterior coxae open.

Antennae moderately long, inserted between or before eyes, last three joints more or less thickened; last joint of maxillary palpi sometimes nearly hatchet-shaped; posterior

coxae placed apart, first abdominal segment without raised lines. *Endomychidae.*

**B 2.** Tarsi simple.

Antennae with larger apical joints; labial palpi often apparently only two-jointed; outer lobe of maxillae generally obsolete; elytra covering abdomen, latter with five ventral segments, the first much larger than the others; posterior coxae placed apart; femora clubbed, tibiae slender.

*Lathridiidae.*

**B 1.** Anterior tarsi of male with three, those of female with four joints.

Antennae gradually thickened or with two or three larger apical joints; posterior coxae placed apart; abdomen with five nearly equal ventral segments, all free.

*Mycetophagidae.*

**II.** Posterior coxae dilated; tarsi with five joints.

**1.** All abdominal segments free; anterior coxae conical, prominent.

Antennae short, inserted on forehead, often placed when at rest in grooves beneath thorax, club usually three-jointed; forehead (except in *Dermestes*) with a single ocellum; femora with a groove for reception of tibiae; posterior coxae approximated.

*Dermestidae.*

**2.** First three abdominal segments fixed together; anterior coxae cylindrical, enclosed.

Antennae inserted beneath side margin of forehead, placed when at rest beneath thorax, gradually thickened or with several larger apical joints; forehead without ocellum; tibiae received by femora; posterior coxae approximated.

*Byrrhidae.*

**b.** Prosternum membranous.

Antennae nine-jointed, club three-jointed; under-side of thorax with round depressions for reception of club of antennae; abdomen with five ventral segments, not freely moveable; anterior coxae conical, prominent, approximated, hinder pairs placed apart, tarsi four-jointed, simple.

*Georyssidae.*

**B.** Antennae irregular or very fine and scarcely thickened toward apex; in latter case tarsal claws unusually large.

**a.** Tarsi five-jointed.

Antennae placed on forehead; abdomen with five ventral segments, first four fixed together; last tarsal joint and claws very strong; body with thick pubescence, either all over or in parts. *Parnidae.*

**b.** Tarsi four-jointed.

Antennae placed at sides of head, short, first two joints rather large, third and fourth very small, the rest forming a sawlike club; ligula prominent; abdomen with five ventral segments, first four fixed together, anterior coxae cylindrical; legs adapted for digging, tibiae spined; body thickly pubescent. *Heteroceridae.*

**PSELAPHIDAE.****A.** Antennae with eleven joints.

Maxillary palpi strongly developed; head more or less triangular; eyes prominent and granulated. *Pselaphides.*

**B.** Antennae with at most six joints.

Mouth parts obsolete; head narrow, longitudinally oval; eyes and wings wanting. *Clavigerides.*

**PSELAPHIDES.****A.** Tarsi with two unequal claws.**a.** One claw only slightly smaller than the other.

Maxillary palpi as long as head, last joint oval, pointed; antennae placed far apart; penultimate joints not much thickened, last joint pear-shaped; thorax as long as broad, sides dilated in middle, with three depressions before base united by a transverse furrow, and each giving rise to a longitudinal furrow, near margin two other depressions; elytra with a sutural and short dorsal stria; abdomen not bordered. *Batrisus, Aub.*

**b.** One claw much smaller than the other, almost bristle-like.

Last joint of maxillary palpi spindle-shaped; antennae placed far apart, with three larger apical joints, the last very large, oval; thorax longer than broad, strongly rounded at sides; elytra flat, emarginate near posterior angles; abdomen bordered. *Trichonyx, Chaud.*

**B.** Tarsi with only one claw.**a.** Abdomen with five ventral segments.

**I.** Last joint of maxillary palpi oblong-oval or club-like.

**1.** Antennae placed far apart.

Maxillary palpi as long as head, last joint oblong-oval ; antennae gradually thickened toward apex ; sides of thorax rounded. *Bryaxis*, Kug.

**2.** Antennae placed near each other.

Maxillary palpi fully twice as long as head, last joint very long, thickened clublike toward apex ; antennae slightly thickened toward apex ; front of forehead produced, with a deep longitudinal furrow in middle ; sides of thorax only slightly rounded. *Pselaphus*, Herbst.

**II.** Last joint of maxillary palpi hatchet-shaped.

**1.** Antennae placed near each other.

Last three joints of antennae large ; front of forehead produced, with a deep longitudinal furrow in middle ; thorax as broad as long, sides rounded in middle, rather more narrowed in front than behind ; elytra with a sutural and abbreviated dorsal stria. *Tychus*, Leach.

**2.** Antennae placed far apart.

Antennae with first two joints large, two penultimate joints transverse ; forehead produced in front, with two impressions between eyes and often a longitudinal furrow ; thorax about as broad as long, sides rounded in middle, a fine curved impressed line before base ; elytra punctured, with a sutural and abbreviated dorsal stria.

*Bythinus*, Leach.

**b.** Abdomen with six ventral segments.

**I.** Antennae longer than head, middle joints about as broad as long.

Last joint of maxillary palpi pointed oval ; thorax about as long as broad, sides dilated before middle, usually with three depressions before base, united by a transverse impression ; elytra with a sutural and abbreviated dorsal stria. Body flat. *Euplectus*, Leach.

**II.** Antennae not much longer than head, middle joints transverse.

Similar to *Euplectus*, but with thorax longer than broad, sides only slightly rounded, and body somewhat convex.

*Trimium*, Aub.

### *Batrisus*.

Rust-red, shiny; abdomen black or pitchy. Vertex of head with a small depression in middle; posterior tibiae without any apical spine. Last joint of antennae much broader than penultimate one in male, and equal in breadth to it in female. L. 1 l. Scarce. *B. venustus*, Reich.

### *Trichonyx*.

**A.** Elytra finely and closely punctured.

Reddish yellow-brown; antennae and legs rather lighter. Forehead with a horseshoe-shaped impression; disc of thorax with a central furrow and three deep depressions behind; elytra with a deep dorsal stria, reaching almost to middle, and entire sutural and side striae. L.  $\frac{1}{3}$  l. Rare.

*T. sulcicollis*, Reich.

**B.** Elytra not punctured.

Very similar to *P. sulcicollis*, but with head rather more pointed, the horseshoe impression on forehead ending behind in a large round depression, and the dorsal stria on elytra shorter and shallower. L. 1 l. Rare.

*T. Märkeli*, Aub.

### *Bryaxis*.

**A.** Thorax with three equally large depressions before base.

**a.** Basal depressions of thorax united by a transverse furrow.

Black; elytra red; antennae and legs lighter or darker brown. Elytra with a sutural and an abbreviated dorsal stria; anterior trochanters not toothed. Male with a little tooth in middle of inner margin of anterior tibiae; antennae longer than in female. L.  $\frac{4}{5}$ —1 l. Common.

*B. sanguinea*, Fab.

**b.** Basal depressions of thorax separate.

**I.** Head, thorax, and abdomen dark brown or pitchy.

**1.** Anterior trochanters of male not toothed.

Reddish-pitchy; elytra red, margins dark; legs brown-yellow, male with a small spine at apex of intermediate tibiae. L. 1 l. Not common. *B. Waterhousei*, Rye.

**2.** Anterior trochanters of male toothed.

**A A.** Elytra dark brown.

Dark chestnut-brown; antennae and legs reddish-yellow-brown. Elytra much widened toward apex, with a sutural and an abbreviated dorsal stria; anterior trochanters dilated into a triangular tooth; first abdominal segment very long. L. 1 l. Common. *B. fossulata*, Reich.

**B B.** Elytra rust-brown or dark red.

**a a.** First abdominal segment of male with a crescent-shaped impression at apex.

Pitch-black; elytra dark red; legs reddish-brown. Elytra much broader in front than base of thorax, with shoulders somewhat prominent and rounded, somewhat widened behind, with two deep dorsal striae; first abdominal segment very large. Anterior trochanters of male with a curved tooth. L.  $\frac{2}{3}$  l. Rather common.

*B. Helferii*, Schmidt.

**b b.** First abdominal segment of male simple.

Pitch-black; elytra lighter or darker rust-brown. Elytra only slightly dilated toward apex, with a straight sutural and an abbreviated, curved dorsal stria. Anterior trochanters of male with a curved tooth. L.  $\frac{4}{5}$  l. Rare.

*B. Lefebvrei*, Aub.

**II.** Body entirely red.

Central depression on thorax barely so large as lateral ones; elytra with a sutural and an abbreviated dorsal stria; first abdominal segment very long, sides dilated in male, straight in female; anterior trochanters not toothed. L.  $\frac{4}{5}$ —1 l. Moderately common. *B. haematica*, Reich.

**B.** Thorax with three depressions before base, the central one very small.

**a.** Thorax very finely and closely punctured; body red-brown.

Thorax broadest in middle; elytra impunctate, with a straight sutural and a curved, slightly abbreviated dorsal stria; first abdominal segment longer than rest. L.  $\frac{4}{5}$  l. Common. *B. juncorum*, Leach.

**b.** Thorax smooth; body black, with elytra dark red.

Antennae and legs pitch-black. Elytra much dilated behind, with a straight sutural and a curved, slightly abbreviated dorsal stria; abdominal segments tolerably equal in length. L.  $\frac{4}{5}$  l. Moderately common.

*B. impressa*, Panz.

### *Pselaphus.*

**A.** Thorax much longer than broad, base not impressed.

Rust-red. Male with anterior femora somewhat thickened and abdomen flat. L. 1 l. Rather common.

*P. Heisei*, Herbst.

**B.** Thorax about as long as broad, with a curved transverse impression at base.

Chestnut-brown. Male with anterior femora somewhat thickened and abdomen flat. L. 1 l. Very rare.

*P. dresdensis*, Herbst.

### *Tychus.*

Black; antennae and legs red-brown. Male with fifth joint of antennae very large. L.  $\frac{2}{3}$  l. Common.

*T. niger*, Payk.

### *Bythinus.*

**A.** Elytra distinctly punctured.

**a.** Male with first joint of antennae dilated on inner-side, second joint cylindrical.

**I.** Thorax distinctly punctured.

Reddish-brown; antennae lighter; elytra pitchy. Male with femora somewhat thickened; anterior tibiae with a little tooth on inner-side. L.  $\frac{2}{3}$  l. Common.

*B. puncticollis*, Den.

**II.** Thorax not punctured.

Pitch-black; antennae and legs yellow-brown. Male with first joint of antennae very thick, narrowed at base, inner margin prominent in middle and with a slight tooth at apex, anterior tibiae with a little tooth on inner-side. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Common.

*B. bulbifer*, Reich.

**b.** Male with first joint of antennae cylindrical, second joint dilated on inner-side.



**I.** Body lighter or darker brown; male with a little tooth on anterior tibiae.

Antennae and legs red-brown. Thorax scarcely visibly punctured at base. Male with second joint of antennae globular, with a blunt tooth on inner-side. L.  $\frac{5}{8}$  l. Rather common. *B. Curtisi*, Leach.

**II.** Body pitch-black; male with anterior tibiae simple.

**1.** Male with second joint of antennae as broad as long, the inner margin rounded off at base and projecting in a tooth at apex.

Antennae and legs red. Base of thorax indistinctly punctured. L.  $\frac{2}{3}$  l. Not common. *B. securiger*, Reich.

**2.** Male with second joint of antennae longer than broad, the inner margin concave, projecting in a tooth at base and apex.

Antennae and legs yellow-brown. Thorax impunctate. L.  $\frac{3}{4}$  l. Not common. *B. Burrelli*, Den.

**B.** Elytra almost impunctate.

Yellow-red, almost impunctate, very shiny, thinly covered with long yellowish hairs. First joint of antennae almost cylindrical, nearly as long as joints three to eight together; legs slender, posterior tibiae much longer than the others, slightly thickened and curved inward toward apex. L.  $\frac{2}{3}$  l. Rare; Seaford Downs. *B. glabratus*, Rye.

### *Euplectus.*

**A.** First two abdominal segments with two small impressions at base.

Reddish-brown, antennae and legs lighter. Head with two round depressions between eyes. L.  $\frac{4}{5}$  l. Rare. *E. Kunzei*, Aub.

**B.** Abdomen without impressions.

**a.** Head not narrower than thorax; base of latter with three impressions connected by a transverse impression.

**I.** Elytra with an abbreviated dorsal stria.

**1.** Head and thorax closely punctured; frontal depressions nearly parallel.

**A A.** Length  $\frac{3}{4}$  line.

Elongate, flat, rather shiny, with fine gray pubescence. Yellow-red, antennae and legs concolorous, abdomen a little darker. Head transverse, strongly and closely punctured; thorax heart-shaped, more diffusely and less strongly punctured than head, with central furrow; elytra with three depressions at base of each, a sutural stria and an abbreviated dorsal stria; last joint of antennae short ovate. Thorax more flattened than in *E. Karsteni* and more dilated at sides. Rare. *E. punctatus*, Muls.

**B B.** Length  $\frac{2}{3}$  line.

Red-brown. Head broader than thorax, closely punctured throughout, sides parallel behind eyes; thorax with abbreviated central furrow, basal depressions only indistinctly connected; elytra finely punctured with a dorsal stria not reaching middle. Intermediate tibiae of male without any distinct spur. Rather common.

*E. Karsteni*, Reich.

2. Head and thorax not, or scarcely punctured; frontal depressions convergent.

**A A.** Sides of head parallel for some distance behind eyes.

**a a.** Body yellow-red.

Rather flat, with very scanty pale pubescence. Yellow-red. Thorax with an abbreviated central furrow; dorsal stria on elytra not reaching middle. L.  $\frac{1}{2}$  l. Rather common.

*E. signatus*, Reich.

**b b.** Body chestnut-brown.

Rather flat, shiny, with scanty, very fine pubescence. Chestnut-brown, antennae and legs lighter. Thorax with abbreviated central furrow and a deep lateral depression; dorsal stria on elytra not reaching middle. Frontal depressions less convergent than in *E. signatus*. L.  $\frac{2}{3}$  l. Common.

*E. sanguineus*, Aub.

**B B.** Sides of head rounded and contracted behind eyes.

**a a.** Head with a depression on vertex.

Rather flat, shiny, nearly impunctate and without pubescence. Chestnut-brown; antennae and legs rust-red. Vertex of head with an impression; thorax with an abbrev-

viated central furrow; elytra with an abbreviated dorsal stria, reaching middle; antennae somewhat pilose at apex, last joint oval. L.  $\frac{3}{4}$  l. Not common. *E. nanus*, Reich.

**b b.** Head without depression on vertex.

Pitch-black. Dorsal stria on elytra reaching nearly to middle. Like *E. nanus* but more elongate, with longer and more slender antennae; eyes larger and more prominent; vertex of head without depression. L.  $\frac{2}{3}$  l. Rare.

*E. nigricans*, Chaud.

**II.** Elytra with dorsal stria indicated only by a depression at base.

Pitch-black; antennae lighter at base, legs brown. Abdomen suddenly narrowed and pointed at apex, segments about equal in length. L.  $\frac{3}{4}$  l. Not very common.

*E. ambiguus*, Reich.

**b.** Head much narrower than thorax; base of latter with three depressions, but without transverse impression.

Pitch-black; antennae and legs lighter. Dorsal stria on elytra reaching about to middle; abdomen gradually narrowed and rounded at apex, first segment longest. L.  $\frac{3}{4}$  l. Rare.

*E. bicolor*, Den.

### *Trimium.*

**A.** Body pitchy-red, abdomen darker; eyes small.

Oblong, shiny, with very scanty pubescence; antennae and legs red-yellow. Elytra truncate at apex. L.  $\frac{2}{3}$  l. Rare.

*T. brevicorne*, Reich.

**B.** Body red-yellow; eyes very small.

Oblong, shiny; with very scanty pubescence. Elytra somewhat emarginate at apex. L. scarcely  $\frac{2}{3}$  l. Rare.

*T. brevipenne*, Chaud.

### **CLAVIGERIDES.**

Mandibles short; maxillary palpi with only one distinct, curved joint, with one or two bristles at apex; labial palpi with two joints. Tarsi with only one claw; first two tarsal joints very small.

*Claviger*, Preysl.

*Claviger.*

Reddish-yellow, shiny. Antennae with last four joints broad, apex of second, fourth and last one truncate, of third rounded; abdomen with a deep depression in middle. L. 1 l. Common. *C. foveolatus*, Müll.

**SCYDMAENIDAE.**

**A.** Second joint of labial palpi the longest.

*a.* Last joint of maxillary palpi short, conical.

Posterior coxae placed far apart; bases of antennae not very distant from each other. *Eumierus*, Lap.

*b.* Last joint of maxillary palpi distinct, awlshaped.

Posterior coxae placed not far apart; bases of antennae distant from each other. *Scydmaenus*, Latr.

**B.** First joint of labial palpi the longest.

*a.* Ligula deeply emarginate; thorax not or scarcely narrowed behind, almost as broad in front as elytra, which are truncate at apex.

Mandibles strongly bent, apex simple; last joint of maxillary palpi very small, conical. Head only slightly constricted behind. *Euthia*, Steph.

*b.* Ligula scarcely emarginate; thorax large and broad, slightly narrowed behind, broader in front than elytra, which are rounded at apex.

Mandibles emarginate at apex; last joint of maxillary palpi very small, conical. Head scarcely constricted behind. *Cephennium*, Müll.

*Eumierus.*

**A.** Body pitch-brown; thorax somewhat cylindrical, gradually narrowed in front, scarcely narrowed behind, with four basal depressions.

Antennae and legs reddish-yellow. Thorax with a row of depressions at base; anterior tarsi dilated. L. 1¼ l. Common. *E. tarsatus*, Müll.

**B.** Body reddish-yellow; thorax almost globular, without basal depressions.

Reddish-yellow, shiny, with very fine pale pubescence.

Elytra short oval, diffusely and indistinctly punctured. L.  $\frac{3}{4}$  l. Very rare. *E. rufus*, Müll.

### *Scydmaenus.*

**A.** Head fitting to thorax; mesosternum not, or only slightly ridged.

Antennae gradually thickened toward apex.

**a.** Thorax considerably broader before middle than at base, sides somewhat sinuate behind; mandibles with strongly curved apex and slightly notched inner margin; second joint of labial palpi not much longer than first.

**I.** Base of thorax with four depressions.

**1.** Body brownish-red.

Elytra short oval, punctured, with two depressions at base of each; femora not much thickened. L.  $\frac{7}{8}$  l. Scarce. *S. Godarti*, Latr.

**2.** Body black.

**A A.** Punctuation of elytra fine or indistinct.

**a a.** Sides of thorax gently rounded, anterior angles rounded; elytra broad oval.

Antennae and usually tibiae and tarsi brown. Each elytron with two deep, short longitudinal furrows at base, the inner one raising the space round scutellum; femora thickened at apex. Anterior tibiae of male triangularly dilated. L.  $\frac{3}{4}$  l. Moderately common.

*S. scutellaris*, Müll.

**b b.** Sides of thorax sharply rounded, anterior angles distinct; elytra oblong oval.

Antennae and legs brown, tarsi lighter. Thorax with basal depressions indistinct, but with a deep impression at side rather before posterior angles; femora, especially anterior pair, strongly thickened toward apex. L.  $\frac{3}{4}$  l. Common.

*S. collaris*, Müll.

**B B.** Punctuation of elytra tolerably strong and deep, not very close.

Antennae and legs red-brown, femora usually dark. Each elytron with two deep, short, longitudinal furrows at base. Anterior femora of male triangularly dilated at apex. L.  $\frac{1}{2}$  l. Rare.

*S. pusillus*, Müll.

**II.** Base of thorax without distinct depressions, but somewhat impressed transversely.

Lighter or darker brown, antennae and legs yellow-brown. Elytra oblong-oval, diffusely and feebly punctured, impressed at base. L.  $\frac{1}{2}$  l. Scarce. *S. exilis*, Er.

**b.** Thorax not much broader before middle than at base, sides straight behind; mandibles with short apex; second joint of labial palpi much longer than first.

**I.** Thorax with a fine ridge and four depressions at base.

**1.** Basal ridge on thorax short.

**A A.** Thorax impunctate.

Pitch-black, antennae and legs brown-red. Elytra broad oval, distinctly punctured, shoulders and space round scutellum somewhat raised. L.  $\frac{1}{2}$  l. Scarce.

*S. angulatus*, Müll.

**B B.** Thorax finely punctured.

**a a.** Body red-brown.

Elytra oblong oval, extremely finely and diffusely punctured. L.  $\frac{2}{3}$  l. Scarce. *S. rubicundus*, Schaum.

**b b.** Body pitch-black.

Antennae and legs brown. Elytra oblong oval, distinctly punctured, shoulders and space round scutellum raised. L.  $\frac{2}{3}$  l. Rather common. *S. elongatulus*, Müll.

**2.** Basal ridge on thorax extending until near the middle of disc.

Oblong-ovate, not very convex, shiny, pubescence diffuse, rather long, grayish. Pitch-brown; antennae and legs brownish-yellow. Thorax impunctate; elytra oblong-ovate, rather flat, very indistinctly or not at all punctured, base of each with two depressions. Smaller than *S. rubicundus* and *elongatulus*, with antennae shorter, more strongly and less suddenly thickened at apex, with intermediate joints less slender and less cylindrical, elytra less convex, shoulders more prominent. L.  $\frac{1}{2}$  l. Scarce.

*S. carinatus*, Muls.

**II.** Thorax with a parallel depression at base, extending a little way up each side.

- 1.** Basal transverse impression on thorax with two depressions on each side.

Red-brown. Elytra elongate oval, punctured, with a deep depression on base of each. L.  $\frac{2}{3}$  l. Not common.

*S. Sparshalli*, Den.

- 2.** Basal transverse impression on thorax with only one depression on each side.

Pitch-brown, shiny; antennae and legs red-yellow. Thorax impunctate; pubescence on elytra appearing in certain lights to be placed almost in rows. Allied to *S. Sparshalli* but longer and rather more convex; thorax rather longer, with pubescence very scanty, transverse basal impression feebler; elytra longer, narrower and more gradually narrowed toward apex, less distinctly punctured; eyes smaller in proportion and antennae stouter at apex, the last three joints being considerably, the eighth (and in a lesser degree the seventh) distinctly thickened. L.  $\frac{1}{2}$ — $\frac{5}{8}$  l. Rare.

*S. praeteritus*, Rye.

**B.** Head divided from thorax by a short neck; mesosternum strongly ridged.

- a.** Antennae with four distinctly larger apical joints; length  $\frac{3}{4}$  line.

**I.** Elytra broadest behind middle; male with eighth and ninth joints of antennae toothed on inner-side at apex.

Pitch-black; antennae rust-red; legs pitch-brown. Thorax pubescent, about as broad at base as in middle, with two depressions before posterior margin; elytra not punctured, base with depressions. Not common.

*S. denticornis*, Müll.

**II.** Elytra broadest in middle; antennae of male simple.

- 1.** Palpi entirely dark rust-red.

Pitch-black; antennae (except club), tibiae and tarsi yellow-brown. Thorax pubescent, slightly narrower at base than in middle, base with transverse impression; elytra not punctured. Moderately common.

*S. hirticollis*, Ill.

- 2.** Palpi dark rust-red, with apex brown.

Black, shiny; antennae and palpi dark rust-red, with apex brown; legs brownish-red. Pubescence on elytra shorter and less diffuse than in *S. hirticollis*. Scarce. *S. fimetarius*, Th.

**b.** Antennae with three distinctly larger apical joints; length  $\frac{1}{4}$  line.

Pitch-brown; antennae and legs yellow-brown. Thorax scarcely narrowed behind, with two depressions at base; elytra ovate, smooth, impressed at base. Rare.

*S. nanus*, Schaum.

### *Euthia.*

**A.** Abdomen red-brown.

Head and thorax black, margins of latter and the elytra red-brown; antennae and legs light brown. Thorax punctured on disc, with four depressions at base; elytra punctured, with two depressions at base of each, sutural angle of apex obtuse. L.  $\frac{1}{2}$  l. Rare. *E. plicata*, Gyll.

**B.** Abdomen pitchy.

**a.** Elytra yellowish-brown.

Rather flat. Pitchy; elytra yellowish-brown; antennae and legs red-yellow; with short gray pubescence. Antennae with last three joints larger. Pubescence shorter and stronger than in *E. plicata*. L.  $\frac{2}{3}$  l. Scarce.

*E. Schaumi*, Kies.

**b.** Elytra pitch-black.

Head and thorax pitch-black, antennae and legs red-brown; base of thorax with five depressions; sutural angles of elytra at apex right angles. L.  $\frac{2}{3}$  l. Not common.

*E. scydmaenoides*, Steph.

### *Cephennium.*

**A.** Thorax much dilated in front.

Pitch-black, shiny; antennae and legs reddish-yellow-brown; with very fine, gray pubescence. Thorax convex; elytra extremely finely and indistinctly punctured, each with a depression at base. Head and thorax often brown. L.  $\frac{2}{3}$  l. Rather common. *C. thoracicum*, Müll.

**B.** Thorax slightly dilated in front.

Brown-black, shiny; antennae, palpi and legs yellow-red. Last three joints of antennae larger; thorax slightly dilated in front, one-third broader than long, posterior



angles produced; elytra with a deep depression at base, very finely punctured. Thorax less dilated than in *C. thoracicum*. L.  $\frac{2}{5}$ — $\frac{1}{2}$  l. Rare. *C. intermedium*, Aub.

### SCAPHIDIIDAE.

**A.** Antennae not very fine, with compact five-jointed club.

Last joint of maxillary palpi half as long again as third; eyes emarginate; mandibles with two-toothed apex; scutellum free; mesosternum ridged; tarsi shorter than tibiae.

*Scaphidium*, Ol.

**B.** Antennae very fine, with last five joints larger.

Last joint of maxillary palpi twice as long as third; eyes entire; mandibles with simple apex; scutellum hidden beneath middle of base of thorax; mesosternum raised but not ridged; tarsi longer than tibiae. *Scaphisoma*, Leach.

#### *Scaphidium.*

Black, shiny; elytra with two red transverse spots on each; antennae red-brown (except basal part of club), tarsi reddish. L.  $2\frac{1}{2}$  l. Common.

*S. quadrimaculatum*, Ol.

#### *Scaphisoma.*

**A.** Eighth joint of antennae much smaller than the following joints.

Black, shiny; apex of elytra and antennae yellow, last five joints of latter brown; legs red-yellow. L. 1 l. Common.

*S. agaricina*, Ol.

**B.** Eighth joint of antennae not much smaller than the following joints.

**a.** Elytra closely punctured, space between sutural furrow and suture raised; seventh joint of antennae not broader than the last three joints.

Pitch-black, shiny; elytra gradually yellowish-red on apical half; antennae brownish, base yellow; legs yellow-red. L. 1 l. Very rare.

*S. assimilis*, Er.

**b.** Elytra not very closely punctured, space between sutural furrow and suture not raised; seventh joint of antennae broader than the last three joints.

Red-brown, shiny; elytra gradually red-yellow toward apex; antennae brownish, with yellow base, legs reddish-yellow. Broader than *S. assimilis*, with shorter thorax. L. 1 l. Common. *S. boleti*, Panz.

### TRICHOPTERYGIDAE.

**A.** Elytra much abbreviated.

**a.** Intermediate coxae contiguous.

**I.** Thorax broadest before middle, sides sinuate toward base; abdomen with six ventral segments.

Mesosternum not ridged; metasternum not produced between coxae; posterior coxae placed far apart; maxillary palpi with last joint bisinuate and curved, third joint much thickened and longer than broad, nearly as broad at apex as in middle, second joint thickened at apex.

*Ptinella*, Mots.

**II.** Thorax broadest at or near base, sides not sinuate; abdomen with seven ventral segments.

**1.** Posterior angles of thorax not produced.

Mesosternum with a very short ridge, not interposed between coxae; metasternum widely produced between coxae; posterior coxae placed rather far apart; maxillary palpi with last joint strongly curved, third joint much thickened, as broad as long, nearly as wide at apex as in middle, second joint slightly thickened at base and apex.

*Pteryx*, Mat.

**2.** Posterior angles of thorax produced.

Mesosternum with a short ridge, epimera inflexed far and widely beneath; metasternum produced far and broadly between coxae, with a long, sharp tooth on each side; posterior coxae placed far apart, much dilated; maxillary palpi with last joint divided into two portions, apical portion thin, slightly curved at apex, basal portion strongly dilated, third joint much thickened, longer than broad, nearly as wide at apex as in middle, second joint nearly cylindrical.

*Actinopteryx*, Mat.

**b.** Intermediate coxae not contiguous; abdomen with six ventral segments.

**I.** Thorax not narrowed behind.

Mesosternum ridged, epimera moderately inflexed be-

neath; metasternum produced tolerably far between coxae, apex nearly straight, with acute angles; posterior coxae rather far apart, much dilated; maxillary palpi with last joint divided into two portions, apical portion thin, slightly curved, basal portion dilated, third joint much thickened, longer than broad, considerably narrower at apex than in middle, nearly ovate, second joint thickened at apex; thorax broadest at base, gradually narrowed in a curve toward apex. *Trichopteryx*, Kirby.

**II.** Thorax narrowed behind.

**1.** Sides of thorax sinuate toward base.

Mesosternum ridged; metasternum produced between coxae, apex straight, with angles acute; posterior coxae somewhat far apart, much dilated; maxillary palpi with last joint strongly curved, third joint much thickened, longer than broad, nearly as broad at apex as in middle, second joint somewhat thickened at apex; thorax broadest before middle. *Micrus*, Mat.

**2.** Sides of thorax not sinuate toward base.

**A A.** Thorax broadest before middle; elytra half as long again as head and thorax.

Mesosternum not ridged, epimera inflexed far beneath; metasternum long, produced between coxae, apex straight; posterior coxae placed somewhat apart, simple; maxillary palpi with last joint bisinuate, third joint much thickened, not much longer than broad, rather narrower at apex than in middle; second joint somewhat thickened at apex.

*Microptilium*, Mat.

**B B.** Thorax broadest behind middle; elytra as long as head and thorax.

Mesosternum not ridged; metasternum not produced between coxae; posterior coxae placed apart, laminate; maxillary palpi with last joint moderately curved, third joint thickened, longer than broad, narrower at apex than in middle, nearly ovate, second joint much thickened at apex. *Nephanes*, Th.

**B.** Elytra not, or only slightly abbreviated.

**a.** Thorax broadest before base.

**I.** Pygidium exposed.

**1.** Metasternum reaching sides of body.

Mesosternum broadly ridged, epimera inflexed rather far beneath; metasternum scarcely produced between coxae; intermediate coxae placed apart; posterior coxae somewhat apart; maxillary palpi with last joint curved, third joint much thickened, longer than broad, as wide at apex as in middle, second joint slightly thickened at apex.

*Ptilium*, Er.

**2.** Metasternum not reaching sides of body.

Mesosternum very broadly triangularly ridged; metasternum produced between coxae, apex slightly rounded, its episterna and epimera very large; intermediate coxae separated by ridge; posterior coxae very broadly laminate, rather far apart; maxillary palpi with last joint curved, third joint strongly thickened, ovate, much narrower at apex than in middle, second joint somewhat thickened at apex.

*Millidium*, Mots.

**II.** Pygidium covered by elytra.**1.** Base of thorax projecting over shoulders of elytra.

Mesosternum broadly triangularly ridged, epimera inflexed rather far beneath; metasternum slightly produced between coxae, angles of apex acute; intermediate coxae not contiguous; posterior coxae somewhat apart; maxillary palpi with last joint short, strongly bisinuate, third joint much thickened, longer than broad, much narrower at apex than in middle, nearly ovate, second joint slightly thickened at base and apex.

*Actidium*, Mat.

**2.** Base of thorax not projecting over shoulders of elytra.

Mesosternum with a short broad ridge; metasternum produced between coxae, apex slightly rounded; intermediate coxae placed apart; posterior coxae somewhat apart; maxillary palpi with last joint rather long, curved, third joint much thickened, longer than broad, considerably narrower at apex than in middle, somewhat ovate, second joint slightly thickened at apex.

*Ptenidium*, Er.

**b.** Thorax broadest at base.**I.** Metasternum reaching sides of body.

Mesosternum short, slightly ridged, the ridge produced between coxae; metasternum rather long, not produced

between coxae; posterior coxae slightly apart, laminate; last joint of maxillary palpi rather stout, dilated at base, curved at apex, third joint much thickened, oval, apex broad and obliquely truncate, second joint strongly thickened at apex. *Euryptilium*, Mat.

**II.** Metasternum not reaching sides of body.

Mesosternum with a very short ridge, epimera moderately inflexed beneath; metasternum with posterior margin nearly straight, minutely bidentate between coxae, episterna very large, inflexed far beneath, extending to coxae and produced to posterior margin of metasternum; intermediate coxae not contiguous; posterior coxae nearly contiguous, much dilated; maxillary palpi with last joint rather long and thick, pointed, scarcely curved; third joint very large, much thickened, somewhat longer than broad, its apex obliquely truncate and rather narrower than middle, second joint thickened in middle. *Nossidium*, Er.

### *Ptinella*.

**A.** Abdomen broader, obtuse at apex.

**a.** Thorax strongly constricted behind.

Elongate, rather obtuse, moderately convex. Yellow, scantily covered with pale hairs. Head large, tolerably elongate, rounded in front; thorax slightly broader than head, feebly, closely tuberculate, posterior angles prominent, very acute; elytra scarcely broader than thorax, not dilated behind, feebly, rather diffusely asperate in transverse rows; abdomen elongate, obtuse, sides nearly parallel; antennae and legs long, pale yellow. L.  $\frac{7}{16}$  l. Moderately common. *P. testacea*, Heer (*Proteus*, Sharp's Cat.)

**b.** Thorax slightly or scarcely constricted behind.

**I.** Posterior angles of thorax not prominent, almost right angles.

**1.** Head rather small and short.

Broad, flat. Reddish-yellow; antennae and legs pale yellow; scantily covered with short pale hairs. Thorax regularly, rather feebly tuberculate; elytra scarcely longer than head and thorax, much broader than latter, very broad and strongly rounded at apices, rather deeply and diffusely asperate in irregular transverse rows; abdomen broad, very obtuse; legs slender. L.  $\frac{7}{16}$  l. Rare. *P. Maria*, Mat.

**2.** Head large, elongate.

Elongate oval, rather convex. Head and thorax chestnut-brown; elytra and abdomen reddish-yellow; antennae and legs yellow; rather closely covered with short pale hairs. Eyes small, placed very far back; thorax slightly longer and broader than head, rather strongly, closely tuberculate, rather broad at base; elytra longer than head and thorax, scarcely broad than latter, deeply and very closely asperate in transverse rows, apices not strongly rounded; abdomen very obtuse; legs long, robust. L.  $\frac{7}{16}$  l. Rare.

*P. britannica*, Mat.

**II.** Posterior angles of thorax prominent, very acute.

Flat. Pale yellow; rather closely covered with golden-yellow hairs. Head broad and rather short; thorax longer and somewhat broader than head, broadest in middle, somewhat constricted behind, moderately strongly tuberculate; elytra slightly longer and broader than head and thorax, deeply and very diffusely asperate in transverse rows, interstices slightly asperate, apices broad, not strongly rounded; abdomen moderately elongate, somewhat acute at apex. L.  $\frac{6}{16}$  l. Rather common.

*P. denticollis*, Fairm.

**B.** Abdomen narrower, pointed at apex.**a.** Elytra longer than head and thorax.**I.** Thorax strongly constricted behind, posterior angles prominent, acute.

Elongate, very narrow. Pale yellow; covered with short pale hairs. Head elongate; thorax very short, much shorter than head, closely and very feebly tuberculate; elytra long and narrow, much longer and scarcely broader than head and thorax, nearly parallel-sided, feebly and diffusely asperate, apices strongly rounded. L.  $\frac{6}{16}$  l. Rare.

*P. tenella*, Er.

**II.** Thorax not constricted behind, posterior angles not prominent, nearly right angles.

Elongate, oval, rather flat. Bright yellow; legs and antennae pale yellow; closely covered with rather long pale hairs. Head rather large, strongly rounded in front; thorax slightly longer and broader than head, closely, rather feebly tuberculate; elytra longer and broader than head and thorax, closely and rather strongly asperate, apices

broad, strongly rounded. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Moderately common.  
*P. aptera*, Guer.

**b.** Elytra shorter than head and thorax.

Very elongate, convex. Pale yellow; scantily covered with short pale hairs. Thorax shorter and scarcely broader than head, broadest before middle, strongly constricted behind, posterior angles prominent, acute, closely and rather strongly tuberculate; elytra scarcely broader than thorax, diffusely and rather strongly asperate, apices broad, strongly rounded. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Rather common.

*P. angustula*, Gill.

### *Pteryx.*

Oval, convex, rather shiny. Colour varying from yellow to chestnut-brown, head and thorax in some cases nearly black, elytra sometimes red, with apices black. Head elongate, tolerably prominent; thorax longer and broader than head, nearly quadrate, posterior angles not produced, obtuse, closely and strongly tuberculate, with larger tubercles here and there; elytra oval, longer but scarcely broader than head and thorax, strongly and diffusely asperate, interstices deeply reticulate, apices rounded. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rather common.

*P. suturalis*, Heer.

### *Actinopteryx.*

Rather elongate and flat. Brown; antennae and legs bright yellow; closely covered with short, silky, whitish hairs. Thorax large and wide, broadest before base, deeply alutaceous, not tuberculate, posterior angles strongly produced, acute; elytra long, narrowed toward apex, sides straight, feebly and very closely asperate; apices obliquely truncate; antennae and legs slender, former with third joint elongate. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon.

*A. fuscicola*, Allib.

### *Trichopteryx.*

**A.** Posterior angles of thorax more or less strongly produced.

**a.** Thorax distinctly broader than elytra.

**I.** Head and thorax black, elytra chestnut-brown.

Short, broad, very strongly convex, shiny, closely covered

with gray pubescence. Antennae and legs yellow; under-side chestnut-brown, with mouth, a large spot at apex of metasternum and coxae yellow. Head very broad, eyes small and prominent; thorax very large, with minute tubercles placed in regular curved rows, sides strongly bordered, basal margin deeply trisinate; elytra about equal in length to head and thorax, much narrowed behind, deeply and very closely asperate, sides nearly straight, apices feebly rounded; legs short. L.  $\frac{7}{16}$ — $\frac{8}{16}$  l. Very rare. *T. Sarae*, Mat.

**II.** Head and thorax black, elytra pitch-brown.

**1.** Elytra shorter than head and thorax.

Very short, broad, very strongly convex, with rather long gray hairs. Antennae and legs yellow; under-side black, with mouth and coxae yellowish. Head broad, eyes prominent; thorax very large and broad, widest in middle, rather broadly bordered at sides, tubercles larger and placed more closely than in *T. atomaria*; scutellum rather short and broad; elytra narrowed behind, deeply asperate in remote curved rows, apices feebly rounded; legs short. L.  $\frac{5}{16}$  l. Rare. *T. thoracica*, Gill.

**2.** Elytra longer than head and thorax.

**A A.** Head large and prominent.

Ovate, rather broad, strongly convex, closely covered with rather long brownish-yellow hairs. Antennae and legs yellow; under-side black, with mouth and coxae yellowish. Eyes prominent; thorax very large, broadest near base, feebly bordered at sides, with small tubercles placed rather diffusely; scutellum large; elytra rather closely and deeply asperate in transverse rows, in male strongly narrowed behind, in female nearly quadrate, apices oblique, only slightly rounded; legs moderately long. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon. *T. atomaria*, De G.

**B B.** Head short and broad.

Obtuse oval, very strongly convex, scantily covered with short pale hairs. Antennae and legs yellow; under-side pitch-black, with abdomen lighter, and mouth, coxae and posterior margin of metasternum yellow. Eyes small, not prominent; thorax gradually narrowed from base, bordered at sides, tubercles small, irregularly placed in curved rows; scutellum moderately large; elytra parallel-sided, nearly



quadrate, deeply asperate in curved transverse rows, apices nearly straight; legs moderately long. L.  $\frac{7}{16}$  l. Very rare.

*T. convexiuscula*, Mots. (*convexa*, Sharp's Cat.)

**III.** Upper-side entirely black or bronze-black.

**1.** Antennae pitch-black.

**A A.** Antennae short.

Nearly ovate, convex. Deep black, with short gray hairs; legs yellow; under-side black, abdomen lighter, mouth, apex of metasternum and coxae yellow. Head large, slightly prominent, tuberculate, eyes prominent; thorax broadest near base, strongly bordered at sides; with curved transverse rows of large tubercles; elytra slightly longer than head and thorax, rather feebly asperate in remote, curved, transverse rows, strongly narrowed behind in male, less so in female; sides straight, apices only slightly rounded. L.  $\frac{6}{16}$  l. Rare. *T. anthracina*, Mat.

**B B.** Antennae long.

Ovate, somewhat flat. Black, scantily covered with short pale hairs; legs yellow; under-side black, with mouth and coxae yellowish. Head prominent, with small tubercles, eyes prominent; thorax broadest near base, feebly bordered at sides, with rather large tubercles placed irregularly and closely in transverse rows, interstices smooth, each side of base with a transverse depression; elytra not longer than head and thorax, deeply asperate in almost straight transverse rows, strongly narrowed behind, apices only slightly rounded. L.  $\frac{6}{16}$  l. Very rare. *T. attenuata*, Gyll.

**2.** Antennae yellowish.

**A A.** Upper-side deep black.

**a a.** Elytra longer than head and thorax.

Nearly oval, convex, rather scantily covered with short pale hairs. Legs yellow; under-side black, with mouth and coxae yellow. Head prominent, with small tubercles, eyes rather prominent; thorax broadest at base, with curved rows of small tubercles, sides only slightly rounded; elytra somewhat narrowed behind, asperate in close, curved, transverse rows, apices rounded. L.  $\frac{8}{16}$ — $\frac{10}{16}$  l. Rather common.

*T. fascicularis*, Herbst.

**b b.** Elytra not longer than head and thorax.

Oblong, convex, rather closely covered with short yellow hairs. Legs rather dark yellow; under-side black, mouth and coxae pitchy. Head very large and broad, with minute tubercles in straight rows, eyes not prominent; thorax broadest behind middle, with curved rows of minute tubercles, sides much rounded and feebly bordered; elytra broadest near middle, deeply and very closely asperate, apices straight. L.  $\frac{6}{16}$  l. Very rare. *T. carbonaria*, Mat.

**B B.** Upper-side bronze-black.

**a a.** Thorax and elytra without lateral bristles, latter not narrowed toward apex.

Broad, somewhat oblong, convex, closely covered with long, brownish-yellow hairs. Black-brown, somewhat bronze; legs yellow; under-side pitch-black, mouth and coxae yellow. Head large, eyes rather small, prominent; thorax broadest near base, with close, interrupted, transverse rows of rather large tubercles, sides strongly rounded and broadly bordered; elytra longer than head and thorax, deeply and diffusely asperate in curved transverse rows, sides almost straight, apices somewhat rounded. L.  $\frac{10}{16}$ — $\frac{11}{16}$  l. Common. *T. lata*, Mots.

**b b.** Each side of thorax with one, of elytra with two erect black bristles; elytra narrowed from near middle toward apex.

Rather broad, strongly convex, closely covered with short, brownish-yellow hairs. Bronze or black-bronze; legs dusky-yellow; under-side black, mouth red-yellow or pitchy, coxae black, margined with yellow. Head large, eyes not prominent; thorax broadest near middle, with moderately large tubercles placed irregularly, sides rounded and rather broadly bordered; elytra scarcely longer than head and thorax, deeply and irregularly asperate, sides slightly rounded, apices somewhat rounded. L.  $\frac{8}{16}$ — $\frac{9}{16}$  l. Rather common. *T. grandicollis*, Mann.

**b.** Thorax not, or scarcely broader than elytra.

**I.** Antennae, under-side of mouth and coxae yellow.

**1.** Elytra yellow.

Oblong, nearly parallel-sided, somewhat flat. Black-brown, with short pale hairs; elytra, antennae, under-side of mouth and legs (including coxae) yellow. Head large and broad, eyes not prominent; thorax not much broader at

base than at apex, widest near middle, with close, irregular transverse rows of minute tubercles, sides only slightly rounded; elytra not longer than head and thorax, feebly, rather diffusely asperate, sides nearly straight until near apex, thence rounded, apices scarcely rounded. L.  $\frac{5}{16}$  l. Very rare. *T. Waterhousei*, Mat.

**2.** Elytra brown-black.

**A A.** Head moderately long; elytra with sides nearly parallel.

Oblong, strongly convex. Black or black-brown, rather closely covered with long, whitish hairs; legs yellow, eyes prominent; thorax broadest at base, with moderately large tubercles placed irregularly, sides slightly rounded and feebly bordered; elytra longer than head and thorax, deeply and closely asperate in nearly straight transverse rows, sides nearly straight until near apex, thence rounded, apices strongly rounded. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Somewhat common.

*T. Montandoni*, Allib.

**B B.** Head short and broad; elytra slightly narrowed toward apex.

Differing from *T. Montandoni* in being more elongate, with longer thorax, the tubercles on which are rather small and placed in curved rows. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon.

*T. rivularis*, Allib.

**3.** Elytra deep black.

Oblong, nearly cylindrical. Deep black, very scantily covered with short, silvery hairs; legs yellow; antennae sometimes rather pitchy. Head large, very broad, eyes prominent; thorax broadest toward base, not much narrowed in front, tubercles moderately large, in irregular rows, sides rather broadly bordered; elytra considerably longer than head and thorax, deeply and closely asperate in remote, transverse, curved rows, sides straight until behind middle, thence gently rounded, apices not much rounded. L. scarcely  $\frac{7}{16}$  l. Very rare. *T. Jansonii*, Mat.

**II.** Antennae, under-side of mouth and coxae pitch-black.

**1.** Head broad and short.

**A A.** Scutellum large; elytra rather strongly asperate in almost straight rows,

Oblong, broad, convex. Black, with extremely short pale hairs; legs yellow. Eyes prominent; thorax broadest near middle, not narrowed behind, much wider at base than at apex, tubercles moderately large, in close, curved rows, sides bordered; elytra distinctly longer than head and thorax, sides straight until near apex, thence rounded, apices slightly rounded. L.  $\frac{7}{16}$ — $\frac{8}{16}$  l. Rare.

*T. cantiana*, Mat.

**B B.** Scutellum rather small; elytra not strongly asperate, in interrupted rows.

Oblong, convex. Black, rather scantily covered with yellowish hairs; legs dusky-yellow. Eyes small, not prominent; thorax broadest in middle, scarcely narrowed behind, wider at base than at apex, tubercles moderately large, in interrupted rows, sides bordered; elytra somewhat longer than head and thorax, sides straight, apex feebly rounded; eighth joint of antennae short and thickened. L.  $\frac{6}{16}$  l. Rare.

*T. picicornis*, Mann.

2. Head prominent, rather long.

**A A.** Body short and broad; thorax with depressions at sides of base; elytra nearly quadrate.

Convex. Black, closely covered with rather long pale hairs; legs pitchy or brown. Eyes prominent; thorax broadest behind middle, tubercles minute, in curved rows, sides bordered; elytra not longer than head and thorax, deeply asperate in transverse rows, dilated behind in male, apices strongly rounded. Anterior tibiae of male much dilated toward apex, first two joints of their tarsi dilated, the first one as long, and twice as broad as second. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon.

*T. brevipennis*, Er.

**B B.** Body oval, somewhat elongate; thorax with a transverse depression on each side of base; elytra ovate.

Strongly convex. Black, with long yellow hairs; legs yellow. Eyes prominent; thorax broadest behind middle, tubercles moderately large, placed rather closely, sides bordered; elytra not longer than head and thorax, rather deeply asperate in nearly straight rows, apices narrow, nearly straight. Male with anterior tibiae dilated toward apex, first two joints of their tarsi dilated, the first one very

short and slightly narrower than second, which is deeply emarginate at apex; first two joints of hinder pairs of tarsi dilated. L.  $\frac{6}{16}$  l. Very rare. *T. Kirbyi*, Mat.

**B.** Posterior angles of thorax not, or only slightly produced.

**a.** Thorax distinctly broader than elytra.

**I.** Elytra distinctly longer than head and thorax, oval.

Elongate, oblong, convex. Brown-gray, closely covered with long, pale, silky hairs; antennae and legs yellow, former long; under-side pitch-black, with mouth and coxae yellow. Head large, broad, eyes not prominent; thorax broadest in middle, scarcely narrowed behind, tubercles small, placed closely and irregularly, posterior angles slightly produced, sides feebly bordered; elytra broadest in middle, rather deeply asperate, interstices deeply reticulate, apices scarcely rounded. L.  $\frac{6}{16}$  l. Very rare.

*T. Edithia*, Mat.

**II.** Elytra not, or scarcely longer than head and thorax, quadrate.

Short, rather flat. Brown, closely covered with long pale hairs; antennae and legs yellow, former long; under-side black-brown, abdomen lighter, mouth and coxae yellow. Head large, somewhat prominent, eyes tolerably prominent; thorax short, transverse, broadest behind middle, slightly narrowed at base, tubercles tolerably large, placed in strongly-curved rows, sides feebly bordered; elytra deeply asperate in slightly curved rows, sides nearly straight until near apex, thence rounded, apices scarcely rounded. L.  $\frac{5}{16}$  l. Very rare.

*T. fuscula*, Mat.

**b.** Thorax not, or scarcely broader than elytra.

**I.** Head and thorax black.

**1.** Antennae black or pitch-black.

**A A.** Elytra deeply asperate.

**a a.** Body short and broad; posterior margin of thorax somewhat bisinuate; elytra black.

**A a.** Eyes prominent; apices of elytra nearly straight.

Short, oblong, strongly convex. Black or black-brown, closely covered with short, pale hairs; legs yellow; under-side pitchy, mouth and coxae lighter, apex of abdomen

yellow. Head large, somewhat prominent; thorax rather short, broadest near base, tubercles large, in curved rows, sides rather broadly bordered; elytra as long as head and thorax, sides straight. L.  $\frac{5}{16}$  l. Rare. *T. brevis*, Mots.

**B b.** Eyes not prominent; apices of elytra rounded.

Rather short and broad, somewhat flat. Black, dull, with long brown hairs; legs dusky yellow; under-side pitch-black, with mouth, coxae, metasternum and margins of abdominal segments dusky yellow. Head large, somewhat prominent; thorax broadest near base, tubercles rather large, in interrupted rows, sides feebly bordered; elytra scarcely longer than head and thorax, sides nearly straight. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Common. *T. sericans*, Heer.

**b b.** Body elongate; posterior margins of thorax nearly straight; elytra dark chestnut-brown.

Oblong, elongate, strongly convex. Legs short, yellow; under-side pitch-black, with mouth and coxae lighter. Head large, rather prominent, eyes scarcely prominent; thorax broadest behind middle, not narrowed at base, tubercles rather large, in interrupted rows, sides feebly bordered; elytra as long as head and thorax, sides very slightly rounded, apices strongly rounded. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare. *T. obscaena*, Woll.

**B B.** Elytra feebly asperate.

**a a.** Body oblong.

**A a.** Pubescence very short; length  $\frac{7}{16}$ — $\frac{8}{16}$  line.

Elongate, rather narrow, convex. Black; legs dusky yellow; under-side black, with mouth and coxae pitchy. Head rather small, long, eyes prominent; thorax short, broadest behind middle, not narrowed at base, tubercles small, in curved rows, sides feebly bordered, basal margin nearly straight; elytra as long as head and thorax, sides nearly straight until near apex, thence slightly rounded, apices feebly rounded. Scarce. *T. longula*, Mat.

**B b.** Pubescence long; length  $\frac{4}{16}$ — $\frac{5}{16}$  line.

Short, moderately convex. Black; legs yellow; under-side pitch-black, with mouth, metasternum and coxae

yellow. Head large, prominent, eyes rather prominent; thorax broadest toward base, not much wider at base than at apex, tubercles very minute, scarcely visible, placed irregularly, sides rather broadly bordered, basal margin nearly straight; elytra scarcely longer than head and thorax, sides straight, apices broad, slightly rounded. Not uncommon.

*T. Chevrolati*, Allib.

**b b.** Body oval.

Convex. Deep black, not shiny; with short, pale hairs; legs yellow; under-side pitchy, mouth and coxae lighter, femora brownish. Head rather long; eyes prominent; thorax broadest at base, tubercles small, in curved rows, sides nearly straight in front, basal margin nearly straight; elytra longer than head and thorax, sides curved, apices rounded. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Common.

*T. bovina*, Mots.

**2.** Antennae yellowish.

**A A.** Elytra deeply asperate.

Oblong, moderately convex. Head and thorax black, elytra red, scantily covered with short, yellow hairs; legs yellow; under-side black, with mouth, coxae and femora pitchy. Head rather large, long; eyes small, prominent; thorax broadest at base, tubercles small, in curved rows, sides rounded, very slightly bordered, posterior angles slightly produced; elytra slightly longer than head and thorax, sides straight, nearly parallel, apices broad, nearly straight. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare.

*T. Guerini*, Allib.

**B B.** Elytra very feebly asperate.

Oval, rather broad, somewhat flat. Black; legs yellow, under-side entirely black. Head rather long, eyes large, prominent; thorax broadest toward base, tubercles extremely small, in curved rows, sides slightly rounded, posterior angles very slightly produced; elytra slightly longer than head and thorax, broadest in middle, sides and apices rounded. L.  $\frac{8}{16}$  l. Very rare.

*T. suffocata*, Hal.

**II.** Head and thorax chestnut-brown.

**1.** Thorax tuberculate.

**A A.** Head long.

Nearly oval, somewhat flat. Chestnut-brown, with silvery hairs; antennae dusky yellow; legs bright yellow; under-side pitch-brown, with mouth and coxae yellow.

Eyes rather large, prominent; thorax broadest before base, scarcely narrowed behind, tubercles small, in curved rows, sides rounded and bordered; elytra distinctly longer than head and thorax, moderately strongly asperate, in male oval, in female dilated behind, apices slightly rounded. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare. *T. dispar*, Mat.

**B B.** Head broad.

**a a.** Thorax with rather large tubercles placed confusedly.

Oblong, rather convex. Chestnut-brown, with pale hairs; antennae dusky yellow; legs bright yellow; under-side chestnut-brown, apex of abdomen lighter; coxae and apex of metasternum yellow. Eyes small, not prominent; thorax broadest before base, sides rounded, rather broadly bordered; elytra distinctly longer than head and thorax, rather deeply asperate in nearly straight rows, sides nearly straight, apices moderately rounded. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Rare. *T. ambigua*, Mat.

**b b.** Thorax with small tubercles, placed in interrupted rows.

Oblong, strongly convex. Chestnut-brown, with golden-yellow hairs; antennae dusky yellow; legs bright yellow, femora darker; under-side pitchy, apex of abdomen, coxae and metasternum yellow. Eyes rather small, not prominent; thorax rather large, slightly dilated behind, sides slightly rounded, bordered; elytra slightly longer than head and thorax, deeply asperate in slightly curved rows, sides very slightly rounded, apices rounded. L.  $\frac{7}{16}$ — $\frac{8}{16}$  l. Very rare. *T. Poweri*, Mat. (*Chevrieri*, Sharp's Cat.)

**2.** Thorax punctured, not tuberculate.

Nearly oval, convex. Chestnut-brown or dark-brown, scantily covered with strong silvery hairs; antennae dusky yellow; legs bright yellow. Head long, deeply punctured, eyes prominent; thorax broadest in middle, evenly narrowed before and behind, strongly punctured, sides rounded and broadly bordered; elytra oval, somewhat dilated behind, slightly longer than head and thorax, strongly punctured, sides somewhat rounded and broadly bordered, apices nearly straight. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare.

*T. variolosa*, Muls.



*Micrus.*

Oblong, convex. Black, very closely covered with short yellow hairs; antennae and legs yellow; under-side pitch-black, with mouth, coxae and apex of metasternum yellow. Head large and broad; nearly triangular, almost as broad as thorax, eyes rather large, prominent; thorax transverse, closely covered with minute tubercles; elytra as long as head and thorax, closely and deeply asperate, sides nearly parallel, apices nearly straight. L.  $\frac{6}{16}$ — $\frac{9}{16}$  l. Very rare.

*M. filicornis*, Fairm.

*Microptilium.*

Elongate, rather flat. Pitch-black, very closely covered with short, whitish hairs; antennae and legs yellow; under-side pitchy, abdomen lighter, mouth and coxae yellow. Head long and nearly as broad as thorax, eyes large, prominent; thorax transverse, shorter than head, closely covered with small tubercles; elytra closely and rather deeply asperate, dilated behind, sides nearly straight, apices obliquely rounded. L.  $\frac{6}{18}$ — $\frac{7}{18}$  l. Very rare.

*M. pulchellum*, Allib.

*Nephanes.*

Oblong. Chestnut-brown, with bronze reflection, closely covered with pale hairs; antennae and legs yellow; under-side chestnut-brown, with mouth, coxae, posterior margin of metasternum and apex of abdomen yellow. Head large, nearly triangular, as broad as thorax; eyes large, prominent; thorax transverse, shorter than head, broadest behind middle, with rather large tubercles in curved rows, sides moderately rounded; elytra deeply asperate, dilated behind shoulders, thence parallel-sided, apices nearly straight. L.  $\frac{4}{18}$  l. Rather common.

*N. Titan*, Newm.

*Ptilium.*

**A.** Thorax without central furrow.

**a.** Thorax not constricted behind.

**I.** Sides of thorax nearly straight.

Short, oblong, rather flat. Brown-black, rather closely covered with short blackish hairs; antennae and legs yellow, former very long; under-side pitch-black, with mouth and coxae yellow. Head very large, longer than,

and as broad as thorax, eyes rather large, prominent; thorax very short, closely tuberculate; elytra deeply, closely and irregularly asperate, sides almost parallel, apices rounded. L.  $\frac{3}{16}$  l. Very rare. *P. brevicolle*, Mat.

**II.** Sides of thorax slightly rounded.

**1.** Thorax longer than head.

Oblong, rather convex, dull. Black, rather closely covered with gray hairs; antennae and legs generally pitch-black, very rarely yellow. Head large, eyes small, moderately prominent; thorax very closely covered with moderately large tubercles; elytra oval, deeply asperate in oblique rows, apices rounded. L.  $\frac{4}{16}$  l. Rather common.

*P. Kunzei*, Heer.

**2.** Thorax not longer than head.

Oblong, convex. Brown, closely covered with pale hairs; antennae and legs red-yellow; under-side brown, mouth and coxae lighter; punctuation very deep, wrinkled. Narrower than *P. Kunzei*, thorax much shorter and antennae longer. L.  $\frac{4}{16}$  l. Rare.

*P. rugulosum*, Allib.

**III.** Sides of thorax distinctly rounded.

Elongate oval, rather convex. Black-brown, with rather long gray hairs; antennae and legs pitchy; under-side pitchy, with mouth, coxae and apex of abdomen lighter. Head rather small, eyes large, prominent; thorax small, transverse, scarcely broader than head, tubercles moderately large, placed rather diffusely; scutellum small; elytra oval, deeply asperate in rows, apices rounded. L.  $\frac{6}{16}$  l. Common.

*P. Spencei*, Allib.

**b.** Thorax constricted behind.

**I.** Head and thorax tuberculate.

Oblong, dull. Brown-yellow, with distinct pubescence; antennae and legs red-yellow. Punctuation rather close and strong; thorax transverse, narrower than elytra, sides rounded in front and much narrowed behind, sometimes with an indistinct impression on each side near base. L.  $\frac{6}{16}$  l. Scarce.

*P. caledonicum*, Sharp.

**II.** Head and thorax with deep depression-like punctures.

Elongate oval, strongly convex, shiny. Bright chestnut-brown, scantily covered with very short pale hairs. Head

nearly triangular, as broad as thorax, eyes not prominent; thorax short, broadest before middle, with indistinct traces of a central furrow in front, not reaching middle, and with a deep impressed line on each side, reaching from base beyond middle; elytra elongate oval, broadest before middle, closely and rather deeply asperate, apices narrow, rounded. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Very rare. *P. Halidayi*, Mat.

**B.** Thorax with central furrow.

**a.** Thorax with a distinct impressed line on each side.

**I.** Lateral impressed lines on thorax divergent forward.

**1.** Head nearly as broad as thorax; elytra half as long again as head and thorax.

Convex. Chestnut-brown, rather alutaceous than tuberculate, with short, yellow hairs; antennae and legs yellow, last joint of former obtuse. Thorax constricted at base, lateral impressed lines indistinct; elytra oval, rather broad, apices obtuse, very slightly rounded. L.  $\frac{5}{16}$  l. Not uncommon. *P. myrmecophilum*, Allib.

**2.** Head much narrower than thorax; elytra more than half as long again as head and thorax.

Elongate, convex, rather closely and very feebly tuberculate. Brown, with short, gray hairs; antennae and legs yellow, last joint of former elongate. Narrower than *P. myrmecophilum*, with elytra not dilated behind and club of antennae less thickened. L.  $\frac{5}{16}$ — $\frac{6}{16}$  l. Not uncommon.

*P. exaratum*, Allib.

**II.** Lateral impressed lines on thorax parallel.

**1.** Lateral impressed lines on thorax deep.

Oblong-ovate, strongly convex. Black-brown, feebly but distinctly tuberculate, scantily covered with short, silvery hairs; antennae pitchy; legs yellow. Head small, eyes small, not prominent; thorax broadest behind middle, constricted at base; elytra ovate, distinctly tuberculate, with larger tubercles here and there, apices rounded, with sutural angle nearly a right angle. L.  $\frac{7}{16}$  l. Rare.

*P. affine*, Er.

**2.** Lateral impressed lines on thorax feeble.

Elongate, rather feebly, closely tuberculate. Brown-red, with short pale hairs; antennae and legs pale yellow; under-side red-yellow. Head large, eyes rather large and

prominent; thorax broadest in middle, constricted behind; elytra ovate, closely asperate in transverse rows, apices obtuse. L.  $\frac{5}{16}$  l. Very rare. *P. insigne*, Mat.

**III.** Lateral impressed lines on thorax convergent forward.

Nearly oval, rather broad. Chestnut-brown, scantily covered with very short, pale hairs; antennae and legs yellow; under-side of mouth, coxae, posterior margin of metasternum and abdomen yellowish. Head large, broad, eyes small, scarcely prominent; thorax large, alutaceous, not tuberculate, broadest somewhat behind middle, sides scarcely sinuate behind; elytra closely and very feebly asperate, slightly dilated behind, sides rounded, apices broad, strongly rounded, sutural angle obtuse. L.  $\frac{5}{16}$  l. Rare. *P. caesum*, Er.

**b.** Thorax with an indistinct, very short, linear impression on each side.

Elongate, rather convex, closely and strongly tuberculate. Brown-red, with short, yellow hairs; antennae and legs pale yellow; under-side yellow-red. Head large, triangular, eyes large and prominent; thorax broadest before middle, constricted behind; elytra long, scarcely broader than thorax, sides parallel, apices obtuse. L.  $\frac{4}{16}$ — $\frac{5}{16}$  l. Not uncommon. *P. foveolatum*, Allib.

### *Millidium.*

Ovate, strongly convex, almost bare. Black or pitch-black; antennae and legs yellow; under-side pitchy, with mouth, coxae and apex of abdomen yellow. Thorax broadest behind middle, strongly constricted behind, alutaceous, with a very deep central furrow and a shorter deep furrow on each side (divergent forward); scutellum with three impressions; elytra ovate, rather deeply and diffusely punctured. L.  $\frac{5}{16}$  l. Not uncommon.

*M. trisulcatum*, Aub.

### *Actidium.*

**A.** Body hairy, not shiny.

Linear, elongate, rather convex. Black; antennae and legs yellow; under-side pitchy, with mouth and coxae yellow. Head large, eyes small, prominent; thorax as long

as head, deeply punctured, with interstices feebly alutaceous, with a large, kidney-shaped transverse impression near base, sides strongly rounded, but not sinuate behind; elytra elongate, not broader than thorax, feebly tuberculate, sides very slightly curved, apices very obtuse, sutural angles nearly right angles. L.  $\frac{5}{16}$  l. Rare. *A. coarctatum*, Hal.

**B.** Body bare, very shiny.

Linear, elongate, convex. Deep black; antennae and legs dusky yellow; under-side black, with mouth, coxae and apex of abdomen lighter. Head large, eyes not prominent; thorax shorter than head, alutaceous, scarcely tuberculate, sides very strongly rounded, somewhat sinuate near posterior angles, broadly bordered; elytra elongate, not broader than thorax, feebly asperate, sides nearly straight, apices rounded, sutural angles obtuse. L.  $\frac{5}{16}$  l. Very rare. *A. concolor*, Sharp.

### *Ptenidium.*

**A.** Punctures on head and thorax large and strong.

**a.** Thorax broadest in middle.

Elongate oval, flat. Deep black; under-side, antennae and legs pitchy, mouth, coxae and apex of abdomen lighter. Head rather small; thorax with large, deep, simple punctures placed in longitudinal rows, with central line impunctate, sides rounded but not strongly, broadly bordered; elytra with rows of large, deep punctures, half as long again as together broad, widest near middle, slightly narrowed behind. L.  $\frac{7}{16}$  l. Not uncommon.

*P. punctatum*, Gyll.

**b.** Thorax broadest near base.

Ovate, strongly convex. Deep black; antennae and legs pitchy or dusky yellow; under-side black, with mouth and coxae pitchy. Head rather large; thorax with large but scarcely deep punctures, placed confusedly, sides strongly rounded, broadly bordered; elytra with rows of large punctures, not much longer than together broad, widest before middle, much narrowed behind. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon.

*P. fuscicornis*, Er.

**B.** Punctures on head and thorax small or feeble.

**a.** Thorax with four distinct depressions at base.

**I.** All the four basal depressions on thorax large.

1. Head without impressions near eyes; elytra with fine rows of punctures.

Ovate, very convex. Deep black; antennae and legs yellow, club of former brownish; under-side black, with coxae yellow. Head rather large; thorax broadest behind middle, sides strongly rounded and scarcely bordered; elytra not much longer than together broad, widest much before middle, strongly narrowed behind. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Common. *P. nitidum*, Heer (*pusillum*, Sharp's Cat.)

2. Head with three impressions, forming a triangle, near each eye; elytra almost impunctate.

Ovate, very convex. Black; antennae and legs yellow, club of former brownish; under-side black, with mouth pitchy and coxae and apex of metasternum yellow. Head very large; thorax broadest in middle, sides rounded, but not strongly, rather broadly bordered, basal depressions very large; elytra one-third longer than together broad, widest before middle, much narrowed behind. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare. *P. laevigatum*, Gill.

- II. Outer pair of depressions on base of thorax large, inner pair small.

Ovate, convex. Pitch-black; antennae and legs yellow; under-side black, with mouth and coxae yellow. Head with two small impressions near each eye; thorax not much broader than head, widest in middle, disc with shallow punctures, sides rounded but not strongly bordered; elytra about one-fourth longer than together broad, widest somewhat before middle, with distinct rows of punctures, apices narrow, obtuse. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Rare.

*P. Kraatzi*, Mat.

- III. All basal depressions on thorax small.

1. Elytra reddish-pitchy.

*A A.* Head and thorax black, latter broadest somewhat behind middle.

Ovate, short, very convex. Antennae and legs yellow, under-side reddish-pitchy, with head, coxae and abdomen lighter. Head with two small impressions near each eye; thorax broader than head, disc almost impunctate, sides strongly rounded, bordered; elytra only slightly longer than together broad, somewhat abruptly dilated behind

shoulders, widest much before middle, with distinct rows of punctures, apices narrow, obtuse. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Not uncommon. *P. formicetorum*, Kr.

**B B.** Head and thorax pitchy-red ; latter broadest at base.

Nearly ovate, very broad, strongly convex. Pitchy-red ; antennae and legs yellow ; under-side pitchy-red, with mouth, coxae, and abdomen lighter. Head rather short, with a minute depression near each eye ; thorax much broader than head, very finely punctured, sides strongly rounded and rather broadly bordered ; elytra very slightly longer than together broad, widest before middle, with distinct rows of punctures, apices nearly pointed. L.  $\frac{8}{16}$ — $\frac{9}{16}$  l. Rare. *P. turgidum*, Th.

**2.** Elytra black.

Oval, very convex. Pitch-black ; antennae and legs yellow ; under-side pitchy, with mouth, coxae and apex of abdomen yellow. Head with three small impressions, placed in a straight line, near each eye ; thorax broader than head, widest behind middle, rather deeply, diffusely punctured, sides rounded but not strongly, rather broadly bordered ; elytra about one-fourth longer than together broad, widest somewhat before middle, with rather irregular rows of deep punctures, apices narrow, slightly rounded. L.  $\frac{7}{16}$ — $\frac{8}{16}$  l. Rare.

*P. Wankowiezi*, Mat. (*intermedium*, Sharp's Cat.)

**b.** Thorax with only indistinct basal depressions.

**I.** Eyes prominent ; sides of thorax strongly rounded.

Ovate, rather broad, strongly convex. Black ; apex of elytra broadly yellow-red ; antennae and legs yellow, club of former brownish ; under-side black, with mouth (and sometimes abdomen) lighter, coxae yellow. Head with two minute impressions ; thorax broader than head, widest behind middle, distinctly but rather diffusely punctured, with a transverse impression in each posterior angle ; sides feebly bordered ; elytra slightly longer than together broad, widest somewhat before middle, rather deeply and diffusely punctured in rows, apices narrow, almost rounded. L.  $\frac{8}{16}$ — $\frac{9}{16}$  l. Common.

*P. evanescens*, Marsh. (*apicale*, Sharp's Cat.)

**II.** Eyes not prominent; sides of thorax rounded, but not strongly.

Oblong-oval, very convex. Deep black, extreme apex of elytra lighter; antennae and legs yellow; under-side black, with coxae and apex of abdomen pitchy. Head with four impressions near each eye; thorax somewhat broader than head, widest behind middle, feebly and very diffusely punctured, sides feebly bordered; elytra about one-fourth longer than together broad, widest somewhat before middle, with large shallow punctures placed in a regular line at suture, in other parts confusedly, apices narrow, obtuse. L.  $\frac{8}{16}$ — $\frac{9}{16}$  l. Rare. *P. atomaroides*, Mots.

### *Euryptilium.*

Oval, very convex. Brown; antennae and legs yellow; under-side brown, with mouth, coxae and apex of abdomen lighter. Head large and broad; thorax broadest at base, closely tuberculate, sides slightly rounded and feebly bordered; elytra scarcely broader than thorax, widest near middle, deeply asperate, sides very slightly rounded, apices very broad, rounded. L.  $\frac{6}{16}$ — $\frac{7}{16}$  l. Very rare.

*E. saxonicum*, Gill.

### *Nossidium.*

Ovate, broad, very convex. Chestnut-brown; antennae and legs yellow; under-side pale red-brown, with mouth, coxae and apex of abdomen lighter. Head large; thorax broadest at base, punctured feebly in front, deeply behind, sides slightly rounded; elytra broadest at base, deeply punctured, sides gently rounded, apices narrow. L.  $\frac{8}{16}$ — $\frac{9}{16}$  l. Not uncommon. *N. pilosellum*, Marsh.

## **SPHAERIIDAE.**

Thorax emarginate in front for reception of head, fitting close to elytra; wings rather narrow, thickly fringed behind, less closely in front; legs short, anterior femora with a tooth beneath, tarsal claws unequal; first abdominal segment hidden beneath posterior coxae, second very short; body hemispherical. *Sphaerius*, Waltl.

### *Sphaerius.*

Black, shiny; impunctate; legs pitch-brown; middle of



antennae yellowish. L.  $\frac{1}{5}$  l. Not uncommon.

*S. acaroides*, Waltl.

### CORYLOPHIDAE.

**A.** Third tarsal joint heart-shaped; last joint nearly as long as the other three together.

Body oval; antennae nine-jointed, with first joint rather thicker than and as long as second, third and fourth equal, very small, scarcely longer than broad, fifth large, sixth very small, last three large, dilated inward into a little tooth; mandibles strongly curved, apex simple; first and second joints of tarsi equal in size, division between them scarcely perceptible.

*Orthoperus*, Steph.

**B.** All tarsal joints simple; last joint rather longer than the other three together.

**a.** Antennae nine-jointed.

Body somewhat elliptic, rather narrowed behind; antennae with first joint long and thick, second rather shorter and thinner, next two small, fifth larger, sixth as large as fourth, last three considerably enlarged; mandibles with sharp, long apex, and very finely comblike on inner margin; third joint of tarsi much smaller than second.

*Corylophus*, Steph.

**b.** Antennae ten-jointed.

Body ovate, broadest at base of elytra; antennae with first two joints large and long, third thin, conical, next four short and as broad as third, eighth and ninth as long as broad, short conical, tenth ovate; mandibles short, hollowed out within; sawlike at apical margin; third joint of tarsi much smaller than second; posterior angles of thorax produced.

*Sericoderus*, Steph.

**c.** Antennae eleven-jointed.

Body elliptic, not very convex; antennae with first joint large, oblong, second large, conical, next four joints short and thin, seventh large, eighth small, last three large; mandibles split at apex into three or four strong teeth; third joint of tarsi only a little smaller than second; posterior angles of thorax right angles.

*Sacium*, Lec.

**Orthoperus.**

**A.** Length  $\frac{1}{3}$ — $\frac{1}{2}$  line.

**a.** Body black.

Short oval; antennae and legs and usually also apex of elytra rust-red. L.  $\frac{1}{2}$  l. Common. *O. brunripes*, Gyll.

**b.** Body brownish-yellow.

Very short oval, convex, very shiny; extremely finely punctured. L.  $\frac{1}{3}$  l. Common. *O. atomus*, Gyll.

**B.** Length  $\frac{1}{4}$  line.

Pale red-yellow. Very delicately punctured. Devizes. *O. atomarius*, Heer.

**Corylophus.**

**A.** Elytra distinctly punctured in front.

Short ovate, slightly convex, bare. Black, shiny; thorax (except a dark spot in front), apex of elytra, the antennae and legs red-yellow. Thorax impunctate; elytra distinctly, not very closely punctured, apex impunctate. L.  $\frac{1}{3}$  l. Common. *C. cassidioides*, Marsh.

**B.** Elytra scarcely visibly punctured.

Shorter than *C. cassidioides*, lighter in colour, with punctation less close and much finer, elytra less distinctly contracted behind. Rare. *C. sublaevipennis*, Duv.

**Sericoderus.**

Brown or yellowish-brown, with a spot on anterior part of thorax, base and side margin of elytra blackish. L.  $\frac{1}{3}$  l. Common. *S. lateralis*, Gyll.

**Sacium.**

Pitch-black, shiny; two spots at apex of thorax yellow-brown, margins of that part and legs reddish-brown. Tolerably thickly covered with whitish hairs. L.  $\frac{3}{4}$ — $\frac{4}{5}$  l. Rare. *S. pusillum*, Gyll.

**CLAMBIDAE.**

**A.** Posterior coxae transversely oblong, with posterior margin scarcely rounded, not broader toward sides of elytra.

Antennae inserted at some little distance before the

granulate eyes; head very large; thorax strongly transverse, with sides very short; shoulders of elytra scarcely retuse; metasternum not hollowed out in front; abdomen with six ventral segments. *Calyptomerus*, Redt.

**B.** Posterior coxae semicircular.

Antennae inserted near eyes; thorax transverse, double as long in middle as at sides; shoulders of elytra strongly retuse; metasternum semicircularly hollowed out in front for reception of head; abdomen with five ventral segments. *Clambus*, Fisch.

### *Calyptomerus*.

Short, nearly ovate, slightly convex. Red-yellow, rather shiny, eyes black; with very fine, pale, silky pubescence. Head larger than thorax, latter very transverse, anterior and posterior angles nearly confluent; elytra steep at apex, sutural angle almost acute. L.  $\frac{1}{3}$  l. Common.

*C. dubius*, Marsh.

### *Clambus*.

**A.** Upper-side closely covered with very fine, short pubescence.

Pitch-black or brown, shiny; sides of thorax, disc and apex of elytra lighter; antennae and legs pale yellow-brown. Punctuation almost absent. L.  $\frac{1}{4}$  l. Moderately common.

*C. pubescens*, Redt.

**B.** Upper-side not or feebly pubescent.

**a.** Elytra without pubescence.

Short ovate, convex. Black, shiny; antennae and legs red-yellow; margins of thorax and disc of elytra rust-red. L.  $\frac{1}{3}$  l. Rather common.

*C. minutus*, Sturm.

**b.** Elytra with a few scattered hairs.

Short ovate, convex. Black, shiny, with rather diffuse, long, pale pubescence; margins of thorax and disc of elytra brown-red; antennae and legs obscure red-yellow. L.  $\frac{1}{3}$  l. Moderately common.

*C. armadillo*, De G.

## **ANISOTOMIDAE.**

**A.** Legs not powerful, tibiae with either a few fine spines or rows of hairs; number of tarsal joints different in the two sexes.

More or less power of rolling up into a ball (in part of *Agathidium* complete). Male with five joints to front pairs of tarsi and four joints to posterior pair. *Agathidiides*.

**B.** Legs powerful, tibiae strongly spined; number of tarsal joints equal in both sexes.

No power of rolling up into a ball. *Anisotomides*.

### AGATHIDIIDES.

**A.** Antennae with three-jointed club.

No separate clypeus; last joint of maxillary palpi truncate at apex; ligula bilobed; labial palpi with first two joints about equal in length, third thinner and shorter; under-side of head with a pair of furrows for reception of antennae, mesosternum finely ridged. Male with anterior tarsi slightly dilated. *Agathidium*, Ill.

**B.** Antennae with four-jointed club.

Clypeus separated from forehead by a fine line; last joint of maxillary palpi pointed; ligula slightly emarginate; labial palpi with second joint rather smaller than first and third, latter thinner toward apex; mesosternum with a tubercle at apex. Male with three joints of anterior and two joints of intermediate tarsi dilated; female with four joints to all tarsi. *Amphicyllis*, Er.

**C.** Antennae with five-jointed, interrupted club.

Clypeus separated from forehead by a distinct curved impression; last joint of maxillary palpi gradually pointed; ligula bilobed; labial palpi with second joint half as long again as first, gradually thickened toward apex, third smaller and narrower, mesosternum with a tubercle at apex. Hinder pairs of tibiae with fine spines, also a few spines toward apex of anterior tibiae. Male with anterior tarsi dilated. *Liodes*, Latr.

### *Agathidium*.

**A.** Sides of elytra with the shoulders widely rounded in front.

With complete ability to roll up into a ball. Female with five joints to anterior tarsi and four joints to hinder pairs.

**a.** Head and thorax red, elytra deep black, abdomen more or less blackish.

Rather closely and finely punctured, with traces of arrangement in rows, and with a deep sutural stria reaching from apex far beyond middle. Seventh joint of antennae larger than sixth and eighth. Posterior femora of male with a rather blunt tooth at apex. L. 1—1 $\frac{1}{4}$  l. Not uncommon. *A. nigripenne*, Fab.

**b.** Body black or brown.

**I.** Elytra impunctate, without any sutural stria.

Black or brown; margins of thorax lighter; antennae and legs brown-red. Thorax impunctate. Posterior femora of male simple. L. 1 l. Rather common.

*A. laevigatum*, Er.

**II.** Elytra finely punctured, with a sutural stria.

**1.** Under-side black; thorax broadest behind middle.

Black; antennae, legs and apex of abdomen red-brown. Thorax finely punctured. Male with a broad, almost right angled tooth at apex of posterior femora and a depression in metasternum. L. 1 $\frac{1}{3}$  l. Rather common.

*A. atrum*, Payk.

**2.** Under-side red-brown; thorax broadest before middle.

Lighter or darker pitch-brown; antennae and legs red-brown. Thorax very finely and obsoletely punctured. Posterior femora of male with a blunt tooth at apex. L. 1 l. Rather common.

*A. seminulum*, Lin.

**B.** Elytra cut off obliquely on each side of base, with obtuse humeral angles.

With incomplete ability to roll up into a ball.

**a.** All tarsi of female with four joints.

**I.** Clypeus depressed, so as to leave front of head emarginate.

Pitchy; margins of thorax, under-side, first eight joints of antennae and the legs red-yellow. Thorax diffusely and indistinctly, elytra diffusely but distinctly punctured, sutural stria on latter reaching middle. Left mandible of male elongate. Similar to *A. varians* but not quite so broad and rather more acuminate behind. L.  $\frac{4}{5}$ —1 l. Rare.

*A. confusum*, Bris.

**II.** Clypeus simple.

Brownish-yellow; disc of thorax and base of elytra darker. Antennae with first two joints of club blackish. Thorax diffusely and very finely punctured; elytra impunctate, sutural stria reaching middle. Left mandible of male sometimes produced. L. 1 l. Rather common.

*A. varians*, Beck.

**b.** Anterior tarsi of female with five joints, hinder pairs with four joints.

**I.** Sutural stria on elytra reaching beyond middle; club of antennae black (except sometimes apex.)

Black; margins of thorax, apex of elytra, antennae (except club) and legs red-brown, femora darker. Thorax and elytra finely punctured. Left mandible of male either with a straight, pointed, thornlike horn, reclining on head or merely a little thickened and curved. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Moderately common.

*A. rotundatum*, Gyll.

**II.** Sutural stria on elytra not reaching middle; antennae unicolorous red.

Black, shiny; margins of thorax pitchy; antennae and legs red. Punctuation of head even, of disc of thorax indistinct, of its sides and the elytra diffuse and fine. L.  $\frac{3}{4}$ — $\frac{4}{5}$  l. Rare.

*A. convexum*, Sharp.

**C.** Base of elytra tolerably straight, humeral angles almost right angles.

Almost without any ability to roll up into a ball.

**a.** Elytra without sutural stria.

Pitch-black, margins of thorax and apex of elytra lighter; antennae and legs brown-red, apex of former and posterior femora darker. Punctuation of thorax scarcely perceptible, of elytra distinct and rather close. Female with four joints to all tarsi. L.  $\frac{3}{4}$  l. Not common.

*A. marginatum*, Sturm.

**b.** Elytra with a sutural stria.

**I.** Head very closely punctured.

Pitch-black, margins of thorax often lighter; abdomen, antennae (except base of club) and legs red-brown. Forehead with a slight transverse impression behind; temples prominent behind eyes; punctuation of thorax indistinct, of elytra distinct. Female with five joints to anterior tarsi,

and four joints to hinder pairs. L.  $1\frac{1}{2}$  l. Not very common.  
*A. nigrinum*, Sturm.

**II.** Head diffusely punctured.

Pitch-black; base of antennae and legs red-brown. Similar to *A. nigrinum* but more pointed behind, more distinctly punctured, with a more deeply impressed sutural stria, and shorter and stouter antennae. Left mandible either simple or with a process varying from a tooth to a long, sharp, curved horn. L.  $1\frac{1}{4}$  l. Rare.

*A. rhinoceros*, Sharp.

***Amphicyllis.***

Nearly hemispherical. Black, very shiny; thorax red; antennae (except middle of club) and legs red-brown, posterior femora darker. Thorax, scutellum and elytra finely punctured, latter with a sutural stria. L.  $1\frac{1}{4}$  l. Not uncommon.

*A. globus*, Fab.

***Liodes.***

**A.** Female with five joints to anterior tarsi and four joints to posterior pairs.

**a.** Elytra black, with a large red spot at shoulder; male with first three joints of anterior tarsi very strongly dilated.

Head and thorax black; under-side, antennae (except club) and legs red-brown. Elytra with irregular rows of punctures and very fine brownish-yellow pubescence. L.  $1\frac{1}{3}$ — $1\frac{2}{3}$  l. Common.

*L. humeralis*, Fab.

**b.** Elytra unicolorous black; male with first three joints of anterior tarsi slightly dilated.

Head and thorax black; under-side, antennae and legs red-brown. Elytra with regular rows of fine punctures and a sutural stria. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Not uncommon.

*L. glabra*, Kug.

**B.** Female with four joints to all tarsi.

**a.** Sutural stria on elytra nearly reaching scutellum; male with anterior tarsi rather strongly dilated.

Upper-side black, margins of thorax and elytra red-brown; under-side, antennae (except part of club) and legs red-brown. Elytra rather irregularly punctured in double

rows. L.  $1\frac{1}{2}$  l. Not common. *L. castanea*, Herbst.

**b.** Sutural stria on elytra scarcely reaching beyond middle; male with anterior tarsi slightly dilated.

Short oval. Upper-side pitch-black or pitch-brown; under-side, antennae (except club) and legs red-brown. Elytra with not quite regular rows of fine punctures, indistinct toward sides. L.  $1-1\frac{1}{4}$  l. Not common.

*L. orbicularis*, Herbst.

### ANISOTOMIDES.

**A.** Tarsi with four joints on anterior pair and three joints on hinder pairs.

Antennae with five-jointed, interrupted club; mandibles simple; last joint of maxillary palpi almost as long as the other three together, gradually pointed; first joint of labial palpi longer than second, and shorter than third; mesosternum with a fine ridge. *Agaricophagus*, Schmidt.

**B.** Tarsi with five joints on anterior pair and four joints on hinder pairs.

Antennae with three-jointed club, seventh joint not much larger than eighth; mandibles simple; last joint of maxillary palpi almost as long as the two preceding together, gradually narrowed, with truncate apex; ligula straight in front; first and third joints of labial palpi about equal in length, longer than second; mesosternum ridged; forehead not bordered. *Colenis*, Er.

**C.** Tarsi with five joints on front pairs and four joints on posterior pair.

**a.** Mesosternum not ridged.

Antennae with five-jointed, interrupted club, eighth joint very small; mandibles simple; last joint of maxillary palpi as long as the two preceding together; gradually narrowed, apex truncate; ligula somewhat emarginate in middle; joints of labial palpi gradually increasing in length; metasternum with a blunt process in front. *Cyrtusa*, Er.

**b.** Mesosternum ridged.

Antennae with five-jointed, interrupted club, eighth joint as large as sixth; mandibles toothed in middle; maxillary palpi with second joint elongate, last one almost



longer than second; ligula bilobed; joints of labial palpi increasing slightly in length; base of thorax with a row of larger punctures; elytra with nine punctured striae, interstices finely punctured, the alternate ones generally with scattered larger punctures. *Anisotoma*, Knoch.

**D.** All tarsi with five joints.

**a.** Antennae with five-jointed, interrupted club.

Mandibles toothed in middle; last joint of maxillary palpi as long as the two preceding together, gradually narrowed, apex truncate; ligula bilobed; first and third joints of labial palpi equal in length and longer than second; mesosternum not ridged. *Hydnobius*, Schmidt.

**b.** Antennae with three-jointed club.

Seventh joint of antennae not broader than eighth; second joint of maxillary palpi elongate, longer than fourth joint, which is pointed; last joint of labial palpi larger than the others; mesosternum not ridged; thorax with a transverse furrow at base. *Triarthron*, Märk.

### *Agaricophagus.*

Oblong, slightly convex. Reddish-yellow. Head large; thorax with fine impressed transverse lines and scattered punctures; elytra with fine punctured striae, interstices with transverse impressed lines. Posterior femora of male with a tooth (directed backward) in middle of under-side. L. 1 l. Scarce. *A. cephalotes*, Schmidt.

### *Colenis.*

Short ovate, convex. Reddish-yellow. Thorax smooth; elytra with very fine punctured striae, interstices with transverse impressed lines. Posterior femora of male broad, with two teeth beneath. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Common. *C. dentipes*, Gyll.

### *Cyrtusa.*

**A.** Posterior angles of thorax rather sharp right angles; posterior femora of male with a pointed, recurved tooth at apex beneath.

Short ovate. Red-yellow. Elytra with regular rows of punctures, reaching almost to base, interstices with finer

punctures; posterior tibiae gradually broadened toward apex. L.  $\frac{1}{2}$ — $\frac{4}{5}$  l. Rare. *C. minuta*, Ahr.

**B.** Posterior angles of thorax rather obtuse; posterior femora of male not toothed.

Ovate. Reddish-yellow. Elytra punctured from the middle backward in rows; posterior tibiae of male suddenly dilated. L.  $\frac{1}{2}$  l. Rare. *C. pauxilla*, Schmidt.

### *Anisotoma.*

**A.** Anterior tibiae distinctly dilated at apex.

**a.** Interstices on elytra not closely punctured.

**I.** Apical joint of antennae not, or only slightly narrower than the two penultimate joints; margins of elytra not, or only indistinctly fringed.

**1.** Third joint of antennae not more than half as long again as second.

**A A.** Body more or less oblong.

**a a.** Club of antennae black.

Yellow-red or brown-red. Thorax rounded at sides, broadest in middle, nearly equally narrowed in front and behind, anterior angles almost right-angles, somewhat blunted, basal margin straight, posterior angles obtuse, punctuation rather close and fine; elytra fully double as long as thorax, with regular punctured striae, the punctures close and not very large, interstices very finely and diffusely punctured, the alternate ones with scattered larger punctuation. Male with a tooth near base of intermediate femora and two teeth toward apex of posterior femora, hinder pairs of tibiae curved; posterior femora elongate, those of the female shorter with a slightly prominent blunt angle at apex. L. 2—3 l. Not common.

*A. cinnamomea*, Panz.

**b b.** Antennae entirely reddish.

**A a.** Antennae with joints four to six less transverse, eighth joint longer and narrower; posterior femora of female angulated beneath.

Resembling *A. cinnamomea* but rather less convex, club of antennae not quite so large or compact; thorax less

abruptly narrowed in front, anterior angles more rounded; interstices on elytra often more strongly punctured; apical joint of tarsi shorter and stouter. Male with posterior femora flattened, with a very slight angular point at apex, posterior tibiae very slightly curved. L.  $1\frac{3}{4}$ — $2\frac{1}{4}$  l. Rare.  
*A. grandis*, Fairm.

**B b.** Antennae with joints four to six more transverse, eighth joint shorter and broader; posterior femora of female rounded at apex beneath.

Rather more ovate than *A. cinnamomea*, with antennae rather shorter, thorax less strongly rounded at sides, with anterior angles more rounded but posterior angles almost right angles; elytra rather broader and more rounded at sides, with stronger punctuation. L.  $1\frac{4}{5}$  l. Very rare.  
*A. oblonga*, Er.

**B B.** Body longer or shorter oval.

**a a.** Interstices on elytra with fine, scattered punctuation and fine diffusely placed transverse scratches, the alternate ones with a few larger punctures.

Short oval. Brown-red; club of antennae black, apical joint slightly narrower than ninth and tenth. Thorax with sides gently rounded, narrowed in front, base straight, posterior angles blunted and almost rounded, rather diffusely and finely punctured; elytra with punctured striae, the punctures close and not very large. Male with posterior legs elongate, the femora dilated toward apex, which is rounded, the tibiae strongly curved. L.  $1\frac{1}{2}$ —2 l. Rare.  
*A. rugosa*, Steph.

**b b.** Interstices on elytra punctured only.

**A a.** Head large; base of thorax more or less emarginate toward angles.

Oval. Brown-red. Antennae short, apical joints slightly narrower than ninth and tenth; thorax with greatest breadth in middle, rather less narrow behind than in front, front only slightly emarginate for reception of head, posterior angles rather obtuse and almost rounded; scutellum closely punctured. Male with posterior legs elongate, the femora angular in middle, the tibiae doubly curved. L.

$1\frac{1}{2}$ — $1\frac{2}{3}$  l. Rare.

*A. Triepkei*, Schmidt.

**B b.** Head not very large; basal margin of thorax straight.

**A 1.** Sides of thorax gently rounded; posterior tibiae of male singly curved.

**a 1.** Elytra not quite double as long as thorax.

Short oval. Blackish-pitch-brown; legs red. Thorax more narrowed in front than behind, moderately deeply emarginate in front for reception of head, all angles obtuse and somewhat rounded. Male with posterior legs elongate, the femora with a blunt tooth on each side of apex. L.  $1\frac{2}{3}$  l. Rare.

*A. picea*, Ill.

**b 1.** Elytra at least double as long as thorax.

Oblong oval. Darker or lighter brown; antennae short, with darker club, apical joint slightly narrower than ninth and tenth. Thorax more narrowed in front than behind, posterior angles rounded. L.  $1\frac{3}{4}$ —2 l. Rare.

*A. silesiaca*, Kr.

**B 1.** Sides of thorax rather strongly rounded; posterior tibiae of male doubly curved.

Shorter or longer oval. Colour varying from reddish-yellow to dark pitch-brown; antennae reddish with blackish club. Thorax broadest in middle, more narrowed in front than behind, posterior angles obtuse and more or less rounded, punctuation close and distinct. Male with posterior legs elongate, the femora with a small tooth on each side of apex. L.  $1$ — $1\frac{3}{4}$  l. Not very common.

*A. dubia*, Kug.

**2.** Third joint of antennae twice as long as second.

Short ovate. Red-brown. Club of antennae rather narrow; thorax slightly rounded at sides, narrowed in front but not behind, basal margin straight, posterior angles almost right angles, although somewhat rounded, punctuation rather close and fine; elytra with punctured striae, interstices diffusely and very finely punctured, alternate ones with a few larger punctures. Male with posterior legs elongate, the femora with a slight rounded tooth on

each side at apex, the tibiae doubly curved. L.  $1\frac{2}{3}$  l. Rare. *A. obesa*, Schmidt.

**II.** Apical joint of antennae much narrower than the two penultimate joints; margins of elytra distinctly fringed.

**1.** Thorax considerably narrowed in front and not at all (or scarcely at all) behind.

Reversed ovate, very convex. Reddish or dark brown; antennae short, yellowish, with club dark brown. Elytra with moderately strong punctured striae; interstices rather finely and not altogether closely punctured; posterior legs not thickened. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Rare. *A. furva*, Er.

**2.** Thorax almost equally narrowed in front and behind.

Short ovate, very convex. Reddish-yellow. Antennae short; elytra with shallow punctured striae, punctures rather feeble, interstices moderately finely and rather closely punctured; posterior legs thickened. L.  $1\frac{1}{2}$  l. Rare.

*A. ciliaris*, Schmidt.

**b.** Interstices on elytra closely and extremely finely punctured.

Short oval, very convex. Lighter or darker red-yellow, shiny. Thorax as broad at base as in middle, narrowed in front, much more finely and less closely punctured than in *A. furva* and *ciliaris*, elytra not fringed at margins, punctuation of striae finer, that of interstices closer; antennae short, with last joint very little narrower than the two preceding joints. L. 1 l. Rare. *A. pallens*, Sturm.

**B.** Anterior tibiae scarcely dilated toward apex.

**a.** Interstices on elytra closely, or rather closely punctured.

**I.** Last joint of antennae as broad as two preceding joints.

Oval, convex. Red-brown, club of antennae darker. Thorax closely and finely punctured, with base truncate, posterior angles obtuse, sides straight from base to middle, rounded in front; elytra with rather closely, not strongly punctured striae. Posterior femora of male unarmed, rounded at apex, tibiae curved. L.  $1\frac{1}{3}$ — $1\frac{2}{3}$  l. Moderately common. *A. ovalis*, Schmidt.

**II.** Last joint of antennae narrower than two preceding joints.

Oblong-ovate, convex. Rust-red, shiny; club of antennae brownish. Thorax a little broader than elytra, closely and finely punctured, with sides (especially in front) strongly rounded, angles rounded, apex emarginate, base truncate; punctures of striae on elytra placed more closely than, but not so large as in *A. calcarata*; hindlegs of male scarcely perceptibly elongated. Posterior femora of male compressed, sinuate before apex beneath, tibiae slightly curved. L.  $1\frac{1}{3}$  l. Rare. *A. lunicollis*, Rye.

**b.** Interstices on elytra diffusely punctured.

**I.** Last joint of antennae narrower than two preceding joints.

**1.** Base of thorax nearly truncate.

**A A.** Club of antennae rust-red.

Oblong ovate, rather convex. Rust-red, club of antennae scarcely darker. Thorax closely punctured, sides feebly and regularly rounded, anterior angles rounded, posterior angles obtuse; elytra rather more pointed behind than in *A. calcarata*, with punctures of striae larger. Posterior legs of male elongate, their femora suddenly and obliquely contracted on under-side toward trochanter, commencement of contraction being nearer base than middle and forming a distinct and minutely denticulated angle, the outer angle entirely rounded off, with no projection, inner angle with a rounded prominence. L.  $1-1\frac{1}{2}$  l. Rare.

*A. macropus*, Rye.

**B B.** Club of antennae (except second joint) blackish.

Oval, not very convex. Yellow-red, shiny; elytra with either suture or suture and outer margin brown or black. Thorax closely but feebly punctured, posterior angles somewhat obtuse, not rounded off; elytra with punctuation of striae not quite so deep. Posterior femora of male unarmed, their tibiae elongate and much curved inward. L.  $1\frac{1}{4}-1\frac{1}{2}$  l. Not common.

*A. litura*, Steph.

**2.** Base of thorax bisinuate.

Oblong ovate, moderately convex. Brown-red or yellowish-red. Thorax finely and not very closely punctured.

tured, sides rounded, anterior angles obtuse and somewhat rounded, posterior angles right angles but not pointed; elytra with strongly punctured striae. Male anterior tarsi not dilated, posterior legs more or less elongate, their femora ending in a strong, sharp tooth, tibiae curved. L.  $\frac{3}{4}$ — $1\frac{1}{2}$  l. Common. *A. calcarata*, Er.

**II.** Last joint of antennae as broad as two preceding joints.

**1.** Sides of thorax straight from base to middle, rounded in front.

Ovate, convex. Rust-red, shiny. Thorax rather closely, very finely punctured, apex very slightly sinuate on each side, base truncate; elytra with strongly punctured striae. Posterior legs of male not elongate, their femora with lower apical angle somewhat prominent, rounded, tibiae slightly curved. L.  $1\frac{1}{3}$  l. Rare. *A. scita*, Er.

**2.** Sides of thorax rounded.

**A A.** Punctures in striae on elytra rather closely placed and fine; posterior femora of male unarmed, their tibiae curved.

Short ovate, slightly convex. Rust-red, shiny. Thorax more or less closely and distinctly punctured; anterior angles obtuse and rounded, posterior angles obtuse, not rounded, base truncate. L.  $\frac{3}{4}$ —1 l. Rare.

*A. brunnea*, Sturm.

**B B.** Punctures in striae on elytra large, deep and not closely placed; posterior femora of male ending in a large sharp tooth.

Oblong-ovate, convex. Red-brown or pitchy, shiny; antennae red-brown, with dark brown club. Thorax very finely, not closely punctured, anterior angles rounded, posterior angles almost right angles; base truncate. L.  $1\frac{1}{3}$  l. Rare.

*A. nigrita*, Schmidt.

**c.** Interstices on elytra broad and smooth, the alternate ones with isolated, very indistinct punctures.

**I.** Fourth row of punctures on elytra straight.

Ovate, very broad in middle. Chestnut-brown; head and thorax generally darker and apex of elytra, legs and antennae lighter. Elytra scarcely half as long again as thorax. L.  $\frac{3}{4}$ —1 l. Not uncommon. *A. badia*, Sturm.

**II.** Fourth row of punctures on elytra slightly flexuous about its upper third.

Rust-red, shiny; thorax impunctate. Similar to *A. badia* but with basal joints of antennae more slender, elytra rather longer, more delicately punctured. L. 1 l. Rare.

*A. similita*, Rye.

**d.** Interstices on elytra with diffusely placed and very fine transverse scratches.

Short ovate. Red-yellow or red-brown. L.  $\frac{1}{2}$ — $\frac{3}{4}$  l. Not uncommon.

*A. parvula*, Sahl.

### *Hydnobius.*

**A.** Length 2 lines.

Broader and flatter than *H. punctatissimus*. Reddish-brown, shiny; sutural space on elytra dark, suture blackish; antennae very short, red-yellow, club (including seventh joint) pitch-black. Head and thorax very strongly and rather closely punctured, elytra rather closely and very deeply and coarsely punctured. Rare. *H. Perrisi*, Fairm.

**B.** Length  $1\frac{1}{4}$  lines.

**a.** Body black or dark brown.

Black, sometimes dark brown; base of antennae and legs lighter, seventh joint of former yellow-red. Thorax almost as broad as elytra, rather diffusely punctured, elytra punctured in distinct striae, interstices rather irregularly punctured. Male with a large, triangular hooked tooth on posterior femora. L.  $1\frac{1}{4}$  l. Not common.

*H. punctatissimus*, Steph.

**b.** Body reddish-yellow or brownish-red.

Reddish-yellow or brownish-red, head, thorax and club of antennae usually darker. Thorax not so flat as in *H. punctatissimus* and more rounded in front, rows of punctures on interstices of elytra almost as deep and regular as in striae and almost as closely placed. Male with a long, spinelike tooth before apex of posterior femora. L. 1 l. Rare.

*H. punctatus*, Sturm.

**C.** Length  $\frac{2}{3}$ — $\frac{3}{4}$  line.

Lighter or darker reddish-yellow, head and thorax sometimes blackish, latter finely punctured. Elytra with fine rows of punctures, interstices with oblique scratches. Male



with a short, broad, triangular tooth before apex of posterior femora. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Not common. *H. strigosus*, Schmidt.

### *Triarthron.*

Reddish-yellow. Elytra with nine strongly punctured striae, sutural stria deep throughout, interstices smooth, alternate ones with a few scattered punctures. Male with under-side of posterior femora excised at base, dilated and toothed in middle and again prominent at apex. L.  $1\frac{1}{2}$  l. Rare. *T. Märkeli*, Schmidt.

## *SILPHIDAE.*

**A.** First joint of antennae not elongate.

**a.** Head sunk in thorax, not freely moveable.

**I.** Eyes present.

Tarsi with five joints.

**1.** Antennae rather short, eighth joint larger than seventh.

Last joint of maxillary palpi conical, pointed; ligula scarcely emarginate. *Colon*, Herbst.

**2.** Antennae rather long, eighth joint smaller than seventh.

Last joint of maxillary palpi conical, pointed; ligula deeply emarginate. *Choleva*, Latr.

**II.** Eyes absent.

**1.** Tarsi with four joints on anterior pair and five joints on hinder pairs.

Last joint of maxillary palpi conical, pointed; ligula emarginate at apex. Antennae gradually thickened, eighth joint smaller than seventh and ninth. *Adelops*, Tellk.

**2.** All tarsi with five joints.

Antennae gradually thickened toward apex, scutellum rather large. *Leptinus*, Müll.

**b.** Head prominent, freely moveable.

Tarsi with five joints.

**I.** Antennae with ten joints.

Club of antennae abrupt, four-jointed; elytra truncate at apex, shorter than abdomen. *Necrophorus*, Fab.

**II.** Antennae with eleven joints.

Antennae gradually thickened or with three or four larger joints at apex. Last joint of maxillary palpi oval or cylindrical. Thorax usually broadest at base and elytra generally rounded at apex. *Silpha*, Lin.

**B.** First joint of antennae elongate.

Antennae with distinct three-jointed club. Ligula emarginate. Thorax broadest at base, sides bordered; elytra with rows of punctures, nearly covering abdomen but truncate at apex. *Sphaerites*, Duft.

**Colon.****A.** Anterior tibiae and tarsi simple in both sexes.

**a.** Elytra with distinct regular striae; posterior femora of male not notched beneath.

Oblong-oval. Yellow-brown, with fine yellow pubescence; antennae (including club) yellow-red; legs brownish-red. Thorax nearly as long as broad, posterior angles blunted. Posterior legs of male with femora broad, dilated in front, with a blunt tooth before apex; their tibiae somewhat bent, finely notched on under-side; those of female simple. L.  $1\frac{3}{4}$  l. Rare. *C. viennense*, Herbst.

**b.** Elytra with at most traces of dorsal striae; posterior femora of male finely notched beneath.

**I.** Thorax strongly and closely punctured.

Oblong-oval. Black-brown, pubescence brownish-yellow. Thorax large, broadest behind middle, posterior angles obtuse; elytra closely and rather finely punctured, with a deep sutural stria and traces of dorsal striae. Posterior legs of male with a strong tooth (somewhat curved and notched beneath) behind middle of femora, their tibiae finely notched beneath; those of female simple. L. 1— $1\frac{1}{4}$  l. Rare. *C. puncticolle*, Kr.

**II.** Thorax moderately finely punctured.

Oblong-oval. Black-brown; pubescence golden-yellow; antennae red-brown, club black-brown; legs red-brown. Thorax broadest before base, rather strongly narrowed in front, posterior angles bluntly rounded; elytra extremely finely and closely punctured, with only a sutural and a lateral stria. Posterior legs of male with a little tooth

before apex of femora, their tibiae straight, finely notched beneath; those of female simple. L. 1 l. Not very common.

*C. serrripes*, Sahlb.

**B.** Anterior tibiae and tarsi dilated in both sexes, tarsi more strongly in male.

**a.** Elytra oblong-ovate.

**I.** Posterior femora of male with a long, curved, sharp tooth before apex.

**1.** Punctuation of thorax close and deep, that of elytra rather close and fine.

Oblong-oval. Brown, pubescence yellowish-gray; antennae red-brown, club dark brown, legs red-brown. Thorax transverse, posterior angles obtuse; elytra without trace of striae. Posterior legs of male with femora toothed as above, thickened toward apex, not notched beneath, their tibiae straight; those of female simple. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Rare.

*C. Zebei*, Kr.

**2.** Punctuation of thorax very close and not very deep, that of elytra very close and fine.

Oblong oval. Brown, pubescence yellow; antennae red-brown, club (except apex) dark brown; legs red-brown. Thorax broader than long, posterior angles bluntly rounded; elytra without trace of striae. Posterior legs as in *C. Zebei*. L.  $1\frac{1}{4}$  l. Rare.

*C. dentipes*, Sahlb.

**II.** Posterior femora of male thickened at apex, with an oblique spine behind middle, bearing a tuft of hairs.

**1.** Elytra with traces of dorsal striae.

Oblong oval. Dark brown, pubescence gray-yellow; antennae and legs red-brown, penultimate three joints of club of former blackish. Thorax distinctly broader than long, posterior angles nearly right angles. Posterior tibiae of male curved inward below middle; posterior legs of female simple. L.  $1\frac{1}{4}$  l. Rare.

*C. appendiculatum*, Sahlb.

**2.** Elytra with no trace of dorsal striae.

Oblong oval, blunt before and behind. Reddish-brown, pubescence yellowish-gray; antennae and legs red-brown, penultimate three joints and base of last joint of former black-brown. Thorax broader than long, posterior angles

nearly right angles; elytra closely and finely, regularly punctured. Posterior legs as in *C. appendiculatum*. L.  $\frac{3}{4}$  l. Rare.

*C. calcaratum*, Er.

**III.** Posterior femora of male with a small straight tooth before apex.

**1.** Posterior angles of thorax obtuse.

**A A.** Elytra with no trace of striae.

Oblong oval. Reddish, pubescence yellow-gray; antennae and legs rust-red. Thorax broader than long, rather strongly and somewhat diffusely punctured, posterior angles rather obtuse; elytra finely and not very closely punctured. Posterior legs of female simple. L.  $\frac{3}{4}$  l. Rare.

*C. rufescens*, Kr.

**B B.** Elytra with traces of dorsal striae.

Blunt oval. Blackish-brown, pubescence yellowish-gray; antennae and legs red-brown, club of former not abrupt, blackish-brown, apical joint very short. Thorax somewhat broader than long. Posterior legs of male with tibiae somewhat curved below middle; those of female simple. More convex than *C. appendiculatum*, with traces of striae on elytra less distinct. L. 1 l. Very rare.

*C. denticulatum*, Kr.

**2.** Posterior angles of thorax sharp right angles.

Oblong oval. Dark brown, pubescence yellowish; antennae light red-brown, club yellowish, moderately thick, last joint truncate; legs brownish-red. Thorax broadest in middle, nearly as long as broad, closely, strongly and deeply punctured. Posterior femora of male with pointed apex, those of female simple. L. 1— $1\frac{1}{4}$  l. Rare.

*C. angulare*, Er.

**b.** Elytra short ovate.

**I.** Thorax somewhat broader than long; length 1 line.

Ovate. Brown, pubescence golden-yellow; legs and antennae brown-red, club of latter (except last joint) blackish-brown. Thorax narrowed in front, moderately finely and rather closely punctured, posterior angles almost right angles, somewhat prominent; elytra without trace of striae. Posterior femora of male with a very small tooth before apex; those of female simple. Moderately common.

*C. brunneum*, Latr.

**II.** Thorax nearly twice as broad as long ; length  $1\frac{1}{2}$  lines.

Short ovate. Blackish-brown, pubescence golden-yellow ; antennae and legs yellow-red. Posterior angles of thorax right angles ; elytra extremely closely and finely punctured in transverse wrinkles ; anterior tibiae strongly emarginate at base, dilated toward apex, notched on outer margin ; anterior tarsi much dilated ; posterior legs simple. Rare.

*C. latum*, Kr.

### **Choleva.**

**A.** Mesosternum simple, without ridge.

**a.** Body oblong.

Antennae long and thin, scarcely thickened at apex, eighth joint rather shorter than seventh and ninth ; tarsi slender, anterior pair dilated in male, intermediate pair simple in both sexes ; posterior coxae of male dilated.

**I.** Thorax broadest in or before middle.

**1.** Punctuation of thorax rather fine or fine.

**AA.** Abdomen with segments three to five deeply impressed.

Elongate. Pitch-black ; thorax with extreme side margin and posterior angles red-brown ; elytra rust-brown, sometimes rather darker at apex of suture ; legs and antennae rust-red, latter longer than half the body. Thorax not much broader than long, sides gently rounded, broadest before middle, gradually narrowed behind, rather diffusely, moderately finely punctured, posterior angles slightly obtuse ; elytra slightly convex, finely and closely punctured, with feeble striae, sides very slightly dilated in middle. Posterior coxae of male short, pointed, with inner margin produced ; elytra of female terminated with a short spine. L.  $2\frac{1}{2}$  l. Rather common. *C. angustata*, Fab.

**BB.** Abdomen with feeble impressions.

**aa.** Posterior coxae of male long, gouge-shaped.

Brown ; sides of thorax reddish-brown ; antennae and legs lighter. Thorax broadest before middle, gradually narrowed behind ; moderately finely and closely punctured, posterior angles slightly obtuse ; elytra dilated in middle,

with feeble striae; abdomen with segments four and five feebly impressed. Elytra of female simple. L.  $2\frac{1}{2}$  l. Rare.

*C. intermedia*, Kr.

**b b.** Posterior coxae of male short, produced into a curved spine on inner margin.

Dark pitch-black; antennae and legs red-brown, former darker toward apex, half as long as body. Thorax broadest in middle, sides rounded, almost equally strongly in front and behind, extremely closely and finely punctured; elytra moderately convex, with slight striae; abdomen with segments two to five feebly impressed. Elytra of female simple. L.  $2\frac{1}{2}$  l. Not uncommon. *C. cisteloides*, Fröhl.

**c c.** Posterior coxae of male short, simple.

Oblong. Brown, head and disc of thorax darker; elytra reddish; antennae and legs red-brown. Thorax finely and not very closely punctured, broadest before middle, posterior angles rather obtuse; elytra even more elongate than in *C. angustata*, finely and closely punctured with feeble striae. Abdomen of male with segments two to four feebly impressed, posterior femora with a small tooth before middle. L.  $2\frac{1}{2}$  l. Rare.

*C. Sturmii*, Bris.

**2.** Punctuation of thorax strong and deep.

Pitch-black; elytra chestnut-brown, darker toward apex; antennae and legs brown-red, latter with last five joints darker, half as long as body. Thorax not much broader than long, widest before middle, narrowed behind, sides rounded, basal margin straight, posterior angles bluntly rounded; elytra with feeble punctured striae. Posterior coxae of male dilated. L.  $2\frac{1}{4}$ — $2\frac{1}{2}$  l. Scarce.

*C. spadicea*, Sturm.

**II.** Thorax broadest behind.

Pitch-brown or reddish-brown; middle of thorax blackish; antennae and legs lighter, last five joints of former rather stronger than preceding ones. Thorax almost double as broad as long, narrowed in front, moderately closely and very finely punctured, posterior angles bluntly rounded; elytra finely and closely punctured, with striae, feeble in front, more distinct behind. Male with intermediate tibiae strongly curved inward and a pointed tooth on inner-side of posterior coxae. L.  $2\frac{1}{4}$  l. Moderately common.

*C. agilis*, Ill.

**b.** Body ovate.

**I.** Tarsi rather strong, male with anterior pair and first joint of intermediate pair dilated; posterior coxae simple.

**1.** Antennae almost threadlike.

**A A.** Body rust-brown.

Elytra, antennae, and legs red-brown, former with a bluish-gray reflection from pubescence, and with feeble striae; thorax broader than long, widest behind, with posterior angles right angles. L. 2 l. Moderately common.

*C. fusca*, Panz.

**B B.** Body black or pitch-brown.

**a a.** Posterior angles of thorax acute, somewhat prominent.

Antennae and legs red-brown, apex of former and femora often darker. Thorax broader than long, basal margin slightly sinuate on each side; elytra with very feeble striae at apex. L.  $1\frac{3}{4}$ —2 l. Rather common.

*C. nigricans*, Spence.

**b b.** Posterior angles of thorax exactly right angles.

Black; antennae reddish-pitch-brown. Thorax broader than long, almost as wide as elytra, anterior angles rounded; elytra finely and closely punctured, with very indistinct striae. L.  $1\frac{1}{2}$  l. Moderately common. *C. coracina*, Kell.

**2.** Antennae distinctly thickened toward apex.

**A A.** Elytra with indistinct dorsal striae.

**a a.** Thorax equally broad at base and apex.

**A a.** Antennae only slightly thickened toward apex, first two and last joints yellow-brown (rarely entirely reddish-brown).

Oblong oval. Black; legs reddish-yellow-brown, posterior femora brown. Thorax somewhat narrowed in front, very slightly so behind, posterior angles right angles. L.  $1\frac{2}{3}$  l. Not common.

*C. morio*, Fab.

**B b.** Antennae feebly thickened toward

apex, first six joints brown-red, apical joint yellow, rest brown.

Oblong oval. Black ; legs reddish-yellow-brown. Thorax broadest in middle, posterior angles acute, almost right angles. L.  $1\frac{2}{3}$  l. Moderately common. *C. nigrita*, Er.

**C c.** Antennae strongly thickened toward apex, first six joints brown-red, rest brown.

Ovate. Pitch-black ; elytra brown ; legs brown, tibiae lighter, tarsi yellowish. Thorax short, transverse, rounded at sides, posterior angles sharp right angles. L.  $1\frac{3}{4}$  l. Common. *C. tristis*, Panz.

**D d.** Antennae only slightly thickened toward apex, rust-brown, apex yellow-brown.

Rather oblong. Black. Thorax evenly narrowed before and behind, broadest a little before middle, sides slightly rounded, posterior angles right angles ; elytra oblong oval, four times as long as thorax. L.  $2\frac{1}{4}$  l. Rare.

*C. longula*, Kell.

**b b.** Thorax broader at base than at apex.

**A a.** Posterior angles of thorax obtuse.

Blunted ovate. Pitch-black ; elytra rust-brown, dull ; antennae and legs brown-red, former short, only gradually thickened toward apex. Thorax transverse, broader than elytra, strongly rounded at sides, basal margin straight. L.  $1\frac{3}{4}$  l. Not uncommon. *C. grandicollis*, Er.

**B b.** Posterior angles of thorax sharp right angles.

Pitch-black ; antennae and legs brown-red, former with apical joints much thickened, black, last joint oblong. Thorax transverse. L. 2 l. Rather common.

*C. chrysomeloides*, Panz.

**B B.** Elytra with no trace of dorsal striae.

**a a.** Sides of thorax strongly rounded.

Black-brown ; antennae and legs brown-red, tarsi lighter, former slightly thickened toward apex. Thorax transverse, finely granulated, posterior angles right angles. L.  $1\frac{1}{2}$  l. Not uncommon. *C. Kirbyi*, Spence.

**b b.** Sides of thorax not strongly rounded.



**A a.** Antennae short, thickened toward apex, blackish, first three joints and apical joint rather lighter.

Oblong-oval. Smoke-brown; elytra somewhat lighter; legs brown-red. Thorax short, posterior angles right angles; elytra very finely punctured. L.  $1\frac{1}{2}$  l. Rather common. *C. Watsoni*, Spence.

**B b.** Antennae only slightly thickened toward apex, unicolorous rust-brown.

Brown; elytra and legs dark yellow-brown. Posterior angles of thorax right angles, somewhat prominent. L.  $1\frac{1}{2}$  l. Rather common. *C. fumata*, Spence.

**II.** Tarsi slender, anterior pair dilated in male; intermediate tarsi and posterior coxae simple in both sexes.

Antennae only slightly thickened toward apex.

**1.** Thorax with basal margin slightly sinuate on each side, posterior angles right angles.

Rust-brown; head brown; antennae rust-brown, rather long; legs yellowish. Thorax transverse, broadest behind; elytra with very indistinct striae, very finely transversely wrinkled. L.  $1\frac{1}{2}$  l. Common. *C. velox*, Spence.

**2.** Thorax with basal margin straight, posterior angles obtuse.

**A A.** Body oblong, reddish-brown.

Antennae, legs and palpi pale rust-yellow. Elytra oblong, sides nearly straight, apex rounded. L.  $1\frac{1}{4}$  l. Rather common. *C. Wilkini*, Spence.

**B B.** Body ovate, pitch-brown.

Antennae pale yellowish, eighth joint small, apical one large, somewhat globose; legs pale dull-red. Elytra ovate, convex. L.  $\frac{3}{4}$  l. Moderately common.

*C. anisotomoides*, Spence.

**B.** Mesosternum ridged.

Tarsi strong, somewhat compressed, anterior pair dilated, strongly in male, in female feebly in middle, intermediate pair simple in both sexes.

**a.** Elytra gradually narrowed at apex; antennae unicolorous rust-red.

Ovate. Dark pitch-brown; antennae insensibly thickened toward apex; thorax and elytra with transverse scratches. L.  $\frac{3}{4}$  l. Very rare. *C. colonoides*, Kr.

**b.** Elytra truncate at apex; antennae lighter at base than in middle.

**I.** Antennae blackish, first five joints and the apical joint reddish-yellow.

Oblong ovate. Black. Antennae short; thorax and elytra with transverse scratches. L.  $1\frac{1}{2}$  l. Rare.

*C. varicornis*, Kr.

**II.** Antennae blackish, first two joints red-brown.

Oblong ovate. Black. Antennae short; thorax and elytra with transverse scratches. L. 1— $1\frac{1}{2}$  l. Common.

*C. sericea*, Fab.

### *Adelops.*

Short ovate. Rust-red or dark red-yellow, rather closely covered with fine pubescence, very finely punctured. Head with vertex depressed, gradually expanding on each side anteriorly as far as base of antennae, where it is suddenly narrowed, thus shewing acute lateral angles; thorax transverse, base indistinctly bisinuate. L. 1 l. Not common.

*A. Wollastoni*, Jans.

### *Leptinus.*

Ovate, slightly convex, soft. Light brick-red; antennae and legs rather paler; upper-side with close-lying pubescence; apterous. L. 1— $1\frac{1}{4}$  l. Scarce. *L. testaceus*, Müll.

### *Necrophorus.*

**A.** Elytra black, with side margin broadly red-brown.

Black; elytra as above; a frontal spot rust-yellow. L. 10—15 l. Rare.

*N. germanicus*, Lin.

**B.** Elytra entirely black.

Black; club of antennae orange. L. 9—11 l. Common.

*N. humator*, Fab.

**C.** Elytra black, with two reddish-orange toothed transverse bands.

**a.** Posterior tibiae straight.

**I.** Club of antennae red-yellow.**1.** Thorax with yellow hairs on all margins.

Black; elytra with two reddish-orange bands. L. 7—10 l.  
Not uncommon. *N. vestigator*, Hersch.

**2.** Thorax without hairs.**AA.** Orange bands on elytra interrupted at suture.

Black; elytra and two reddish-orange bands; apical segments of abdomen with gray fringe. L. 6—9½ l. Scarce.  
*N. interruptus*, Steph.

The variety *N. gallicus*, Duv., has posterior trochanters hooked at apex and clypeus of male deeply emarginate.

**BB.** Orange bands on elytra not interrupted.

Black; elytra with two reddish-orange bands; apical segments of abdomen with brown fringe. Temples strongly prominent behind eyes; posterior trochanters hooked on under-side at apex; clypeus of male with deep emargination. L. 6—7 l. Moderately common. *N. ruspator*, Er.

The variety *N. microcephalus*, Th., has the temples less prominent, apex of trochanters not recurved, and clypeus of male with feeble emargination.

**II.** Antennae entirely black.

Black; elytra rather broader behind, first yellow-red band not interrupted, apical one divided into two large spots. L. 6 l. Common. *N. mortuorum*, Fab.

**b.** Posterior tibiae curved.

Black; elytra as above; club of antennae red-yellow; anterior margin of thorax thickly covered with yellow hairs. L. 5—10 l. Common. *N. vespillo*, Lin.

**Silpha.**

**A.** Thorax broadest in middle; elytra truncate at apex; eyes large.

Oblong, flat. Black; apex of antennae rust-red. Elytra with three raised longitudinal lines. L. 8—11 l. Rather common. *S. littoralis*, Lin.

**B.** Thorax broadest at base; elytra rounded at apex; eyes small or only moderately large.

**a.** Thorax pubescent.

**I.** Thorax red.

Black, with silky reflection; thorax red, covered with golden-yellow hairs. Elytra uneven, with three raised, curved longitudinal lines and a prominence behind middle. L.  $6\frac{1}{2}$ —7 l. Rather common. *S. thoracica*, Lin.

**II.** Thorax black.

**1.** Antennae with eighth joint narrower than ninth.

**A A.** Elytra not pubescent.

**a a.** Elytra with transverse wrinkles, sutural apical angle not produced in male.

Black; head, the uneven thorax and scutellum (except smooth prominences on two latter) thickly covered with close-lying gray hairs; elytra with three raised lines and a little prominence behind middle. L. 4— $4\frac{1}{2}$  l. Common. *S. rugosa*, Lin.

**b b.** Elytra not punctured in wrinkles, sutural apical angle produced in male.

Black; head, the uneven thorax (except some raised spots) and the scutellum covered with close-lying gray hairs; elytra with three raised lines and a prominence behind middle. L. 5 l. Common. *S. sinuata*, Fab.

**B B.** Elytra pubescent, closely at base, scantily in other parts.

Brown-black; head, thorax (except raised spots) scutellum and base of elytra closely covered with brown hairs; rest of elytra scantily pubescent, sutural apical angle a little produced in male. L. 5 l. Scarce. *S. dispar*, Herbst.

**2.** Antennae with eighth joint as broad as ninth.

Black; upper-side with tolerably thick, close-lying gray pubescence; elytra with three raised lines. L. 5 l. Moderately common. *S. opaca*, Lin.

**b.** Thorax not pubescent.

**I.** Thorax straight or emarginate in front.

**1.** Elytra with interstices transversely wrinkled.

Black, dull; head constricted behind eyes; thorax evenly and extremely closely punctured; elytra strongly punctured, with three raised lines (often very feeble), the

outermost one strongest and ending in a prominence, interstices transversely wrinkled. L.  $5\frac{1}{2}$  l. Not very common.  
*S. reticulata*, Fab.

**2.** Elytra with interstices not wrinkled.

**A A.** Elytra yellow-brown, with two round black spots on each.

Black; head constricted behind eyes; sides of thorax and the elytra (except two round black spots on each of latter) yellow-brown. L. 6—7 l. Moderately common.  
*S. quadripunctata*, Lin.

**B B.** Elytra black.

**a a.** Thorax with a crescent-shaped impression on each side; each elytron with three indistinct raised lines.

Deep black, somewhat shiny; anterior margin of thorax scarcely raised; interstices on elytra punctured. L. 6 l. Rather common.  
*S. nigrita*, Creutz.

**b b.** Thorax without impressions; elytra with three distinct raised lines.

**A a.** Interstices on elytra closely granulated.

Black, dull; elytra flat. Head not constricted behind eyes. L. 7 l. Rather common. *S. tristis*, Ill.

**B b.** Interstices on elytra rather coarsely punctured.

Black, only slightly shiny; head not constricted behind eyes; all margins of thorax equally raised. L. 6—7 l. Common.  
*S. obscura*, Lin.

**II.** Thorax semicircular.

**1.** Elytra without wrinkles and without raised lines.

Black, shiny; elytra very closely punctured. Antennae long; mandibles prominent. L.  $5-7\frac{1}{2}$  l. Common.  
*S. laevigata*, Fab.

**2.** Elytra punctured in wrinkles, with three raised lines.

Black, shiny; thorax very closely punctured. Antennae long; mandibles prominent; sutural raised line on elytra longest. L. 4—5 l. Common.  
*S. atrata*, Lin.

The variety *S. subrotundata*, Leach, is larger and has the central raised line longest.

### *Sphaerites.*

Black, shiny; upper-side with greenish reflection. Thorax with a fine engraved line at sides; elytra truncate, with punctured striae. L.  $2\frac{1}{2}$  l. Scarce. *S. glabratus*, Fab.

## **HISTERIDAE.**

**A.** Elytra not completely covering abdomen.

**a.** Prosternum produced in front into a rounded lobe, covering under-side of head and separated by a fine transverse line.

**I.** Clypeus separated from forehead by an impressed line.

Antennae inserted under margin of forehead, funiculus more or less thickened at apical end, cavity for reception of club of antennae at anterior margin of prosternum; anterior tibiae as broad at apex as in middle, toothed on outer-side, tarsal cavity well defined on inner-side; hinder pairs of tibiae with a double row of spines; inner dorsal striae on elytra and sutural stria sometimes absent, generally abbreviated in front, reflexed margin with a depression under shoulder (subhumeral depression). *Hister*, Lin.

**II.** Clypeus not distinctly separate from forehead.

**I.** Anterior tibiae as broad at apex as in middle.

**A A.** Elytra with regular strong striae, abbreviated in front, when at all.

Antennae inserted under margin of forehead, funiculus not thickened at apical end, its first joint not much longer than rest; cavities for reception of club of antennae in middle of sides of prosternum, not deep; anterior tibiae curved, toothed, ending in a strong hook curved outward, tarsal cavity badly defined; prosternum bordered by a strong curved stria, anterior process prominent; mesosternum very slightly sinuate in front, bordered by an uninterrupted stria; reflexed margin of elytra without subhumeral depression. *Carcinops*, Mars.

**B B.** Elytra with only two or three indistinct striae, abbreviated behind (except sutural one).

Antennae inserted under margin of forehead, funiculus not thickened at apical end; its first joint much longer than rest; cavities for reception of club of antennae in middle of sides of prosternum, not deep; anterior tibiae strongly curved, toothed, ending in a strong spine turned outward, tarsal cavity badly defined; prosternum with or without marginal stria, anterior process prominent; mesosternum with a deep marginal furrow at sides, not continued in front and generally united by a bi-angular transverse stria; pygidium sculptured in one sex; reflexed margin of elytra without subhumeral depression. *Paromalus*, Er.

2. Anterior tibiae broader in middle than at apex.

**A A.** Club of antennae apparently solid; cavity for its reception in anterior angle of prosternum.

Antennae inserted under margin of forehead, scape very large, swollen, funiculus thickened at apical end; tarsal cavity badly defined; anterior process of prosternum not prominent; elytra with one lateral stria and the three outer dorsal striae, with rows of hairs; reflexed margin furrowed. *Hetaerius*, Er.

**B B.** Club of antennae distinctly three-jointed; cavity for its reception in middle of side of prosternum.

Antennae inserted under margin of forehead, funiculus not thickened at apical end, its first joint much longer than rest, thick; anterior tibiae scarcely toothed; tarsal cavity badly defined; anterior process of prosternum not prominent; striae on elytra abbreviated behind, when at all.

*Dendrophilus*, Leach.

**b.** Prosternum without separate process in front.

**I.** Antennae inserted under margin of forehead.

**1.** Cavities for reception of club of antennae reaching anterior margin of prosternum and separated by a narrow space.

**A A.** Anterior tibiae with indistinct spines, posterior pair nearly without teeth.

Club of antennae longer than in *Gnathoncus*, oval, compressed; longitudinal lines of prosternum convergent in

front ; oblique lateral line of metasternum somewhat curved, scarcely reaching beyond middle ; body impunctate above.

*Myrmetes*, Mars.

**B B.** Anterior tibiae with distinct spines, posterior pair distinctly toothed.

Longitudinal lines of prosternum suddenly convergent at apex ; body punctured.

*Gnathoncus*, Duv.

**2.** Cavities for reception of club of antennae not reaching anterior margin of prosternum and separated by a tolerably broad space.

Funiculus of antennae thickened at apical end, its first joint much larger than rest ; club roundish, cavity for its reception rather deep ; anterior tibiae toothed, posterior pairs with a double row of spines ; thorax with only one marginal stria ; elytra with first dorsal stria nearly always absent, the other dorsal striae oblique, generally abbreviated from middle, humeral stria fine, often joined to inner lateral one, outer lateral stria rudimentary or absent.

*Saprinus*, Er.

**II.** Antennae inserted on forehead.

**1.** Prosternum produced in front.

Body cylindrical ; thorax as broad or nearly as broad before middle as at base, with only one marginal stria ; funiculus of antennae not thickened at apical end, its first joint not much larger than second, club oval, cavity for its reception distinct, placed in middle of sides of prosternum ; mandibles slightly prominent ; anterior tibiae broader in middle than at apex, toothed ; posterior pairs with a few teeth and two unequal spines at apex ; elytra without striae.

*Teretrius*, Er.

**2.** Prosternum cut off straight in front.

**A A.** Thorax with a separate raised side border and generally a transverse furrow.

Body long oval ; funiculus of antennae not thickened at apical end, cavities for reception of club of antennae deep, placed in middle of sides of prosternum ; mandibles scarcely prominent ; anterior tibiae as broad at apex as in middle, toothed ; posterior pairs elongate ; elytra punctured throughout, with one or two oblique striae at base ; prosternum broad, with two longitudinal furrows and a central ridge, often interrupted.

*Plegaderus*, Er.



**B B.** Thorax with raised ridges.

Body roundish; funiculus of antennae not thickened at apical end, its joints gradually smaller; cavities for reception of club of antennae deep, placed at anterior angles of prosternum; mandibles scarcely prominent; legs slender, tibiae somewhat cylindrical, with feeble spines; elytra with longitudinal ridges. *Onthophilus*, Leach.

**C C.** Thorax without separate side border or ridges.**a a.** All tarsi five-jointed.

Body roundish; funiculus of antennae not thickened at apical end, its first joint thick, second much longer and thinner, rest small; cavities for reception of club of antennae tolerably large, placed in middle of sides of prosternum; mandibles retracted; legs slender, anterior tibiae dilated in middle; elytra without striae, or with only a rudimentary oblique dorsal stria at base. *Abraeus*, Leach.

**b b.** Front pairs of tarsi five-jointed, posterior pair four-jointed.

Body short oval; funiculus of antennae not thickened at apical end, its first joint double as long as second, rest small; cavities for reception of club of antennae broad, placed in middle of side of prosternum; mandibles retracted; legs slender, anterior tibiae only slightly dilated toward apex; elytra with a fine marginal stria and sometimes with one short oblique dorsal stria at base. *Acritus*, Lec.

**B.** Elytra completely covering abdomen.

Antennae very short, ten-jointed; first joint much thickened, club received in a rounded excavation at anterior angle of thorax; eyes coarsely granulate; thorax transverse, with sides bordered, closely applied to elytra, which are punctured in rows; prosternum with a process in front, covering under-side of head; first ventral segment of abdomen much longer than second; all coxae placed apart, anterior pair globular, not prominent; trochanters obliquely truncate at apex; tarsi slender, four-jointed, last joint scarcely shorter than the rest together.

*Murmidius*, Leach.

**Hister.****A.** Elytra with a lateral stria.

**a.** Outer lateral stria on elytra absent.

Black, shiny; each elytron with a large crescent-shaped red spot, often interrupted, sometimes absent. Thorax with two lateral striae, inner one entire, outer one abbreviated; elytra without sutural striae, first dorsal stria extremely short, second nearly reaching middle, the other three entire, curved in different directions; reflexed margin with two furrows, depressions punctured; anterior tibiae with three teeth, apical one simple; propygidium punctured at margins, pygidium closely and tolerably strongly punctured. L. 4—5 l. Rather common.

*H. quadrimaculatus*, Lin.

**b.** Elytra with outer lateral stria.

**I.** Thorax with two lateral striae on each side.

**1.** Inner and outer lateral striae on elytra not united; three outer dorsal striae entire.

Black, moderately shiny. Inner lateral stria on thorax slightly abbreviated at base, outer one reaching middle only; elytra with sutural stria abbreviated from middle, depression of reflexed margin punctured, with two furrows; anterior tibiae with three teeth, apical one bifid; propygidium diffusely, pygidium rather more closely punctured. L. 4—5 l. Common.

*H. unicolor*, Lin.

**2.** Inner and outer lateral striae on elytra united and continuous; four outer dorsal striae entire.

**A A.** Anterior tibiae with five or six teeth.

**a a.** Marginal impression of forehead semi-circular; prosternal process truncate or slightly notched at apex.

Oval. Black, shiny; club of antennae gray. Lateral striae on thorax almost entire; elytra with sutural stria abbreviated from middle, subhumeral depression with one furrow, strongly punctured; propygidium closely, pygidium more closely but less strongly punctured. L. 3—4 l. Common.

*H. cadaverinus*, E. H.

**b b.** Marginal impressions on forehead pointing backward at their place of junction; prosternal process pointed in front.

Similar to *H. cadaverinus* but with pygidium more closely and finely punctured; mesosternum with a slight triangular

notch between intermediate legs. L. 3—3½ l. Not uncommon.

*H. succicola*, Th.

**BB.** Anterior tibiae with four teeth.

Similar to *H. cadaverinus*, but with parallel sides, club of antennae reddish, thoracic striae stronger, their interstice punctured, subhumeral depression of elytra less punctured, posterior tibiae shorter and broader. L. 3 l. Not common.

*H. merdarius*, E. H.

**II.** Thorax with only one lateral stria on each side.

**1.** Lateral stria on elytra not abbreviated.

**AA.** Sutural stria on elytra reaching only from about middle to apex.

**aa.** First dorsal stria on elytra much shorter than sutural one.

**Aa.** Four outer dorsal striae on elytra entire, or nearly so.

Oblong-oval. Black, shiny. Lateral stria on thorax entire; subhumeral depression of elytra with one furrow, distinctly punctured; anterior tibiae with six teeth, apical one bifid; propygidium rather closely, pygidium more closely punctured. L. 3 l. Rather common.

*H. neglectus*, Germ.

**Bb.** Three outer dorsal striae on elytra entire.

Oval. Black, shiny. Lateral stria on thorax entire; subhumeral depression of elytra rather deep, with one furrow, rather strongly punctured; anterior tibiae with five teeth, apical one bifid; propygidium and pygidium not very closely punctured. L. 2½ l. Common.

*H. carbonarius*, E. H.

**bb.** First dorsal stria on elytra not much shorter than sutural one.

Oval. Black, shiny; each elytron generally with a large, badly defined red spot. Lateral stria on thorax entire, strong; elytra with four outer dorsal striae entire or nearly so, subhumeral depression distinct but not deep, with one furrow, impunctate; anterior tibiae with five teeth; propygidium and pygidium rather strongly and closely punctured. L. 2½ l. Rather common.

*H. purpurascens*, Herbst.

**B B.** Sutural stria on elytra entire, slightly recurved at base.

Oval. Black, shiny. Lateral stria on thorax entire, distinct; elytra with first dorsal stria reaching middle, rest entire; subhumeral depression not deep, with one furrow, punctured; anterior tibiae with six teeth; propygidium diffusely, pygidium a little more closely punctured. L.  $2\frac{1}{4}$  l. Scarce. *H. marginatus*, Er.

**2.** Lateral stria on elytra abbreviated at each end.

Oblong. Black, shiny. Lateral stria on thorax, entire, curved inward at base; elytra with sutural stria not reaching middle, first and second dorsal striae still shorter, outer three dorsal striae entire; subhumeral depression very shallow, with one furrow, scarcely punctured; anterior tibiae with four teeth; propygidium and pygidium rather closely and strongly punctured. L.  $2\frac{1}{2}$  l. Scarce.

*H. stercorarius*, E. H.

**B.** Elytra without any lateral stria.

**a.** Thorax with two lateral striae on each side.

**I.** Anterior tibiae with three teeth, apical one bifid.

**1.** Outer lateral stria on thorax short; each elytron with a large red spot, commencing longitudinally at base and bent transversely behind middle, leaving outer margin black.

Oval. Black, shiny; elytra as above. Inner lateral stria on thorax entire; elytra with sutural stria abbreviated from middle, first and second dorsal striae very short, indistinct, outer three entire, fourth bent outward in middle; subhumeral depression with two furrows, impunctate; propygidium diffusely punctured at margins, pygidium rather closely punctured. L.  $3\frac{1}{4}$  l. Rare.

*H. sinuatus*, Ill.

**2.** Both lateral striae on thorax nearly entire; each elytron with two red spots, one at shoulder, the other oblique in middle, sometimes united.

Oval. Black, shiny; elytra as above. Elytra with sutural stria extremely short, first and second dorsal absent, outer three dorsal entire but the third indistinct behind; subhumeral depression with two furrows, impunctate; propygidium diffusely punctured, pygidium scarcely punc-

tured in front. L. 4 l. Rare. *H. quadrinotatus*, Scrib.

**II.** Anterior tibiae with four teeth, apical one bifid.

Oval. Black, shiny. Outer lateral stria on thorax very short, inner one entire; elytra with sutural stria reaching beyond middle, first dorsal stria abbreviated from middle, outer four dorsal striae entire; subhumeral depression with two furrows, punctured; propygidium diffusely, pygidium more closely punctured. L.  $2\frac{1}{2}$  l. Not uncommon.

*H. bissexstriatus*, Fab.

**b.** Thorax with only one lateral stria on each side.

**I.** Anterior tibiae with three teeth.

Oblong-ovate. Black, shiny. Lateral stria on thorax not quite reaching base; elytra with sutural and all dorsal striae entire, sutural united at base with first dorsal; subhumeral depression with two furrows; propygidium diffusely punctured, pygidium apparently impunctate. L.  $2\frac{1}{2}$  l. Common.

*H. 12-striatus*, Schr.

**II.** Anterior tibiae with four teeth.

Oval. Black, shiny; elytra with a triangular red spot, covering space between shoulder, sutural apical angle and outer apical angle. Lateral stria on thorax slightly abbreviated at base; elytra with sutural stria slightly abbreviated, all dorsal striae entire; subhumeral depression with one furrow; propygidium finely punctured, pygidium apparently impunctate. L.  $2\frac{1}{4}$  l. Common.

*H. bimaculatus*, Lin.

### ***Carcinops.***

**A.** Elytra with sutural, first dorsal and lateral striae absent, outer four dorsal striae entire.

Short oval, tolerably convex. Pitch-black, shiny; antennae and legs red. Thorax with one lateral stria; anterior tibiae with three teeth. L.  $\frac{3}{4}$  l. Rather common.

*C. minima*, Aub.

**B.** Elytra with all striae entire.

Oblong-ovate, not very convex. Pitch-black, shiny; antennae and legs brown. Thorax with one lateral stria; anterior tibiae with two teeth. L.  $1\frac{1}{4}$  l. Not common.

*C. pumilio*, Er.

***Paromalus.***

**A.** Sides of body somewhat rounded.

Oval. Pitch-black; antennae and legs brown. Thorax with marginal stria at sides only; upper-side punctured; pygidium with two curved lines united behind in female. L. 1 l. Rather common. *P. flavicornis*, Herbst.

**B.** Sides of body nearly parallel.

Oblong. Pitch-brown; antennae and legs red-brown. Thorax with marginal stria at sides only; upper-side punctured; pygidium with two sloping curved lines united behind in female. L. 1 l. Rare.

*P. parallelopipedus*, Herbst.

***Hetaerius.***

Rounded, convex. Red-brown, shiny; upper-side with rows of isolated hairs. Thorax with a deep furrow on each side, forming a broad thickened border. L. 1 l. Not common.

*H. sesquicornis*, Preysl.

***Dendrophilus.***

**A.** Elytra without any sutural stria; inner dorsal striae obsolete.

Reversed ovate. Pitch-black, moderately shiny; mouth, antennae and legs red-brown. Marginal stria of thorax entire; upper-side punctured. L.  $1\frac{1}{2}$  l. Not uncommon.

*D. punctatus*, Herbst.

**B.** Elytra with a fine sutural stria; inner dorsal striae distinct.

Oval. Pitch-black, almost dull; mouth, antennae and legs brown. Marginal stria of thorax entire; head and thorax impunctate, interstices on elytra extremely finely punctured. L.  $1\frac{1}{2}$  l. Not uncommon. *D. pygmaeus*, Lin.

***Myrmetes.***

Roundish, convex. Red-brown, rather dull, impunctate. Elytra without sutural or inner lateral stria, dorsal and humeral striae not distinct, former abbreviated about middle, first absent, outer lateral stria well marked. L. 1 l. Moderately common.

*M. piccus*, Payk.

*Gnathoncus.*

**A.** Elytra with abbreviated sutural stria; length  $1\frac{1}{3}$  lines.

Pitch-black, shiny; diffusely and strongly punctured; antennae and legs brown-red. Elytra with four dorsal striae, reaching a little beyond middle; anterior tibiae with from six to eight teeth. Not very common.

*G. rotundatus*, Ill.

**B.** Elytra without sutural stria; length 1 line.

Pitch-black, shiny; antennae and legs pitchy-red; apex of elytra pitchy. Similar to *G. rotundatus*, but with elytra more diffusely and finely punctured, the three inner dorsal striae scarcely reaching middle, and sides of thorax scarcely narrowed toward apex. Rare. *G. punctulatus*, Th.

*Saprinus.*

**A.** Clypeus not separated from forehead by a ridge.

**a.** Sutural stria abbreviated at base, not joining second dorsal stria.

**I.** Elytra shiny, diffusely punctured at sides and apex only.

Black, shiny. Thorax punctured at margins only; humeral stria on elytra not joined to inner lateral stria; anterior tibiae with from seven to ten teeth. L.  $2-2\frac{1}{2}$  l. Common.

*S. nitidulus*, Payk.

**II.** Elytra dull, closely punctured throughout, except at shoulder, apical margin and a common space on basal part of disc (traversed by second dorsal stria).

Black, dull. Disc of thorax impunctate; sutural stria on elytra ceasing nearly in middle of smooth space, third dorsal stria interrupted; humeral stria not joined to inner lateral stria, punctuation at base reaching second dorsal stria; anterior tibiae with four or five teeth. L. 2 l. Scarce.

*S. immundus*, Gyll.

**b.** Sutural stria on elytra united at base to second dorsal stria.

**I.** Disc of thorax and a sharply defined space on basal half of elytra impunctate.

Metallic-black, shiny. Third dorsal stria on elytra very short, humeral stria not joined to inner lateral stria, latter

short, punctuation at base not reaching second dorsal stria; anterior tibiae with seven or eight teeth. L. 2 l. Common. *S. aeneus*, Fab.

**II.** Disc of thorax diffusely punctured; impunctate space on basal half of elytra not sharply defined.

Metallic-green, shiny. Third dorsal stria on elytra reaching middle; humeral stria not joined to inner lateral stria. L. 2 l. Not common. *S. virescens*, Payk.

**B.** Clypeus separated from forehead by a ridge.

**a.** Elytra dull, closely punctured throughout, except at shoulder, apical margin and an oval space on each near scutellum.

Black or bluish-black. Thorax with a transverse space on basal part of disc impunctate; striae on elytra feeble, sutural one obsolete behind, joined at base by a curve (which bounds the impunctate space) to second dorsal, third dorsal reaching middle, humeral stria almost joined to lateral one. L. 2 l. Not very common.

*S. quadristriatus*, E. H.

**b.** Elytra shiny, punctured only behind.

**I.** Sides of thorax punctured.

**1.** Fifth dorsal stria on elytra reaching only slightly beyond middle; anterior tibiae moderately dilated, with six teeth.

Dark bronze-green, shiny. Forehead with two distinct angular furrows; thorax with a transverse space on basal part of disc impunctate; sutural stria on elytra entire, united to second dorsal stria, third dorsal reaching middle, humeral stria joined to inner lateral one, punctuation extending fully to middle. L. 2 l. Common.

*S. rugifrons*, Payk.

**2.** Fifth dorsal stria on elytra reaching apex; anterior tibiae strongly dilated, with four teeth.

Similar to *S. rugifrons*, but shorter oval, less convex, forehead with only one distinct furrow, and punctuation of elytra not reaching middle. L. 1½ l. Rare.

*S. metallicus*, Herbst.

**II.** Sides of thorax not punctured.

Pitch-black, shiny. Thorax punctured only along pos-



terior margin and behind eyes; elytra with sutural stria entire, united to second dorsal, latter and fifth dorsal reaching beyond middle, third and fourth still longer, humeral stria often with a small appendage, nearly joined to inner lateral stria, space between suture and second dorsal stria punctured until beyond middle, tolerably closely behind, irregularly in front; anterior tibiae with three strong teeth and three feebler ones. L.  $2\frac{1}{4}$  l. Not uncommon. *S. maritimus*, Steph.

### *Teretrius.*

Black-brown, shiny; mouth, margins of thorax and elytra, antennae and legs reddish. Thorax and elytra strongly and rather diffusely punctured. L.  $1\frac{1}{4}$  l. Rare. *T. picipes*, Fab.

### *Plegaderus.*

Pitch-black, shiny; mouth, antennae and legs reddish. Thorax with sides slightly sinuate behind, apex deeply emarginate, anterior angles prominent, raised border uninterrupted; elytra with a humeral and one strong and long dorsal stria; punctuation fine and diffuse. L.  $\frac{3}{4}$  l. Scarce. *P. dissectus*, Er.

### *Onthophilus.*

**A.** Thorax with five ridges, central one interrupted and double in front.

Oval. Black, dull. Elytra with numerous longitudinal ridges and three much stronger ones on each, alternating with those of thorax. L.  $1\frac{3}{4}$  l. Not common.

*O. sulcatus*, Fab.

**B.** Thorax with six ridges, central pair equidistant from each other and from intermediate pair, convergent in front.

Rounded oval. Black, dullish. Elytra with suture and six ridges on each equally prominent, interstices with fine striae. L.  $1\frac{1}{2}$  l. Common. *O. striatus*, Fab.

### *Abraeus.*

**A.** Anterior tibiae angularly dilated in middle.

Oval. Brown, shiny; antennae and legs reddish, club of

former pale. Punctuation diffuse; dorsal stria on elytra not strong; marginal stria of mesosternum entire. L.  $\frac{3}{4}$  l. Rather common. *A. globosus*, E. H.

**B.** Anterior tibiae dilated in a curve toward apex.

Oval. Brown; mouth, thorax, antennae and legs somewhat reddish. Less shiny than *A. globosus*, more closely and strongly punctured, mesosternum more strongly punctured, with marginal stria interrupted in front, dorsal stria on elytra distinct. L.  $\frac{3}{4}$  l. Scarce. *A. granulum*, Er.

### *Acritus.*

**A.** Thorax without any transverse line of punctures at base; punctuation diffuse.

Oblong-ovate. Red-brown, shiny; mouth, antennae and legs red-yellow. Elytra with a distinct dorsal stria; prosternum much longer than broad, narrowed behind, mesosternum about equal to it in width in front, marginal striae meeting in front. L.  $\frac{1}{2}$  l. Scarce. *A. punctum*, Aub.

**B.** Thorax with a transverse line of punctures at base; punctuation tolerably close.

**a.** Club of antennae red-yellow.

Oval, rather flat. Pitch-black, shiny; antennae brown, legs reddish. Elytra with traces of dorsal striae at base; prosternum somewhat longer than broad; marginal stria of mesosternum entire. L.  $\frac{1}{2}$  l. Common.

*A. minutus*, Payk.

**b.** Club of antennae blackish.

Oval, convex. Pitch-black, shiny; antennae brown, legs reddish. Elytra without traces of dorsal striae; prosternum much longer than broad; marginal stria of mesosternum interrupted in front. L.  $\frac{1}{2}$  l. Rare.

*A. nigricornis*, E. H.

### *Murmidius.*

Short oval, rather convex. Pale chestnut-brown, rather shiny, with very fine pubescence. Thorax indistinctly punctured, with two short impressed lines on each side; elytra with rows of rather large punctures, enfeebled at apex. L.  $\frac{1}{2}$  l. Not uncommon. *M. ovalis*, Beck.

**PHALACRIDAE.**

**A.** All tarsi equal in length, first three joints rather broad.

Last joint of maxillary palpi long and tolerably equally thin throughout; last joint of labial palpi slightly thickened in middle; sides of mentum simply rounded. Scutellum very large. Metasternum prominent in front. Apical spines of tibiae hidden among the ring of fine spines.

*Phalacrus*, Payk.

**B.** Posterior tarsi longer and narrower than front pairs.

Last joint of maxillary palpi ovate; last joint of labial palpi rather strongly thickened in middle; mentum dilated at sides. Scutellum moderately small. Apical spines of tibiae distinctly visible.

*Olibrus*, Er.

***Phalacrus.***

**A.** Body ovate or short ovate.

**a.** Elytra with extremely feeble traces of impunctate striae.

Convex. Black; antennae and legs sometimes brown. Club of antennae elongate, the last joint longer than the other two together and gradually pointed; interstices on elytra confusedly and exceedingly finely punctured. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Common.

*P. corruscus*, Payk.

**b.** Elytra with feeble punctured striae.

**I.** Punctures of striae on elytra very fine; body short ovate.

Short ovate, convex. Black, very shiny; antennae and legs (especially anterior pair) pitch-black; tarsi paler. Elytra with very finely punctured striae, interstices with a few very minute, almost obsolete punctures, shewing (when strongly magnified) in certain lights very minute and faint transverse wrinkles, in others raised longitudinal markings; apical joint of antennae slightly sinuate on inner-side toward apex. Allied to *C. corruscus*, but with club of antennae rather broader and not so long, its apical joint conspicuously broader and shorter and less pointed, elytra more obtusely rounded behind, punctures on interstices much less numerous. Less convex than *P. brunnipes* (especially thorax), rather shorter oval. L. 1 l. Scarce.

*P. Brisouti*, Rye.

**II.** Punctures of striae on elytra fine ; body ovate.

Ovate, very convex. Black, very shiny ; base of antennae and legs brown. Elytra with feeble striae, punctured closely and finely, interstices with an irregular row of more feeble punctures than those in striae. More elongate than *P. substriatus*, antennae and legs lighter, club of antennae more elongate. L.  $\frac{3}{4}$ —1 l. Rare. *P. brunripes*, Bris.

**c.** Elytra with distinct punctured striae.

Short, very convex. Black ; antennae brownish-black, short, club broad, oblong, the last joint scarcely so long as the other two together, apex rather blunt ; elytra with regular rows of fine punctures, close beside the fine striae, interstices with tolerably regular rows of still finer punctures. L. 1 l. Not common. *P. substriatus*, Gyll.

**B.** Body oblong-oval.

Slightly convex. Black ; antennae and legs pitch-brown ; club of former oblong and thick, last joint rather shorter than other two together, apex bluntly rounded ; elytra with a tolerably dense and regular row of very fine punctures close beside the feeble striae, interstices with a row of scarcely finer but rather more indistinct punctures. L.  $\frac{3}{4}$ —1 l. Rather common. *P. caricis*, Sturm.

**Olibrus.****A.** Elytra with two deeper striae near suture.

Metasternum produced in front ; anterior femora with lower margin hollowed out.

**a.** Upper-side yellow-brown or greenish-bronze.**I.** Antennae reddish-yellow.

Head and thorax brown ; elytra brownish-yellow, with suture and outer margin brown, with extremely feeble traces of longitudinal striae. Under-side and legs rust-yellow. L.  $1\frac{1}{3}$  l. Rather common. *O. corticalis*, Panz.

**II.** Antennae black, with basal joints brownish-yellow.

Upper-side greenish-bronze. Elytra with very slight, finely punctured striae, interstices extremely finely punctured. Under-side and legs pitch-brown, latter sometimes lighter. L. 1 l. Common. *O. aeneus*, Fab.

**b.** Upper-side black or black-bronze.

**I.** Under-side brown-red or red-yellow; length 1—1½ lines.

**1.** Posterior angles of thorax somewhat blunted.

**A A.** The two sutural striae much stronger than the others.

Oblong ovate, convex. Upper-side black; under-side brown-red; antennae and legs reddish-yellow; each elytron usually with a distinct but badly defined red spot before apex. Sutural striae on elytra distinct, the others extremely fine and feeble, often effaced. L. 1½ l. Very rare.

*O. bicolor*, Fab.

**B B.** The two sutural striae only rather stronger than the others.

Oblong-ovate. Upper-side black; under-side, antennae and legs red-yellow; apex of elytra gradually lighter. Less convex than *O. bicolor*, more narrowed behind, the sutural striae on elytra feebler, the others stronger. L. 1 l. Common.

*O. liquidus*, Er.

**2.** Posterior angles of thorax sharp right angles.

**A A.** Upper-side pitch-black.

Ovate, convex. Upper-side pitch-black; under-side, antennae and legs red-yellow; elytra lighter toward apex. Outline less oblong than in *O. bicolor*, striae on elytra fainter. L. 1 l. (? Brit.)

*O. affinis*, Sturm.

**B B.** Upper-side black-bronze.

Ovate, convex, very shiny, bare. Upper-side black-bronze; under-side, antennae and legs red-yellow. Elytra with very fine, indistinctly punctured striae. Less oblong and more metallic than *O. affinis*. L. 1 l. Rare.

*O. particeps*, Muls.

**II.** Under-side black or pitch-brown; length ½—¾ line.

**1.** Posterior angles of thorax right angles.

Very short ovate, strongly convex. Black, antennae lighter or darker yellow-brown, legs varying from reddish-yellow to black. Elytra with feeble, very finely punctured striae, two sutural striae rather stronger than the rest. L. ⅔—¾ l. Not uncommon.

*O. millefolii*, Payk.

2. Posterior angles of thorax somewhat blunted.

Somewhat oblong oval, rather convex. Upper-side black; under-side pitch-brown; elytra lighter toward apex; antennae yellow or brown; legs red-brown. Elytra with feeble, very finely punctured striae. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Not uncommon. *O. pygmaeus*, Sturm.

**B.** Elytra with only one deeper stria near suture.

Metasternum not reaching in front beyond intermediate coxae, and separated from prosternum by a distinct, short, mesosternum; anterior femora with lower margin not hollowed out. [*Stilbus*, Seidl.]

**a.** Posterior angles of thorax sharp right angles; body ovate.

**I.** Upper-side lighter or darker brown, elytra tolerably suddenly red-yellow behind middle.

Under-side red-brown; antennae and legs red-yellow. Head and thorax smooth; base of prosternum bordered with long hairs. L. 1 l. Common. *O. consimilis*, Marsh.

**II.** Upper-side brownish-black, gradually changing to reddish-pitch-brown at apex of elytra.

Rather less convex and shorter than *O. consimilis*. Under-side black-brown, apical segments of abdomen and legs red-brown; antennae yellow. Head and thorax impunctate; base of prosternum bordered with hairs. L. 1 l. Common. *O. piceus*, Er.

**b.** Posterior angles of thorax somewhat blunted; body oblong-ovate.

Slightly convex. Upper-side almost black, elytra gradually lighter at apex; under-side brown-red, abdomen lighter; antennae and legs red-yellow. Head and thorax very finely punctured; base of prosternum not bordered with hairs. L.  $\frac{3}{4}$  l. Not uncommon. *O. oblongus*, Er.

### NITIDULIDAE.

**A.** Elytra short, leaving two or three abdominal segments free.

Labrum distinctly visible; first three tarsal joints dilated, only fourth small.

*a.* Maxillae with two lobes.

No grooves for reception of antennae. *Brachypterides.*

*b.* Maxillae with one lobe.

*Carpophilides.*

**B.** Elytra leaving at most the last abdominal segment free.

*a.* Maxillae with one lobe.

**I.** Labrum distinctly visible.

**1.** Base of elytra not covered by thorax.

First three tarsal joints sometimes dilated, only fourth small. *Nitidulides.*

**2.** Base of elytra covered by thorax.

First three tarsal joints dilated, only fourth small.

*Cythrarnides.*

**II.** Labrum hidden.

First three tarsal joint sometimes dilated, only fourth small. *Ipides.*

*b.* Maxillae with two lobes.

Labrum distinct. First tarsal joint small, second and third laterally produced, fourth very small; claws toothed.

*Byturides.*

## BRACHYPTERIDES.

**A.** Tarsal claws not toothed.

Last joint of labial palpi ovate; inner maxillary lobe with a tuft of hairs at apex. Male with no extra anal abdominal segment. *Cercus*, Latr.

**B.** Tarsal claws toothed.

Last joint of labial palpi globular; inner maxillary lobe without hairs at apex. Male with an extra anal abdominal segment. *Brachypterus*, Kug.

### *Cercus.*

**A.** Sides of thorax strongly rounded, posterior angles rounded off.

*a.* Elytra reddish-yellow, generally darker at suture.

Head and thorax reddish-yellow; breast blackish. Antennae more than half as long as body in both sexes, first two joints dilated in male; thorax double as broad as long,

somewhat narrowed in front in middle. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Rather common.

*C. pedicularius*, Lin.

**b.** Elytra black, with a large red-yellow spot on each.

Head and thorax brownish-black or red-brown; mouth red-brown; antennae and legs red-yellow, former in male longer, in female shorter than head and thorax, first joint in male somewhat dilated, second simple; thorax rather shorter than in *C. pedicularius*. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Rather common.

*C. bipustulatus*, Payk.

**B.** Thorax much narrowed in front, sides slightly rounded, posterior angles obtuse, almost rounded.

Colour varying from black, with red-brown mouth and legs, to entirely reddish-yellow, antennae always reddish-yellow. Thorax rather broader than long. L.  $\frac{4}{5}$ —1 l. Common.

*C. rufilabris*, Latr.

### *Brachypterus.*

**A.** Base of thorax sinuate on each side.

Deep black, dull; antennae and anterior legs red, hinder pairs of legs usually blackish. Antennae rather shorter than thorax, posterior angles of latter rather acute; elytra one-third longer than thorax. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Rather common.

*B. gravidus*, Ill.

**B.** Base of thorax straight.

**a.** Antennae pitch-brown, first two joints black.

Leaden-black, with thin, whitish pubescence; legs pitch-brown. Antennae about as long as thorax, posterior angles of latter obtusely rounded; elytra more than half as long again as thorax. L. 1 l. Common.

*B. pubescens*, Er.

**b.** Antennae red.

Pitch-brown, somewhat metallic, with thin gray pubescence, legs red, tibiae brownish at base. Antennae as long as thorax, posterior angles of latter obtuse; elytra almost double as long as thorax. L.  $\frac{2}{3}$ —1 l. Common.

*B. urticae*, Fab.

### *CARPOPHILIDES.*

Labrum bilobed; last joint of labial palpi somewhat hatchet-shaped. Second and third abdominal segments



narrow; male with an extra anal abdominal segment. Antennae short, club roundish and compact, the grooves for their reception convergent. *Carpophilus*, Leach.

### *Carpophilus*.

**A.** Thorax closely punctured, posterior angles rounded; elytra blackish, with a yellow spot covering entire apex and another at shoulder.

Head and thorax blackish; antennae yellow-red with brown club; legs reddish-yellow. Body pubescent, especially at sides of thorax and abdomen. Extent of yellow spots on elytra variable. L.  $1\frac{1}{2}$  l. Common.

*C. hemipterus*, Lin.

**B.** Thorax not very closely punctured, posterior angles obtuse; elytra pitch-brown, with three reddish-yellow spots on each.

Head and thorax pitch-brown; antennae red-brown, with blackish club; legs red-brown. Body very slightly pubescent. L.  $1-1\frac{1}{2}$  l. Rare. *C. sexpustulatus*, Fab.

### **NITIDULIDES.**

**A.** Prosternum not produced behind.

**a.** Grooves for reception of antennae straight and convergent.

**I.** First three tarsal joints dilated.

**1.** Last joint of labial palpi thickened; male with anal abdominal segment prominent.

Labrum bilobed; apex of mandibles simple; club of antennae rather loosely formed. *Eपुरaea*, Er.

**2.** Labial palpi not thickened; male without extra abdominal segment.

Labrum emarginate; apex of mandibles two-toothed; club of antennae large and roundish. *Nitidula*, Fab.

**II.** First three tarsal joints not dilated.

Labrum slightly emarginate; apex of mandibles simple; maxillae not covered by mentum; labial palpi not thickened.

*Soronia*, Er.

**b.** Grooves for reception of antennae curved outward.

**I.** Apex of mandibles two-toothed.

Labrum bilobed; labial palpi not thickened; antennae with first joint very strongly dilated, club round; first three tarsal joints slightly dilated; thorax and elytra broadly bordered, abdomen covered. *Amphotis*, Er.

**II.** Apex of mandibles simple.

Labrum slightly emarginate in front; labial palpi not thickened; antennae with first joint thickened, club roundish; anterior tarsi moderately, hinder pairs slightly dilated; thorax and elytra not bordered, latter not completely covering abdomen. *Omosita*, Er.

**B.** Prosternum produced behind.**a.** First three tarsal joints dilated.**I.** Anterior tibiae not toothed.**1.** Hinder pairs of tibiae with spines.

Grooves for reception of antennae scarcely indicated. Labrum sharply excised in middle; last joint of labial palpi oval; club of antennae round. *Thalyera*, Er.

**2.** Hinder pairs of tibiae without spines.

Grooves for reception of antennae indistinct. Labrum bilobed; last joint of labial palpi oval, with apex truncate; club of antennae with four joints in male and three in female. *Pria*, Kirby.

**II.** Anterior tibiae with many teeth.

Grooves for reception of antennae deep, straight and parallel. Labrum bilobed; last joint of labial palpi cylindrical, with truncate apex. Antennae short, with compact round club; hinder pairs of tibiae fringed with bristles.

*Meligothes*, Kirby.

**b.** First three tarsal joints not dilated.

Grooves for reception of antennae deep and curved; labrum emarginate; elytra covering abdomen, except extreme apex; tibiae simple; first four tarsal joints tolerably equal in size. *Pocadius*, Er.

***Epuraea.*****A.** Posterior legs placed near each other.**a.** Thorax with distinct separate and slightly raised side border,

**I.** Thorax much broader than long, more narrowed in front than behind, sides sometimes more or less distinctly sinuate immediately before posterior angles.

**1.** Sides of thorax without trace of sinuation.

**A A.** Upper-side brown, with yellow spots.

**a a.** Length  $1\frac{2}{3}$  lines.

Oblong-ovate, slightly convex. Head reddish-yellow, with forehead brown; thorax brownish, with sides and spot before scutellum yellow; elytra brown, with five yellow spots on each; under-side and antennae yellow. Thorax twice as broad as long, side border moderately broad. Posterior femora of male with a small, blunt tooth beneath; posterior tibiae with a small projection on inner-side near base. Not very common. *E. decemguttata*, Fab.

**b b.** Length  $1\frac{1}{4}$ — $1\frac{1}{2}$  lines.

Very like *E. decemguttata* but with the spots on the elytra much less clearly marked and sometimes so confluent as to leave the elytra entirely yellow, with only one or two ill-defined darker patches; thorax with narrower side border; elytra a little more pointed at apex. Male with basal joints of anterior tarsi dilated; posterior femora and tibiae scarcely or not at all toothed. Rare.

*E. diffusa*, Bris.

**B B.** Upper-side shiny, brown-black, with side margin of thorax and elytra brown-red, former not waved.

Broad oval, rather flat. Under-side red-brown; antennae unicolorous rust-red; legs brown-red, simple. Thorax twice as broad as long, side border rather narrow, posterior angles right angles; elytra not completely covering apical segment of abdomen. L.  $1\frac{1}{3}$  l. Scarce. *E. neglecta*, Heer.

**C C.** Upper-side unicolorous yellow or yellow-red, or at most with from two to four feeble darker spots.

**a a.** Intermediate tibiae of male slightly dilated inward at apex.

**A a.** Club of antennae yellow.

Broad oval, rather flat. Yellow. Thorax not quite twice as broad as long, deeply and somewhat angularly emargi-

nate in front, considerably narrowed toward apex, side border broad; elytra scarcely twice as long as middle of thorax, apex truncate. L. 2 l. Rare. *E. silacea*, Herbst.

**B b.** Club of antennae brown.

Oval, rather flat. Reddish-yellow; disc of thorax and elytra near side darker; club of antennae brown. Thorax nearly twice as broad as long, side border moderately broad, apex slightly emarginate in a curve; elytra more than double as long as middle of thorax, apex bluntly rounded. L.  $1\frac{1}{4}$ — $1\frac{2}{3}$  l. Rare. *E. immunda*, Er.

**b b.** Intermediate tibiae of male simple.

**A a.** Last joint of antennae yellow.

**A 1.** Apical joint of antennae not broader than penultimate.

Oval, flat. Yellow; breast often darker, elytra frequently clouded with brown. Thorax about twice as broad as long, deeply and somewhat angularly emarginate in front, considerably narrowed toward apex, side border broad, posterior angles almost acute; elytra fully double as long as middle of thorax, apex truncate. L.  $1\frac{1}{2}$  l. Common.

*E. deleta*, Er.

**B 1.** Apical joint of antennae broader than penultimate.

Ovate, slightly convex. Ochre yellow; elytra sometimes with an indistinct blackish spot in middle. Thorax about twice as broad as long, deeply and somewhat angularly emarginate in front, somewhat narrowed toward apex, side border moderately broad, posterior angles right angles; apex of elytra very bluntly rounded. L.  $1\frac{1}{2}$  l. Common. *E. aestiva*, Lin.

**B b.** Last joint of antennae blackish.

Ovate, slightly convex. Red-yellow or rust-red. Thorax scarcely so wide as elytra, about twice as broad as long, narrowed from base, side border rather narrow, posterior angles obtuse; apex of elytra scarcely rounded. L.  $1\frac{1}{2}$  l. Rare. *E. melina*, Er.

**2.** Sides of thorax with a very small sinuation immediately before posterior angles.

**A A.** Elytra with a distinct round blackish spot in middle of each.

Oval. Rust-red; thorax with middle of disc a little brown; elytra with blackish spot on each; under-side blackish, apex of abdomen and legs lighter; antennae entirely rust-red. Thorax not quite twice as broad as long, sides rather strongly rounded, sideborder broad, apex emarginate; apex of elytra tolerably rounded. L.  $1\frac{1}{3}$  l. Rare.

*E. variegata*, Herbst.

**B B.** Elytra without distinct black markings.

**a a.** Sides of thorax tolerably strongly rounded.

**A a.** Thorax brown, with sides rust-red, lateral margin slightly waved.

Nearly ovate, flat. Brown; sides of thorax and of elytra rust-red; antennae and legs yellowish, club of former brownish, latter simple. Thorax twice as broad as long, side border broad, posterior angles right angles, apex emarginate; apex of elytra cut off obliquely, almost rounded. L.  $1\frac{1}{3}$  l. Not common.

*E. parvula*, Sturm.

**B b.** Thorax rust-red or yellowish, with disc darker, lateral margin not waved.

Oblong, flat. Rust-red or yellowish; disc of thorax and of elytra darker, latter with a badly defined lighter spot toward apex; under-side brown, apex of abdomen and the legs lighter. Thorax less than twice as broad as long, side border rather narrow, posterior angles acute, apex emarginate; apex of elytra truncate, with rounded angles. Intermediate tibiae of male very slightly dilated close to apex. L. 1— $1\frac{1}{2}$  l. Common.

*E. obsoleta*, Fab.

**b b.** Sides of thorax scarcely rounded.

Oblong, rather flat. Yellow; antennae with brownish club, apical joint not much narrower than penultimate. Thorax less than twice as broad as long, widest near base, only slightly narrowed in front, side border gradually rather broader near base, posterior angles right angles, apex slightly emarginate; elytra more than double as long as thorax, apex bluntly rounded. L.  $1\frac{1}{4}$ — $1\frac{2}{3}$  l. Not very common.

*E. longula*, Er.

**II.** Thorax not much broader than long, as broad or nearly as broad at apex as at base, sides not sinuate behind.

- 1.** Upper-side brown; intermediate tibiae of male simple.

Oblong, elongate. Red-brown, disc of thorax and of elytra darker; under-side brown, apex of abdomen and the legs lighter; antennae rust-red, last two joints blackish. Thorax not much broader than long, side border narrow, posterior angles almost right angles; apex of elytra truncate. L. 1—1½ l. Very rare. *E. angustula*, Er.

- 2.** Upper-side yellow or brownish-yellow; intermediate tibiae of male slightly dilated at apex.

**A A.** Apex of thorax distinctly emarginate.

**a a.** Side border of thorax broad; apex of elytra rounded.

Oblong, elongate, flat. Rust-yellow. Thorax scarcely one-third broader than long, posterior angles prominent. Male with all tibiae very slightly curved, intermediate pair feebly emarginate on inner-side and dilated at apex. L. 1½ l. Common. *E. pusilla*, Herbst.

**b b.** Side border of thorax narrow; apex of elytra truncate, with angles rounded.

Oblong, elongate, flat. Brownish-yellow; club of antennae rather dark. Thorax about one-third broader than long; posterior angles right angles. Male with intermediate tibiae straight, slightly dilated at apex. L. 1½—1¾ l. Not common. *E. oblonga*, Herbst.

**B B.** Apex of thorax not or only very slightly emarginate.

Oblong, slightly ovate, rather flat. Yellow. Last joint of antennae scarcely narrower than penultimate; thorax not much broader than long, posterior angles prominent, side border rather narrow; apex of elytra truncate. Intermediate tibiae of male a little curved and somewhat dilated at apex. L. 1¼ l. Common. *E. florea*, Er.

**b.** Thorax without any separate side border.

Short ovate, slightly convex. Colour varying from gray-black, with elytra brown-red and antennae and legs red-yellow, to unicolorous reddish-yellow. Apical joint of antennae as broad as penultimate; base of thorax slightly emarginate on each side; elytra with narrow border, apex

truncate with rounded angles ; legs powerful. L.  $1\frac{1}{4}$  l. Rather common. *E. melanocephala*, Marsh.

**B.** Posterior legs standing apart.

Ovate, slightly convex. Blackish or brown, with mouth and margins of thorax and elytra lighter ; antennae rust-red, club often brownish ; legs reddish-yellow ; under-side of head and thorax and apex of abdomen rust-red. Sides of thorax with broad border. L.  $1\frac{1}{4}$  l. Rather common.

*E. limbata*, Fab.

### *Nitidula*.

**A.** Elytra dull-black, with one large red spot on each.

Head and thorax black ; antennae black or brown-red, with black club ; legs red. Sides of thorax and elytra sometimes lighter. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Common.

*N. bipustulata*, Lin.

**B.** Elytra entirely black, or with two spots on each.

**a.** Thorax black, with broad brownish-yellow sides.

Head black, mouth lighter ; elytra black, with two spots (variable in extent) on each yellow, one of them at the base, the other close beside the suture in middle ; antennae brownish-yellow, with black club ; legs yellow. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Rare.

*N. flexuosa*, Fab.

**b.** Thorax entirely black.

**I.** Elytra entirely black.

Dull black ; antennae red, with club-brown ; legs red. L. 1—2 l. Not very common.

*N. obscura*, Fab.

**II.** Elytra blackish or brown, with a small red spot before and a larger behind middle, sometimes also with one or two little spots at side margin.

Head black ; antennae brown-red, with club darker ; legs red. L. 1— $1\frac{1}{4}$  l. Not uncommon. *N. quadripustulata*, Fab.

### *Soronia*.

**A.** Elytra very closely punctured.

Slightly convex. Dark rust-red, with short variegated pubescence, thorax and elytra with numerous black and yellowish spots, latter with about five rather indistinct raised longitudinal lines on each. L.  $2\frac{1}{2}$ — $2\frac{3}{4}$  l. Moderately common.

*S. punctatissima*, Ill.

**B.** Elytra not very closely punctured.

Rather flat. Brownish-yellow, thinly pubescent; thorax and elytra with numerous black and lighter spots, latter with about four raised longitudinal lines on each. L.  $1\frac{1}{2}$ — $2\frac{1}{3}$  l. Common. *S. grisea*, Lin.

***Amphotis.***

Slightly convex. Head and thorax rust-red; elytra brown, with two spots at base of each and a common crescent-shaped spot close behind middle dark yellow, broad side border rust-red, each with five longitudinal ribs. L. 2— $2\frac{1}{2}$  l. Not uncommon. *A. marginata*, Fab.

***Omosita.*****A.** Thorax red-brown.

Red-brown; forehead, scutellum, sides of breast and scattered, indistinct spots on elytra blackish. Thorax with broad side border, separated from disc by a furrow, and with two shallow depressions on hinder part; elytra very closely punctured. L.  $2\frac{1}{4}$  l. Not common.

*O. depressa*, Lin.

**B.** Thorax rust-red, more or less black on disc.

Head black, mouth brown; elytra black, with several red-yellow spots, variable in extent, apex reddish; underside black or brown. Thorax with narrow side border and two depressions on hinder part; elytra rather closely punctured. L. 1— $1\frac{1}{3}$  l. Common.

*O. colon*, Lin.

**C.** Thorax blackish-brown, with margins rust-red.

Head black, mouth brown; elytra black, with a common whitish-yellow spot, reaching from base to beyond middle and nearly to side margin, and a light marking toward apex. Thorax with broad side border and two depressions on hinder part; elytra rather closely punctured. L.  $1\frac{1}{2}$  l. Common.

*O. discoidea*, Fab.

***Thalyera.***

Oblong, somewhat ovate. Rust-red; elytra blackish toward apex. Whole body pubescent, margins of thorax and elytra with close, short fringe; punctuation rather close and strong. L.  $1\frac{1}{2}$ —2 l. Rare. *T. sericea*, Sturm.



*Pria.*

Head and thorax brown-red; scutellum blackish; elytra reddish-yellow, with brownish suture; under-side more or less blackish; antennae yellow at base, brown at apex; legs yellow. Posterior angles of thorax right angles; apex of elytra slightly rounded. L. 1 l. Common.

*P. dulcamarae*, Ill.

*Meligethes.*

**A.** Tarsal claws simple, long and narrow, at most with a scarcely visible thickening at base.

**a.** Anterior margin of forehead straight or almost straight.

**I.** Hinder pairs of tibiae fringed with fine bristles on the obliquely truncate apex only.

Anterior tibiae feebly toothed, gradually more distinctly toward apex. Species large, black, slightly convex; punctuation generally very close, especially on elytra, where it forms indistinct waved transverse lines.

**1.** Punctuation of thorax as fine and rather closer than that of elytra; antennae red, with club black.

Broad oval. Black; legs brown-red; pubescence on head, thorax and scutellum gray, on elytra black. Separate side border of thorax broad. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Common.

*M. rufipes*, Gyll.

**2.** Punctuation of thorax distinctly stronger and not closer than that of elytra; antennae with first joint brown, the next few joints red, the club and some joints preceding it black.

Broad oval. Black; legs dark brown-red; pubescence black, often gray toward sides of thorax. Separate side border of thorax narrow. L.  $1\frac{1}{4}$ — $1\frac{3}{4}$  l. Not uncommon.

*M. lumbaris*, Sturm.

**II.** Hinder pairs of tibiae fringed with bristles (and often with spines) at least to middle.

**1.** Whole of upper-side with fine network between punctures.

**A A.** Anterior tibiae feebly and regularly toothed, gradually rather more distinctly toward apex.

**a a.** Antennae entirely red.

Oblong, somewhat ovate, flattish. Black, legs red; pubescence short, gray-brown. Forehead even. L. 1 l. Rare. *M. fulvipes*, Bris.

**b b.** Antennae with first two joints red-brown or red, the rest brown or black.

**A a.** Body black, with very slight greenish reflection.

Oblong oval. Anterior legs reddish, hinder pairs dark-brown; pubescence brownish-gray. Punctuation very close and fine. Forehead with a very shallow impression on each side in front; elytra twice as long as thorax. L. 1 l. Rare. *M. coracinus*, Sturm.

**B b.** Body greenish or greenish-blue, with metallic lustre.

**A 1.** Legs blackish.

Oblong-ovate. Pubescence gray. Punctuation fine, intervals twice as large as punctures. Elytra rather more than twice as long as thorax. L. 1—1¼ l. Common.

*M. aeneus*, Fab.

**B 1.** Legs red.

Very similar to *M. aeneus*, but more greenish-blue, more shiny, with elytra rather longer; first two joints of antennae red, the following ones brown, the club black; pubescence very short, black. L. 1¼ l. Common. *M. viridescens*, Fab.

**B B.** Anterior tibiae tolerably regularly armed with strong sharp teeth.

Broad oval, convex. Black, with bluish reflection; antennae brown, first two joints red; legs brown red, anterior pair lighter. L. 1 l. Rare. *M. symphyti*, Heer.

**2.** Interstices of punctures either smooth or with interrupted, transverse scratches.

**A A.** Anterior tibiae feebly toothed, gradually rather more distinctly toward apex.

**a a.** Elytra not transversely wrinkled.

Ovate, convex. Black, shiny; antennae and legs black; pubescence very short and dark. Posterior angles of thorax obtuse. L. 1¼ l. Not uncommon. *M. corvinus*, Er.

**b b.** Elytra transversely wrinkled.

Ovate, somewhat convex. Black, shiny; antennae and legs black or pitchy. L.  $\frac{4}{5}$  l. Rare. *M. subrugosus*, Gyll.

**B B.** Anterior tibiae strongly toothed from near base.

**a a.** Teeth on anterior tibiae gradually stronger from base toward apex.

Oblong oval, rather flat. Leaden-black, antennae and legs red-brown. Thorax slightly narrowed in front; pubescence gray. L.  $\frac{4}{5}$  l. Not uncommon.

*M. serripes*, Gyll.

**b b.** Teeth on anterior tibiae suddenly very strong before middle.

Oblong, slightly convex. Black; antennae and legs red, hinder femora darker. Thorax distinctly narrowed in front; pubescence brownish. L.  $\frac{3}{4}$  l. Rare.

*M. nanus*, Er. (*M. marrubii*, Sharp's Cat.)

**C C.** Anterior tibiae feebly toothed at base, strongly from about middle.

**a a.** Anterior tibiae with a strong, prominent tooth in middle and another near apex, with some small teeth between them.

Oblong oval, broad, convex. Black; antennae red-brown, first two joints and club lighter; legs pitch-black, anterior tibiae and tarsi yellowish-red; pubescence fine, close and silky, brownish. Thorax scarcely narrowed in front, posterior angles slightly obtuse; anterior legs broad, especially the tarsi. L. 1 l. Rare. *M. palmatus*, Er.

**b b.** Anterior tibiae with some strong, prominent teeth at or toward apex.

**A a.** Upper-side very closely and generally very finely punctured.

Pubescence distinct; anterior tibiae almost always strongly dilated; species rarely very shiny.

**A 1.** Upper-side with fine transverse scratches between punctures.

**a 1.** Transverse scratches on elytra only, not distinct.

Oblong-ovate, slightly convex. Black; antennae black-

brown, first two joints red ; anterior legs brown-red, hinder pairs black-brown. Thorax scarcely narrowed in front ; anterior tibiae with even, fine, sawlike teeth, and two strong ones at apex. L. 1 l. Common. *M. bidens*, Bris.

**b 1.** Transverse scratches on whole of upper-side.

Anterior tibiae with several larger teeth before apex.

**A 2.** Base of thorax rather broader than elytra.

Oblong, convex. Black ; antennae black, first two joints brown-red ; legs brownish-black, anterior tibiae lighter ; pubescence close, fine, black or gray-black. Metasternum either even or impressed, with a prominence between posterior coxae. L.  $1\frac{1}{4}$  l. Rare. *M. umbrosus*, Sturm.

**B 2.** Base of thorax at most as broad as elytra.

**a 2.** Anterior tibiae with fine, sawlike teeth and three or four larger, usually unequal, ones before apex.

**A 3.** Pubescence black.

Oblong, convex. Black ; antennae black, second joint brown-red ; anterior legs pitch-brown, hinder legs black. Very similar to *M. umbrosus*, but more shiny, more distinctly and strongly punctured, with more scanty and shorter black pubescence. Metasternum either even or impressed, with two small transversely placed prominences at the front of impression. L.  $1\frac{1}{4}$  l. Moderately common. *M. maurus*, Sturm.

**B 3.** Pubescence gray.

Oval, convex. Black, with distinct, recumbent gray pubescence ; first two joints of antennae and the legs pitch-brown, anterior tibiae brown-red. More oblong than *M. maurus* and more convex, colour more gray-black, pubescence longer, punctuation closer ; metasternum of male without tubercles. Less shiny than *M. ovatus*. L. 1— $1\frac{1}{4}$  l. Rare. *M. incanus*, Sturm.

**b 2.** Anterior tibiae with fine sawlike teeth at base and four broad

but not very long larger teeth commencing before middle.

Short oval, convex, shiny. Black; antennae black or black-brown, first two or three joints red; legs dark-red, broad; pubescence very short, brown. L. 1 l. Rare.

*M. ovatus*, Sturm.

**B 1.** Upper-side smooth between punctures.

**a 1.** Thorax nearly double as broad as long, base scarcely as broad as elytra.

Oval, slightly convex. Lead-en-black; antennae yellow-brown, basal joints lighter; legs red; pubescence gray. Anterior tibiae slightly curved on inner-side, and irregularly toothed on outer. L.  $\frac{3}{4}$ —1 l. Common.

*M. picipes*, Sturm.

**b 1.** Thorax only one quarter broader than long, base at least as broad as elytra.

Oblong-ovate, somewhat convex. Black; antennae yellow-red; legs brown-red; pubescence gray. Anterior tibiae straight on inner-side, and with four or five large teeth at apex on outer. L.  $\frac{3}{4}$ —1 l. Rare. *M. flavipes*, Sturm.

**B b.** Upper-side strongly and generally rather diffusely punctured.

Pubescence extremely short; anterior tibiae very little dilated; species very shiny.

**A 1.** Antennae blackish, second joint red-brown.

Ovate, convex. Black; legs brown-black, anterior tibiae lighter. L. 1 l. Scarce. *M. memnonius*, Er.

**B 1.** Antennae unicolorous red.

Oblong oval, somewhat convex. Black, with some brownish reflection; legs red. L.  $1\frac{1}{4}$  l. Not uncommon.

*M. brunnicornis*, Sturm.

**b.** Front of forehead emarginate in middle only, anterior angles rounded or obtuse.

**I.** Anterior tibiae with several large teeth at apex.

**1.** Body short ovate; posterior tibiae dilated on

outer-side in almost a straight line until beyond middle, and thence suddenly and obliquely narrowed.

Short ovate, convex. Deep black, shiny; base of antennae and legs yellowish-red. Punctuation diffuse and strong; pubescence diffuse and very fine, blackish. Allied to *M. difficilis* but broader, more convex, apical teeth on anterior tibiae less strongly developed. L.  $1\frac{1}{4}$  l. Rare.

*M. ochropus*, Sturm.

**2.** Body oblong-ovate or oval; posterior tibiae rounded on outer-side.

**A A.** Thorax finely and closely, elytra more strongly and diffusely punctured.

**a a.** Head and thorax with a greenish reflection; pubescence blackish.

Oblong-ovate, moderately convex. Black; antennae brown or red-brown, first two joints red; legs brownish-red. L.  $1\frac{1}{4}$  l. Not uncommon. *M. difficilis*, Heer.

**b b.** Head and thorax deep black; pubescence whitish.

Very similar to *M. difficilis*, but with punctuation of elytra more diffuse and deeper, and with the teeth on anterior tibiae feebler, the larger ones at apex being fewer in number; the legs are rather lighter and the antennae have usually three basal joints reddish-yellow. L.  $1\frac{1}{4}$  l. Rare.

*M. Kunzei*, Er.

**B B.** Thorax and elytra tolerably equally closely and finely punctured.

**a a.** Side border of thorax distinctly raised.

Oval, convex. Black; antennae brown-black, first two joints red; legs dark brown-red, anterior pair lighter. Hinder pairs of tibiae somewhat angular; elytra double as long as thorax. L. 1 l. Rare. *M. viduatus*, Sturm.

**b b.** Side border of thorax not raised.

Very similar to *M. viduatus*, but less convex, more oblong; hinder pairs of tibiae rounded and elytra more than double as long as thorax. L. 1 l. Not common.

*M. pedicularius*, Gyll.

**II.** Anterior tibiae finely toothed throughout, with

one long prominent tooth near middle and another at apex.

Oblong-ovate, slightly convex. Black, somewhat leaden, antennae rust-brown ; legs black, anterior tibiae red-brown ; pubescence brownish. L.  $\frac{3}{4}$  l. Rare. *M. distinctus*, Sturm.

**c.** Front of forehead emarginate from side to side (with or without a tooth in middle of emargination), anterior angles sharp.

**I.** Anterior tibiae regularly toothed (cog-like).

Oblong oval, slightly convex. Black, somewhat leaden ; antennae and legs red or brown-yellow ; pubescence grayish-white. L.  $\frac{3}{4}$  l. Rare. *M. rotundicollis*, Bris.

**II.** Anterior tibiae with somewhat irregular comb-like teeth, teeth near base distinct.

Oblong, rather flat. Leaden-black ; antennae and legs black, former with second or first two joints brown-red, latter with tarsi brown. L.  $\frac{3}{4}$  l. Rather common.

*M. murinus*, Er. (*M. seniculus*, Sharp's Cat.)

**III.** Teeth on anterior tibiae fine at base and gradually stronger, with two or three long prominent teeth separated by some smaller ones.

**1.** Elytra with extremely fine transverse wrinkles.

Oval, convex. Black ; antennae and legs black, second joint of former and anterior tibiae pitchy ; pubescence blackish. L.  $\frac{3}{4}$  l. Scarce. *M. lugubris*, Sturm.

**2.** Elytra without transverse wrinkles.

**AA.** Anterior tibiae with two more prominent teeth ; emargination of forehead without middle tooth.

**aa.** Forehead very finely punctured, slightly emarginate ; male with metasternum rather deeply impressed longitudinally, with a small prominence on each side in middle, its last abdominal segment with a transverse ridge in middle.

Ovate, convex. Black, slightly leaden ; antennae yellow-red or brown-red ; legs brownish-red ; pubescence grayish. L.  $\frac{3}{4}$ —1 l. Scarce. *M. erythropus*, Gyll.

**bb.** Forehead deeply and distinctly punctured,

deeply emarginate; male with metasternum slightly impressed and its last abdominal segment with two very large, transversely placed teeth.

Very similar to *M. erythropus* but with sculpture of elytra less distinct, pubescence shorter and less close-lying and tibiae rather broader toward apex; body also more convex. L.  $\frac{3}{4}$ —1 l. Rare. *M. bidentatus*, Bris.

**B B.** Anterior tibiae with three more prominent teeth; emargination of forehead with middle tooth.

Ovate, convex. Black; antennae pitch-brown, apex black; legs black or dark pitch-brown; pubescence blackish. L.  $\frac{3}{4}$ —1 l. Rare. *M. exilis*, Sturm.

**B.** Tarsal claws moderately long, broad, with a large tooth at base.

**a.** Body unicolorous black.

Short ovate, convex. Antennae black-brown, base reddish; legs red, posterior femora often dark; pubescence blackish-gray. Front of forehead deeply emarginate; anterior tibiae strongly toothed, with four large teeth toward apex. L. 1— $1\frac{1}{3}$  l. Moderately common. *M. solidus*, Kug.

**b.** Body black, with a red spot on each elytron.

Short oval. Antennae and legs yellowish-red, femora darker; pubescence yellowish. Tarsi slender; teeth on anterior tibiae more even and gradually increased, sharper and rather feebler than in *M. solidus*. L. 1 l. Scarborough. *M. pictus*, Rye.

### *Pocadius.*

Red-brown or reddish-yellow; club of antennae brown; breast and apex of elytra often darker. Elytra with punctured striae, deeper toward apex, each interval with a row of yellowish hairs. L.  $1\frac{1}{2}$ —2 l. Rather common.

*P. ferrugineus*, Fab.

### *CYCHRAMIDES.*

Grooves for reception of antennae straight but indistinct. Prosternum somewhat produced behind, mesosternum with a slight hollow to receive the process. Tibiae bare and with very short apical spines; thorax and elytra fringed.

*Cychramus*, Kug.



*Cychramus.*

**A.** Body unicolorous rust or ochre-yellow; pubescence close and short.

Roundish, convex. Club of antennae blackish. L.  $1\frac{1}{2}$ —2 l. Common. *C. luteus*, Fab.

**B.** Body rust-brown, with a brown band at sides of elytra; pubescence scanty and rather long.

More oblong than *C. luteus*, more convex, punctuation more diffuse but stronger. Club of antennae blackish. L.  $1\frac{1}{2}$ —2 l. Common. *C. fungicola*, Heer.

*IPIDES.*

**A.** Antennae with eleven joints, club rather loose, formed of three joints.

**a.** Mesosternum covered by process of prosternum.

Apical joint of labial palpi oval. First joint of antennae covered by side margin of forehead, grooves for their reception deep, short, scarcely convergent; elytra entirely covering abdomen. *Cryptarcha*, Shuck.

**b.** Process of prosternum covering anterior margin of mesosternum only.

Apical joint of labial palpi cylindrical. Base of antennae tolerably free, grooves for their reception narrow and short, convergent; elytra not quite covering last abdominal segment. *Ips*, Fab.

**B.** Antennae with ten joints, the last forming a large solid knob.

Male with only four joints to posterior tarsi.

*Rhizophagus*, Herbst.

*Cryptarcha.*

**A.** Bristles on upper-side not very prominent above pubescence.

Short ovate, convex. Dark brown or blackish; mouth, margins of thorax and sides of elytra red-brown, latter with two strongly toothed yellow transverse bands, a branched one before and the other behind middle, neither of them reaching suture or side margin; antennae and legs brown-red, club of former and under-side of femora blackish. L.  $1\frac{1}{2}$ —2 l. Moderately common. *C. strigata*, Fab.

**B.** Bristles on upper-side distinctly prominent above pubescence.

More oblong and less convex than *C. strigata*, punctuation, especially on elytra, not so close. Head blackish, with mouth red-brown; thorax blackish-brown on disc, broadly red-brown at margins; elytra broadly red-brown at sides and suture, disc black, with two whitish markings, one at base, the other behind middle; antennae and legs brown-red; metasternum blackish. L.  $1\frac{1}{2}$  l. Not uncommon. *C. imperialis*, Fab.

### *Ips.*

**A.** Body black, with light spots on elytra.

**a.** Body oblong.

**I.** Each elytron with two white spots, one at base composed of three, the other behind middle of two small spots.

Slightly convex. Upper-side finely and diffusely punctured. Female with apex of elytra produced at suture. L.  $1\frac{1}{2}$ — $2\frac{1}{2}$  l. Moderately common.

*I. quadriguttata*, Fab.

**II.** Each elytron with two simple yellow-red spots, an oblong one at base and a more or less transverse one behind middle.

Rather convex. Upper-side rather closely and strongly punctured. Apex of elytra rounded in both sexes. L. 2—3 l. Not common. *I. quadripunctata*, Herbst.

**b.** Body elongate.

Rather flat, parallel-sided. Each elytron with two bright red spots; a branched, transverse one at base and a simple one close behind middle. Punctuation of thorax rather diffuse and fine, of elytra moderately close, latter with traces of very fine striae. Female with apex of elytra produced at suture. L.  $1\frac{1}{2}$ —3 l. Moderately common.

*I. quadripustulata*, Fab.

**B.** Body brown-red.

Linear, somewhat cylindrical. Head brown. Punctuation close and strong, almost in rows on elytra; apex of which is in both sexes straight, with rounded outer angles. L. 2— $2\frac{1}{2}$  l. Moderately common. *I. ferrugineus*, Fab.

*Rhizophagus.*

**A.** Elytra unicolorous brown-red or rust-red.

**a.** Thorax finely punctured ; second interstice on elytra widened and irregularly punctured in front.

Rather flat. Light red-brown. Thorax rather longer than broad, all angles rather blunt. L. 1—2 l. Rather common.

*R. depressus*, Fab.

**b.** Thorax strongly punctured ; second interstice on elytra not punctured.

**I.** Thorax not longer than broad ; sides of elytra somewhat dilated.

Rather flat. Light brown-red or rust-red. Thorax somewhat narrowed behind, anterior angles somewhat prominent, more diffusely punctured than in *R. ferrugineus* ; elytra with strong punctured striae. Knob of antennae truncate at apex. L.  $1\frac{2}{3}$  l. Not common.

*R. cribratus*, Gyll.

**II.** Thorax a little longer than broad ; sides of elytra not dilated.

**1.** Length  $1\frac{3}{4}$ —2 lines.

Somewhat convex, almost cylindrical. Rust-red. Thorax scarcely at all narrowed behind, anterior angles rather sharp, not very closely punctured ; elytra with strong punctured striae. Common.

*R. ferrugineus*, Payk.

**2.** Length  $1\frac{1}{2}$  lines.

Rather broad, flat. Rust-red. Thorax scarcely narrowed behind, anterior angles prominent, punctures diffusely placed, large, oblong, rather shallow ; elytra with rather fine punctured striae. Knob of antennae oval. Rather common.

*R. perforatus*, Er.

**B.** Elytra with disc black or brown, margins lighter.

Second interstice on elytra not punctured ; sides of thorax not dilated.

**a.** Elytra without lighter spots.

**I.** Thorax rather longer than broad.

Rather flat. Red-brown, disc of thorax and elytra, breast and base of abdomen more or less brown or blackish ; the lightest specimens unicolorous brown-red. Thorax scarcely

narrowed behind, anterior angles slightly prominent, punctures rather closely placed, oblong and deep, feebler toward sides; elytra with regular punctured striae, effaced at sides and apex. L.  $1\frac{1}{2}$ —2 l. Not uncommon.

*R. parallelocollis*, Gyll.

**II.** Thorax considerably longer than broad.

- 1.** Last abdominal segment with a shallow impression toward apex, with a prominence on each side.

Elongate, slightly convex. Brownish-red, disc of thorax blackish; elytra black, with the basal fourth-part red and extreme side and apical margins red-brown. Anterior angles of thorax nearly right angles, not prominent. L.  $1\frac{1}{3}$ — $2\frac{1}{3}$  l. Not common.

*R. nitidulus*, Fab.

- 2.** Last abdominal segment without impression.

Elongate, rather flat. Brown-red, disc of thorax with a badly defined brown shade; elytra black, with a very narrow space at base, and a broader one at apex brown-red, colours not sharply divided; breast and base of abdomen generally brownish. Anterior angles of thorax nearly right angles, not prominent. L.  $1\frac{1}{2}$ —2 l. Common.

*R. dispar*, Payk.

- b.** Elytra brownish-black, with a badly defined brown-red spot at shoulder and a more distinct one behind middle, apex more or less red-brown.

Rather flat. Head thorax and under-side brownish-black, mouth lighter, abdomen with margins of segments and apex more or less red-brown, the lightest specimens unicolorous reddish-yellow. Thorax scarcely longer than broad, a little narrowed behind, angles somewhat rounded, moderately closely and finely punctured. L. 1— $1\frac{1}{3}$  l. Common.

*R. bipustulatus*, Fab.

**C.** Elytra unicolorous black.

Rather flat. Deep, shiny black; antennae and legs brown-red. Thorax as long as broad, angles rounded, rather diffusely, finely punctured. L.  $1\frac{1}{2}$ —2 l. Rare.

*R. politus*, Hellw.

**D.** Elytra unicolorous blue-green.

Rather broad and flat. Head and thorax black; antennae

brown-red, with black knob ; legs rust-red, with brown femora. Thorax not longer than broad, angles rounded, punctuation rather close and fine. L.  $1\frac{1}{2}$  l. Rare.

*R. coeruleipennis*, Sahl.

### BYTURIDES.

Mandibles with several blunt teeth before apex ; last joint of maxillary palpi gradually narrowed, apex truncate ; mentum slightly emarginate in front, anterior angles acute ; ligula emarginate in front ; last joint of labial palpi long oval. Antennae with eleven joints, club three-jointed.

*Byturus*, Latr.

#### *Byturus*.

**A.** Thorax much broader than long, posterior angles obtuse.

Brown-red ; head and under-side (except apex of abdomen), and often thorax pitch-brown, with rather long yellowish-gray pubescence. Eyes large and moderately prominent, posterior tibiae of male with fine bristles. L.  $1\frac{3}{4}$ —2 l. Common.

*B. sambuci*, Scop.

**B.** Thorax not much broader than long, posterior angles right angles.

Rather narrower than *B. sambuci* ; eyes distinctly smaller and more convex, pubescence rather finer and shorter. Posterior tibiae of male without bristles. L.  $1\frac{1}{2}$ — $1\frac{3}{4}$  l. Common.

*B. tomentosus*, Fab.

### TROGOSITIDAE.

**A.** Inner lobe of maxillae very small, scarcely perceptible.

**a.** Eyes round.

Antennae with ten joints, club three-jointed. Forehead projecting above labrum, divided by a longitudinal furrow ; ligula strongly emarginate. Tibiae bare, anterior pair with one hooked apical spine. Body very long, narrow, cylindrical.

*Nemosoma*, Latr.

**b.** Eyes kidney-shaped, transverse.

Antennae with eleven joints, apex gradually and not strongly thickened. Forehead even ; ligula entire. Tibiae bare, anterior pair with both apical spines distinct, one of

them rather larger and hooked. Body oblong, elongate.  
*Trogosita*, Ol.

**B.** Inner lobe of maxillae distinct, with a horny hook at apex.

Club of antennae three-jointed, oblong, compact. Ligula slightly emarginate. Tibiae bare, with very small apical spines, those on anterior pair simple. Body roundish, evenly arched above, thorax and elytra with broad separate border.  
*Thymalus*, Latr.

### *Nemosoma.*

Black; base of elytra nearly to middle and a spot before their apex, antennae and legs yellow-red. L. 2 l. Not common.  
*N. elongata*, Lin.

### *Trogosita.*

Flat. Black or red-brown. Thorax broader than long, much narrowed behind; elytra with punctured striae, interstices with a row of fine punctures near each stria. L. 3—5 l. Common.  
*T. mauritanica*, Lin.

### *Thymalus.*

Upper-side bronze, with margin dark red, pubescent; under-side brown-red. Elytra punctured in rows, with interstices diffusely and very finely punctured. L. 3 l. Common.  
*T. limbatus*, Fab.

## COLYDIIDAE.

**A.** Posterior legs approximated.

**a.** Ventral abdominal segments equal in length.

*Synchitides.*

**b.** First ventral segment of abdomen longer than rest.

*Colydiides.*

**B.** Posterior legs standing apart.

**a.** Last joint of palpi thickened and obtusely pointed at apex.

First ventral abdominal segment not longer than second, third and fourth smaller than the rest; all coxae placed apart.  
*Myrmecoxenides.*

**b.** Last joint of palpi small, awlshaped.

Penultimate joint of palpi thickened; first ventral abdominal segment much longer than rest; all coxae placed apart.

*Cerylides.*

### **SYNCHITIDES.**

**A.** Tibiae without apical spines.

**a.** Antennae stretched forward, not capable of being laid back under head, fourth to ninth joints equal in breadth, tenth narrower, eleventh hidden in tenth.

Maxillae hidden; first three tarsal joints short, with stiff bristles beneath.

*Sarrotrium*, Ill.

**b.** Antennae capable of being laid back under head; club two-jointed.

Grooves for reception of antennae short and shallow. Upper-side rough; sides of thorax and elytra notched.

*Endophloeus*, Er.

**B.** Tibiae with small, fine apical spines.

**a.** Antennae with eleven joints, club two-jointed.

Mandibles with two-toothed apex; ligula slightly emarginate at apex; no grooves for reception of antennae.

*Ditoma*, Ill.

**b.** Antennae with ten joints, apical one forming a large solid knob.

**I.** No grooves for reception of antennae.

Apex of mandibles simple; ligula slightly emarginate at apex.

*Synchita*, Hellw.

**II.** Grooves for reception of antennae distinct.

Apex of mandibles simple; ligula rounded in front.

*Cicones*, Curt.

#### ***Sarrotrium.***

Gray-black, with very fine whitish pubescence. Antennae spindle-shaped, hairy; thorax a little narrowed in front, with a longitudinal elevation on each side of central furrow; elytra with rows of deep punctures, alternate interstices raised. L. 2 l. Rather common.

*S. clavicorne*, Lin.

#### ***Endophloeus.***

Oblong, rather flat. Dull red-brown, suffused with pitch-

black, side margins and suture of elytra lightest, with short hairs round margins and on elevations. Thorax roughly granulated, with broad, flat margins deeply toothed at sides, anterior angles strongly produced, posterior doubly emarginate, middle much elevated, projecting slightly over head, with two irregular ridges enclosing central line, which ends in front in a small notch; elytra with rough, interrupted ridges, entire margin notched. L. 2—3 l. Rare.

*E. spinulosus*, Latr.

### *Ditoma.*

Black, dull; each elytron with two large red spots; antennae and legs reddish, femora darker. Thorax with two raised lines on each side; elytra with punctured striae, alternate interstices raised. L.  $1\frac{1}{2}$  l. Rather common.

*D. crenata*, Herbst.

### *Synchita.*

**A.** Elytra brown, with a badly defined yellow-red spot at shoulder; thorax rather broader than long.

Oblong, dull. Head and thorax brown; mouth, antennae and legs brown-red. Knob of antennae globular; elytra with strong punctured striae and rows of bristles. L. 1— $2\frac{1}{4}$  l. Rare.

*S. juglandis*, Fab.

**B.** Elytra red-yellow; thorax about as long as broad.

Elongate. Head and thorax brown-red; antennae and legs red-yellow. Knob of antennae broader than long; elytra with very strong punctured striae and rows of bristles. L.  $1\frac{1}{2}$  l. Scarce.

*S. mediolanensis*, Villa.

### *Cicones.*

Oblong-ovate. Upper-side dark brown, checkered with brown and yellowish hairs; elytra with irregular yellow spots, more or less united into bands; under-side, antennae and legs brown-red. Thorax much broader than long, narrowed behind; elytra with punctured striae, alternate interstices raised. L.  $1\frac{1}{2}$  l. Scarce. *C. variegatus*, Hellw.

## COLYDIIDES.

**A.** Eyes present.

**a.** Antennae with eleven joints, club three-jointed.



Antennae inserted below side margin of forehead. Last joint of maxillary palpi hatchet-shaped; labrum hidden. Thorax usually with three furrows on disc; elytra ribbed, interstices punctured in rows; first three tarsal joints gradually diminishing in length. *Colydium*, Fab.

**b.** Antennae with eleven joints, club two-jointed.

Base of antennae free. Last joint of maxillary palpi gradually narrowed, with apex truncate; ligula bilobed. First three tarsal joints equally short. *Teredus*, Dej.

**c.** Antennae apparently with ten joints, the tenth forming a large solid knob and shewing traces of the eleventh at apex.

Last joint of maxillary palpi much longer than the rest together, oblong oval, apex truncate; ligula bilobed. First three tarsal joints equally short. *Oxylaemus*, Er.

**B.** Eyes absent.

Antennae with eleven joints, club three-jointed. Last joint of maxillary palpi oblong oval, with apex truncate. *Aglenus*, Er.

### *Colydium.*

Very narrow. Black, shiny; antennae and legs brown-red. Apex of elytra jointly rounded. L. 2—3 l. Very rare. *C. elongatum*, Fab.

### *Teredus.*

Elongate, cylindrical. Black, shiny; antennae and legs red. Thorax nearly double as long as broad, closely and finely punctured; elytra with very fine punctured striae, interstices also finely punctured in rows. L. 2 l. Very rare. *T. nitidus*, Fab.

### *Oxylaemus.*

**A.** Thorax rather closely punctured, with four impressions at base, the outer ones reaching scarcely one-third the length of thorax.

Elongate, cylindrical. Red-brown, shiny. Each elytron with eight punctured striae; the punctures of seventh very fine, of the rest large and deep. L.  $1\frac{1}{2}$  l. Rare. *O. cylindricus*, Panz.

**B.** Thorax not very closely punctured, with four impressions at base, the outer ones reaching middle.

Oblong, nearly cylindrical. Red-brown, shiny. Each elytron with eight punctured striae, punctures all large and deep. L.  $1\frac{1}{2}$  l. Rare. *O. caesus*, Er.

### *Aglenus.*

Brown-red, shiny, without pubescence. Thorax fully as long as broad, rather closely punctured, elytra indistinctly punctured. L.  $\frac{3}{4}$  l. Common. *A. brunneus*, Gyll.

## **MYRMECOXENIDES.**

Antennae eleven-jointed, eighth joint rather larger than preceding ones, last three forming a moderately large club; head sunk to eyes in thorax, latter more or less narrowed at base, nearly heart-shaped; first three tarsal joints gradually diminishing in length. *Myrmecoxenus*, Chev.

### *Myrmecoxenus.*

Unicolorous yellowish; flat; punctuation strong. L. 1 l. Rare. *M. vaporariorum*, Guér.

## **CERYLIDES.**

Antennae with ten joints, the tenth forming a thick knob, Maxillary palpi with third joint large, oval, fourth small. awl-shaped; ligula dilated, rounded in front. *Cerylon*, Latr.

### *Cerylon.*

**A.** Thorax and elytra black.

**a.** Eighth stria on elytra present.

Head pitchy, antennae and legs brown-red. Thorax narrowed in front, rather diffusely and irregularly punctured, with two slight impressions at base; elytra with punctured striae, effaced at apex. L.  $1-1\frac{1}{4}$  l. Common. *C. histeroides*, Fab.

**b.** Eighth stria on elytra absent.

Pitch-black, shiny; head pitch-brown; antennae and legs reddish. Similar to *C. histeroides*, but with thorax narrowed from base to apex, basal impressions much

stronger, mesosternum more strongly punctured at base and almost impunctate at apex, antennae and tarsi thicker. L.  $1-1\frac{1}{4}$  l. Rare. *C. fagi*, Bris.

**B.** Thorax and elytra red-brown.

**a.** Elytra with strong punctured striae, indistinct near apex, first interstice with a row of very fine punctures.

Narrower than *C. histeroides*. Head, antennae and legs red-brown. Thorax with sides parallel, base twice slightly emarginate, punctuation rather diffuse, strong and deep, closer and finer near sides. L.  $\frac{4}{5}-1$  l. Moderately common. *C. angustatum*, Er.

**b.** Elytra with fine punctured striae, distinct to apex, each interstice with a row of very fine punctures.

Flat, narrow. Head, antennae and legs red-brown. Thorax with sides parallel, base straight, punctuation not very close, but rather strong, even. L.  $\frac{4}{5}$  l. Rare.

*C. deplanatum*, Gyll.

### CUCUJIDAE.

**A.** Antennae scarcely or not at all thickened at apex.

**a.** Last joint of labial palpi pointed.

Antennae long, first joint not longer than head, second and third joints short. Inner lobe of maxillae with a hook at apex; prosternum covering base of mesosternum. Tarsi with five joints, narrow, first joint shorter than second.

*Dendrophagus*, Schönh.

**b.** Last joint of labial palpi cut off obliquely.

Antennae very long, first joint longer than, or at least as long as head, second short, third longer. Inner lobe of maxillae with a hook at apex; prosternum fitting into a hollow in mesosternum. Tarsi with five joints, narrow, first joint shorter than second.

*Brontes*, Fab.

**B.** Antennae thickened at apex.

**a.** Male with five joints to front pairs of tarsi and four joints to posterior pair; female with five joints to all tarsi.

**I.** Inner lobe of maxillae with hook at apex; last joint of maxillary palpi a little longer than third, pointed.

Ligula rounded in front. Anterior tibiae with one of the apical spines curved; first tarsal joint shorter than second. *Laemophloeus*, Dej.

**II.** Inner lobe of maxillae without hook; last joint of maxillary palpi almost double as long as third, gradually narrowed, but truncate at apex.

Central joints of antennae alternately larger and smaller. Ligula bilobed. First tarsal joint shorter than second.

*Pediacus*, Shuck.

**b.** All tarsi with five joints in both sexes.

**I.** Fourth tarsal joint of usual size.

First joint of antennae elongate. Last joint of maxillary palpi large, triangular; ligula slightly emarginate. Third tarsal joint produced. *Psammoechus*, Boudier.

**II.** Fourth tarsal joint very small.

**1.** Club of antennae three-jointed.

**A A.** Last joint of maxillary palpi gradually narrowed, truncate at apex; thorax narrower at base than at apex.

Head almost square behind, narrowed, produced and truncate in front; club of antennae elongate and rather loose; thorax elongate, gradually narrowed behind, often toothed at sides, anterior angles prominent; third tarsal joint emarginate, fifth joint as long as first three together, first three joints hairy beneath. *Silvanus*, Latr.

**B B.** Last joint of maxillary palpi cylindrical, thorax as broad at base as at apex.

Head triangular, obtuse in front; club of antennae with its first joint small, second larger than first and third, transverse, third nearly globular; thorax transverse; fifth tarsal joint longer than the rest together, first three joints hairy beneath. *Diplocoelus*, Guér.

**2.** Club of antennae two-jointed.

In other respects similar to *Diplocoelus*.

*Diphylus*, Shuck.

**3.** Club of antennae four-jointed.

Temples not prominent; eighth joint of antennae broader than preceding joints; anterior angles of thorax reaching

eyes, apex excised on each side behind eyes; posterior femora toothed. *Nausibius*, Redt.

### *Dendrophagus.*

Black or brown; mouth, antennae and legs brown-red. Sides of thorax sinuate, disc rather closely and strongly punctured, with two shallow longitudinal impressions placed close to each other; elytra with fine rather strongly punctured striae. L. 3 l. Rare. *D. crenatus*, Payk.

### *Brontes.*

Black or brown, dull; antennae and legs brownish-yellow. Thorax narrowed behind, sides finely toothed; anterior angles produced; elytra with shallow punctured striae, interstices punctured, fifth raised. L.  $2\frac{1}{2}$  l. Rare.

*B. planatus*, Lin.

### *Laemophloeus.*

**A.** Front of forehead with three emarginations; scutellum triangular.

Flat, shiny. Light reddish-yellow; each elytron with a blackish spot close behind middle. Pubescence fine; apex of antennae scarcely at all thickened; thorax with one impressed line on each side, posterior angles almost right angles; elytra with fine striae. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Scarce.

*L. bimaculatus*, Payk.

**B.** Front of forehead straight or slightly emarginate; scutellum transverse.

**a.** Thorax with two fine impressed lines on each side.

Red-yellow. Pubescence fine. Antennae with three distinctly larger apical joints, in male about half, in female about one-third as long as body. Posterior angles of thorax almost right angles; elytra with alternate striae stronger. L.  $\frac{3}{4}$  l. Not uncommon.

*L. duplicatus*, Waltl.

**b.** Thorax with one impressed line on each side.

**I.** Posterior angles of thorax almost right angles.

Oblong, flat. Red-yellow. Pubescence rather close, on elytra in rows. Eighth joint of antennae rather smaller than preceding ones, especially in female; elytra with four fine striae on disc of each, and outward from the fourth a ridge

and two lateral striae, interstices with a close, rather irregular double row of punctures. L. 1 l. Rather common.

*L. ferrugineus*, Steph.

## II. Posterior angles of thorax obtuse.

1. Each elytron with six striae on disc; second and third, fourth and fifth approximated, with their interstices narrower and raised.

Oblong, flat. Black or rust-red. Pubescence fine, on elytra in rows. Middle of antennae with alternate joints smaller; elytra with a ridge and two lateral striae outward from the sixth dorsal stria. L.  $1\frac{1}{4}$  l. Rather common.

*L. ater*, Ol.

2. Each elytron with six even, rather deep striae on disc.

Elongate, dull. Brown-red. Pubescence very fine, last three joints of antennae thickened in both sexes; elytra with two lateral striae. L.  $1\frac{1}{2}$  l. Moderately common.

*L. clematidis*, Er.

## *Pediacus*.

- A. Fourth (hindmost) tooth on side of thorax placed immediately at posterior angle.

Flat, slightly shiny. Brown-red; forehead, disc of thorax and breast black. Thorax broader than long, sides somewhat rounded, with a tooth behind anterior angles, another in middle, a third small one behind middle, and a fourth at posterior angle; side margin of elytra raised. L.  $1\frac{1}{2}$ —2 l. Scarce.

*P. dermestoides*, Fab.

- B. Fourth (hindmost) tooth on side of thorax nearer to third tooth than to posterior angles.

Narrower than *P. dermestoides*, more shiny, with punctuation rather stronger and closer, and front depression more distinct; legs stouter, antennae longer, especially third joint. Light brown-red, elytra reddish-yellow. Thorax about as broad as long, sides slightly rounded, with four teeth. L.  $1\frac{1}{2}$ —2 l. Rare.

*P. depressus*, Herbst.

## *Psammoechus*.

Head blackish, vertex reddish-yellow; thorax reddish-yellow; elytra yellow, with a round spot behind middle and apex of suture black. Elytra with strong punctured striae. L.  $1\frac{1}{4}$  l. Common.

*P. bipunctatus*, Fab.

*Silvanus.***A.** Side margin of thorax with six teeth.

Brown; pubescence rather close, yellowish-gray. Thorax with two deep longitudinal furrows separated and bounded by three raised lines; elytra with punctured striae, alternate interstices raised. L.  $1\frac{1}{4}$  l. Rather common.

*S. surinamensis*, Lin.

**B.** Side margin of thorax not toothed.

Anterior angles of thorax produced.

**a.** Thorax with two shallow longitudinal furrows.

Rust-red, dull; pubescence very fine. Head toothed on each side behind eyes; posterior angles of thorax with a little blunt tooth; elytra with close punctured striae, alternate interstices somewhat raised. L.  $1\frac{1}{2}$  l. Scarce.

*S. bidentatus*, Fab.

**b.** Thorax without longitudinal furrows.**I.** Thorax closely and finely punctured, somewhat in wrinkles; sides with two slight emarginations; posterior angles with a little tooth.

Reddish-yellow; pubescence very short. Antennae rather shorter than head and thorax; head with a little tooth on each side behind eyes, forehead finely punctured behind, almost smooth in front; elytra elongate, tolerably parallel-sided, with very close punctured striae, alternate interstices slightly raised. L.  $1\frac{1}{4}$  l. Not uncommon.

*S. unidentatus*, Fab.

**II.** Thorax very closely, deeply punctured; sides scarcely emarginate; posterior angles obtuse.

Brown or brownish-yellow; pubescence extremely short. Antennae nearly as long as head and thorax; head with an extremely small tooth behind eyes, forehead deeply punctured; elytra oblong, almost ovate, with very close punctured striae, feebler at apex, alternate interstices slightly raised. L.  $1\frac{1}{4}$  l. Rare.

*S. similis*, Er.

*Diplocoelus.*

Rather flat, with rather long pubescence. Brown-yellow or brown; head, thorax and base of elytra usually lighter; antennae and legs reddish. Sides of thorax feebly notched,

with two impressed lines near each other; elytra with punctured striae. L.  $1\frac{1}{2}$  l. Scarce. *D. fagi*, Guér.

### *Diphyllus.*

Pitch-black, pubescent; each elytron with a white crescent-shaped spot in middle. Sides of thorax very feebly notched, with a raised line near them; elytra with deep punctured striae. L.  $1\frac{1}{2}$  l. Not uncommon.

*D. lunatus*, Fab.

### *Nausibius.*

Elongate, flat. Brown-black, rather dull, with fine pubescence. Thorax a little longer than broad, apex a little produced in middle, excised behind eyes, sides with six teeth, apical and basal ones more acute, disc very finely and closely punctured, with two oval depressions behind, base produced in middle; elytra with fine punctured striae, alternate interstices (especially outer ones) slightly raised. L.  $1\frac{1}{2}$  l. Common.

*N. dentatus*, Marsh.

## CRYPTOPHAGIDAE.

**A.** Tarsi apparently with only four joints in both sexes (the fourth joint being very small and hidden in bilobed third one).

Last joint of maxillary palpi fully as long as all the others together; last joint of labial palpi short ovate, truncate at apex.

*Telmatophilus*, Heer.

**B.** Tarsi of male with five joints to front pairs and four joints to posterior pair; all tarsi of female with five joints.

**a.** Hinder point of prosternum fitted into mesosternum; last joint of maxillary palpi conical, scarcely longer than third.

Last joint of labial palpi narrow, long, rather pointed; inner maxillary lobe with a distinct hook at apex.

*Antherophagus*, Knoch.

**b.** Hinder point of prosternum free; last joint of maxillary palpi ovate, as long as second and third.

Last joint of labial palpi ovate, somewhat thickened; inner maxillary lobe with a small hook at apex, hidden



among hairs. Thorax usually much broader than long, with two teeth on side, one at anterior angle, the other at or near middle. *Cryptophagus*, Herbst.

**C.** Tarsi distinctly with five joints in both sexes.

**a.** Antennae inserted at sides of head.

Hinder joint of prosternum free. Palpi as in *Cryptophagus*. Fourth tarsal joint smaller than preceding joints. *Paramecosoma*, Curt.

**b.** Antennae inserted on forehead.

**I.** Tarsal claws split.

Maxillary palpi with third joint thickened and last joint awllike. First tarsal joint shorter than rest.

*Hypocoprus*, Mots.

**II.** Tarsal claws simple.

**1.** Middle joints of antennae alternately larger and smaller; base of thorax bordered.

Second joint of palpi thickened, last joint of maxillary gradually pointed, of labial blunt. Fourth tarsal joint rather smaller than preceding joints. *Atomaria*, Kirby.

**2.** Middle joints of antennae gradually shorter; base of thorax not bordered.

Second joint of palpi rather more thickened than in *Atomaria*. Fourth tarsal joint rather smaller than preceding joints. *Ephistemus*, Westw.

### *Telmatophilus*.

**A.** Elytra brownish-yellow, suture, side margin and spot round scutellum blackish.

Oblong, somewhat convex. Head and thorax pitchy-brown; antennae and legs reddish, former darker toward apex. Thorax rather broader than long, evenly and slightly rounded at sides, finely and closely punctured, posterior angles right angles. L.  $1\frac{1}{4}$  l. Rare. *T. sparganii*, Heer.

**B.** Elytra unicolorous, dark-brown or black.

**a.** Posterior angles of thorax obtuse.

Only slightly convex. Black or brownish-black; antennae, legs and apex of abdomen rust-red. Thorax much broader than long, evenly and slightly rounded at sides.

L. 1 l. Not very common. *T. typhae*, Fall.

**b.** Posterior angles of thorax right angles.

**I.** Thorax about as long as broad.

**1.** Sides of thorax slightly rounded; body convex.

Dark brown or black; antennae, legs and last segment of abdomen dark-reddish. Thorax rather more narrowed in front than behind. L. 1— $1\frac{1}{4}$  l. Rather common.

*T. caricis*, Ol.

**2.** Sides of thorax strongly rounded, body rather flat.

Black; antennae and tibiae reddish. L. 1 l. Moderately common.

*T. Schönherri*, Gyll.

**II.** Thorax much broader than long.

Moderately convex. Black; base of antennae and legs dark reddish, femora brown. Sides of thorax rather strongly rounded before middle, where it is broadest. L. 1 l. Rare.

*T. brevicollis*, Aub.

### *Antherophagus.*

**A.** Posterior angles of thorax almost acute; length  $2\frac{1}{3}$  lines.

Oblong-ovate. Reddish-yellow, with thin, extremely short and fine pubescence. Thorax a little narrowed in front. Rather common.

*A. nigricornis*, Fab.

**B.** Posterior angles of thorax almost right angles; length  $1\frac{1}{2}$ —2 lines.

**a.** Head, thorax and base of elytra covered with long, close pubescence.

Oblong. Red-yellow, dull. Thorax rather more strongly punctured than in *A. nigricornis*, not narrowed in front. Anterior tibiae produced into a pointed tooth at apex. L.  $1\frac{1}{2}$ —2 l. Rare.

*A. silaceus*, Herbst.

**b.** Whole upper-side evenly and thinly covered with short, fine pubescence.

Oblong. Red-yellow. Apex of anterior tibiae forming a right angle only. L.  $1\frac{1}{2}$  l. Moderately common.

*A. pallens*, Ol.

### *Cryptophagus.*

**A.** Club of antennae distinctly three-jointed.

**a.** Thorax with a little tooth in or near middle of side.

**I.** Thorax with callous prominences on disc.

**1.** Apex of anterior tibiae produced into a sharp tooth on outer-side.

Oblong, convex. Red-brown, with rough gray pubescence and rows of bristles on elytra. Antennae with first two joints of club equal in breadth, last joint rather narrower; thorax with anterior angle dilated, forming a sharp tooth behind, side with second, pointed tooth close before middle; posterior angles obtuse, sides not thickened. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common. *C. lycoperdi*, Herbst.

**2.** Apex of anterior tibiae not produced.

**A A.** Thorax with anterior angle forming no, or only a very blunt tooth; sides thickened.

Side of thorax with a small, blunt tooth before middle, very finely notched behind; posterior angles obtuse; a fine longitudinal fold above scutellum.

**a a.** Club of antennae not sharply separate, its first joint being narrower than others; punctuation of elytra not in rows.

Oblong, not very convex. Red-brown, with rough gray pubescence and rows of bristles on elytra. Thorax with anterior angle only slightly dilated and forming no tooth, callous prominences feeble; elytra gradually narrowed behind. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Rare. *C. Schmidtii*, Sturm.

**b b.** Club of antennae distinctly separate, its first joint being almost as broad as second; punctuation of elytra almost in rows.

Oblong-ovate, rather broader than *C. Schmidtii*, with longer pubescence and rather coarser punctuation. Red-brown or yellow-brown. Thorax with anterior angles dilated and flat, forming a very blunt tooth. L.  $1\frac{1}{4}$  l. Rare. *C. setulosus*, Sturm.

**B B.** Thorax with anterior angle forming a distinct tooth; sides not thickened.

**a a.** Elytra brown-red.

**A a.** Elytra oblong-ovate.

Oblong-ovate, slightly convex. Brown-red; pubescence

yellow-gray, not very short, moderately close. Club of antennae with joints equal in breadth; thorax with anterior angles not sensibly dilated, side with an obtuse angle in middle, with a little blunt tooth at its apex, very finely notched behind, posterior angles obtuse, a small longitudinal fold above scutellum, punctuation close and deep. L.  $1-1\frac{1}{3}$  l. Scarce. *C. pilosus*, Gyll.

**B b.** Elytra oval.

Similar to *C. pilosus* but with more oval elytra, of which the pubescence is longer and the punctuation coarser and not so close, especially at base. Rare.

*C. punctipennis*, Bris.

**b b.** Elytra pitch-black, with shoulders and an ill-defined apical spot lighter.

Elongate, sub-cylindrical. Pitchy-red; elytra as above; antennae and legs red. Thorax transverse, scarcely narrowed toward base, tooth at anterior angles slightly more projecting and more acute behind than in *C. pilosus*, that in middle of side broader and not so sharp, lateral margin more distinctly notched behind, punctuation not very close, rather deep, on elytra in tolerably regular rows. L. 1 l. Rare.

*C. ruficornis*, Steph.

**II.** Thorax without callous prominences on disc.

**1.** Thorax with a raised fold above scutellum.

**A A.** Anterior angles of thorax forming no distinct tooth.

Short and broad, slightly convex. Brown-red, pubescence short, yellowish-gray. Thorax with anterior angles a little dilated and flat, side with a blunt tooth before middle, indistinctly notched behind, posterior angles obtuse, punctuation moderately close and deep, sides somewhat thickened; elytra finely punctured. L.  $1-1\frac{1}{4}$  l. Not uncommon.

*C. saginatus*, Sturm.

**B B.** Anterior angles of thorax forming an obtuse tooth.

Lateral pointed tooth of thorax in middle of side, posterior angles sharp, right angles.

**a a.** Thorax with anterior angles not dilated, sides very finely notched behind.

Oval, rather convex. Black; mouth, antennae, legs and elytra brown-red; pubescence close, short, yellowish-gray. Elytra short ovate, rather closely and finely punctured. L.  $\frac{3}{4}$  l. Moderately common. *C. umbratus*, Er.

**b b.** Thorax with anterior angles dilated, with a shallow depression; sides very distinctly notched behind.

Oblong oval, rather convex. Brown-red; elytra (except base) black; pubescence short, not very close, brownish-yellow. Elytra ovate, finely and not very closely punctured. L. 1 l. Common. *C. scanicus*, Lin.

**C C.** Anterior angles of thorax forming a distinct tooth, directed backward.

Thorax narrowed behind; posterior angles obtuse; anterior angles much dilated, with a depression.

**a a.** Punctuation close.

Lateral tooth on thorax small, placed in middle of side.

**A a.** Length 1— $1\frac{1}{3}$  line.

Oblong-ovate, slightly convex. Brown-red; pubescence thin and short. Sides of thorax very indistinctly notched behind; elytra punctured somewhat in wrinkles toward base. Rare. *C. badius*, Sturm.

**B b.** Length  $1\frac{1}{2}$  lines.

Oblong-ovate, thinly pubescent. Rust-brown; eyes black, elytra dark brown, with sides rust-brown or chestnut-brown; legs rust-red; antennae brown, club dull red. Thorax rather broader than long, obtusely bidentate on sides. Scarce. *C. populi*, Payk.

The variety *grandis*, Kr. has the elytra entirely rust-brown.

**b b.** Punctuation not close.

Oblong, convex. Reddish-yellow; antennae brownish-red, club lighter; pubescence moderately close, short, whitish. Lateral tooth on thorax small, placed close before middle, sides indistinctly notched behind. L.  $\frac{3}{4}$  l. Rare.

*C. fuscicornis*, Sturm.

**2.** Thorax without a raised fold above scutellum.

**A A.** Body oblong or elongate.

**a a.** Pubescence long.

Lateral tooth on thorax in middle of side, which is indistinctly notched behind.

**A a.** Pubescence rough, stronger hairs on elytra not conspicuous; anterior angles of thorax a little dilated, with a depression and forming a blunt tooth behind.

Convex. Reddish-yellow. Thorax not sensibly narrowed behind, posterior angles obtuse, punctuation very close, rather strong and deep. L.  $\frac{3}{4}$ —1 l. Moderately common. *C. affinis*, Sturm.

**B b.** Pubescence recumbent, with distinct rows of stronger hairs on elytra; anterior angles of thorax only slightly dilated, without depression and forming a very blunt tooth behind.

Rather flat. Brownish-yellow. Thorax slightly narrowed behind, posterior angles sharp, almost right angles, punctuation close and fine. L. 1—1 $\frac{1}{3}$  l. Common. *C. cellaris*, Scop.

**b b.** Pubescence not long.

**A a.** Anterior angles of thorax with a sharp tooth behind.

Lateral tooth on thorax in middle of side, which is very finely notched behind; punctuation very close, rather fine.

**A 1.** Thorax half as broad again as long.

Elongate. Rather flat. Reddish-yellow; pubescence close, gray. Thorax gradually narrowed behind, anterior angles strongly dilated, with a depression and a hooked tooth behind. L. 1 $\frac{1}{4}$  l. Common. *C. acutangulus*, Gyll.

**B 1.** Thorax about as long as broad.

Elongate, slightly convex. Dark red-yellow; pubescence thin, golden-yellow. Thorax neither rounded at sides nor narrowed behind, anterior angles dilated and flat, with a pointed tooth, posterior angles sharp right angles. L. 1 $\frac{1}{2}$  l. Rare. *C. fumatus*, Gyll.

**B b.** Anterior angles of thorax with a blunt, or without any, tooth behind.

Sides of thorax very finely notched behind.

**A 1.** Elytra dilated behind middle; posterior angles of thorax obtuse.

Slightly convex. Brown-red; pubescence golden-yellow. Anterior angles of thorax dilated, with a slight depression, forming no tooth behind, lateral tooth very feeble, in middle of side, punctuation close. L.  $1\frac{1}{2}$  l. Rare.

*C. validus*, Kr.

**B 1.** Elytra parallel-sided; posterior angles of thorax sharp right angles.

**a 1.** Lateral tooth on thorax before middle of side.

Reddish-yellow; pubescence yellowish-gray. Thorax not rounded at sides, a little narrowed behind, anterior angles slightly dilated, punctuation close. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Common.

*C. dentatus*, Herbst.

**b 1.** Lateral tooth on thorax in or slightly behind middle of side.

Similar to *C. dentatus*, but narrower and more elongate, with elytra much more finely and closely punctured. L.  $\frac{3}{4}$  l. Rare.

*C. parallelus*, Bris.

**B B.** Body nearly oval, broad.

Thorax parallel-sided, sides indistinctly notched behind, punctuation fine.

**a a.** Lateral tooth on thorax pointed, placed somewhat behind middle of side.

Slightly convex. Reddish or brownish-yellow; pubescence short, rather close, gray. Anterior angles of thorax not prominent, but forming a more or less pointed tooth, posterior angles obtuse. L.  $\frac{3}{4}$  l. Not uncommon.

*C. distinguendus*, Sturm.

**b b.** Lateral tooth on thorax blunt, placed before middle of side.

Slightly convex. Darker or lighter brown, elytra brownish-yellow; pubescence short, rather close, yellow-gray. Anterior angles of thorax but little prominent, scarcely forming a tooth behind, posterior angles almost right angles. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Rather common.

*C. bicolor*, Sturm.

**b.** Thorax without tooth in middle of side.

Nearly ovate, slightly convex. Rust-red; pubescence thin, whitish. Thorax gradually narrowed behind, anterior angles dilated, with a depression and forming a hooked tooth behind, sides very finely notched, posterior angles obtuse, punctuation close and deep; elytra closely, and at base deeply, punctured. L.  $\frac{3}{4}$  l. Common. *C. vini*, Panz.

**B.** Club of antennae apparently two-jointed, the ninth joint being not much broader than eighth, but the tenth and eleventh broad.

Oblong oval, slightly convex. Brownish-yellow; pubescence short, golden-yellow. Thorax nearly as broad as elytra behind, gradually a little narrowed in front, anterior angles scarcely prominent, but with a depression at outer margin and a blunt tooth behind, sides with a blunt tooth in middle, indistinctly notched behind; posterior angles obtuse. L.  $1\frac{1}{4}$  l. Not uncommon. *C. pubescens*, Sturm.

### *Paramecosoma.*

**A.** Side of thorax with two little prominences, one before, the other behind middle.

Black; elytra, antennae and legs brown-red. L.  $\frac{3}{4}$  l. Rather common. *P. melanocephala*, Herbst.

**B.** Sides of thorax sharply notched throughout.

Black or brown, antennae and legs red-brown; pubescence rather rough. L. 1 l. Rare. *P. serrata*, Gyll.

### *Hypocoprus.*

Elongate, linear, rather flat above, somewhat shiny. Black; antennae and legs rust-red; pubescence scarcely perceptible. Thorax oblong-quadrate, slightly broader than head, sides not toothed, base scarcely impressed; elytra obtuse at apex, indistinctly punctured. L.  $\frac{4}{5}$  l. Scarce.

*H. lathridioides*, Mots.

### *Atomaria.*

**A.** Antennae inserted nearer to one another than to eyes.

**a.** Club of antennae formed of two joints only.

Oblong, rather flat. Red-yellow; somewhat shiny; pubescence short, rather close. Thorax nearly as long as broad, sides scarcely rounded, somewhat narrowed in front,



with a fine raised line near side margin, posterior angles right angles, not very convex, closely punctured; elytra with rows of fine bristles. Scarce. *A. ferruginea*, Sahl.

**b.** Club of antennae formed of three equal joints.

**I.** Transverse basal impression on thorax without fold on each side.

**1.** Posterior angles of thorax right angles.

Oblong, rather flat. Yellow-brown; shiny; pubescence fine and scanty. Thorax nearly as broad as elytra, slightly broader than long, sides a little rounded, not narrowed in front, anterior angles pointed and prominent; punctuation fine and diffuse. L.  $\frac{3}{4}$  l. Rare. *A. diluta*, Er.

**2.** Posterior angles of thorax obtuse or rounded.

**A A.** Body nearly cylindrical.

**a a.** Thorax as broad as elytra; last joint of antennae narrower than penultimate.

Blackish or dark brown; shiny; elytra lighter; antennae and legs brown-red; pubescence rather scanty. Thorax as broad as elytra, as long as broad, sides gently rounded, scarcely more narrowed before than behind, convex, punctured closely at sides, rather more diffusely in middle, base narrowly bordered. L. 1 l. Scarce. *A. fimetarii*, Herbst.

**b b.** Thorax slightly narrower than elytra; last joint of antennae as broad as penultimate.

**A a.** Length 1 line.

Oblong, rather shiny, convex, nearly cylindrical. Black, with feeble gray pubescence; antennae and legs rust-red, seventh joint of former not transverse. Thorax scarcely broader than long, slightly narrower than elytra, closely and distinctly punctured, base evenly bordered; elytra more finely and somewhat unevenly punctured. Antennae longer than in *A. fimetarii*, and thorax less ample; more convex than *A. elongatula*, with elytra rather more strongly punctured. L. 1 l. Very rare; Inverness-shire.

*A. longicornis*, Th.

**B b.** Length  $\frac{2}{3}$ — $\frac{3}{4}$  line.

**A 1.** Punctuation of thorax close.

**a 1.** Thorax strongly or rather strongly punctured.

**A 2.** Thorax not narrowed in front, rather closely punctured; apex of elytra light.

Black or dark brown; shiny; elytra dark brown, shoulders and apex lighter; antennae and legs brown-red; pubescence coarse, not very close. Thorax a little narrower than elytra, sides slightly rounded, convex, rather closely, deeply punctured, anterior angles almost right angles, base strongly bordered. L.  $\frac{3}{4}$  l. Not uncommon. *A. fumata*, Er.

**B 2.** Thorax a little narrowed in front, closely punctured; elytra with a light spot before apex.

Oblong, nearly cylindrical, not very convex. Brown, with fine gray pubescence; elytra with a spot at shoulder and a larger, oblong, oblique spot (sometimes confluent with humeral one) before apex reddish-yellow; antennae and legs rust-red. Thorax somewhat broader than long, a little narrowed in front, with sides slightly rounded, tolerably convex, closely and rather strongly punctured; elytra scarcely broader than thorax, similarly punctured. More parallel-sided and less convex than *A. fumata*. L.  $\frac{3}{4}$  l. Not uncommon. *A. Barani*, Bris.

**b 1.** Thorax finely punctured.

Oblong, nearly cylindrical. Brown; antennae and legs rust-red; not very strongly, rather closely punctured, with fine gray pubescence. Thorax a little narrower than elytra, scarcely narrowed in front, convex, base evenly bordered. Closely allied to *A. nana* but with upper-side more closely and much more finely punctured, pubescence much shorter and more delicate. Pubescence more delicate than in *A. fumata*, antennae longer and thinner. L.  $\frac{2}{3}$  l. Rare.

*A. Wollastoni*, Sharp.

**B 1.** Punctuation of thorax diffuse.

Black or dark brown; shiny; elytra dark brown, shoulders and apex lighter; antennae brown-red; legs red-yellow; pubescence rather coarse. Thorax rather narrower than elytra, a little narrowed in front, sides slightly rounded, convex, diffusely and deeply punctured, all angles obtuse, the posterior pair almost rounded. L.  $\frac{2}{3}$  l. Not uncommon.

*A. nana*, Er.

**B B.** Body rather flat, elongate.

**a a.** Thorax as long as broad, as wide as elytra.

Elongate, linear, flat. Lighter or darker brown; rather shiny; antennae red-brown; legs reddish-yellow; pubescence scanty, short, close-lying. Thorax parallel-sided, closely and finely punctured, base finely bordered. L.  $\frac{2}{3}$  l. Common. *A. linearis*, Steph.

**b b.** Thorax one-third broader than long, rather narrower than elytra.

Brown, elytra usually lighter; antennae brown-red; legs reddish-yellow; pubescence scanty, very short. Thorax with sides gently rounded, a little more narrowed in front than behind, slightly arched, very closely punctured, base finely bordered, anterior angles somewhat prominent. L.  $\frac{3}{4}$  l. Moderately common. *A. elongatula*, Er.

**c c.** Thorax nearly as long as broad, much narrower than elytra.

Oblong, tolerably flat. Light red-brown; shiny; legs reddish-yellow; pubescence moderately thick, short, close-lying. Thorax much narrower than base of elytra, only a little broader than long, parallel-sided, slightly arched, closely and finely punctured, anterior angles somewhat prominent, basal impressions distinct, posterior angles obtuse; elytra broader than in *A. elongatula* and rather more strongly punctured. L.  $\frac{4}{5}$  l. Very rare; Braemar. *A. badia*, Er.

**II.** Transverse basal impression on thorax with a fold on each side.

Oblong, rather flat. Brown, shiny; shoulders and apex of elytra rather lighter; antennae brown-red; legs red-yellow; pubescence rather coarse, short. Thorax almost as broad as elytra, only a little broader than long, gradually narrowed in front, sides very slightly rounded, nearly flat, moderately closely and finely punctured, anterior angles depressed, posterior angles right angles; elytra punctured almost in rows. L.  $\frac{3}{4}$  l. Rather common.

*A. umbrina*, Gyll.

**b.** Antennae placed farther from each other than from eyes.

**I.** Posterior margin of thorax simply rounded.

**1.** Anterior angles of thorax not acute.

**A A.** Posterior margin of thorax not raised in middle.

**a a.** Antennae yellowish-brown.

Oblong, slightly convex. Black; elytra with shoulders, apex and generally side margin reddish; antennae yellowish-brown; legs pitch-black, base of tibiae yellow-brown. Thorax transverse, rather narrower than elytra, transversely impressed at base, sides slightly rounded. L.  $\frac{7}{8}$  l. Not uncommon. *A. peltata*, Kr.

**b b.** Antennae black-brown.

Oblong, slightly convex. Black; base of tibiae yellow. Thorax rather narrower than elytra, broader than long, narrowed in front, sides rounded, posterior angles obtuse; elytra oblong-ovate; elytra more finely punctured than in *A. peltata*, and third, fifth and seventh joints of antennae shorter. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Common. *A. fuscipes*, Gyll.

**B B.** Posterior margin of thorax more or less raised in middle.

**a a.** Thorax yellow-red.

**A a.** Punctuation indistinct; length  $\frac{1}{2}$  line.

Oval, rather flat. Light red-yellow; shiny; base of elytra and more or less of under-side brownish; pubescence short, fine, close lying. Thorax nearly as broad as elytra, not narrower in front than behind, sides rounded before middle, slightly arched, finely punctured, base rather broadly bordered, border rather higher in middle than at sides, all angles obtuse. Common. *A. pusilla*, Payk.

**B b.** Punctuation distinct; length  $\frac{2}{3}$  line.

**A 1.** Abdomen black-brown.

Oblong oval, rather convex, somewhat shiny, with short, fine pale pubescence. Red-yellow; breast and scutellum black; vertex of head and abdomen black-brown; sometimes with thorax brown and elytra with a short line near scutellum and middle of side margin blackish. Thorax a little narrower in middle than elytra, punctured closely on disc, finely in front, more diffusely and strongly at sides and base, basal border slightly raised in middle; elytra distinctly, rather unevenly punctured; third, fifth and seventh joints of antennae oblong and equal in length. L.  $\frac{2}{3}$  l. Common. *A. atricapilla*, Steph.

**B 1.** Abdomen red-yellow.

Nearly ovate, convex, shiny, with rather close, very fine pubescence. Red-yellow; sides of thorax, base of elytra and the breast pitch-brown. Thorax nearly twice as broad as long, scarcely narrower than elytra, wider at base than at apex, punctured finely and closely, more diffusely at base, more strongly at sides, with a tolerably deep impression in middle of base, basal border somewhat raised in middle; elytra oval, diffusely and rather strongly punctured. L.  $\frac{2}{3}$  l. Moderately common. *A. berolinensis*, Kr.

**b b.** Thorax black or dark-brown.

**A a.** Middle of posterior margin of thorax strongly raised.

**A 1.** Anterior angles of thorax somewhat prominent.

Oval, slightly convex. Black, red-brown or yellow-brown; apex of elytra gradually changing to reddish-brown; antennae reddish; abdomen and legs brown, base of tibiae and the tarsi yellow. Thorax fully half as broad again as long, gently rounded at sides, a little more narrowed in front than behind, posterior angles almost right angles; elytra broadest in middle, rather closely and finely punctured. L.  $\frac{2}{3}$  l. Common. *A. fuscata*, Schönh.

**B 1.** Anterior angles of thorax not prominent.

**a 1.** Thorax half as broad again as long, considerably narrower than the elytra, sides feebly rounded.

Ovate, convex. Black; shiny; elytra red-brown, basal third-part blackish, limits of the colours not sharply defined; antennae and legs brown-red. Thorax about half as broad again as long, sides slightly rounded, broadest before middle, but not more narrowed behind than in front, gently arched, basal border more strongly raised in middle, angles somewhat obtuse; elytra broadest before middle, very closely punctured. L.  $\frac{3}{4}$  l. Moderately common.

*A. basalis*, Er.

**b 1.** Thorax at most one quarter broader than long, only a little narrower than elytra, sides distinctly rounded.

Ovate, convex. Deep black; rarely red-brown or yellow-brown; shiny; apex of elytra more or less red-brown; antennae reddish-yellow, club brownish; legs light brown, base of tibiae and the tarsi yellow. Pubescence rather thinner than in *A. fuscata*; thorax more rounded at sides, anterior angles depressed, posterior angles obtuse; elytra strongly punctured, broadest before middle, somewhat pointed at apex. L.  $\frac{2}{3}$  l. Very rare; Leigh. *A. atra*, Herbst.

**B b.** Middle of posterior margin of thorax only feebly raised.

**A 1.** Elytra black, with a common triangular spot on middle of disc and usually also the apex brownish-yellow.

Short oval, convex. Black; shiny; elytra as above; antennae brown-red; abdomen and legs yellow. Thorax a little narrower than elytra; about half as broad again as long, sides nearly straight, only a little rounded before middle, and thence narrowed in front, convex, base with a transverse impression with a little fold at each end, posterior angles almost right angles; punctuation tolerably close and strong. L.  $\frac{2}{3}$  l. Rather common. *A. gutta*, Steph.

**B 1.** Elytra black-brown, lighter at apex.

Oval, moderately convex. Black brown; rather shiny; apex of elytra lighter; antennae and legs red-brown. Thorax convex, sides slightly rounded; elytra moderately closely and rather strongly punctured. L.  $\frac{2}{3}$  l. Rare.

*A. rhenana*, Kr.

**C 1.** Elytra black from base until nearly beyond middle, and bright yellow behind, the junction of the colours tolerably sharply defined, oblique.

Oval, convex. Black or dark-brown; shiny; elytra as above; antennae and legs red-yellow. Thorax narrower than elytra, fully half as broad again as long, sides rounded, broadest before middle, rather more narrowed behind than in front, moderately convex, all angles obtuse; punctuation close and distinct. L.  $\frac{2}{3}$  l. Common. *A. mesomelas*, Herbst.

**2.** Anterior angles of thorax acute, almost enclosing eyes.

**A A.** Basal transverse impression on thorax with a fold on each side.

**a a.** Thorax closely and finely punctured; length  $\frac{1}{2}$ — $\frac{3}{4}$  line.

Oblong oval, slightly convex. Red; scutellum, elytra (except apex and breast) black; legs yellow. Thorax considerably narrower than elytra, sides slightly rounded, narrowed from middle forward, convex, closely and finely punctured, base with transverse impression with a little fold at each end, basal border not more raised in middle than at sides, posterior angles almost right angles. L.  $\frac{1}{2}$ — $\frac{3}{4}$  l. Rather common. *A. munda*, Er.

**b b.** Thorax rather diffusely and moderately finely punctured; length 1 line.

Oblong oval, slightly convex. Darker or lighter brown; shiny; shoulders and apex of elytra lighter; breast, abdomen and antennae brown-red; legs reddish-yellow. Thorax a little narrower than elytra, sides slightly rounded and finely bordered, gradually somewhat narrowed in front, rather diffusely, moderately finely punctured, base with transverse impression (deeper than in *A. umbrina*) with a little fold at each end, basal border not more raised in middle than at sides, anterior angles pointed, depressed, posterior angles right angles. L. 1 l. Rare.

*A. impressa*, Er.

**B B.** Basal transverse impression on thorax without a fold on each side.

Rather broad oval, convex. Bright red; shiny; elytra deep black, shoulders and apex often brownish; legs red-yellow; pubescence scarcely visible. Thorax nearly half as broad again as long, rather narrower than elytra, sides rounded, narrowed in front, diffusely and very finely punctured, base transversely impressed in middle, basal border more strongly raised in middle than at sides, posterior angles nearly right angles. L.  $\frac{2}{3}$  l. Moderately common.

*A. nigripennis*, Payk.

**II.** Posterior margin of thorax bisinuate.

**1.** Base of thorax not bordered; elytra entirely black.

Oblong oval, rather pointed before and behind. Black; antennae and legs rust-red; very shiny, nearly bare, punctation diffuse and fine. Thorax broad, strongly convex, with a deep transverse depression in middle of base, sides

very finely bordered and scarcely rounded ; elytra diffusely and not very distinctly punctured. L. 1 l. Rare.

*A. Hislopi*, Woll.

**2.** Base of thorax more or less distinctly bordered ; elytra partly reddish or yellow.

**A A.** Thorax closely or moderately closely punctured.

**a a.** Body ovate, convex.

Ovate, convex. Pitch-brown or brown ; shiny ; shoulders and apex of elytra lighter ; legs red-yellow. Thorax narrower than elytra, about one-third broader than long, gradually narrowed in front, sides scarcely rounded and very finely bordered, very slightly convex, closely and finely punctured, basal border only slightly more raised in middle than at sides, posterior angles almost right angles ; elytra broadest before middle, somewhat pointed at apex. L.  $\frac{2}{3}$  l. Moderately common.

*A. apicalis*, Er.

**b b.** Body oblong oval, only slightly convex.

**A a.** Length  $\frac{3}{4}$  line.

Oblong oval, slightly convex. Black ; shiny ; elytra with shoulders brown and apex yellow ; antennae brown-red ; abdomen brown ; legs pale brown, base of tibiae and the tarsi yellow. Thorax almost as broad as elytra, not much broader than long, gradually narrowed in front, sides very slightly rounded in middle, anterior angles pointed, depressed, posterior angles almost right angles. Rather common.

*A. analis*, Er.

**B b.** Length  $\frac{1}{2}$  line.

Oblong oval, slightly convex, with short very fine pubescence. Black, shiny ; head and apex of elytra (broadly) reddish ; antennae and legs rust-red, fifth and seventh joints of former scarcely larger than the adjoining ones. Thorax closely and very finely punctured ; elytra nearly ovate ; indistinctly punctured. Body more oblong than in *A. apicalis*, less convex, more shiny, pubescence more scanty, thorax a little longer, more closely and finely punctured ; antennae a little shorter than in *A. analis*, thorax with transverse basal impression shallower, base less distinctly bisinuate, disc more closely but less strongly punctured. Common.

*A. ruficornis*, Marsh.

**B B.** Thorax very diffusely punctured.



Oval, slightly convex. Brown-red; very shiny; elytra with basal half (except shoulders) black, apical half yellowish-red; antennae and legs reddish-yellow. Thorax rather narrower than elytra, not much broader than long, gradually narrowed in front, sides slightly rounded before middle and finely bordered, posterior angles sharp right angles. L.  $\frac{4}{5}$  l. Moderately common. *A. versicolor*, Er.

### *Ephistemus.*

**A.** Body globose ovate; length  $\frac{4}{5}$  line.

Pitch-brown or blackish; antennae and legs yellow-red. Thorax half as broad again as long. Punctuation of thorax diffuse, rather fine, that of base of elytra rather more diffuse but coarse. Moderately common. *E. globosus*, Waltl.

**B.** Body oval, moderately convex; length  $\frac{1}{2}$ — $\frac{2}{3}$  line.

**a.** Apex of thorax emarginate on each side, anterior angles very prominent.

Black; apex of elytra lighter; antennae and legs reddish-yellow. Thorax about twice as broad as long. L.  $\frac{2}{3}$  l. Common. *E. gyrinoides*, Marsh.

**b.** Apex of thorax simply emarginate, anterior angles prominent.

Black; apex of elytra gradually pitch-brown, antennae reddish-yellow, legs yellow. Rather more convex than *E. gyrinoides*; thorax about twice as broad as long. L.  $\frac{1}{2}$  l. Rare. *E. globulus*, Payk.

### *EROTYLIDAE.*

**A.** Tarsi distinctly five-jointed, joints simple.

Antennae with three longer apical joints; last joint of palpi oval; ligula horny, rounded, fringed. Body oblong oval. *Engis*, Fab.

**B.** Tarsi apparently four-jointed, third joint bilobed.

**a.** Body oblong.

Antennae with an oblong, three-jointed, rather loosely articulated club; last joint of maxillary palpi hatchet-shaped, of labial palpi oval; ligula horny, rather narrow in front, with long hairs at side. *Triplax*, Payk.

**b.** Body oval.

Antennae with three large, closely articulated apical joints; mouth parts as in *Triplax*, but with very short hairs on margin of ligula. Tibiae spined. *Tritoma*, Fab.

### *Engis.*

**A.** Thorax red-yellow.

Black; head, thorax, a spot on shoulders of elytra, antennae and legs red-yellow. L.  $1\frac{1}{2}$  l. Not uncommon.

*E. humeralis*, Fab.

**B.** Thorax pitch-black.

Pitch-black; head, a spot at shoulder and the apex of elytra, antennae and legs rust-red. L.  $1\frac{1}{3}$  l. Common.

*E. rufifrons*, Fab.

### *Triplax.*

**A.** Head and abdomen red-yellow; antennae black.

**a.** Elytra black.

Thorax red-yellow; breast often black. Elytra with punctured striae and extremely finely punctured interstices. L. 3 l. Common.

*T. russica*, Lin.

**b.** Elytra greenish-blue.

Thorax and breast red-yellow. Elytra punctured in rows, interstices indistinctly punctured. L.  $1\frac{3}{4}$ — $2\frac{1}{2}$  l. Moderately common.

*T. aenea*, Payk.

**B.** Head and abdomen black; antennae rust-brown.

Black; thorax red, apex of abdomen pitch-brown; legs dark red. L.  $2\frac{1}{2}$  l. Rare.

*T. Lacordairei*, Crotch.

### *Tritoma.*

Black, shiny; elytra with a large red spot at shoulder; thorax sometimes red. L.  $1\frac{3}{4}$  l. Rather common.

*T. bipustulata*, Fab.

## COCCINELLIDAE.

**A.** Socket holes of anterior coxae closed.

**a.** Upper-side of body not pubescent.

**I.** Antennae not very short.

Base of antennae not covered; labrum distinct.

- 1.** Scutellum distinct; ligula truncate or only very slightly emarginate.

**A A.** Raised sides of intercoxal process not continued on to first abdominal segment itself.

Body oblong; legs slender; posterior femora reaching beyond margin of elytra; tarsal claws split behind middle. Mouth parts as in *Coccinella*. *Hippodamia*, Muls.

**B B.** Raised sides of intercoxal process continued on to abdominal segment itself.

Mandibles broad, apex forked, inner margin with a hooked tooth near base and an excision before it; lobes of maxillae about equal in length, hairy at apex.

*Coccinella*, Lin.

- 2.** Scutellum very small; ligula deeply emarginate in front.

Mandibles as in *Coccinella*; tarsal claws with a large broad tooth at base; elytra not much broader at base than thorax.

*Micraspis*, Redt.

**II.** Antennae very short.

- 1.** Head broad, its anterior margin enclosing eyes and covering base of antennae.

Antennae with nine joints, club spindle-shaped; scutellum not very small; apex of mandibles simple, their inner margin with a fine fringed membrane, a large tooth before base and an excision in front of this; ligula bluntly rounded; tarsal claws with a broad tooth at base.

**A A.** Tibiae with a small tooth on outer-side above middle; labrum scarcely visible.

Clypeus deeply emarginate, with raised border.

*Chilocorus*, Leach.

**B B.** Tibiae not toothed; labrum distinct.

Clypeus not, or only very slightly emarginate, without raised border.

*Exochomus*, Redt.

- 2.** Head narrowed in front, its anterior margin not enclosing eyes and not covering base of antennae.

Antennae eleven-jointed; mouth parts as in *Chilocorus* but apex of mandibles split; scutellum large; tarsal claws with a broad tooth at base.

*Hyperaspis*, Redt.

**b.** Upper-side of body pubescent.

**I.** Mandibles free at apex, divided into three or four teeth; antennae reaching base of thorax.

Base of antennae not covered; maxillae as in *Coccinella*; ligula narrowed and rounded in front or not narrowed and truncate; tarsal claws split into two unequal parts, not, or only very indistinctly toothed at base; body winged.

*Lasia*, Muls.

**II.** Mandibles covered, with apex split; antennae very short.

**1.** Head broad, its anterior margin enclosing eyes and covering base of antennae.

Tarsal claws with a large tooth at base; elytra only a little broader than thorax; scutellum elongate triangular.

*Platynaspis*, Redt.

**2.** Head narrowed in front, its anterior margin not enclosing eyes and not covering base of antennae.

Body short oval; mouth parts as in *Chilocorus*, but apex of mandibles split; elytra scarcely broader at base than thorax.

*Scymnus*, Kug.

**B.** Socket holes of anterior coxae open.

**a.** Eyes partly covered; posterior angles of thorax acute.

Body oval; last joint of antennae pointed; elytra confusedly punctured.

*Rhizobius*, Steph.

**b.** Eyes free; posterior angles of thorax right angles.

Body oblong; last joint of antennae obliquely truncate; elytra with irregular rows of punctures. *Coccidula*, Kug.

### *Hippodamia.*

Black; sides of thorax with rather broad, apex with narrow yellow border, former with a black point in middle; elytra red, with a common spot at scutellum and six others on each black. L.  $2\frac{1}{2}$ —3 l. Not common.

*H. 13-punctata*, Lin.

### *Coccinella.*

**A.** Base of last joint of antennae scarcely narrower than apex of penultimate one.

**a.** Tarsal claws simple; scutellum small.

Oblong. Upper-side yellowish; thorax with six black spots; elytra with a common spot at scutellum and nine other spots on each black; legs yellow. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common. *C. 19-punctata*, Lin.

**b.** Tarsal claws split or with a tooth at base; scutellum not very small.

**I.** Raised sides of process of first abdominal segment equally strong throughout and regularly curved in the segment of a circle round coxae.

**1.** Claws split tooth-like in middle.

Oblong oval. Black; thorax with anterior and side margins and three spots (attached to them) on disc yellow; elytra yellowish-red, a triangular common spot at scutellum and several somewhat variable spots on each black; anterior tibiae, part of intermediate tibiae and the tarsi yellow. L.  $1\frac{1}{2}$ — $2\frac{1}{4}$  l. Common. *C. mutabilis*, Scrib.

**2.** Claws dilated into a triangular tooth at base.

**A A.** Legs yellow.

Oblong oval. Upper-side yellowish; thorax with a black M-like marking before scutellum; elytra either entirely yellow or with an oblong spot on each; breast chiefly black. L.  $1\frac{1}{2}$ —2 l. Common. *C. obliterata*, Lin.

**B B.** Legs chiefly black.

Oval. Colour variable; forehead with two light spots, thorax black, always light at sides and usually with two light spots before scutellum; elytra red, with a black spot on each, or black, with a large spot at shoulder, a smaller one behind middle and often a third before apex red. L. 2— $2\frac{1}{2}$  l. Common. *C. bipunctata*, Lin.

**II.** Raised sides of process of first abdominal segment irregularly curved and either disappearing before apical margin of the segment or divided into two branches.

**1.** Mesosternum not emarginate in front.

**A A.** Legs black.

**a a.** Thorax with a more or less quadrangular whitish spot in anterior angles.

**A a.** Elytra red, with a common spot at scutellum and five other spots on each black.

Under-side black, shoulders and hinder part of sides of metathorax whitish. L.  $1\frac{3}{4}$ — $2\frac{1}{4}$  l. Common.

*C. 11-punctata*, Lin.

**B b.** Elytra red, with a common spot at scutellum and three other spots on each black.

**A 1.** Episterna of metathorax entirely black; two outer black spots on each elytron equally distant from margin.

Hemispherical. Black; two spots on forehead, anterior angles of thorax and epimera of metathorax white; elytra red, with seven black spots. Anterior angles of thorax produced and pointed; elytra with a longitudinal impression within each side, reaching a little beyond middle. Sixth ventral segment of abdomen in male with a transverse depression before apex. L.  $2\frac{1}{2}$ —3 l. Common.

*C. 7-punctata*, Lin.

**B 1.** Episterna of metathorax white at apex; two outer black spots on elytra unequally distant from margin.

Similar to *C. 7-punctata* but with anterior angles of thorax rounded although produced, elytra not longitudinally impressed within sides in front, more finely and indistinctly punctured toward suture, metathorax with whole of epimera and apex of episterna white, sixth ventral segment of abdomen in male without any depression. L.  $2\frac{1}{2}$ —3 l. Rare.

*C. labilis*, Muls.

**C c.** Elytra red, with a common spot at scutellum and two other spots on each black.

Almost hemispherical. Head, thorax and under-side black; two spots on forehead, anterior angles of thorax and under-side of shoulders whitish. L.  $1\frac{3}{4}$ —2 l. Not uncommon.

*C. 5-punctata*, Lin.

**b b.** Thorax with a triangular whitish spot in anterior angles.

Rounded oval. Black; elytra either red-yellow, with black spots, more or less connected together or black, with side margin yellow. L.  $1\frac{1}{2}$ —2 l. Rather common.

*C. hieroglyphica*, Liu.

**B B.** Legs pale.

Elytra with a more or less distinct, raised, curved line before apex. Colour extremely variable. L. 2—2 $\frac{1}{4}$  l. Common. *C. variabilis*, Ill.

**2.** Mesosternum distinctly emarginate in front.

Very short oval; upper-side yellow, thorax with seven, elytra with eight black spots, more or less connected; thorax and elytra sometimes black, sides of former yellow, latter with or without some yellow spots; under-side black. L. 1 $\frac{1}{2}$ —2 l. Very rare. *C. impustulata*, Lin.

**B.** Base of last joint of antennae distinctly narrower than apex of penultimate joint.

**a.** Elytra red or reddish-yellow, with whitish or eye spots.

**I.** Thorax with sides or two spots before scutellum lighter than disc.

**1.** Disc of thorax reddish.

**A A.** Elytra with round spots.

Upper-side reddish-yellow-brown, thorax with two whitish spots before scutellum; elytra with nine spots on each. L. 2—2 $\frac{1}{2}$  l. Rather common. *C. 18-guttata*, Lin.

**B B.** Elytra with oblong spots.

Brownish-yellow, sides of thorax and several spots on elytra pale. Tarsal claws split tooth-like in middle. L. 3—3 $\frac{1}{2}$  l. Common. *C. oblongo-guttata*, Lin.

**2.** Disc of thorax black.

Thorax black, with sides and two spots before scutellum white; elytra yellow-red, with several eye spots on each. L. 4 l. Rather common. *C. ocellata*, Lin.

**II.** Thorax reddish, at most with a lighter spot in posterior angles.

**1.** Anterior margin of mesosternum distinctly sinuate.

Upper-side brownish-yellow-red; a spot in posterior angles of thorax and seven spots on each elytron (one close to scutellum, three placed transversely before middle and two behind middle) yellowish-white. L. 2—2 $\frac{1}{2}$  l. Moderately common. *C. 14-guttata*, Lin.

2. Anterior margin of mesosternum not sinuate.

**A A.** Elytra with broad side border.

Each elytron with eight spots, lateral ones attached to whitish side-border. L.  $2\frac{1}{2}$  l. Common. *C. 16-guttata*, Lin.

**B B.** Elytra with narrow side border.

Each elytron with six spots. L.  $1\frac{1}{2}$  l. Scarce.

*C. 12-guttata*, Poda.

**b.** Elytra yellow, with black spots, or black with yellow spots.

**I.** Spots angular, meeting each other at corners.

Thorax with six, elytra with suture and seven spots on each black. L.  $1\frac{1}{2}$ —2 l. Common. *C. 14-punctata*, Lin.

**II.** Spots round, separate.

Thorax with five, each elytron with eleven black spots. L.  $1\frac{1}{2}$ —2 l. Common. *C. 22-punctata*, Lin.

### *Micraspis.*

Upper-side yellow; forehead and thorax with black spots; elytra with black suture and spots, viz.: four in a row near suture and five at side, the third of these large and connected with fourth by a black line. L.  $1\frac{1}{4}$  l. Common. *M. 12-punctata*, Lin.

### *Chilocorus.*

**A.** Head black; abdomen entirely red.

Thorax and elytra black, latter with an oval transverse red spot on each; sides of thorax sometimes reddish; legs black. L.  $1\frac{1}{2}$ —2 l. Moderately common.

*C. renipustulatus*, Scrib.

**B.** Head red; abdomen black, red at sides.

Thorax and elytra black, latter with a narrow, compound, abbreviated band; legs black, knees red. L.  $1\frac{1}{4}$ — $1\frac{3}{4}$  l. Common. *C. bipustulatus*, Lin.

### *Exochomus.*

**A.** Elytra black, with a crescent-shaped spot at shoulder and another in middle of each.

Head black; abdomen red; colour of thorax and legs variable. L.  $1\frac{1}{2}$ —2 l. Common. *E. quadripustulatus*, Lin.



**B.** Elytra unicolorous black.

Black; sides of thorax, abdomen and legs reddish-yellow. Separation of third and fourth joints of antennae indicated only by an excision on inner-side. L.  $1\frac{1}{2}$  l. Rare.

*E. auritus*, Scrib.

***Hyperaspis.***

Black; sides of thorax and a spot near apex of each elytron, rarely also a little spot at shoulder red-yellow, tibiae usually more or less reddish-yellow. Male with forehead, anterior margin of thorax and anterior femora yellow. L.  $1\frac{1}{4}$ — $1\frac{3}{4}$  l. Scarce. *H. reppensis*, Herbst.

***Lasia.***

Upper-side rust-red; thorax usually with black spots; elytra also generally with black spots, variable in position and size, often confluent. L.  $1\frac{1}{2}$ —2 l. Common.

*L. globosa*, Schn.

***Platynaspis.***

Black, hair gray; each elytron with two round red spots; apex of femora, tibiae and tarsi, often also sides of thorax, and in male, the head) and usually anterior femora) red-yellow. L.  $1\frac{1}{4}$  l. Scarce. *P. villosa*, Fourc.

***Scymnus.***

**A.** Raised sides of intercoxal process curved toward apical margin of the abdominal segment and here gradually effaced or continued toward side margin.

**a.** Elytra unicolorous black.

**I.** Antennae and legs reddish-brown.

Short ovate. Black, hair gray. Thorax very finely, elytra rather more distinctly punctured, latter with rather strongly prominent shoulders. L. 1 l. Not uncommon.

*S. nigrinus*, Kug.

**II.** Antennae and legs red-yellow, base of femora usually dark.

Short ovate. Black, hair gray. Punctuation fine. Male with head and thorax (except a black spot before scutellum) yellow-red. L.  $\frac{4}{5}$ —1 l. Moderately common.

*S. pygmaeus*, Fourc.

**b.** Elytra black, with one or two spots on each.

**I.** Raised sides of intercoxal process curved toward apical margin of the abdominal segment, but not reaching it, then continued to near side margin.

Oval. Black, hair gray; each elytron with two orange-yellow spots, one oblique near shoulder, the other transverse behind middle; antennae and legs red-yellow, posterior femora often darker. L.  $\frac{3}{4}$  l. Very rare.

*S. quadrilunulatus*, Ill.

**II.** Raised sides of intercoxal process reaching apical margin of the abdominal segment and there ceasing.

Long oval. Black, hair gray; elytra with one or two round red spots on each; antennae and legs reddish-yellow, femora often partly blackish. Male with head and anterior angles of thorax red-yellow. L.  $1\frac{1}{4}$  l. Common.

*S. frontalis*, Fab.

**B.** Raised sides of intercoxal process evenly curved in a semicircle round coxae.

**a.** Elytra entirely yellow or yellow-brown, or dark at base and margins only.

**I.** Legs pitch-black.

Somewhat ovate. Black, slightly pubescent; elytra bright chestnut-red, suture and entire margin deep black. L.  $\frac{1}{2}$ — $\frac{5}{8}$  l. Not common.

*S. limbatus*, Steph.

**II.** Femora black, tibiae and tarsi reddish or brown.

Oval. Head and thorax varying from blackish to red-brown; elytra reddish, with either all margins or only suture and base blackish; pubescence close, not very fine, gray. Elytra strongly and unevenly punctured. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Common.

*S. discoideus*, Ill.

**III.** Legs red-yellow, tarsal claws black.

Reddish-yellow; head and tarsal claws black; thorax and suture of elytra brown. Smaller, more oval, much more finely and evenly punctured than *S. discoideus*. Very rare.

*S. lividus*, Bold.

**IV.** Legs entirely red-yellow.

Similar to *S. discoideus* but smaller, with pectoral groove obsolete and under-side more thickly and finely punctured;

elytra with the red colour usually darker, broadly margined with black throughout. Not uncommon.

*S. Mulsanti*, Wat.

**b.** Elytra black, with apex broadly red.

Oval. Head and thorax red-yellow, latter with a black spot behind; under-side black, apex of abdomen red. Male with fifth abdominal segment distinctly emarginate. L.  $\frac{2}{3}$  l. Common. *S. haemorrhoidalis*, Herbst.

**c.** Elytra entirely black, or with only extreme apex reddish.

**I.** Head red-yellow.

Short oval, strongly convex. Thorax of male reddish-yellow, with a large black spot at base, of female black, with sides yellow; antennae and legs reddish-yellow, hinder femora usually partly dark. L.  $\frac{2}{3}$ — $\frac{3}{4}$  l. Not uncommon.

*S. capitatus*, Fab.

**II.** Head black.

**1.** Body oblong oval, moderately convex; length  $\frac{3}{4}$  line.

Black; antennae, tarsi and often anterior tibiae reddish-brown. Not uncommon. *S. ater*, Kug.

**2.** Body short oval, strongly convex; length  $\frac{1}{2}$ — $\frac{2}{3}$  line.

Black; mouth, antennae, and apex of femora, tibiae and tarsi yellow. Moderately common. *S. minimus*, Payk.

### *Rhizobius.*

Reddish-yellow-brown, shiny; elytra either unicolorous or with one or more black markings, often united into a common curved band. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Common.

*R. litura*, Fab.

### *Coccidula.*

**A.** Elytra unicolorous yellow-red.

Head and thorax yellowish; breast and often base of abdomen black, apex of latter yellowish. L.  $1\frac{1}{3}$  l. Common.

*C. rufa*, Herbst.

**B.** Elytra yellow-red, with a common black spot at scutellum and two others on each.

Otherwise similar to *C. rufa*. L.  $1\frac{1}{3}$ — $1\frac{1}{2}$  l. Rather common.  
*C. scutellata*, Herbst.

### ENDOMYCHIDAE.

**A.** Antennae inserted between eyes.

**a.** Prosternum with a process between anterior coxae.

Antennae with three larger apical joints ; mandibles with split apex ; lobes of maxillae about equal in length, horny, hairy at apex ; last joint of maxillary palpi hatchet-shaped ; ligula straight in front, with a broad membranous border.

*Endomychus*, Panz.

**b.** Prosternum not produced between coxae.

Antennae either gradually slightly thickened or with two larger apical joints ; mandibles with simple apex and a little tooth below it ; lobes of maxillae leathery, inner one much shorter and narrower than outer ; last joint of maxillary palpi long oval, bluntly pointed ; ligula very short, hairy at sides.

*Lycoperdina*, Latr.

**B.** Antennae inserted before eyes.

**a.** Antennae eleven-jointed, thorax with a longitudinal impression on each side.

**I.** Club of antennae with its first joint much smaller than second ; mandibles three-toothed.

Labrum straight in front ; lobes of maxillae about equal in length ; second and third joints of labial palpi about equal in thickness.

*Mycetaea*, Steph.

**II.** Club of antennae with its first joint as large as second ; mandibles two-toothed.

Labrum very slightly emarginate in front ; inner lobe of maxillae very short ; last joint of labial palpi much thicker than second.

*Symbiotes*, Redt.

**b.** Antennae ten-jointed ; thorax without lateral impressions.

Body globular ; antennae ten-jointed, with three larger apical joints ; mandibles split at apex, finely notched below it ; maxillae with one horny lobe, hairy at apex ; ligula horny, dilated toward apex.

*Alexia*, Steph.

*Endomychus.*

Bright-red ; head, a longitudinal line in middle of thorax, scutellum, two large spots on each elytron, sides of breast, antennae and legs (except tarsi) black. Thorax narrowed in front, anterior angles very prominent. L.  $2\frac{1}{2}$  l. Rather common. *E. coccineus*, Lin.

*Lycoperdina.*

Black or pitch-brown ; antennae, sometimes margins of thorax, rarely legs red-brown. Thorax broadest before middle, narrowed behind, with an impressed line on each side ; elytra with an impressed line beside suture, broadest before middle, rather pointed at apex. L.  $2\frac{1}{4}$  l. Not common. *L. bovistae*, Fab.

*Mycetaea.*

Reddish or yellow-brown, shiny ; pubescence rather long. Punctuation of thorax feeble, that of elytra coarse and placed in more or less regular rows. L.  $\frac{3}{4}$  l. Common. *M. hirta*, Marsh.

*Symbiotes.*

Reddish-brown, shiny. Thorax twice as broad as long, impunctate, sides broadly separate, indistinctly notched ; elytra with finely and closely punctured striae, interstices impunctate. L.  $\frac{3}{4}$  l. Moderately common. *S. latus*, Redt.

*Alexia.*

Reddish-yellow-brown, rather closely and strongly punctured. Upper-side covered with very long, fine upright hairs. L.  $\frac{1}{2}$  l. Common. *A. pilifera*, Müll.

**LATHRIDIIDAE.****A.** Eyes absent.

Antennae apparently ten-jointed, with the last joint forming a thick knob. Palpi rather thick, last joint longer than all the rest together. *Anommatus*, Wesm.

**B.** Eyes present.

**a.** Antennae ten-jointed, last joint forming a thick knob. Labrum rounded in front ; apex of mandibles two-

toothed ; maxillae with two lobes ; third joint of maxillary palpi large and thick, last joint rather shorter and much thinner ; ligula somewhat dilated at apex.

*Monotoma*, Herbst.

**b.** Antennae eleven-jointed, with two nearly equal larger apical joints.

Labrum rounded in front ; apex of mandibles two-toothed ; maxillae with two lobes ; third joint of maxillary palpi shorter than second but as thick, last joint conical ; ligula rounded in front. *Holoparamecus*, Curt.

**c.** Antennae eleven-jointed, with three larger apical joints.

**I.** Apex of mandibles simple ; thorax with separate side border more or less raised.

Labrum straight in front ; maxillae with one lobe ; third joint of maxillary palpi rather smaller and shorter than second, last joint almost as long as second and third together ; ligula scarcely distinct from mentum ; labial palpi apparently two-jointed. *Lathridius*, Herbst.

**II.** Apex of mandibles two-toothed ; thorax without separate side border.

Labrum emarginate in front ; maxillae and palpi as in *Lathridius* ; ligula pointed in front. *Corticaria*, Marsh.

### *Anommatus.*

Red-yellow, shiny. Thorax diffusely and strongly punctured, on middle of disc almost in rows ; each elytron with six rows of large, deep punctures, standing in shallow striae and effaced at apex. L.  $\frac{3}{4}$  l. Scarce.

*A. duodecimstriatus*, Müll.

### *Monotoma.*

**A.** Head and thorax coarsely punctured.

**a.** Thorax considerably narrowed in front.

Thorax with prominent anterior angles, distinctly notched sides and two depressions at base.

**I.** Elytra not much broader than thorax.

**1.** Thorax much longer than broad.

Pitch-black ; thorax and elytra brown ; antennae and

legs rust-red. Elytra broadest at shoulders. L.  $1\frac{1}{4}$  l. Moderately common. *M. angusticollis*, Gyll.

**2.** Thorax only a little longer than broad.

Lighter or darker brown. Elytra broadest in middle. L.  $1\frac{1}{4}$  l. Moderately common. *M. formicetorum*, Th.

**II.** Elytra much broader than thorax.

Pitch-black; elytra brown, with reddish shoulders; antennae and legs rust-red. Thorax somewhat longer than broad, with anterior angles sharply pointed; elytra double as long as thorax. L. 1 l. Moderately common.

*M. spinicollis*, Aub.

**b.** Thorax not narrowed in front.

**I.** Forehead with two depressions.

**1.** Anterior angles of thorax not prominent; elytra punctured in wrinkles.

Blackish or dark-brown; antennae and legs rust-red. Thorax with two depressions, sides notched. L.  $\frac{3}{4}$ — $\frac{4}{5}$  l. Common.

*M. picipes*, Herbst.

**2.** Anterior angles of thorax bluntly prominent; elytra with shallow punctured striae.

Blackish-brown; shoulders of elytra yellowish; antennae and legs reddish. Thorax with two depressions on posterior angles, sides bluntly notched; elytra short, punctures very diffuse at apex. L.  $\frac{3}{4}$  l. Not common. *M. brevicollis*, Aub.

**II.** Forehead without depressions.

Black; elytra reddish, darker round scutellum; antennae and legs red-yellow. Thorax with distinctly prominent anterior angles, and two very indistinct depressions at base, sides scarcely notched; elytra punctured in wrinkles. L.  $\frac{3}{4}$  l. Rather common.

*M. quadricollis*, Aub.

**B.** Head and thorax rather finely punctured.

**a.** Thorax as broad as long, with four shallow depressions (often confluent into two furrows) on disc.

**I.** Thorax with broad separate side border.

Reddish-yellow. Head gradually narrowed from eyes forward; elytra rather flat. L. 1 l. Rather common.

*M. rufa*, Redt.

**II.** Thorax with narrow, feeble separate side border.

Brown; antennae and legs rust-red. Head narrowed from antennae forward only; elytra evenly arched. L.  $\frac{4}{5}$  l. Rare. *M. quadrifoveolata*, Aub.

**b.** Thorax rather longer than broad, with two oblong depressions at base.

Brown; antennae and legs lighter. Head triangular; elytra finely punctured in rows. L.  $\frac{4}{5}$  l. Rather common. *M. longicollis*, Gyll.

### *Holoparamecus.*

Red-yellow, shiny, diffusely punctured; eyes black. Thorax with a transverse impression behind and each side of base with a deep abbreviated longitudinal furrow, margins of posterior angles slightly raised; elytra with a short sutural stria. L.  $\frac{1}{2}$  l. Not common. *H. singularis*, Beck.

### *Lathridius.*

**A.** Elytra without depressions.

**a.** Disc of thorax with two fine raised longitudinal lines, tolerably parallel with side margin.

**I.** Raised lines on thorax distinct to posterior margin.

**1.** Elytra produced at apex.

Reddish-yellow-brown. Thorax longer than broad, side margin raised, with a fold before middle, slightly constricted in middle, raised lines curved in front; elytra twice as broad in front as base of thorax, strongly dilated behind shoulders, pointed behind, with strong punctured striae, interstices impunctate, broad, third raised at base, seventh beyond middle. L.  $1\frac{1}{4}$  l. Common. *L. lardarius*, DeG.

**2.** Elytra not produced at apex.

**A A.** Anterior angles of thorax produced, rounded and raised.

Reddish-brown. Thorax longer than broad, narrowed behind, with irregularly curved side margin; elytra diffusely covered with erect brown hairs, twice as broad in front as base of thorax, strongly dilated behind shoulders, rounded at apex, with punctured striae, interstices narrow, alternate ones ridged. L. 1 l. Moderately common.

*L. angusticollis*, Hum.



**B B.** Anterior angles of thorax rounded, scarcely produced.

Oblong. Red-brown. Thorax oblong, flat, punctured in wrinkles, with side margin bisinuate, scarcely narrowed behind; elytra convex, oval, with small stiff bristles and punctured striae, punctures large. L. 1 l. Rare.

*L. angulatus*, Mann.

**II.** Raised lines on thorax feeble and often visible toward apex only.

**1.** Body brown, dull; anterior coxae almost contiguous.

Oblong, narrow. Brown, dull; antennae and legs yellow-brown. Thorax much longer than broad, narrowed in middle, raised lines disappearing before transverse impression at base; elytra with punctured striae, interstices narrow, alternate ones raised. L.  $\frac{2}{3}$  l. Not very common.

*L. carinatus*, Gyll.

**2.** Body light yellow-brown, rather shiny; anterior coxae placed apart.

Narrower than *L. carinatus*, especially the thorax. Light yellow-brown, rather shiny. Thorax oblong, strongly constricted somewhat behind middle, front of disc with an abbreviated, feeble longitudinal furrow and on each side of this a very feeble raised line, elytra often rather darker, with deep punctured striae, alternate interstices somewhat raised. L.  $\frac{2}{3}$  l. Rare.

*L. constrictus*, Gyll.

**b.** Disc of thorax without raised lines.

**1.** Thorax oblong.

**1.** Elytra not or scarcely darker than head and thorax.

Rather flat, elongate. Red-yellow, rather shiny. Thorax oblong heart-shaped, sides membranaceous, base with transverse impression; elytra oblong oval, shoulders rounded, with deep notched striae, outer interstices a little narrower than inner ones and raised ridgelike. L.  $\frac{2}{3}$  l. Moderately common.

*L. elongatus*, Curt.

**2.** Elytra distinctly darker than head and thorax.

Elongate. Red-yellow, shiny; elytra dark brown. Thorax oblong, constricted toward middle, with a feeble central furrow in front and a transverse impression behind;

elytra with deeply punctured striae, alternate interstices raised, apex rounded. L.  $\frac{3}{4}$  l. Common.

*L. ruficollis*, Marsh.

**II.** Thorax much broader than long.

**1.** Body black.

Black; mouth, antennae and legs reddish-yellow. Thorax with a short, feeble longitudinal impression in middle of disc, sides evenly rounded, with narrow raised border, distinctly narrowed toward apex, posterior angles almost right angles; elytra somewhat dilated toward middle, only a little broader in front than base of thorax, with fine punctured striae; prosternum with a ridge between anterior coxae. L.  $\frac{3}{4}$ —1 l. Rare.

*L. rugosus*, Herbst.

**2.** Body red-brown.

**A A.** Striae on elytra rather deep.

Red-brown. Thorax flat, more than half as broad again as long, sides somewhat rounded, slightly narrowed in front, with traces of a longitudinal furrow on middle of disc, transversely impressed at base, closely punctured in wrinkles; elytra half as broad again in front as base of thorax, somewhat dilated in middle, with rather deep punctured striae, interstices impunctate; prosternum with a ridge between anterior coxae. L.  $\frac{3}{4}$  l. Common.

*L. transversus*, Ol.

**B B.** Striae on elytra feeble.

Short, somewhat convex. Red-brown, slightly shiny. Thorax twice as broad as long, bisinuate in front, disc slightly convex, with an indistinct central furrow and a deep transverse basal impression; elytra much broader at base than thorax, with indistinctly punctured striae; prosternum with a ridge between anterior coxae. L.  $\frac{3}{4}$  l. Scarce.

*L. testaceus*, Steph.

**III.** Thorax nearly as long as broad.

**1.** Thorax with a central furrow (or two depressions in its place); elytra much broader than base of thorax.

**A A.** Anterior angles of thorax much rounded and dilated.

Black or black-brown, dull; antennae and legs reddish-yellow-brown. Thorax heart-shaped, with two oblong depressions in middle, transversely impressed at base, with a

broad depression on each side, much rounded and dilated at anterior angles; elytra with regular, deep punctured striae. L.  $\frac{3}{4}$  l. Common. *L. minutus*, Lin.

**B B.** Anterior angles of thorax not rounded and dilated.

Oblong. Black, rather dull; antennae and legs brown-red. Thorax nearly quadrate, scarcely broader than long, with an indistinct central furrow in front, base with an impression at each side; elytra with fine punctured striae, interstices flat, broad, alternate ones scarcely raised, seventh ridged. Similar to *L. minutus* but with anterior angles of thorax not rounded and dilated, striae on elytra more shallow and interstices broader. L.  $\frac{3}{4}$  l. Rare.

*L. consimilis*, Mann.

**2.** Thorax without central furrow; elytra scarcely broader than base of thorax.

**A A.** Body black.

Elongate. Black, dull; antennae and legs reddish-yellow-brown. Thorax very closely punctured, with a triangular depression in front, transversely impressed at base; elytra obliquely impressed on each side before middle, with feeble rows of punctures, interstices not raised. L.  $\frac{5}{8}$  l. Scarce.

*L. carbonarius*, Mann.

**B B.** Body yellow-brown.

**a a.** Thorax without impression on disc.

Elongate, flat. Reddish yellow-brown. Thorax rather broader in front than long, narrowed behind middle, side border slightly raised, disc rather convex, punctured in wrinkles, disc transversely impressed; elytra lighter coloured, with coarse rows of punctures, interstices very narrow, notched. L.  $\frac{2}{3}$  l. Not very common.

*L. filiformis*, Gyll.

**b b.** Thorax with a small, but distinct and rounded impression on disc.

Differing from *L. filiformis* in being even more linear in shape, with thorax more heart-shaped and less widely margined. Taken in dried *Aconite* at Royal Botanic Gardens, Edinburgh.

*L. filum*, Aub.

**B.** Elytra uneven, with depressions.

Black, shiny; antennae and legs rust-red. Thorax oblong, sides membranous, constricted a little before base,

disc with two nearly parallel ridges in middle; elytra with strong punctured striae, interstices narrow, third callous behind, fifth and seventh ridgelike, disc with four depressions. L.  $\frac{2}{3}$  l. Common. *L. nodifer*, Westw.

It is doubtful whether *L. pini*, Mots., and *L. undulatus*, Mots., are British insects; the former is said to be of the size, build and colour of *L. lardarius*, but with the thorax trapeziform and narrowed toward head, with its anterior angles projecting: the latter is elongate, convex, yellow-red, with eyes black; compared with *L. angulatus* it has the sides of thorax more undulated and in relief, basal impression more marked, elytra more attenuate, with interstices more distinctly raised.

### *Corticaria.*

**A.** Side margin of thorax more or less distinctly notched.

**a.** Length  $1\frac{1}{4}$  line.

Oblong. Brown; antennae and legs lighter; pubescence rather long. Thorax almost longer than broad, strongly narrowed behind, deeply and closely punctured in wrinkles, with a broad depression before scutellum, sides irregularly notched, not bordered; elytra almost double as broad in front as base of thorax, dilated toward middle, with close punctured striae. Common. *C. punctulata*, Marsh.

**b.** Length not exceeding 1 line.

**I.** Sides of thorax considerably rounded.

**1.** Elytra distinctly broader than thorax.

**A A.** Pubescence rather long; interstices on elytra wrinkled.

Lighter or darker brown. Thorax broadest in middle, deeply and closely punctured, with a round depression before scutellum, sides indistinctly notched; elytra somewhat dilated at sides, with close punctured striae. L. 1 l. Rather common. *C. crenulata*, Gyll.

**B B.** Pubescence short and scanty; interstices on elytra not wrinkled.

Lighter or darker brown; antennae and legs lighter. Thorax broadest in middle, with a small distinct depression before scutellum, sides very finely notched; elytra moderately convex, with punctured striae. Punctuation of

thorax closer and finer than in *C. crenulata*. L.  $\frac{4}{5}$  l. Common.  
*C. denticulata*, Gyll.

2. Elytra not or only slightly broader than thorax.

**A A.** Thorax broadest before middle, closely punctured.

**a a.** Elytra with closely punctured striae and wrinkled interstices.

Elongate. Rust-brown; elytra darker; pubescence scanty. Thorax somewhat broader than long, very closely punctured, with a little depression before cutellum, sides with very distinct fine sharp teeth; elytra rather shiny. L.  $\frac{3}{4}$  l. Moderately common. *C. serrata*, Payk.

**b b.** Elytra with punctures in striae and interstitial rows equally fine and so close that the surface appears almost very delicately transversely wrinkled.

Similar to *C. serrata*, but flatter and less oval, club of antennae larger, thorax not quite so closely punctured, its sides less rounded, with teeth finer behind, elytra not so distinctly pubescent, more finely punctured. L.  $\frac{3}{4}$  l. Richmond Park. *C. obscura*, Bris.

**B B.** Thorax broadest in middle, diffusely punctured.

Oblong. Reddish-yellow-brown, feebly shiny, pubescence scanty. Thorax with sides strongly rounded, indistinctly notched, punctuation scattered but rather deep, depression before scutellum feeble; elytra with rounded shoulders, scarcely dilated, slightly convex, with strong punctured striae, interstices indistinctly wrinkled, with long, bristlelike hairs placed in rows. L.  $\frac{4}{5}$  l. Moderately common. *C. cylindrica*, Mann.

**II.** Sides of thorax nearly straight.

1. Thorax broadest before middle.

Reddish-yellow-brown, with long, close pubescence. Thorax indistinctly notched at sides, closely punctured, depression before scutellum rather deep; elytra more than double as broad in front as base of thorax, shoulders rounded, with deep punctured striae, interstices indistinctly wrinkled. L. 1 l. Moderately common. *C. fulva*, Chev.

2. Thorax broadest in middle.

**A A.** Interstices on elytra punctured in rows.

Rather flat, oblong. Rust-red, rather shiny, with close pale pubescence. Head much narrower than thorax, latter transverse, with sides scarcely rounded before middle, disc closely and very finely punctured, anterior angles touching eyes; elytra somewhat broader than thorax, with distinct, punctured striae, feebler toward apex, interstices rather broad, with rows of very fine punctures. L.  $\frac{2}{3}$  l. Common.  
*C. elongata*, Gyll.

**B B.** Interstices on elytra confusedly punctured.

Oblong, not very flat, moderately shiny. Brown, with close, fine, pale pubescence; antennae and legs red-yellow; elytra rust-red, with sides dilated, punctured striae not reaching middle, interstices closely, confusedly punctured. L.  $\frac{3}{4}$  l. Not common.  
*C. rufula*, Zett.

**B.** Sides of thorax without notches.**a.** Posterior angles of thorax obtuse or rounded.

Lighter or darker brown, rather shiny; base of antennae and legs pale yellow-brown. Thorax as long as broad, widest before middle, with sides somewhat rounded, very closely and deeply punctured, with a curved transverse impression (often nearly divided into three) behind; elytra much broader in front than base of thorax; shoulders raised, somewhat dilated at sides, with deep punctured striae, interstices with a row of punctures not much finer than in the striae and with a row of very short recumbent gray hairs. L.  $\frac{2}{3}$  l. Common.  
*C. gibbosa*, Herbst.

**b.** Posterior angles of thorax right angles.

Oblong-ovate, convex. Pitchy; elytra brown; antennae and legs red-yellow. Thorax narrow, slightly broader than long, with sides slightly rounded before middle, closely punctured, with a transverse impression behind; elytra oblong-ovate, shoulders rather prominent, with punctured striae, interstices rather convex, with rows of hairs. More elongate than *C. gibbosa*, interstices on elytra impunctate or nearly so. L.  $\frac{5}{8}$ — $\frac{7}{8}$  l. Scarce.  
*C. Wollastoni*, Wat.

**c.** Posterior angles of thorax produced into a little point.**I.** Antennae brown at apex.

Brown or reddish-yellow-brown; base of antennae and legs yellow-brown; pubescence scanty and short. Thorax

more than half as broad again as long, rather strongly but not very closely punctured, with a deep, somewhat transverse depression at base; elytra with deep punctured striae, interstices somewhat raised at base, wrinkled, with rows of hairs. L.  $\frac{2}{3}$  l. Common. *C. fuscula*, Gyll.

**II.** Antennae unicolorous red-yellow.

Short-ovate. Reddish-brown, pubescent, very slightly shiny; antennae and legs red-yellow. More ovate than *C. fuscula*, thorax more suddenly dilated in middle and less distinctly excavated at posterior angles, antennae more abbreviated and less robust. L.  $\frac{1}{2}$ — $\frac{2}{3}$  l. Moderately common. *C. curta*, Woll.

**MYCETOPHAGIDAE.**

**A.** Eyes transverse.

**a.** Antennae gradually thickened.

Ligula with shallow emargination in front; furrow at clypeus deep; elytra with punctured striae.

*Mycetophagus*, Hellw.

**b.** Antennae with abrupt three-jointed club.

Ligula rounded in front; furrow at clypeus deep; elytra with deep, scattered punctuation.

*Triphyllus*, Meg.

**B.** Eyes round.

**a.** Ligula membranous; furrow at clypeus very shallow.

Thorax with sharp, prominent posterior angles; elytra confusedly punctured; anterior tibiae with a long spine on outer side of apex as well as the usual apical spines; tarsi elongate and fine.

*Litargus*, Er.

**b.** Ligula horny; furrow at clypeus deep.

Posterior angles of thorax not prominent; elytra with rows of punctures; anterior tibiae with a long spine on outer side of apex, as well as the usual apical spines; tarsi neither long nor fine.

*Typhaea*, Kirby.

***Mycetophagus.***

**A.** Antennae quite gradually thickened to apex.

Sides of thorax not notched.

**a.** Length  $2\frac{2}{3}$  lines.

Head brick-red; thorax and elytra black, each of latter with a red spot at shoulder and a smaller one behind middle; antennae with first six joints red; under-side and legs red. Common. *M. quadripustulatus*, Lin.

**b.** Length 2 lines.

**I.** Last joint of antennae longer than two preceding joints.

Oblong. Head and thorax brown-red or brown, elytra black, with yellow markings; antennae brown-red, penultimate joints darker; under-side brown-red, legs yellow. Rather common. *M. piceus*, Fab.

**II.** Last joint of antennae half as long again as preceding joint.

Oblong-ovate. Upper-side black or dark-brown, elytra with a large spot at shoulder, a toothed transverse band behind middle and several small spots yellow; antennae reddish-brown, four penultimate joints blackish; under-side blackish or brown; legs brown-red, femora darker. Rather common. *M. atomarius*, Fab.

**B.** Last five joints of antennae thickened.

Sides of thorax finely notched; body elongate.

**a.** Thorax brown.

Upper-side brown or dark-brown, elytra checkered with yellow spots; under-side red-brown, breast darker; antennae brown-red, four penultimate joints darker; legs red. Elytra with rather strong punctured striae, effaced at apex; interstices finely punctured in wrinkles. L.  $1\frac{1}{2}$ —2 l. Common. *M. multipunctatus*, Hellw.

**b.** Thorax red.

Head black; elytra black, with a narrow reddish-yellow outer margin, two yellowish-white curved bands and a small whitish spot between them; under-side of thorax red, rest of breast and abdomen black; antennae red-yellow, four penultimate joints brownish; legs yellow-red. Pubescence rather strong. Elytra with closely and strongly punctured striae, feebler at apex, interstices smooth. L. 2 l. Rare. *M. fulvicollis*, Fab.

**C.** Last four joints of antennae thickened.

Sides of thorax not notched.



**a.** Head and thorax red-yellow.

Oblong, dull. Elytra light-brown, base and spot behind middle yellow, apex brownish-red. Head, thorax and interstices on elytra very closely and finely punctured. L. 2 l. Not common. *M. populi*, Fab.

**b.** Head and thorax blackish-brown.

Short oval, convex. Elytra blackish-brown, each with two yellowish spots and sometimes two other small spots; antennae reddish; under-side reddish-brown, apex of abdomen and legs reddish-yellow. Head, thorax and interstices on elytra finely wrinkled, each of latter with a row of stronger pubescence. L.  $1\frac{1}{2}$ — $1\frac{2}{3}$  l. Not common. *M. quadriguttatus*, Müll.

### *Triphyllus.*

**A.** Thorax closely and strongly punctured; length  $1\frac{3}{4}$  lines.

Brown-red; disc of thorax somewhat brownish; elytra black, with base and spot at apex red-brown. Pubescence rather long. Rather common. *T. punctatus*, Fab.

**B.** Thorax not very closely and rather finely punctured; length  $1\frac{1}{3}$  lines.

Brownish or blackish; margins of thorax, elytra (except margins) antennae and legs yellow-brown. Pubescence fine, close-lying. Common. *T. suturalis*, Fab.

### *Litargus.*

Oblong-ovate, rather flat, pubescent, rather dull. Black; posterior angles of thorax, two curved bands, a spot at apex and outer margin of elytra yellow; base of antennae and legs red-yellow. L.  $1\frac{1}{2}$  l. Common.

*L. bifasciatus*, Fab.

### *Typhaea.*

Red-yellow, pubescent. Elytra with fine punctured striae, interstices finely punctured, each with a row of longer hairs. L.  $1\frac{1}{3}$  l. Common. *T. fumata*, Lin.

## DERMESTIDAE.

**A.** Forehead without any ocellum.

Head small, inflexed beneath thorax but not covered by prosternum. Ligula broad, horizontal. Mesosternum narrow; posterior coxae rapidly narrowed outward; tibiae with fine spines on outer-side; first four tarsal joints equally short. Club of antennae with three joints, shallow grooves for its reception on under-side of thorax.

*Dermestes*, Lin.

**B.** Forehead with one ocellum.

**a.** Mesosternum narrow; intermediate legs placed near each other.

Club of antennae with three joints; ligula horizontal.

**I.** Mouth free.

Shallow grooves for reception of antennae beneath head but none beneath thorax. Posterior coxae gradually strongly narrowed outward; tibiae with spines on outer-side, one of the apical spines more or less prolonged; first tarsal joint short and closely attached to the elongate second joint.

*Attagenus*, Latr.

**II.** Mouth covered by prosternum.

Deep grooves for reception of antennae beneath head, wide shallow ones beneath thorax. Posterior coxae narrow, gradually slightly reduced outward; tibiae without spines on outer-side, apical spines very fine, first four tarsal joints diminishing in length.

*Megatoma*, Herbst.

**b.** Mesosternum broad; intermediate legs placed far apart.

**I.** Prosternum leaving labrum and mandibles free.

Club of antennae composed of three joints, received by deep grooves beneath thorax. Posterior coxae almost equal in breadth throughout; tibiae fitting into grooves in femora; first four tarsal joints diminishing in length.

*Tiresias*, Steph.

**II.** Prosternum leaving labrum only free.

**1.** Deep grooves for reception of antennae in side margin of thorax.

Posterior coxae equally broad throughout, reaching outward to inner margin of episterna only; tibiae fitting into grooves in femora, first four tarsal joints equally short. Scutellum covered; body thickly covered with scales.

*Anthrenus*, Geoffr.

**2.** No grooves for reception of antennae.

Antennae slender. Posterior coxae very narrow, gradually slightly reduced outward, reaching to inner margin of episterna; first four tarsal joints equal in length. Scutellum free; body covered with long upright hairs.

*Trinodes*, Meg.

### *Dermestes.*

**A.** Apex of elytra produced into a sharp spine.

Black, dull; antennae red-brown, club rather darker. Pubescence black, mixed with white hairs, sides of thorax thickly covered with gray-white hairs; under-side thickly covered with whitish hairs, sides of metasternum and of each abdominal segment with a spot of black hairs, last abdominal segment with a central spot of black hairs reaching from apex to base. Coxae, trochanters and a broad band on outer-side of femora covered with white hairs. A tuft of bristles on the fourth abdominal segment of male. L. 3—4½ l. Rather common. *D. vulpinus*, Fab.

**B.** Apex of elytra not produced.

**a.** Elytra unicolorous.

**I.** Last abdominal segment covered with white hairs, with a spot of black hairs on each side and another in middle, reaching from apex to middle of segment only.

Black, dull; antennae red-brown. Sides of thorax thickly covered with gray-white hairs, with a black spot in posterior angles; elytra generally narrowed behind middle and pointed; under-side (except last abdominal segment) as in *D. vulpinus*. Lower half of femora covered with white hairs. A tuft of bristles on fourth abdominal segment of male. L. 3—4 l. Scarce. *D. Frischi*, Kug.

**II.** Last abdominal segment covered with black hairs with two or three white spots at base.

A tuft of bristles on both third and fourth abdominal segments of male.

**I.** Antennae dark brown, with deep black club.

Black, dull. Upper-side clouded with bluish-gray and black pubescence. Scutellum covered with brownish-yellow hairs, under-side with gray-white; first abdominal segment black on each side at base, next three with a black spot on each side, last segment black, with three white spots

at base. Femora clouded with white hairs. L. 3— $3\frac{3}{4}$  l.  
Common. *D. murinus*, Lin.

**2.** Antennae brown-red.

Black, dull. Head and thorax covered with brownish-yellow hairs, with an admixture of white, and finely checkered with black; scutellum thickly covered with yellowish-white hairs; elytra clouded with bluish-gray hairs; under-side thickly covered with whitish hairs with first abdominal segment black on each side at base, next three segments and breast with a black spot at sides, last segment black, with two white spots at base, femora with a ring of white hairs. Thorax rather longer than in *D. murinus*. L. 3 l. Common. *D. undulatus*, Brahm.

**b.** Elytra black, with a common brownish-yellow band from near base almost to middle, marked with three black spots.

Black, dull; antennae brown-red. A tuft of bristles on both third and fourth abdominal segments of male. L. 3— $3\frac{3}{8}$  l. Common. *D. lardarius*, Lin.

### *Attagenus.*

**A.** Elytra black or brown, with a white spot in middle near suture.

Black; thorax with three small white spots at base; antennae and legs brown-red, club of former and femora darker. Pubescence on upper-side black, on under-side gray. Last joint of antennae in male fully as long as all the rest. L. 2— $2\frac{2}{3}$  l. Common. *A. pellio*, Lin.

**B.** Elytra unicolorous.

Black; elytra sometimes brown; antennae and legs yellowish-red. Pubescence on upper-side black, on under-side yellowish-gray. Last joint of antennae in male not quite so long as all the rest. L.  $1\frac{1}{2}$ —2 l. Very rare.

*A. megatoma*, Fab.

**C.** Elytra pitch-brown, with three curved bands, a spot near apex and another near scutellum covered with whitish hair.

Ovate. Pitch-brown, shiny; with recumbent pubescence, punctuation fine; posterior margin of thorax (except in middle) whitish; legs and base of antennae red-yellow. L.  $1\frac{1}{2}$ —2 l. Rare. *A. verbasci*, Lin.

*Megatoma.*

Elongate. Black, with a spot at each posterior angle of thorax, a small one above scutellum and two toothed bands on elytra (one before, the other behind middle) formed of white hairs. Male with club of antennae elongate, last joint as long as the two preceding. L.  $1\frac{3}{4}$ — $2\frac{1}{2}$  l. Rather common. *M. undata*, Lin.

*Tiresias.*

Rather broad oval. Black; elytra and under-side often pitch-brown; antennae and legs yellowish-red, femora darker. Elytra more distinctly punctured than thorax. L.  $1\frac{3}{4}$ — $2\frac{1}{2}$  l. Not common. *T. serra*, Fab.

*Anthrenus.*

**A.** Antennae eleven-jointed, with three-jointed club.

**a.** Tibiae brown-red.

**I.** Scales on elytra black, with three bands of spots white, and suture red.

Scales on head and thorax black, with sides of latter broadly white. L.  $1\frac{2}{3}$  l. Rare. *A. scrophulariae*, Lin.

**II.** Scales on elytra black, with an admixture of brownish-yellow scales at base and apex, and with a broad curved band behind base and some indistinct spots toward apex white.

Scales on head and thorax black, checkered with yellow and white, sides of latter brownish-yellow, with an admixture of white scales, and a black spot. L.  $1\frac{1}{4}$ — $1\frac{3}{4}$  l. Rare. *A. pimpinellae*, Fab.

**b.** Tibiae black.

Scales on head and thorax yellow, former with white above mouth, latter with white at posterior angles and above scutellum; scales on elytra yellow, with three toothed bands of spots white. L.  $1$ — $1\frac{1}{4}$  l. Not common. *A. varius*, Fab.

**B.** Antennae eight-jointed, with two-jointed club.

Scales black, sprinkled with yellow; thorax with three white basal spots, elytra with three waved, yellowish-gray bands. Base of antennae and tibiae reddish. L.  $1$ — $1\frac{1}{4}$  l. Moderately common. *A. museorum*, Lin.

**C.** Antennae five-jointed, the last prolonged and clublike.

Scales black, sprinkled with yellow; a large whitish-gray transverse spot on each posterior angle of thorax and three more or less distinct waved whitish bands on elytra; antennae and legs brown-red. L.  $\frac{3}{4}$ — $1\frac{1}{4}$  l. Common.

*A. claviger*, Er.

### *Trinodes.*

Ovate; rather flat. Black, shiny; antennae yellow; legs brown-red, tarsi yellow. Hairs brown. L. 1 l. Not common.

*T. hirtus*, Fab.

## **BYRRHIDAE.**

**A.** Clypeus not separate from forehead; antennae eleven-jointed.

**a.** Hinder legs placed in special grooves.

All tarsi fitting on inner-side of tibiae.

**I.** Eyes, mandibles and labrum completely covered when head drawn back.

Antennae with three-jointed club. Last joint of maxillary palpi pointed. *Syncalyptra*, Dillw.

**II.** Eyes half covered, mandibles covered, labrum free.

Antennae gradually thickened. *Byrrhus*, Lin.

**b.** No special grooves for hinder legs.

**I.** Anterior tarsi fitting to tibiae, hinder pairs of tarsi free.

Eyes half covered.

**1.** Mandibles covered, labrum free.

Antennae with five-jointed club. Last joint of maxillary palpi pointed. *Cytilus*, Er.

**2.** Mandibles and labrum free.

Antennae gradually thickened from seventh joint. Last joint of maxillary palpi ovate, that of labial palpi nearly globular, truncate at apex. *Morychus*, Er.

**II.** All tarsi free.

Antennae with elongate, five-jointed club. Mandibles

and labrum free, last joint of maxillary palpi ovate, pointed. Eyes half covered. *Simplocaria*, Marsh.

**B.** Clypeus separate from forehead; antennae with ten joints.

Antennae thin, slightly thickened at apex. Eyes, mandibles and labrum covered; last joint of maxillary palpi ovate, pointed. All tarsi free. *Limnichus*, Latr.

### *Syncalypta.*

**A.** Two outermost striae on elytra deep throughout.

**a.** Thorax coarsely punctured.

Short, nearly ovate, convex. Black; antennae and legs dull-red; with scales and erect, clubbed gray bristles. Elytra with feebly punctured striae. Similar to *S. setigera* but with erect bristles longer, thinner, less clubbed and lighter in colour; depressed scales on elytra less numerous and distinct, not variegated; depressed scale-like hairs on thorax much longer. L.  $1\frac{1}{4}$  l. Scarce.

*S. hirsuta*, Sharp.

**b.** Thorax rather finely punctured.

Short ovate, convex. Black; antennae and legs red-brown; upper-side clothed with black and whitish scales, together with long, upright blackish, clubbed bristles; scales on thorax whitish, with three irregular longitudinal black lines; scales on elytra black, with waved, somewhat irregular, whitish oblique bands. Forehead slightly impressed on each side in front. Elytra with sutural stria deep behind, rest (except two outermost) shallow, feebly punctured. L.  $1\frac{1}{4}$  l. Scarce.

*S. setigera*, Ill.

**B.** Only one outermost stria on elytra deep throughout.

Roundish, convex. Black; antennae and legs red-brown; upper-side not covered with scales, but bearing thick, upright, clubbed, whitish bristles. Forehead with two deep divergent furrows in front; elytra with sutural stria deep behind, rest (except outermost one) shallow, punctures large, feebler behind. L.  $\frac{2}{3}$  l. Rather common.

*S. spinosa*, Rossi.

### *Byrrhus.*

**A.** Length  $2\frac{3}{4}$ —4 lines.

**a.** Last joint of antennae roundish.

**I.** Last joint of maxillary palpi truncate at apex.

**1.** Anterior tibiae gradually dilated toward apex, body reversed ovate.

Convex. Black; head and thorax with brownish and golden-yellow pubescence, spotted with black, scutellum and alternate interstices on elytra with golden-yellow pubescence. Last joint of maxillary palpi nearly hatchet-shaped. L. 4 l. Scarce. *B. Dennyi*, Curt.

**2.** Anterior tibiae tolerably parallel-sided, body oblong.

Convex. Black; upper-side covered with brown pubescence, that on scutellum wholly or partly black, alternate interstices on elytra with interrupted and abbreviated lines of black, velvety pubescence, the spots interrupting these lines sometimes forming indications of curved bands. Last joint of maxillary palpi ovate, truncate. L.  $3\frac{1}{2}$ — $3\frac{3}{4}$  l. Common. *B. pilula*, Lin.

**II.** Last joint of maxillary palpi only slightly thickened, rather pointed.

Short reversed ovate; convex. Black; upper-side covered with brown pubescence, that on scutellum wholly or partly black; elytra with black velvety interrupted lines on alternate interstices and with a W-shaped gray or yellow spot on disc. Anterior tibiae gradually widened toward apex. L. 3— $3\frac{1}{2}$  l. Common. *B. fasciatus*, Fab.

**b.** Last joint of antennae somewhat pointed.

Oval, somewhat pointed at ends. Black; upper-side with brown or black pubescence, that on scutellum black, elytra with black or brown velvety interrupted lines on alternate interstices; disc of thorax and elytra often with a curved grayish or reddish-yellow band. Last joint of maxillary palpi oval, truncate; anterior tibiae tolerably parallel-sided. L.  $2\frac{3}{4}$ —3 l. Not uncommon.

*B. dorsalis*, Fab.

**B.** Length  $1\frac{3}{4}$  lines.

Short ovate, rather pointed at ends, convex. Upper-side covered with very short brownish scalelike hairs and short clubbed bristles; scutellum with black pubescence; interstices on elytra alternately broader and narrower, the narrow ones with a black velvety line, disc with two waved,



often interrupted grayish lines; antennae red-brown, blackish at apex. Scarce. *B. murinus*, Ill.

### *Cytilus.*

Short ovate, convex. Dark bronze or greenish; antennae black. Pubescence short, on thorax black, yellow and white mixed, on scutellum usually yellow, on interstices of elytra alternately scanty, yellow, with black velvety spots, and close, black and white mixed, latter sometimes unicolorous brown-bronze or greenish. L. 2—2½ l. Common. *C. varius*, Fab.

### *Morychus.*

Oblong-ovate, convex. Upper-side bronze-green; antennae black. Thorax thinly covered with whitish and brown hairs, scutellum and elytra with white hairs, on former closely placed, on latter isolated on disc, closer at sides. L. 2 l. Moderately common. *M. aeneus*, Fab.

### *Simplocaria.*

Ovate, convex. Black, metallic; elytra brownish at apex. Antennae brownish, legs red-yellow; pubescence gray. Elytra with a sutural stria and traces of others at base only. L. 1½ l. Common. *S. semistriata*, Ill.

### *Limnichus.*

Oval, convex. Black, shiny; antennae and legs red; pubescence very short, grayish. Punctuation of head and thorax close and very fine, of elytra diffuse and fine. L. ⅔ l. Moderately common. *L. pygmaeus*, Sturm.

## GEORYSSIDAE.

Antennae with nine joints, club three-jointed. Last joint of maxillary palpi almost as long as all the rest together, pointed. Tarsi four-jointed. *Georyssus*, Latr.

### *Georyssus.*

Globular. Black, shiny. Thorax tolerably smooth on disc, longitudinally wrinkled in front; elytra with rows of strong punctures, interstices somewhat arched. L. ¾—⅘ l. Common. *G. pygmaeus*, Fab.

**PARNIDAE.****A.** Anterior coxae globular.

Antennae thin, apical joints scarcely thickened; mandibles with two-toothed apex but not toothed below; outer lobe of maxillae narrower than inner; posterior coxae not dilated. *Elmides.*

**B.** Anterior coxae semi-cylindrical.

Antennae usually irregular, second joint much dilated and covering succeeding joints. Mandibles toothed below apex; outer lobe of maxillae as broad as, or broader than inner; posterior coxae usually dilated. *Parnides.*

**ELMIDES.****A.** Antennae with six joints.

Head covered beneath by prosternum; palpi threadlike; tibiae closely and finely fringed from middle to apex of inner-side. *Macronychus*, Müll.

**B.** Antennae with eleven joints.

Head covered beneath by prosternum; palpi threadlike; tibiae fringed on inner-side.

**a.** Scutellum oblong, narrow.

Sides of breast and of abdomen thickly covered with fine matted hairs. *Elmis*, Latr.

**b.** Scutellum roundish.

Sides of thorax, elytra, breast and abdomen thickly covered with fine matted hairs. *Limnius*, Er.

**Macronychus.**

Oblong, narrow. Black, slightly metallic; anterior margin of thorax and antennae red-yellow; legs pitch-brown. Thorax and elytra with two tubercles bearing bristles on base of each, those on former being roundish and those on latter oblong, standing in second interstice. L.  $1\frac{1}{4}$ — $1\frac{1}{2}$  l. Rare. *M. quadrituberculatus*, Müll.

**Elmis.**

**A.** Thorax uneven, with raised longitudinal lines on sides of disc, transversely impressed behind.

Black, shiny ; elytra dark bronze, with strong punctured striae, fourth and sixth interstice somewhat raised ; antennae and legs brown, base of former and tarsi lighter. L. 1 l. Common. *E. aeneus*, Müll.

**B.** Thorax even, with an engraved line on each side from base to apex.

**a.** Engraved lines on thorax convergent in front ; length  $1\frac{1}{2}$  lines.

Oblong, rather convex. Blackish-bronze ; antennae red-brown, tarsi lighter. Thorax finely and rather closely punctured ; elytra with punctured striae, interstices very slightly arched. Rather common. *E. Volkmani*, Panz.

**b.** Engraved lines on thorax parallel ; length  $\frac{1}{2}$  line.

Oblong, rather flat. Black ; antennae and legs red. Thorax diffusely and finely punctured ; elytra with feeble but rather strongly punctured striae, interstices flat, except sixth, which forms a ridge at sides of elytra. Rather common. *E. parallelopipedus*, Müll.

**C.** Thorax even and without engraved longitudinal lines.

Sixth interstice on elytra raised.

**a.** Thorax not punctured in wrinkles, shiny ; second and fourth interstices on elytra raised.

**I.** Pubescence thick ; length 1 line.

Bronze, sometimes with violet reflection ; antennae and legs brown, base of former lighter. Thorax rather closely and very finely punctured, with an indistinct transverse impression close before middle, and small oblique impressions behind middle on each side ; elytra with strong punctured striae, second and fourth interstices slightly raised. Moderately common. *E. subviolaceus*, Müll.

**II.** Pubescence thin ; length  $\frac{2}{3}$  line.

Bronze ; antennae and legs brown, base of former and tarsi lighter. Thorax finely and rather closely punctured, with an oblique impression on each side close behind middle and another before posterior angles ; elytra with strong punctured striae, second and fourth interstices somewhat raised. Not very common. *E. cupreus*, Müll.

**b.** Thorax very finely and closely punctured in wrinkles, dull ; all interstices on elytra (except sixth) even.

Bronze ; pubescence thin ; antennae reddish-yellow. Thorax even, sometimes with slight traces of an oblique impression on each side behind middle ; elytra with strong punctured striae. L.  $\frac{2}{3}$  l. Not very common.

*E. nitens*, Müll.

### *Limnius.*

**A.** Impressed lines at sides of thorax curved.

Oblong reversed ovate, convex. Brownish-bronze ; antennae reddish-yellow ; legs red-brown. Thorax with two deeply engraved longitudinal lines, convergent in front, indistinctly punctured ; elytra with fine striae ; base of each raised. L.  $\frac{2}{3}$  l. Common. *L. tuberculatus*, Müll.

**B.** Impressed lines at sides of thorax straight, parallel with sides.

Brown-bronze ; antennae and legs reddish. Thorax shorter than in *L. tuberculatus*, disc more closely, very finely punctured, less shiny ; elytra with the three discal striae very obsoletely punctured, the fourth (which continues the impressed lateral line on thorax) formed of smaller and closer punctures, and the space between that and the most external striae with no perceptible row of smaller irregular interstitial punctures. L.  $1\frac{1}{2}$  l. Scarce.

*L. troglodytes*, Gyll.

### **PARNIDES.**

**A.** Intermediate legs placed apart.

Antennae with nine joints. Last joint of maxillary palpi suddenly narrowed at apex, with two palpal surfaces. Head covered beneath by prosternum. *Potaminus*, Burm.

**B.** Intermediate legs placed near each other.

Antennae with eleven joints. Last joint of maxillary palpi as long as the rest together, simple. Head covered beneath by prosternum. *Parnus*, Fab.

### *Potaminus.*

Oblong. Red-brown, forehead and disc of thorax darker ; the whole body very thickly covered with gray pubescence. L. 2— $2\frac{1}{2}$  l. Not common. *P. substriatus*, Müll.

*Parnus.***A.** Elytra finely punctured.

Elongate, nearly cylindrical. Brown or blackish; thickly covered with yellowish-gray pubescence and whitish hairs. Antennae placed very close together, forehead compressed between them. L. 2 l. Common.

*P. prolifericornis*, Fab.

**B.** Elytra strongly punctured.

**a.** Pubescence brown; elytra with traces of striae at base.

Oblong oval, convex. Black; upper-side covered (besides pubescence) with erect, black hairs. Antennae placed somewhat apart, dark brown, club lighter; forehead even. Legs black or dark brown, tarsi lighter. L. 2 l. Rather common.

*P. auriculatus*, Ill.

**b.** Pubescence golden-yellow; elytra without any trace of striae.

Oval, strongly convex. Black; upper-side covered (besides pubescence) with erect black hairs. Antennae placed somewhat apart, brown-red; forehead even. Legs red. L. 1 $\frac{3}{4}$  l. Very rare.

*P. nitidulus*, Heer.

**HETEROCERIDAE.**

Antennae with eleven joints, first two joints rather large, next two very small, rest forming a sawlike club. Mandibles prominent, apex toothed; outer lobe of maxillae much longer than inner. Anterior tibiae somewhat dilated toward apex, strongly spined on outer-side, intermediate tibiae spined more feebly and posterior pair toward apex only. Each side of first abdominal segment and posterior femora with a curved ridge, sometimes notched.

*Heterocerus*, Fab.

*Heterocerus.***A.** Posterior angles of thorax not bordered.

**a.** Elytra with transverse band behind middle not interrupted.

Oblong. Black; thorax with anterior angles (rarely entire sides) yellow; elytra with a small spot at base near scutellum, two curved bands, two spots near apex and

outer margin yellow; antennae brown, first two joints lighter; legs black, anterior (and sometimes hinder pairs of) femora yellow-brown. Pubescence gray, rather coarse, short and close, with an admixture of longer hairs, especially on elytra. L.  $1\frac{3}{4}$ — $2\frac{1}{4}$  l. Moderately common.

*H. femoralis*, Kies.

**b.** Elytra with transverse band behind middle interrupted, its apical portion forming a rhombus-shaped spot.

Oblong, parallel-sided. Brown, with gray pubescence; elytra with a curved band below shoulder, a triangular spot toward scutellum, a rhombus-shaped spot behind middle, a smaller spot near apex and the outer margin yellowish; antennae and legs red-yellow. Elytra unevenly punctured. L. 2 l. Rare.

*H. arenarius*, Kies.

**B.** Posterior angles of thorax sharply and distinctly bordered.

**a.** Upper-side closely covered with fine upright brown pubescence, mixed with short gray hairs.

**I.** Ridge on first abdominal segment notched in front; body slightly convex.

Oblong oval. Black; thorax with sides, especially in front, yellow; elytra with a curved spot below shoulder, an oblong spot close before middle, a curved band (abbreviated inward) behind middle and two spots at apex yellow or red; antennae and legs brown, first joint of former yellow, femora lighter before apex. L. 2 l. Moderately common.

*H. marginatus*, Fab.

**II.** Ridge on first abdominal segment not notched; body flat.

Nearly oval. Black; thorax with a brown-red spot in anterior angles; elytra with more or less distinct red-brown spots, viz., one at base, three before middle, three behind middle and two before apex, outer margin (to which each of the outermost spots is attached) also brown-red; antennae brown; legs black. L. 2— $2\frac{1}{2}$  l. Rather common.

*H. obsoletus*, Curt.

**b.** Upper-side covered with short pubescence, without any admixture of longer hairs.

**I.** Pubescence gray, silky.

Oblong, rather flat. Black; thorax with sides (at least in front) yellow; elytra with outer margin, two spots attached to it (one just before, the other behind middle), two or three longitudinal lines from base to middle, two spots close behind middle and two before apex yellow; antennae brown, first two joints yellowish; legs either black, with femora yellow in middle, or yellow, with tibiae blackish at base. Ridge on first abdominal segment finely notched in front in both sexes. L.  $1\frac{1}{2}$ — $2\frac{1}{2}$  l. Common.

*H. laevigatus*, Panz.

**II.** Pubescence brownish-gray, not silky.

Very similar to *H. laevigatus*, elytra marked in the same way, but rather more strongly punctured; legs brown, femora often rather lighter. Ridge on first abdominal segment not notched in female; in male finely so in front. L.  $1\frac{1}{2}$  l. Moderately common.

*H. fuscus*, Kies.

**C.** Posterior angles of thorax only finely bordered.

Oblong. Black; sides of thorax (especially in front) red-brown; elytra yellowish-brown-red, with suture and three bands (abbreviated outward) brown; antennae and legs yellow. Pubescence short, silky, whitish-gray. L.  $1-1\frac{1}{4}$  l. Rather common.

*H. sericans*, Kies.





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## ERRATA ET ADDENDA.

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### VOLUME I.

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- Page 10, line 5 from bottom, for "*Rhyncophora*" read "*Rhynchophora*."
- „ 15, line 3 from bottom, for "first four joints of palpi" read "first two joints of palpi."
- „ 20, after line 19 from top, insert as follows :—  
The variety *consitus*, Panz. has the central line in interstices on elytra higher than the lateral ones.
- „ 29, line 12 from top, omit bracket after "pointed."
- „ 29, „ 15 „ insert bracket after "toothed."
- „ 43, „ 19 „ for "*C. leucophthalmus*, Lin." read "*S. leucophthalmus*, Lin."
- „ 50, after line 23 from top, insert as follows :—  
The variety of *P. cupreus* with red legs is the *P. affinis*, Sturm.
- „ 60, line 19 from top, for "*G. lucida*, Duft." read "*A. lucida*, Duft."
- „ 65, after line 11 from top, insert as follows :—  
The variety *atricornis*, Steph. has the whole of antennae and legs pitch-black. L. 4 l.
- „ 71, line 4 from bottom, for "Duft" read "Duft."
- „ 79, „ 14 „ add hyphen at end of line.
- „ 99, „ 13 from top, for "*H. Hermannii*, Fab." read "*P. Hermannii*, Fab."
- „ 114, line 16 from bottom, for "*L. fuscus*, Lin." read "*C. fuscus*, Lin."

- Page 131, line 15 from top, for "*P. marginellus*, Th." read "*P. marginellus*, Fab."
- „ 133, line 10 from top, for "*C. luridus*, Lin." read "*B. luridus*, Lin."
- „ 135, after line 3 from bottom, insert as follows:—  
*Helophorus tuberculatus*, Gyll. Ovate. Black; elytra and legs bronze-black. Furrows on thorax not very deep; elytra with punctured striae, with short stria at base, alternate interstices with oblong or rounded tubercles; last joint of maxillary palpi short, inflated ovate. L.  $1\frac{1}{2}$  l. Rare.
- „ 170, line 18 from bottom, for "*B. mycetophaga*" read "*A. mycetophaga*."
- „ 170, line 4 from bottom, for "*B. moerens*," read "*A. moerens*."
- „ 214, line 17 from top, for "*H. nigra*, Er" read "*H. nigra*, Kr."
- „ 226, line 2 from top, add hyphen at end of line.
- „ 251, line 4 from top, for "apex or former" read "apex of former."
- „ 252, line 9 from top, for "*O. attenuatus*" read "*Q. attenuatus*."
- „ 272, line 9 from bottom, add comma after "shewing."
- „ 294, line 19 from bottom, for "*S. lustrator*, Er." read "*S. lustrator*, Er."
- „ 346, line 19 from bottom, for "*P. sulcicollis*" read "*T. sulcicollis*."
- „ 365, line 13 from bottom, for "*T. attenuata*, Gyll." read "*T. attenuata*, Gill."
- „ 396, line 6 from top, for "*A. similata*, Rye," read "*A. similata*, Rye."
- „ 406, line 14 from top, for "*C. sericea*, Fab." read "*C. sericea*, Panz."
- „ 417, last line, after "*C. pumilio*, Er." add "(14-striata, Sharp's Cat.)"
- „ 423, line 7 from bottom, for "*C. corruscus*" read "*P. corruscus*."

- Page 435, line 13 from bottom, after "*N. obscura*, Fab." add "*(rufipes*, Sharp's Cat.)"
- „ 446, last line, for "*I. ferrugineus*, Fab." read "*I. ferruginea*, Fab."
- „ 471, line 4 from bottom, for "**b.** Antennae" read "**B.** Antennae."
- „ 487, *Scymnus arcuatus*, Rossi is omitted. It is rather smaller than *S. haemorrhoidalis*, and is distinguished by its elytra having two common whitish-yellow horseshoe-shaped lines, open toward front, the lower one enclosing the upper. A single specimen taken in Leicestershire.
- „ 491, line 18 from top, for "*M. picipes*, Herbst." read "*M. picipes*, Payk."
- „ 493, line 13 from bottom, for "**I.** Thorax oblong." read "**I.** Thorax oblong."
- „ 497, line 10 from top, for "before cutellum" read "before scutellum."







