

**Synopsis of the Genera and Species of the Staphylinide
tribe TACHYPORINI of the United States.**

BY GEORGE H. HORN, M. D.

This tribe contains those genera and species in which the prothoracic spiracle is not covered by the side pieces and the antennæ inserted under the side margin of the head, behind the base of the mandibles and usually immediately in front of the eyes.

There is at times a little trouble in deciding positively concerning the insertion of the antennæ, as in certain short-headed *Bolitobius* the antennæ become as it were pushed upwards and the line of demarcation between the present tribe and the group *Quedii* of the next tribe becomes partially obliterated.

As certain heretofore unused characters become prominent in the succeeding pages, each portion of the body will be taken up by itself so that special characters may be mentioned and explained, and the differences and resemblances of genera shown before any tabular arrangement is given.

HEAD broadly oval in most genera, transverse in *Hypocyptini*, elongate to a variable degree in *Bolitobius*. The sides beneath the eyes distinctly margined, *Bolitobii*, or without margin in the other groups.

ANTENNÆ eleven-jointed gradually broader to apex, ten-jointed in *Hypocypti* and with the last three joints stouter or forming a club. Filiform in most genera, slightly compressed in others or slender, loosely articulated, ten-jointed and verticillate, *Habrocerus*, (fig. 30,* a).

MAXILLARY PALPI usually slender, four-jointed, the first very small, second and third equal in length, the latter always stouter, fourth variable, as follows;

slender, elongate, acute at tip, *Habrocerus*, (fig. 35, d);

subulate, *Mycetoporus*, *Conosoma*, *Tachyporus* and the *Hypocypti*, (fig. 35, c);

conical, *Bryoporus*, (fig. 35, b);

filiform, *Tachinus*, *Bolitobius*, *Cilea*, *Physetoporus* and *Erchomus*, (fig. 35, a).

SCUTELLUM visible, triangular; concealed in *Hypocyptus* and *Anacyptus*.

ELYTRA variable in length, prolonged below the sides of the body

*The figure was copied from Erichson and has one joint too many for our species.

in *Erchomus* and *Anacyptus*. Margined at the sides and with distinct epipleuræ, except in *Trichopsenius*.

ABDOMEN margined in all the genera except *Conosoma* and *Trichopsenius* and very feebly in *Anacyptus*.

MESOSTERNUM not carinate in most genera, carinate in *Cilea*, *Physetoporus*, *Erchomus*, *Conosoma* and feebly in *Anacyptus*; flat or feebly concave in *Hypocyptus*; the coxæ rather widely distant *Hypocyptus*, (fig. 4), contiguous in *Habrocercus* and *Trichopsenius*, (fig. 2), and very narrowly separated in the other genera.

METASTERNUM, prolonged in front separating the middle coxæ, in *Hypocyptus*; not prolonged between the coxæ in all other genera. Posterior margin more or less sinuate, rectilinearly truncate in *Anacyptus*, (fig. 3).

POSTERIOR COXÆ, free in all the genera except *Trichopsenius*, (fig. 2), in which they are connate with the metasternum, form variable, usually with a broad expansion concealing the first and part of the second abdominal segments, which is parallel or narrowed externally; articular plate small not concealing the trochanter, rarely *Anacyptus* large, concealing the trochanter and part of the femur. In *Habrocercus* the posterior coxæ consist of the triangular plate merely which conceals the trochanter, (fig. 30).

POSTERIOR TROCHANTER, moderately long, usually truncate at tip, rarely broadly oval, *Trichopsenius*, (fig. 2).

FEMORA, with several setiform hairs from the lower margin at apex frequently absent from the anterior and posterior and entirely wanting in the *Hypocypti*.

TIBIÆ usually spinulose, except in *Hypocyptus* and *Anacyptus*, the anterior tibiæ of *Conosoma* not spinulose but margined with very short closely placed setæ. Tibiæ at tip fimbriate with unequal spinules except in *Conosoma*, *Bryoporus* and some *Mycetoporus* in which the spinules are short, equal and closely placed. Terminal spurs two in number except in *Conosoma* where there appears to be one only on the anterior and posterior pairs and two to the middle pair except in two species where one only occurs.

TARSI, five-jointed, in the *Hypocypti* four-jointed.

All of the special characters mentioned above receive greater mention under the genera in which they occur, one however requires extended notice here.

Under the side of the head in the *Bolitobii*, (fig. 31), may be seen a distinct groove limited beneath by a ridge which starts at the sides of the buccal opening directly opposite and continuous with the lower

edge of the mandible, running backwards in a nearly straight line *under* the insertion of the antennæ and the eyes to the hind angles of the head, slightly curved upward posteriorly. This ridge is homologically equivalent to the margin of the thorax or more accurately the line of division between the upper and lower components of each segment of the body, and indicates that the mentum and maxillæ and their appendages are inferior while the antennæ, mandibles and labrum are superior. In some short-beaked Rhynchophora there is a very distinct suture, indicating the same structure, which starts from the lower border of the eyes, dips down under the head and beak so as to nearly surround the scrobe and passes forward to the side of the buccal opening. Similar faint sutures of like import have been noticed in various other families* in immature specimens, and a more extended study of these sutures about the head will enable its parts to be more correctly homologized with the other segments of the body.

The marginal ridge of the head is found in this tribe in the three genera constituting the group Bolitobii. It reappears as might be inferred in the closely allied group Quedii of the adjacent tribe Staphylinini, and finally entirely disappears in the genera allied to *Staphylinus*. I have seen the ridge in some Alæocharini also, but an investigation of the characters of other tribes not being pertinent to the present essay will be left for a future occasion.

From the importance of several characters noticed in the preceding pages it seems necessary to divide the genera into groups or sub-tribes. This has already been partially done by Fauvel in the "Fauna Gallo-Rhenane," in which three groups are established, one of which I propose to again sub-divide, based on other characters than those in the following table.

The following is the method of sub-division :

Posterior coxæ attaining the side pieces of the metathorax; usually expanded into a plate the free edge of which conceals the first and a portion of the second segment.	
Antennæ ten jointed, tarsi four-jointed.....	Hypocypti.
Antennæ eleven-jointed, tarsi five-jointed.	
Head not margined.....	Tachypori.
Head margined at the sides.....	Bolitobii.
Posterior coxæ triangular. Antennæ ten- tarsi five-jointed.	
Head not margined beneath.....	Habroceri.

* Since the above was written Dr. Leconte has noticed the existence of the ridge on the underside of the head in Cicindelidæ, and an examination made at once showed that while it exists in all our genera of that family it is not present in any of our Carabidæ. Should this hold good with genera not in our fauna it gives an additional character for separating the two families.

The second group contains those genera which may be considered central; that is, while they have evident affinities with the surrounding groups there is no relationship with any of the adjacent tribes. The Hypocypti have considerable affinity with the Alæocharini while the Bolitobii and Habroceri lead in different directions toward the Quedii, the first by the margined head, the second by the structure of the posterior coxæ which resemble the form seen in *Tanygnathus* and *Heterothops* very much more than they do any of the genera of the present tribe.

In all of the books the length of the elytra compared with the body, whether they extend merely to the hind coxæ or are prolonged so as to cover one or two abdominal segments, has been made use of in the separation of the genera allied to *Bolitobius* from the others. This seems entirely illusory and above all unnatural when genera evidently very closely allied like *Habrocerus* and *Trichophyus* are thereby separated even if they are again made to appear adjacent by an adroit manipulation of a table. (See Erichson, p. 28).

The genera of the groups are as follows:

HYPOCYPTI.

Middle coxæ widely separated; mesosternum flat or slightly concave in front.

Antennæ moderately long, with the last three joints forming a loose club.

Posterior coxæ free, with a small articular plate. Abdomen feebly margined.

(Fig. 4).....**Hypocyptus.**

Middle coxæ narrowly separated; mesosternum carinate in front. Antennæ

short, last three joints rather suddenly broader forming a rather compact

club. Posterior coxæ free, with a large triangular articular plate concealing the trochanter and the base of the femur. Abdomen feebly margined.

(Fig. 3).**Anacyptus.**

Middle coxæ contiguous; mesosternum very narrow and deeply depressed between the coxæ, in front flat. Antennæ?

Posterior coxæ connate with the metasternum the articular plates rounded arising from near the front of the metasternum not covering the trochanter which is broadly oval. Abdomen

not margined. Elytra not margined. (Fig. 2).....**Trichopsenius.**

These characters really seem to have more than generic value, but the very few genera and the limited observation possible on the unique representative of one of them forbid at present anything more being done.

TACHYPORI.

Abdomen margined; tibiæ fimbriate at tip with unequal spinules.

Mesosternum not carinate.

Maxillary palpi filiform.....**Tachinus.**

Maxillary palpi with last joint subulate.....**Tachyporus.**

Mesosternum carinate; maxillary palpi filiform.

Epipleuræ horizontal; elytra not extended.

Mesosternum very feebly carinate; anterior tarsi ♂ simple.... **Cilea.**

Mesosternum with strong crest; anterior tarsi ♂ dilated.

Physetoporus.

Epipleuræ nearly vertical, elytra prolonged at the sides beyond the body.

Mesosternum strongly carinate; anterior tarsi ♂ simple... **Erchomus.**

Abdomen not margined; tibiæ fimbriate at tip with short, equal, closely placed spinules.

Maxillary palpi subulate; body finely pubescent..... **Conosoma.**

CILEA (*Leucoparyphus*) is the only genus about which there is any difficulty. The mesosternum is so feebly carinate that it might be placed next to *Tachinus*, from which the simple tarsi of the male and the longer first joint of the hind tarsus will distinguish it.

BOLITOBII.

Maxillary palpi filiform..... **Bolitobius.**

Maxillary palpi with last joint conical, acute. **Bryoporus.**

Maxillary palpi subulate..... **Mycetoporus.**

The tibiæ of *Bolitobius* are fimbriate with unequal spinules at tip, *Bryoporus* the spinules are short, equal and closely placed, as far as our species are concerned, while in *Mycetoporus* a portion of the species have one structure while the rest have the other.

HABROCERI.

Two genera *Habrocerus* and *Trichophyus*, belong to this group, the first only occurring in our fauna. The differences between the two seem to be of extremely feeble importance, the elytra of the first are longer than the breast while they are not longer in the second. By this character alone Erichson and others really widely separate these genera but by an ingenious arrangement of the synoptic table they are made adjacent and again (in the body of the work) separated by *Tachinus*.

The similarity of the hind coxæ of *Habrocerus* and *Tanygnathus** has already been mentioned. The latter genus was placed by Erichson in the present tribe but has been removed to the sub-tribe Quediini for very good reasons.

HYPOCYPTUS Mann.

Antennæ ten-jointed, first two joints robust, three to seven small very gradually longer and broader, eight to ten forming a rather loose elongate club, slightly compressed, each joint longer than that which

* T. COLLARIS, Er. Gen. Staph. p. 289.—Specimens agreeing with the description of this species have been captured by Dr. E. A. Schwarz, in Florida.

precedes. Maxillary palpi with third joint rather stoutly fusiform, fourth small, subuliform. Mesosternum slightly concave (not carinate), receiving the anterior coxæ when contracted; middle coxæ rather widely distant. Epipleuræ narrow, horizontal, elytra not projecting downwards beyond the body. Tarsi four-jointed. Posterior coxæ not connate with the metasternum, articular plate small not covering the femora. Head broad, eyes moderately prominent and coarsely granulated. Scutellum concealed. Body capable of contraction but not to the extent of *Liodes*, etc.

From the above description it will be inferred that several of the most important characters of the genus have been overlooked. The rather widely separated middle coxæ and the slightly concave mesosternum without carina seem to be very important characters and give the species of this genus their power of contractility. The posterior coxæ preserve the general characteristics of the tribe, there is the usual expansion partially concealing two abdominal segments and attaining the metasternal side-pieces, the articular plate is small, not concealing the trochanter and a part of the femur. The articulation between the coxæ and the metasternum is free.

Two species occur in our fauna:

Legs and antennæ pale testaceous.....**Ziegleri.**
Legs piceous, outer joints of antennæ piceous.....**Crotchii.**

H. Ziegleri, Lec.—Black, moderately shining, margin of thorax narrowly pellucid, legs and antennæ testaceous, surface sparsely clothed with greyish pubescence. Head very minutely and sparsely punctulate. Thorax nearly three times as wide as long, narrower in front, base broadly arcuate, surface sparsely minutely punctulate, sides near base narrowly pellucid, hind angles sub-rectangular. Elytra each one wider than long, convex, sparsely punctured and pubescent. Abdomen sparsely punctured and pubescent. Body beneath very finely and sparsely punctulate. Legs pale testaceous.

Male.—Sixth ventral deeply triangularly notched, (Erichs.).

Female.—Segments simple.

The unique female before me was found in Pennsylvania by Mr. Ziegler. In its contracted state it measures nearly .04 inch; 1 mm. It agrees so accurately with the descriptions of *longicornis* that I have doubts of its being distinct. Comparison will be made hereafter.

H. Crotchii, n. sp.

Resembles the preceding in most of the characters and differs as follows: Antennæ longer, joints three to seven especially, longer than the preceding species, joints eight to ten also more elongate and more distant, color testaceous at base gradually darker to tip. Legs piceous. Hind angles of thorax obtusely rounded. Elytra more distinctly punctured. Length .04 inch; 1 mm.

Male.—As in *longicornis*, first joint of anterior tarsus distinctly dilated.

I have seen but one specimen, collected by the late G. R. Crotch in British Columbia.

ANACYPTUS n. g.

Antennæ short, ten-jointed, first two joints stout, joints three to seven forming a rather close funicle with the joints gradually wider, last three joints forming a rather sudden club of elongate oval form, the first joint conical, second transverse, the terminal oval at tip and pubescent at its apical half with rather long pubescence. Maxillary palpi with the first joint very small, second moderately long and slender, third elongate oval, truncate at tip, fourth slender, subulate. Eyes moderately prominent, rather coarsely granulated. Mesosternum in front of coxæ short, not concave, distinctly carinate at middle, the coxæ narrowly separated. Metasternum posteriorly rectangularly truncate. Hind coxæ as in *Hypocyptus*, but with large articular plates concealing nearly half the femur. Elytra expanded beyond the body, epipleuræ broad but vertical. Abdomen very feebly margined. Tarsi four-jointed.

A very remarkable genus seeming to exhibit some affinity with the Trichopterygidæ notably *Limulodes*. The joints three to seven of the antennæ are conjointly very little longer than the second.

We have but one species in our fauna, but several that have been described as *Hypocyptus* from Europe and elsewhere seem to belong here.

A. testaceus, Lec.—Rufo-testaceous, moderately shining, sparsely pubescent, convex. Head broad, smooth, sparsely pubescent. Antennæ not as long as head and thorax. Thorax twice as wide as long, convex, very sparsely punctured and pubescent, base slightly sinuate on each side, hind angles sub-acute and slightly prolonged. Elytra each wider than long, arcuately narrowing to apex; apex conjointly emarginate, surface finely punctured in a very regular *quincunx*, the punctures connected by very fine oblique lines, sparsely pubescent. Abdomen feebly margined, sparsely punctured and pubescent, beneath slightly darker in color. Body beneath concolorous, metasternum and articular plate of hind coxæ punctured in regular *quincunx*. Length .03 inch; three-fourths mm. (fig. 3).

The resemblance superficially in color and form to *Limulodes paradoxus* is still further increased under the lens by the peculiar sculpture of the elytra which is nowhere else seen in the tribe. The expansion of the elytra downward beyond the body also resembles that insect, but beyond these points all resemblance ceases.

Four specimens from Georgia and three from Arizona, exhibit no specific differences.

TRICHOPSENIUS n. g.

Antennæ normally inserted, first two joints as in *Hypocyptus*; joints three to ten not seen. Palpi not present. Mesosternum short in front of coxæ and obtusely elevated, deeply depressed between the coxæ and very narrow so that the coxæ are contiguous without the cavities being confluent. Posterior coxæ connate with the metasternum, the articular plates connate at middle and arising from the face of the metasternum. Elytra not prolonged beyond the body, epipleuræ narrow, horizontal. Scutellum visible. Tibiæ distinctly spinulose. Hind trochanters broadly oval. Hind tarsi four-jointed, anterior and middle absent in the specimen. Abdomen not margined. Form oblong, depressed, surface glabrous, elytra with three transverse rows of setæ.

That this genus belongs to the present tribe there can be no doubt from the insertion of the antennæ, but it is equally certain that it is a rather anomalous member. The contiguity of the middle coxæ, the absolute fusion of the metasternum and the posterior coxæ and the articular plates arising apparently from each side of the middle of the metasternum and even extending forward close to the middle coxæ are certainly very remarkable characters.

The entire absence of antennæ (except the two basal joints), deprives me of the means of approximating this genus to its allies with absolute certainty. The four-jointed posterior tarsi cause me to place it provisionally near *Hypocyptus*, with the hope that at some future time perfect specimens may enable me to speak with greater certainty. The curious specific character found in the arrangement of the erect hairs on the elytra will enable the insect to be known whenever re-found.

T. depressus, Lec.—Testaceous, very shining. Head and thorax smooth, shining, absolutely impunctured. Thorax not twice as wide as long, sub-depressed, sides slightly arcuate and a little narrower in front, base truncate, hind angles rectangular. Elytra each quadrangular with equal length and width, sub-depressed, smooth, glabrous, and with three transverse rows of erect setæ numbering four or five in each row. Abdomen conical, shining, sparsely setulose. Body beneath shining, abdomen sparsely setulose. Length .05 inch; 1.25 mm. (figs. 1 and 2).

The legs of this insect are relatively stouter than in any genus of the tribe. From the extremity of the abdomen there project two rather stout corneous processes. The abdomen is however so retracted that I am unable to say whether these are sexual or not.

One injured specimen, Georgia.

TACHINUS Grav.

From their superficial similarity the species of this genus are in great confusion in most if not all collections, owing to the fact that the characters which should be relied on for their separation, have been lost sight of by our collectors.

The sculpture is remarkably uniform, differing a very little with each species, not sufficiently to be described, yet enough to enable a mixed series to be separated with a very great degree of accuracy by an experienced eye. In this way the sexes must be approximated, if by any accident collections are in confusion. Color is of extremely little value and should never be depended on.

The characters made use of in the following tables are drawn entirely from the variations in form of the last two ventral and the terminal dorsal segments of the two sexes, but before giving the table it will be necessary to enter into some explanation of the characters so that they may be properly understood.

Males.—Anterior tarsi always dilated.

The last ventral segment in all the species is deeply divided forming processes (*laciniae*), of varying shape, frequently long, slender and decurved, resembling somewhat the forceps of Forficula, often broader in the form of triangular plates. The sixth segment varies also in form and sculpture. In most species the hind margin is notched or emarginate and the surface concave or impressed, the impression in several instances extending on the fourth and fifth segments also. The surface of this concavity in the sixth ventral is sometimes entirely filled with very short and stout spinules among which dirt becomes entangled, so that Erichson and others have erroneously called this a spongy space. In other species this spinous space is of more limited extent and may be confined entirely to the middle of the posterior margin, or entirely absent. In a few species there is no concavity of the sixth ventral.

The hind margin of the sixth ventral may be truncate or variously emarginate and with a secondary emargination near the side. In the first eleven species the margin is fimbriate with stiff, closely set spinules forming a comb-like structure, the middle of the edge for a short distance being usually without them. Four moderately long, slender setæ belong to this segment, two arising from the surface in the usual position of the ambulatorial setæ, while two others more distant arise from the margin. In those species without the pectinate margin the

"spongy" space may occur, sometimes as a very narrow border along the middle of the hind margin and often as a hoof-shaped space usually of small extent.

The other abdominal segments present nothing of moment except in *fimbriatus* and *picipes*, in which the first two segments at middle are elevated in a carina. The last dorsal segment has a tolerably uniform structure in all the species, the tip being four dentate, the middle teeth more prominent, the lateral shorter and usually rectangular. In several species the middle teeth unite forming an obtuse process. The sixth dorsal presents nothing peculiar, the margin is either truncate or very slightly sinuate.

Females.—Anterior tarsi not dilated.

The structure of the terminal abdominal segments is much more complicated and difficult of description than in the males. To render the subject plainer it is well to start with the simpler form which occurs in *luridus* and *nigricornis*. In these the last ventral is said to be entire; it is wider than long, the sides regularly arcuate forming an oval tip. The tip is fimbriate with short, equal spinules, for a distance about equal to a fourth of the entire free edge of the segment, this fimbriate space is limited on each side by a minute tooth bearing a long, slender seta, and half-way between this and the anterior angle of the segment is another small tooth bearing a seta.

The next modification of this structure arises from the middle of the tip being very slightly notched, separating the spinules into two groups, while the lateral setæ arise from two well marked teeth on each side. This is the structure in *circumcinctus*. Parallel with this modification another occurs in which the lateral teeth become developed into processes, the middle lobe being thus rendered apparently longer although still entire at tip and fimbriate, *mimus*, *debilis*.

In *angustatus* the middle lobe becomes more deeply notched and prominent, but the two processes thus formed are still broad and with numerous spinules, the lateral teeth become more acute and longer.

From this form the development of the structure found in most of the species can be easily seen. The middle processes become gradually longer and more slender while the spinules degenerate into short hairs, the lateral teeth gradually elongate and become spiniform processes and their setæ shorter and more slender. The most advanced species in the slenderness of these processes is probably *fimbriatus*. From

their number the last ventral segment is usually said to be "six-spinous." The last dorsal however undergoes the most important changes, all however traceable to the development of a primary simpler form.

The simplest type of structure seems to be that of *maculicollis*, in which the last dorsal is deeply divided at middle forming two triangular processes broad at base, acute at tip. The first modification of this appears in *limbatus*, in which these processes become more slender and between them appears an oval plate acute at tip and about half their length. This middle lobe next becomes elongated so as to equal the lateral lobes and is bifid for a short distance at tip (*frigidus*), or becomes cleft entirely to base forming slender processes, similar to those at the sides. These in turn become one-fourth shorter than the lateral processes although slender, as in *angustatus* and several others. As these processes become still shorter they also become broader and finally unite forming a trapezoidal plate acutely notched at tip as in *fimbriatus*. The next change is in *memnonius* in which the plate becomes narrower, more elongated and with a small notch at tip, and finally it becomes as long and nearly as slender as the lateral teeth with the tip acutely divided as in *canadensis* and *tachyporoides* the division being at times (*instabilis*), so minute that the middle process is slender at tip, similar to those at the sides and equal in length. The middle process while remaining slender has a lateral tooth arise on each side, acute and much shorter than the main stem, as is seen in *Crotchii*. The three processes now (*instabilis*), approximate and finally (*nigricornis*, *luridus*, *circumcinctus*) unite, being separated at tip by a slight notch and a groove on the upper surface, the middle lobe is prominent and acute in *nigricornis* and *luridus*, or broader and emarginate at tip in *circumcinctus*.

These sexual modifications of TACHINUS form a very interesting study, without a knowledge of them it is impossible to separate the species correctly.

The following tables are based on the characters above mentioned, the males and females being considered entirely apart and independently of each other, although it frequently happens that the one sex of two species may be very similar while the opposite sex is altogether different.

The following will readily distinguish the males.

Sixth* ventral segment pectinate on its hind margin.

With spongy space on the lower face of the segment at middle.

Spongy space divided longitudinally, (fig. 5).....**maculicollis.**

Spongy space entire, large.

Covering the entire impression of the segment, (fig. 6).....**semirufus.**

On the centre of the impression only, (fig. 7)..... **memnonius.**

Without spongy space, merely a few scattered granular tubercles.

Sixth ventral broadly and feebly emarginate, the spinules forming a continuous series, (fig. 8).....**tachyporoides.**

Sixth ventral narrowly and feebly emarginate, spinules arranged in a group on each side of the emargination.

Elytra smooth, last dorsal of male normal, abdomen shining, very sparsely punctured, segments not impressed, (fig. 9).....**agilis.**

Elytra distinctly punctured.

Last dorsal of male normal, ventral segments not impressed, elytra less coarsely punctured, (fig. 10).....**angustatus.**

Last dorsal of male tridentate, ventral segments four, five, six, distinctly impressed, elytra coarsely punctured, (fig. 11).....**debilis.**

Sixth ventral very deeply emarginate, the angles prolonged.

The spinules bordering the entire emargination, (fig. 12).....**repandus.**

The spinules divided into three groups, (fig. 13)..... **scrutator.**

The spinules at the tips of the processes only.

Processes of sixth ventral acute. Elytra smooth. Abdomen sub-opaque, finely and rather densely punctulate, (fig. 14)**mimus.**

Processes of sixth ventral obtuse. Elytra coarsely punctured. Abdomen shining, sparsely punctulate, (fig. 15).....**addendus.**

Sixth ventral segment not pectinate posteriorly.

Form parallel, abdomen not narrowed except at tip, (fig. 16)...**parallelus.**

Abdomen gradually narrowed from base to tip.

Sixth ventral with spongy space on the face of the segment.

Abdomen rather coarsely punctured.

Elytra piceous or rufo-piceous, distinctly punctulate, (fig. 17).

nigricornis.

Elytra luteous, scarcely visibly punctulate..... **luridus.**

Abdomen very obsoletely punctured.....**canadensis.**

Sixth ventral without spongy space on face of segment.

First two ventral segments strongly carinate at middle.

Laciniae of last ventral long and arcuate; last dorsal acutely toothed, (fig. 18)..... **fimbriatus.**

Laciniae shorter, straight; last dorsal with short teeth, (fig. 19).

picipes.

First two ventral segments not or feebly carinate at middle.

Sixth ventral (sometimes fifth also), concave, emarginate posteriorly.

Posterior margin of sixth ventral emarginate at middle and at sides, (fig. 20).....**Schwarzi.**

*In using the above table with European works at hand, it must be remembered that Erichson, Redtenbacher, Mäklin and others, consider the last ventral as the sixth. There are seven very distinct ventral segments, the first in great part concealed. The sixth of the above table is the equivalent of the fifth of those authors.

Posterior margin emarginate at middle only.

Posterior margin plain, without spongy border at middle.

Thorax entirely testaceous.....**limbatus.**

Thorax piceous with narrow testaceous border.

Elytra scarcely visibly punctulate; laciniae broad.

fumipennis.

Elytra distinctly punctulate; laciniae slender.....**frigidus.**

Posterior margin of sixth ventral with a narrow spongy border at middle.

Elytra as wide or wider than long; color piceous, thorax with entire margin paler.....**Crotchii.**

Elytra longer than wide; color castaneous, thorax entirely black (except when immature).....**instabilis.**

Sixth ventral not concave nor emarginate.

Last dorsal four-dentate; elytra coarsely and irregularly punctured.

circumcinctus.

Last dorsal three-dentate; elytra coarsely and evenly punctured.

nitiduloides.

The following table applies entirely to the females of each species and is intended to be merely supplementary to the previous table, showing how in many cases the females differ considerably while the males are closely allied, and at the same time females are here approximated whose males are more widely separated above.

Last ventral entire or very nearly so, (fig. 17, c); last dorsal with the three lobes connate, (fig. 17, b).....**luridus, nigricornis, circumcinctus.**

Last ventral divided into six processes, usually long and slender.

Last dorsal deeply bilobed, (fig. 5, d).....**maculicollis.**

Last dorsal trilobed, lobes usually slender, the middle one variable, either entire, emarginate, bifid or trifid.

Middle lobe as long as the lateral, its form,

slender, with a shorter process on each side, (fig. 24).....**Crotchii.**

slender, tip either entire or very feebly notched, (fig. 25 and 11, d).

instabilis, debilis.

broader, tip notched one-third toward base, (fig. 21).....**canadensis,**

agilis, frigidus, nitiduloides.

deeply divided forming two slender processes, (fig. 8, b)...**parallelus,**

tachyporoides, picipes, fumipennis, repandus.

broad, tip broadly triangularly notched, (fig. 20, b).....**Schwarzi.**

Middle lobe shorter than the lateral, its form,

broadly oval, rarely with a very feeble notch at tip, (fig. 22)...**limbatus.**

broad, triangularly notched at tip, (fig. 18, c).....**fimbriatus.**


more slender, feebly notched, (fig. 7, b).....**memnonius.**

deeply divided, forming slender processes, (fig. 6, b).....**angustatus,**

semirufus, mimus, addendus.

T. maculicollis, Mäklin.—Piceous, shining, entire thoracic margin and sides of elytra paler. Head black, antennæ piceous, four basal joints paler. Thorax very finely alutaceous. Elytra longer than wide, very finely alutaceous and very minutely and sparsely punctulate. Abdomen more distinctly punctulate than the elytra. Body beneath very sparsely punctured, abdomen more

distinctly. Legs pale. The sculpture of the upper surface of the thorax and abdomen consists of fine, short, transverse lines, that of the elytra resembling a cellular arrangement. Length .22—.26 inch; 5.5—6.5 mm.

Male.—Last ventral deeply cleft, forming long, slender, curved laciniae; sixth ventral emarginate at middle the outline resembling a brace , and with a secondary emargination external to this; posterior margin with equal spinules closely placed forming a comb-like structure. Face of segment concave with a granular space at middle divided longitudinally by a smooth line. Last dorsal segment four-dentate, teeth acute, the median somewhat longer, (fig. 5, a, b).

Female.—Last ventral six-spinous, the two central processes broader than the lateral and fimbriate at tip. Last dorsal deeply divided forming two elongate triangular processes, (fig. 5, c, d).

The sexual characters abundantly distinguish this species, superficially it resembles a number of others.

Occurs in Alaska, (Mäklin); Vancouver, (Crotch).

T. semirufus, n. sp.—Rufous, shining, elytra with darker cloud posteriorly. Head black, antennae dark rufous, four basal joints paler. Thorax uniformly rufous. Elytra slightly longer than wide, sculpture of upper surface as in *maculicollis*. Body beneath and legs paler rufous. Length .24—.30 inch; 6—7.5 mm.

Male.—Last ventral deeply cleft, laciniae shorter and less curved than in *maculicollis*; sixth ventral concave, the concavity densely covered with short spinous granules, hind margin sinuous with spinules on each side of middle, lateral portion of margin truncate. Last dorsal as in *maculicollis*, (fig. 6, a).

Female.—Last ventral similar to that of *maculicollis*. Last dorsal trilobed, the middle lobe shorter than the lateral and deeply divided, forming two slender processes, (fig. 6, b).

Occurs at Lake Tahoe and Gilroy (Crotch), California.

T. memnonius, Grav.—Uniformly piceous, moderately shining. Elytra slightly longer than wide, sculpture as in *maculicollis*, punctuation of elytra somewhat more evident. Underside paler than above, legs testaceous. Varies in color to piceo-testaceous from immaturity. Length .22—.32 inch; 5.5—8 mm.

Male.—Last ventral as in *maculicollis*; sixth concave, the depression partially filled with spiniform granules, hind margin as in *maculicollis* but not emarginate at the sides, (fig. 7, a).

Female.—Last ventral as in *maculicollis*. Last dorsal similar to *semirufus* but with the middle lobe less deeply cleft but broader at base and the lateral lobes more slender, (fig. 7, b).

In some of the Canadian and all of the British Columbia specimens, the middle lobe of the last dorsal segment ♀ is rather more deeply cleft. This does not appear to be of specific value as the males are not distinguishable.

Occurs from Canada and New Hampshire to North Carolina, and westward to British Columbia.

T. tachyporoides, n. sp.—Piceous, shining. Antennae half the length of body, slender, concolorous. Thorax smooth, shining. Elytra slightly longer than wide, very indistinctly alutaceous, shining. Abdomen shining, with very

few minute punctures, almost entirely smooth beneath. Length .18—.20 inch; 4.5—5 mm.

Male.—Last ventral deeply divided, lobes not divergent nor curved. Sixth ventral subtruncate, feeble emargination at middle, pectinate along the margin with very short spinules forming a continuous series, a few spiniform tubercles near the posterior margin and several on the fifth ventral. Last dorsal four-dentate but with the teeth more acute than in *maculicollis*, (fig. 8, a).

Female.—Last dorsal with lateral lobes rather slender, middle lobe slender, as long as the lateral, cleft half to base, (fig. 8, b, too deeply cleft).

The facies of this species is somewhat that of *Tachyporus*, being more robust in body and more attenuated posteriorly than any species of *Tachinus* in our fauna, this together with the longer antennæ gives it a facies altogether peculiar. It is however a true member of the present genus. The color is variable, mature specimens are entirely piceous, others less mature have the thorax and elytra more or less bordered with testaceous and their legs paler.

Occurs in California, Vancouver and North Red River.

T. agilis, n. sp.—Form and sculpture of *tachyporoides*, but somewhat darker in color, legs always piceous. Length .18—.20 inch; 4.5—5 mm.

Male.—Last ventral deeply, acutely emarginate, forming broad triangular plates, sixth ventral semicircularly emarginate at middle, spinules short, arranged at each extremity of the emargination, face of segment broadly longitudinally impressed, a few granules near the emargination. Last dorsal as in *tachyporoides*, (fig. 9, a).

Female.—Last ventral with six processes, the two middle rather short and broad. Last dorsal with middle lobe as long as the outer cleft one-third to base, (fig. 9, b).

This species resembles *tachyporoides* so closely that the sexual differences of the males alone separate them. The females do not differ except slightly in color. From *angustatus* besides the sexual differences, the form of *agilis* is much more robust and convex.

Occurs in California, Crystal Springs.

T. angustatus, n. sp.—Form slender, piceous black, shining. Antennæ slender, entirely piceous. Thorax shining, with a few very minute punctures sparsely placed. Elytra slightly longer than wide, shining, obsoletely punctured. Abdomen sparsely and finely punctured, scarcely at all alutaceous. Length .20 inch; 5 mm.

Male.—Last ventral deeply divided, forming two triangular processes not curved and rather short. Sixth ventral feebly concave, broadly emarginate at middle, on each side pectinate with rather long spinules, hind margin at middle with narrow spongy space, face of segment without it. Last dorsal as in *maculicollis*, (fig. 10, a).

Female.—Last ventral as in *maculicollis*. Last dorsal with rather broad lateral lobes, middle lobe about three-fourths as long and deeply divided forming two slender processes, (fig. 10, b).

Four specimens, two ♂, one ♀ Colorado, one ♂ California.

The spinules which occur on the sixth ventral of the male are rather long and directed obliquely outward, and not as in the preceding species directly backward.

T. debilis, n. sp.—Pitchy black, sides of thorax narrowly paler. Head and thorax smooth, shining. Elytra as wide as long, moderately, densely and coarsely punctured, not alutaceous. Abdomen sparsely punctured, finely alutaceous, beneath more distinctly punctured. Legs piceous, tarsi testaceous. Antennæ piceous, apical joint paler. Length .10 inch; 2.5 mm.

Male.—Last ventral deeply, triangularly notched, forming two plates as in *angustatus*, sixth ventral broadly emarginate, the border narrowly spongy at middle and at each end spinulose, face concave, the depression extending also on the next two segments. Last dorsal tridentate, the middle tooth broad and truncate at tip, pellucid along the middle, (fig. 11, a, b).

Female.—Last ventral similar to that of *mimus* with the middle lobe somewhat broader. Last dorsal with three slender, equal processes, the middle truncate at tip, (fig. 11, c, d).

Three specimens collected by Mr. G. R. Crotch, at Crystal Springs, California, and at Vancouver.

This species resembles *nitiduloides* in form and sculpture, but the ♂ of the latter has scarcely any emargination of the sixth ventral and no depression, while the females differ still more in their sexual characters. In the specimen ♂ before me the spinules of the sixth ventral have been accidentally lost, there remain however the deep perforations in which they were inserted. A specimen in Mr. Ulke's cabinet is perfect. The last dorsal if seen by transmitted light appears quadridentate owing to the middle of the central tooth being thin and translucent.

T. repandus, n. sp.—Piceous shining, sides and base of thorax paler. Head and thorax very finely alutaceous, scarcely visibly punctulate. Elytra as broad as long, finely alutaceous, obsolete finely punctulate. Abdomen sparsely punctulate at the sides of the penultimate dorsal, the segments all longitudinally wrinkled at middle, not alutaceous, beneath as above. Antennæ long, slender, piceous, two basal joints paler. Legs testaceous. Length .18 inch; 4.5 mm.

Male.—Last ventral as in *tachyporoides*, sixth very deeply emarginate, and on each side sinuate, the emargination entirely filled with rather long stout spinules. Last dorsal as in *tachyporoides*, (fig. 12, a).

Female.—The last dorsal is deeply divided into four slender processes, (fig. 12, b).

This species greatly resembles *scrutator* but is darker in color and with different sexual characters. The spinules in the emargination of the sixth ventral are comparatively long and stout; there is also a depression of the face of the segment close to the margin but no evidence of granules.

Three ♂, one ♀, Louisiana, Ulke; Michigan and Trenton Falls, New York, Dr. Schwarz.

T. scrutator, Horn.—Pale piceo-testaceous, shining. Head black, very finely alutaceous. Thorax testaceous, smooth, shining, apical region somewhat darker in color. Elytra piceo-testaceous, smooth, shining. Abdomen similar in color, apical margins of segments paler, surface smooth, without sculpture, beneath as above. Legs testaceous. Antennæ piceous, two basal joints paler. Length .14 inch; 3.5 mm.

Male.—Last ventral as in *tachyporoides*, sixth ventral deeply emarginate at middle, on each side sinuate, spinules arranged in three groups, one at each end of the emargination, the other at its bottom. Last dorsal as in *tachyporoides*, (fig. 13).

Female.—Unknown.

The color as above described accords with that given by Melsheimer, (*T. discoideus* || Mels. Proc. Acad. 1844, p. 32), but is probably subject to variation and may become more or less piceous. The size given is smaller than Melsheimer's, and there may even be some doubt as to the correctness of the identification, but I can find no species to which the description can be better applied. This species has been placed in *Leucoparyphus* in all recent publications, but the anterior tarsi of the male are dilated and the mesosternum not carinate.

One male, Illinois.

T. mimus, n. sp.—Piceous shining, sides of thorax somewhat paler. Head and thorax very minutely punctulate and scarcely perceptibly alutaceous. Elytra as broad as long, distinctly alutaceous. Abdomen above and beneath rather densely punctulate, finely pubescent, subopaque. Legs rufo-piceous, tarsi paler. Antennæ long, black, two basal joints paler. Length .16 inch; 4 mm.

Male.—Last ventral deeply and acutely notched as in *angustatus*, sixth ventral very deeply emarginate, prolonged on each side of the emargination, and laterally with a sinuation, spinules arranged on the tips of the prolongation; lower face of segment distinctly concave with a granular space distant from the margin in form of a hoof. Last dorsal quadridentate, the middle teeth somewhat longer, (fig. 14, a).

Female.—Last ventral with the middle processes united, forming one obtuse lobe, lateral processes slender. Last dorsal with the middle lobe deeply bifurcate, shorter than the outer lobes, the latter broader, as in *semirufus*, (fig. 14, b).

Two specimens from Oregon have been given me by Mr. H. Ulke, another pair remains in his cabinet.

T. addendus, n. sp.—Piceous, shining, sides of thorax and elytra paler, legs testaceous. Head black, shining, extremely finely alutaceous and minutely punctulate. Antennæ black, four basal joints piceo-testaceous. Thorax piceous, sides and base paler, sparsely finely punctulate. Elytra piceous, humeral space and narrow margin at the sides paler, rather coarsely punctulate. Abdomen piceous, posterior margins of segments paler, surface sparsely finely punctulate. Body beneath piceous, abdomen sparsely punctulate. Legs rufo-testaceous. Length .16 inch; 4 mm.

Male.—Sixth ventral very deeply and suddenly emarginate, the angles of the emargination prolonged, obtuse and spinulose, face of segment impressed, with

numerous granules. Last ventral deeply triangularly notched as in *mimus*. Last dorsal normally quadridentate, (fig. 15, a).

Female.—Last ventral with the usual six processes the two central broader and fimbriate. Last dorsal with the middle lobe slightly shorter than the outer, deeply divided into two slender processes, (fig. 15, b).

The characters given in the table will at once enable this species to be known.

Two specimens kindly sent me by Dr. E. A. Schwarz, collected at Bachewauung Bay, Lake Superior.

T. parallelus, n. sp.—Form parallel, color piceous, thorax, elytra, antennæ and legs rufous. Head black, smooth, shining, a faint vertical fovea. Thorax rufous, shining, finely alutaceous and very minutely sparsely punctured. Elytra slightly longer than wide, rufous, hind margin slightly darker, surface faintly sulcate, finely alutaceous and rather coarsely but sparsely punctured. Abdomen piceous, hind margins of segments paler, surface very minutely alutaceous and finely and sparsely punctured. Legs rufous. Length .24—.26 inch; 6—6.5 mm.

Male.—Last ventral deeply divided, laciniae stout but arcuate; sixth ventral scarcely at all concave, broadly emarginate, without spinules or spongy space. Last dorsal four-dentate the lateral teeth short obtuse, (fig. 16, a).

Female.—Last ventral as in *maculicollis* but with the middle lobes rather broader. Last dorsal with the lateral lobes rather stout and sinuate near the tip, middle lobe slightly longer than the outer lobes and divided to the base in two slender processes, (fig. 16, b).

This species is of more parallel form than any other in our fauna, and its facies is that of *Olisthaerus* but more convex.

Occurs in Illinois and Canada.

T. nigricornis, Mann.—Black, shining, elytra dark-brown, legs piceotestaceous. Head and thorax black, minutely and sparsely punctulate and obsoletely alutaceous. Elytra slightly longer than wide, distinctly punctulate, obsoletely alutaceous and with two rows of distant and larger but obsolete punctures. Abdomen finely alutaceous, sparsely punctured more densely at base, beneath more coarsely punctured. Antennæ piceous. Length .24—.26 inch; 6—6.5 mm.

Male.—Last ventral deeply divided forming two triangular processes not curved nor slender. Sixth ventral emarginate at middle, not pectinate, at middle concave, the concavity entirely filled with acute granules. Last dorsal as in *maculicollis*, (fig. 17, a).

Female.—Last ventral entire middle lobe fimbriate, lateral processes indicated by small teeth only. Last dorsal entire, trilobed, lobes united, the middle longer and acute, (fig. 17, b, c).

Occurs from Alaska to Vancouver.

T. luridus, Erichson.—Piceous, shining, elytra pale luteous, legs testaceous, antennæ ferruginous, basal joints paler. Head and thorax black, sculptured as in *nigricornis*. Elytra not longer than wide, very minutely punctulate. Abdomen more finely punctured than *nigricornis*, but beneath similarly. Length .24 inch; 6 mm.

Male.—As in *nigricornis*, with the granular space on the face of the sixth segment more irregular.

Female.—As in *nigricornis*.

By description this and the preceding species are very closely allied, they differ however in the former having a different color and elytral sculpture, the elytra longer and the spongy or granular space on the ♂ sixth segment in form of a hoof and in the present species very irregular.

Occurs from Canada to Georgia.

T. canadensis, n. sp.—Piceous, thorax at sides, elytra at base broadly, sides and apex narrowly, testaceous. Legs testaceous. Antennæ ferruginous, four basal joints paler. Head black, finely alutaceous, sparsely punctulate. Thorax very finely alutaceous. Elytra distinctly longer than wide, finely alutaceous, sparsely punctulate. Abdomen similarly sculptured, beneath smoother, scarcely punctulate. Length .22—.24 inch; 5.5—6 mm.

Male.—As in *nigricornis*.

Female.—Last ventral as in *maculicollis*. Last dorsal trilobed, the lobes equal, the middle slightly bifid at tip, (fig. 21).

This species is one of those in which the one sex closely resembles in its characters an adjacent species, while the other sex presents widely different characters from the corresponding sex of that species.

Occurs in Illinois and Canada.

T. fimbriatus, Grav.—Piceous, elytra pale castaneous, tip narrowly piceous. Antennæ black, four basal and the last joint pale. Head and thorax black, very minutely punctulate and very finely alutaceous. Elytra as wide as long, minutely alutaceous, rather coarsely sub-striato-punctate. Abdomen shining, sparsely punctulate, beneath rather more coarsely punctulate. Legs piceous or piceo-rufous. Length .28—.36 inch; 7—9 mm.

Male.—Last ventral deeply divided forming long, slender, curved laciniae; sixth broadly emarginate at middle, the centre of the emargination narrowly bordered with granules, face concave. Metasternum frequently elevated in a crest posteriorly. Inner angle of posterior coxæ often toothed, (fig. 18, a, b).

Female.—Last ventral as in *maculicollis* but with the two median processes more slender. Last dorsal trilobed, the outer lobes slender, the middle broader and shorter and triangularly notched at tip, (fig. 18, c).

In both sexes the first two ventral segments are carinate at middle.

Occurs from Canada to North Carolina.

T. picipes, Erichson.—Uniformly piceous, moderately shining. Antennæ with the four basal and the apical joint paler. Head and thorax very minutely punctulate and finely alutaceous, the latter with a feeble trace of median impressed line. Elytra as broad as long, sparsely punctured and finely alutaceous. Abdomen finely punctured and alutaceous, beneath more evidently punctured than above. Length .28—.32 inch; 7—8 mm.

Male.—As in *fimbriatus* with the laciniae nearly straight, (fig. 19, a).

Female.—Last ventral as in *fimbriatus*; last dorsal as in *parallelus*, (fig. 19, b).

As in the preceding species the first two ventral segments are carinate at middle.

Occurs from Canada to Virginia.

T. Schwarzi, n. sp.—Piceous black, shining. Antennæ as in *picipes*. Head and thorax extremely finely alutaceous. Elytra slightly longer than wide, obsolete subsulcate, sparsely but very distinctly punctured, minutely alutaceous. Abdomen minutely punctured, scarcely visibly alutaceous, beneath more distinctly punctured. Length .32 inch; 8 mm.

Male.—As in *picipes*, (fig. 20, a).

Female.—Last ventral as in *fimbriatus*, last dorsal with the middle lobe broader than the lateral, as long, tip triangularly notched, (fig. 20, b).

This species is one of the discoveries of Dr. E. A. Schwarz, of Detroit. It has no carination of the first two ventral segments.

Occurs near Detroit, Michigan.

T. limbatus, Mels.—Pale testaceous, very shining, elytra piceous with broad lateral and narrow apical margin pale. Antennæ rufous, four basal and two terminal joints paler. Head black, with few minute punctures. Thorax testaceous, smooth. Elytra as broad as long, sparsely punctured, minutely alutaceous. Body beneath more distinctly punctured. Length .28—.30 inch; 7—7.5 mm.

Male.—Lacinia of last ventral short and broad as in *luridus*, sixth ventral emarginate at middle, a narrow granular margin at middle, face concave, last dorsal as in *maculicollis*.

Female.—Last ventral as in *maculicollis*. Last dorsal with the outer lobes slender, middle lobe short, broad, and oval, sometimes pointed at tip and with the tip very finely bifid, (fig. 22).

This species occurs especially in the Middle States.

T. fumipennis, Say.—Piceous, shining, sides of thorax, basal and apical margins of elytra and apical margins of abdominal segments testaceous. Antennæ piceous, two basal joints paler. Head and thorax minutely punctulate, finely alutaceous, the thorax with sides broadly, the apex and base narrowly testaceous. Elytra not longer than wide, sculptured as the thorax, piceous, humeral spot and basal band broader at middle and apex narrowly, testaceous. Abdomen more distinctly punctured than the thorax, apical margins of segments paler, beneath sculptured as above. Legs testaceous. Length .24—.30 inch; 6—7.5 mm.

Male.—As in *limbatus*, the granular margin however barely visible.

Female.—Last ventral as in *maculicollis*, last dorsal as in *parallelus*.

There is no difficulty in distinguishing this species excepting possibly from *frigidus*, from this the general arrangement of color must be the guide, together with a more distinct punctuation of the latter. From *Crotchii* and *instabilis* the female last dorsal is the best distinction.

Occurs from Pennsylvania to Florida.*

* While reading the proof of the above I have received the Canad. Ent. May, 1877, and find some remarks on this species by Mr. Austin. By his courtesy

T. frigidus, Erichs.—Piceous black, shining, margin of thorax, base and sides of elytra and four basal joints of antennæ rufo-testaceous. Head and thorax minutely punctulate, finely alutaceous. Elytra slightly longer than wide, finely punctured, minutely alutaceous. Abdomen more finely punctured than the thorax, finely alutaceous. Length .20—.24 inch; 5—6 mm.

Male.—Lacinia of last ventral slender, not elongate, feebly curved, sixth ventral feebly emarginate without granular margin at middle. Last dorsal as in *maculicollis*.

Female.—Last ventral as in *maculicollis*. Last dorsal with lateral lobes slender median broader, as long as the lateral, broad at base narrow at tip and rather deeply cleft, (fig. 23).

This species resembles *canadensis* but is distinguished by the characters peculiar to each sex. In the females there is a tendency in the middle lobe of the last dorsal to become more deeply cleft and the processes rather more divergent.

Occurs from Pennsylvania to Canada, Alaska and California, and has been erroneously considered as *luridus* in collections.

T. Crotchii, n. sp.—This species resembles *frigidus* so closely that no further description is necessary, it is however usually somewhat larger. Length .24—.26 inch; 6—6.5 mm.

Male.—As in *frigidus*.

Female.—Last ventral as in *frigidus*, lacinia somewhat stouter, sixth ventral with narrow spongy border at middle. Last dorsal with the outer lobes slender, middle lobe as long, broad at base, tip acute, on each side a slender acute process, (fig. 24).

Collected by G. R. Crotch in Vancouver.

T. instabilis, Mäklin.—Pitchy black, moderately shining, elytra dark castaneous. Antennæ piceous. Head and thorax black, the latter with the sides rarely slightly paler, surface sparsely punctulate and obsoletely alutaceous. Elytra distinctly longer than wide, finely punctate and alutaceous. Abdomen similarly but less distinctly sculptured. Legs piceo-testaceous. Length .22—.24 inch; 5.5—6 mm.

Male.—Similar to *nigricornis*, without granular space on the face of segment but a narrow border at middle of emargination.

Female.—Last ventral as in *memnonius*. Last dorsal with three slender equal processes, the middle sometimes feebly cleft at tip, (fig. 25).

The males of this species resemble closely *nigricornis*, the females are easily known.

I had the privilege of examining the types of his remarks and find that his *fumipennis* and *axillaris* are but slight variations of the same species. Mr. Austin is mistaken in intimating that Say described "several allied species." *T. colonus*, Sachse, is by no means distinct from the above. The entire difficulty has arisen, it appears to me, from having ♀ *frigidus* mixed with *fumipennis*, as the former was unknown to Mr. A. at the time the paper was written. The number of impressed segments of the abdomen is not a specific character as may be demonstrated by any six ♂ specimens of *frigidus*.

I am inclined to place with this species *apterus*, Mäkl., described from a mutilated female, it appears to be very similar to the present species and differs only in having the middle process of last dorsal shorter, which may be due to accident.

Occurs in Alaska and California.

T. circumcinctus, Mäkl.—Piceous black, shining, elytra castaneous or dark luteous, apical margin darker. Head and thorax black, very minutely punctulate and finely alutaceous. Antennæ piceous. Elytra as long as wide, rather coarsely punctured, shining, not visibly alutaceous. Abdomen rather sparsely, coarsely punctulate, distinctly alutaceous. Legs piceo-testaceous. Length .16—.20 inch; 4—5 mm.

Male.—Last ventral similar to *nigricornis*, sixth scarcely emarginate at middle, a narrow spongy space on the margin, face not concave. Last dorsal normally quadridentate.

Female.—Last ventral with the middle lobes short and broad, lateral process very short, reduced to mere dentations. Last dorsal with the three lobes approximated and connate, the middle emarginate at tip, (fig. 26, a, b).

Occurs in Canada, Michigan, Kansas, Vancouver, Alaska.

T. nitiduloides, n. sp.—Pitchy black, sides of thorax and tip of elytra paler. Head and thorax minutely punctulate, not alutaceous. Elytra as wide as long, rather coarsely, deeply and regularly punctate. Abdomen sparsely punctulate, distinctly alutaceous. Legs piceous. Length .12 inch; 3 mm.

Male.—Ventral characters as in *circumcinctus*. Last dorsal tridentate. The usual middle teeth united forming one.

Female.—Last ventral as in *maculicollis*, last dorsal as in *frigidus*.

This species is relatively broader than any other in our fauna, and resembles a *Carpophilus* at first glance.

Occurs from Canada to Maryland.

T. elongatus, Gyll.—In addition to the above-mentioned, Mannerheim (Bull. Mosc. 1843, II, p. 227), quotes this species as having occurred in Alaska. I have been entirely unable to identify any of ours with it.

TACHYPORUS Grav.

The species of this genus resemble each other so closely that it is only with great difficulty that they can be described, so that their feeble differences may be made apparent. There are no variations of sexual characters that can be made available nor is the sculpture very different. The coloration is variable to a certain extent but appears to be the best means of formulating the species. The sexual characters are as follows:

Male.—Anterior tarsi distinctly dilated. Sixth ventral segment triangularly emarginate, seventh elongate oval. Last dorsal with entire margin.

Female.—Anterior tarsi very feebly or not dilated. Last ventral semicircular. Last dorsal with four equal acute teeth.

The following table is the best I can devise for the species :

Form convex and more robust.

Color rufo- or piceo-testaceous. Elytra uniform or maculate.

Elytra at sides and oblique discal spot on each black.....**maculipennis**.

Elytra uniform in color or merely darker around the scutellum.

Abdomen bright rufo-testaceous, last two segments black.....**elegans**.

Abdomen uniform piceous or piceo-testaceous.

Thorax and elytra very much paler than abdomen.

Thorax not broader than elytra, rapidly narrower to apex...**jocosus**.

Thorax broader than the elytra, sides strongly arcuate.

chrysomelinus.

Body above uniform in color, piceous.....**californicus**.

Color pitchy black, apex of elytra paler.

Form convex, femora and coxæ piceous.....**nanus**.

Form sub-depressed, legs testaceous.....**scitulus**.

Form depressed, slender. Penultimate joint of maxillary palpi stouter.

brunneus.

T. maculipennis, Lec.—Piceo-testaceous, shining, convex. Head smooth, black, shining. Antennæ testaceous, as long as head and thorax. Thorax testaceous, smooth, shining, nearly twice as wide as long, not wider than the elytra, sides arcuate and gradually narrowed to apex, hind angles broadly rounded. Scutellum piceous. Elytra conjointly wider than long and slightly longer than the thorax, tips conjointly feebly emarginate, disc shining, very sparsely and minutely punctulate, sparsely pubescent, color testaceous, a spot near the side margin and one oblique, on the middle of each elytron black. Abdomen piceous, hind margins of each segment paler, sparsely punctulate and pubescent. Body beneath piceous, abdomen more distinctly punctured than above. Legs testaceous, anterior coxæ very slightly darker. Length .14—.16 inch; 3.5—4 mm.

In form this species resembles *chrysomelinus*, Linn., but the thorax is less broad. The ornamentation of the elytra resembles somewhat that of *Cilea silphoides*.

Appears to be very widely distributed, Michigan to Georgia, Middle States to Kansas.

T. elegans, n. sp.—Bright rufo-testaceous, head, last two segments of abdomen, and scutellar spot black. Antennæ slightly longer than the head and thorax pale testaceous. Thorax as in the preceding. Elytra rufo-testaceous, paler than the abdomen, a circum-scutellar spot piceous, surface distinctly punctulate, sparsely pubescent. Abdomen bright rufo-testaceous, last two segments black, surface sparsely punctulate and pubescent. Body beneath rufo-testaceous, abdomen more distinctly punctured than above. Legs pale testaceous. Length .14 inch; 3.5 mm.

This species resembles *jocosus* in form. Differs remarkably from all our species in its coloration and resembles in this respect *obtusus*,

of Europe, in which the body beneath is piceous and the elytra at base broadly black.

One specimen ♀, Canada, Pettit.

T. jocosus, Say.—Piceous shining, thorax, elytra and legs rufo-testaceous. Head black, shining, antennæ testaceous, outer joints darker. Thorax not wider than the elytra, smooth, shining, twice as wide as long, sides rapidly narrowing to apex, hind angles rounded. Elytra very nearly as long as wide, conjointly feebly emarginate, surface sparsely punctulate and pubescent, color rufo-testaceous, rarely with a lateral and circum-scutellar darker space. Abdomen piceous, apical margins of the segments paler, surface sparsely punctulate and pubescent. Body beneath piceous, abdomen more distinctly punctured than above. Legs, coxæ and prothorax testaceous. Length .16 inch; 4 mm.

This species is also widely distributed like *maculipennis*. It can only be confounded with *chrysomelinus* which is rather more robust in form and the thorax distinctly broader than the elytra.

The lateral and basal spots are very often entirely wanting.

T. chrysomelinus, Linn.—Piceous shining, thorax, elytra and legs, rufo-testaceous. Head black, shining, antennæ testaceous, outer joints somewhat darker. Thorax not twice as wide as long, broader than the base of the elytra, sides strongly arcuate, surface smooth, shining. Elytra as in *jocosus*. Abdomen, body beneath and legs as in *jocosus*. Length .16 inch; 4 mm.

This species is somewhat variable; first, the typical form as described, (occurring in Canada); second, *maculicollis*, Lec., with a poorly defined darker thoracic space; third, *acaudus*, Say, smaller in size with the abdomen much retracted. The latter character will strike any student of the family as one of no value whatever. I have endeavored to find other characters affording sufficient basis for the separation of these as distinct species but without avail, the differences between this and *jocosus* being slight enough.

Same distribution as *maculipennis*.

T. californicus, n. sp.—Color above entirely piceous in maturity. Head black, antennæ piceous, paler at base. Thorax as in *jocosus*, sides slightly more arcuate. Elytra piceo-castaneous, sparsely punctulate and pubescent, form of *jocosus*. Body beneath piceous, abdomen above and beneath, sparsely and finely punctulate. Legs and coxæ rufo-piceous. Length .16 inch; 4 mm.

The color of this species may vary from immaturity so that the entire thoracic margin and the sides and apex of the elytra are paler, in this case the abdomen also becomes equally paler so that the uniformity of color of the body is preserved.

Occurs everywhere on the Pacific Coast from Oregon to the Peninsula of California.

T. nanus, Er.—Pitchy black, apical third of elytra rufo-testaceous. Head black, antennæ piceous, basal joints paler. Thorax slightly broader than the elytra, pitchy black, sides and base narrowly paler. Elytra similar in form to *chrysomelinus* but more distinctly punctured. Body beneath, femora and coxæ pitchy black, tibiæ and tarsi piceo-testaceous. Length .12—.14 inch; 3—3.5 mm.

By its color this is one of the most distinct species in our fauna.

Occurs from Canada to Pennsylvania.

T. scitulus, Er.—Pitchy black, shining, apices of elytra testaceous. Head black, antennæ rufo-testaceous. Thorax slightly broader than the elytra, pitchy black, lateral and apical margins narrowly paler. Elytra very slightly broader than long, apical margin testaceous, a piceous spot at humerus, surface distinctly punctulate, sparsely pubescent. Abdomen piceous, sparsely punctulate and pubescent. Body beneath piceous. Legs testaceous, anterior coxæ darker. Length .10 inch; 2.5 mm.

One specimen from Louisiana is referred to this species. In form it resembles *brunneus* but is less depressed and the third joint of the maxillary palpi is less dilated.

T. brunneus, Fab.—Rufo-testaceous, form depressed, elongate. Head piceous, antennæ testaceous. Thorax twice as wide as long, not wider than the elytra, sides gradually narrowing to apex. Elytra as wide as long, sparsely punctulate and pubescent. Abdomen slightly darker than the elytra, similarly punctured. Body beneath rufo-testaceous, metasternum somewhat darker. Legs and coxæ testaceous. Length .10—.12 inch; 2.5—3 mm.

It may easily be noticed that the penultimate joint of the maxillary palpi is more inflated than in any other of the genus.

Occurs over our entire country including California, is also common in Europe and Northern Africa. Probably cosmopolitan.

CILEA Duval.

Owing to the discovery of several new *Tachinus* with characters slightly at variance with the majority of the species, the differences between these two genera seem to be narrowed down to a slight carination of the mesosternum between the coxæ, and the tarsi simple in both sexes. The first joint of the hind tarsus is, it is true, nearly as long as the three following united, but in *Tachinus tachyporoides* the same joint is very nearly as elongated. *Cilea* has priority over *Leucoparyphus*.

One species only is known in our fauna occurring especially in the Northern States and common in the greater part of Europe. *L. discoideus* (Mels.), Lec., should be placed in *Tachinus*, the mesosternum being simple and the anterior tarsi dilated in the male.

C. silphoides, Linn.—Piceous black, shining, thorax broadly testaceous at the sides, elytra with humeral spot, apical margin and suture testaceous. Antennæ piceous, two basal joints paler. Head and thorax very finely alutaceous. Elytra obsoletely punctulate, not alutaceous; humeral spot usually small, apical testaceous margin wider externally, the sutural wider at each extremity. Abdomen above punctured and more distinctly alutaceous than the thorax, beneath finely punctulate and alutaceous at the sides. Legs pale testaceous. Length .10 inch; 2.5 mm.

Male.—Last ventral deeply notched, forming two triangular plates, sixth ventral deeply notched at middle on each side of the notch a strong angulation beyond which the margin is very oblique. Last dorsal with four slender teeth the two median longer and more acute, (fig. 27, a, b).

Female.—Last ventral with four slender processes, the two median somewhat broader and longer. Last dorsal with four slender processes nearly equal in length and similar in form, (fig. 27, c).

In addition to the processes described for both sexes there are on each side two others which *seem* to belong to the last dorsal and ventral respectively. These are merely portions of the genital arrangement.

PHYSETOPORUS n. g.

Form robust as in *Conosoma*. Mentum transverse, narrower in front, ligula dilated at apex deeply notched. Last joint of maxillary palpi slender as in *Tachinus*, twice as long as the preceding joint. Antennæ slightly longer than head and thorax, joints longer than wide. Mesosternum strongly cristate. Hind tarsi with joints one to four gradually decreasing in length. Anterior tarsi dilated in the males. Abdomen feebly margined.

The above genus, proposed for *Coproporus grossulus*, Lec., seems intermediate between *Tachinus* and *Erchomus*. With the former it agrees in the structure of the antennæ, palpi and ♂ tarsi, with the latter it is allied by the structure of the mesosternum although instead of being simply slightly carinate there is a very strong crest or plate as in many *Hydrophilidæ*.

P. grossulus, (Lec.)—Robust, convex, black, shining. Antennæ piceous four basal joints paler. Head and thorax very minutely punctulate and very finely alutaceous. Elytra conjointly broader than long, narrower posteriorly and emarginate at tip, surface more distinctly punctulate and alutaceous with the strigosity oblique. Abdomen more densely punctulate and alutaceous, beneath more distinctly punctulate. Legs pale testaceous. Length .16—.18 inch; 4—4.5 mm.

Male.—Last ventral deeply triangularly notched, sixth trisinate at apex and finely fimbriate at middle. Last dorsal acutely quadridentate, teeth similar and equal.

Female.—Last ventral deeply divided into six slender and acute processes, the four middle processes equal, the lateral shorter. Last dorsal trilobed as in *Tachinus*, the middle lobe broader than the outer but shorter and deeply divided into two slender processes.

The male has the anterior tarsi as broadly dilated as in any *Tachinus*. The genital apparatus is also provided with two long, slender, falciform processes which greatly resemble the laciniae formed by the deep division of the seventh ventral segment of *Tach. memnonius* and others.

Occurs not rarely in the decaying stems of various Cactaceae in Arizona.

ERCHOMUS Motsch.

The species of this genus were placed originally by Erichson as a group of *Tachinus* characterized by the carinate mesosternum and the simple anterior tarsi of the male. These have justly been considered to have generic value and the group has consequently been known as *Coproporus*, Kraatz, (1859), although Motschulsky's name has one year priority.

The species may be separated in the following manner:

Elytra distinctly punctulate.

Last ventral ♂ triangularly notched.

Thorax not visibly punctulate, elytra distinctly alutaceous.....**inflatus**.

Thorax distinctly punctulate, elytra not alutaceous.....**punctipennis**.

Last ventral ♂ semicircularly notched.

Thorax minutely punctulate, elytra not alutaceous.....**ventriculus**.

Elytra smooth, not punctulate.

Last ventral ♂ triangularly notched.....**laevis**.

E. inflatus, (Fauvel mss.) n. sp.—Pitchy black, shining. Antennae rufo-piceous, four basal joints paler. Head black, extremely finely alutaceous. Thorax similarly sculptured. Elytra conjointly broader than long, gradually narrower from base and emarginate at middle, surface finely punctulate and alutaceous. Abdomen sparsely punctulate and finely alutaceous, beneath more distinctly punctulate. Legs rufo-testaceous. Length .12—.14 inch; 3—3.5 mm.

Male.—Last ventral deeply triangularly notched at middle. Last dorsal quadridentate, the teeth slender and acute, the two middle longer.

Female.—Last ventral divided into six slender processes, the outer very short, the middle longer. Last dorsal with four slender acute processes, the middle longer.

This species is much larger than the others of the genus and broader and at the same time rather more depressed.

Occurs under decaying Cactus at Camp Grant, Arizona.

E. punctipennis, Lec.—Black, shining. Head and thorax minutely punctulate, very indistinctly alutaceous. Elytra distinctly punctulate, not alutaceous, obsoletely longitudinally strigose. Abdomen minutely punctulate, obsoletely alutaceous. Legs piceo-rufous. Length .10 inch; 2.5 mm.

Male.—Last ventral broadly triangularly emarginate. Last dorsal quadridentate, middle teeth longer, (fig. 28).

Female.—Last ventral very like *Tachinus angustatus*; last dorsal as in the male.

Closely resembles *ventriculus* and is distinguished by the sexual characters of the male only, the characters of sculpture and color are evanescent.

Occurs at Camp Grant, Arizona, under Cottonwood bark.

E. ventriculus, Say.—The description of the preceding species applies equally well to this. The only permanent difference being in the male sexual characters as shown in the table. I do not notice the fine longitudinal strigæ on the elytra of the specimens before me, they are however very feeble in the preceding.

Male.—Last ventral semicircularly emarginate at middle. Last dorsal as in *punctipennis*, (fig. 29).

Female.—As in *punctipennis*.

Occurs everywhere east of the Rocky Mountains, and varies in color from varying degrees of maturity.

E. lævis, Lec.

This also agrees with *punctipennis* in all its characters, sexual and otherwise, except that the head, thorax and elytra, are entirely smooth and devoid of sculpture.

Occurs in the Gulf States.

CONOSOMA Kraatz.

This genus is especially distinguished from all others of the group by the immarginate abdomen, the other characters being those of *Tachyporus*.

In the endeavor to find some rational basis for the separation of the species some hitherto unobserved characters have been noticed. The feeble carination of the mesosternum has already been mentioned by Erichson as occurring in several species, in these the mesosternum is merely obtusely elevated without acute summit, and the body is more depressed in form. One species only has on each elytron a marginal row of setigerous punctures. Those in which the elytra are red at base have long rather stout setæ arising from punctures at the sides of the abdominal segments, the unicolored species have short hairs merely which might readily escape notice. The anterior and posterior tibiæ have each one terminal spur, slender and delicate, and very short on the anterior tibiæ. The middle tibiæ may have either one or, as in the majority, two spurs. The tips of the middle and hind tibiæ are fimbriate with short equal spinules which in one species ascend a short distance along the inner margin of the tibiæ as is seen in many Curculionidæ. On the outer side of each femur near the knee there is always a moderately long stiff, bristly hair directed downwards and in those species with but one middle tibial spur there

are three bristles, one long and two much shorter, so that without being able to observe the spurs on the middle tibiæ, the fact of the occurrence of one bristle near the tip of the femur indicates two tibial spurs, while three bristles indicate one spur.

The above-mentioned characters have been made use of in the arrangement of our species in the manner shown in the following table :

Mesosternum obtusely elevated. Body subdepressed.	
Thorax piceous, hind angles rufo-testaceous.....	littoreum.
Thorax testaceous, apical third or half piceous.....	Knoxii.
Mesosternum distinctly carinate. Body robust.	
Middle tibiæ with one terminal spur only.	
Elytra unicolored or feebly paler along the base; spinules of the tip of middle tibiæ ascending, (fig. 33).....	crassum.
Elytra with well-defined red spot on each; spinules of middle tibiæ terminal only.....	bisignatum.
Middle tibiæ with two distinct terminal spurs, (fig. 34).	
Elytra without setigerous punctures.	
Abdominal segments without long setæ at the sides.	
Elytra densely punctulate. Species of moderate size.	
Elytra broader than long. Color of body pale castaneous. Hind angles of thorax subacute.....	castaneum.
Elytra as long as wide. Color piceous. Hind angles obtuse.	pubescens.
Elytra very sparsely punctulate. Species very small.....	parvulum.
Abdominal segments with long setæ at the sides, arising from rather large deep punctures.	
Thorax finely punctulate merely.....	basale.
Thorax finely punctulate and alutaceous.....	opicum.
Elytra with a row of setigerous punctures near the margin.	
Abdomen setose at the sides.....	scriptum.

It sometimes happens that the setæ of the abdominal segments are removed by abrasion, but the large punctures from which they arise may be seen so that the presence of the one is an indication of the other.

C. littoreum, Linn.—Subdepressed, brownish, subopaque, clothed with fine sericeous pubescence. Head piceous, finely and sparsely punctulate. Antennæ pale brownish, four basal and two apical joints paler. Thorax brownish, hind angles broadly rufo-testaceous, broader than the elytra, hind angles subacute, surface moderately densely and finely punctulate and pubescent and under high power distinctly alutaceous. Elytra longer than wide, slightly narrower at apex, color brownish opaque, a large basal spot, testaceous on each elytron, surface densely and very finely punctulate and with brown silken pubescence. Abdomen piceous, hind margins of each segment paler, surface less densely punctured and pubescent than the elytra. Body beneath piceous, legs and coxæ testaceous. Length .14—.16 inch; 3.5—4 mm.

Massachusetts and Canada.

C. Knoxii, Lec.—Resembles *littoreum* in form, differs especially in coloration as follows: Thorax testaceous, apical third or even half piceous. Elytra testaceous, lateral margin narrowly, apical broadly piceous. Abdomen rufo-testaceous, last three segments black. Body beneath piceous, abdomen beneath as above. Legs and coxæ testaceous. Length .12—.14 inch; 3—3.5 mm.

The elytral margin at base has a very narrow piceous border which rapidly becomes wider passing in a curved line to near the middle of the suture. It is barely possible that this may be merely a variety of the preceding. In both species there are two middle tibial spurs, one femoral seta, and the last three segments of the abdomen are alone setigerous.

Occurs in Western Pennsylvania and Michigan.

C. crassum, Grav.—Pitchy black, robust, surface finely clothed with pale brownish pubescence. Antennæ as long as the head and thorax, brownish testaceous, apical joint paler. Head piceous, mouth paler, very sparsely punctulate. Thorax convex, sparsely pubescent and very finely and sparsely punctulate, sides regularly arcuate, base subsinuate on each side, hind angles broadly rounded. Elytra as long as wide, slightly narrower at apex, base indistinctly paler, surface densely and finely punctulate and sparsely pubescent. Abdomen setigerous at the sides, sparsely punctured but more coarsely than the elytra, sparsely pubescent, beneath as above. Body beneath piceo-rufous, sparsely pubescent. Legs paler. Length .14—.22 inch; 3.5—5.5 mm.

This species is the largest and most robust in form. When mature it is entirely unicolored above, when less mature the bases of thorax and elytra are more or less reddish. In both sexes of this species the middle and hind femora have three unequal bristles near the tip and at the tip of the middle tibia the spinules ascend along the inner edge. There is also but one spur, (fig. 33).

This species occurs from Canada to the Gulf States.

C. bisignatum, n. sp.—Black, shining, elytra with a well-defined sub-basal red spot on each. Legs rufous. Antennæ black, apical and three basal joints testaceous. Abdomen black, posterior margins of segments paler. Length .14—.18 inch; 3.5—4.5 mm.

The form is precisely that of *crassum*, the sculpture of the elytra however a little finer and more dense. The abdominal segments have bristles at the sides. The middle femora have three unequal bristles and the posterior, one near the tip. The middle tibiæ have the tips fimbriate with spinules which do not ascend as in *crassum*, and there appears to be but one terminal spur. The two specimens before me are in very fair condition but it is barely possible that there are normally two middle tibial spurs, in which case the species should be placed near *basale* from which the larger size and well-defined sub-basal red spot will distinguish it.

Two specimens, Santa Barbara and Wilmington, Cal., G. R. Crotch.

C. castaneum, n. sp.—Castaneous varying to brownish, moderately shining, form rather elongate, sparsely clothed with silken pubescence. Antennæ testaceous, attaining the hind angle of thorax. Head and thorax very minutely punctulate. Thorax not wider than the elytra, sides moderately arcuate and regularly narrowed from base to apex, base slightly sinuate, hind angles rectangular. Elytra slightly wider than long and narrower at apex, surface moderately densely and minutely punctulate, punctures arranged in distinct transverse strigæ. Abdomen not setose at the sides except the last segment, surface more densely punctulate than the elytra. Body beneath colored as above, legs somewhat paler. Length .16 inch; 4 mm.

Two specimens were collected by Mr. G. R. Crotch near Santa Barbara, of darker color than those collected by me at Tejon. By a close examination of the characters I cannot find any distinction. There is also a specimen collected by Dr. Zimmerman in South Carolina, not differing except in its smaller size.

Not rare at Fort Tejon, California, in fungi.

C. pubescens, Payk.—Dark brown, basal region of elytra sometimes slightly paler. Legs rufo-testaceous. Thorax truncate at base, hind angles obtusely rounded, slightly broader than the elytra. Elytra slightly longer than wide. Length .16 inch; 4 mm.

This species agrees with the preceding in all its characters except those mentioned above. It has been distributed under the names *adepts*, Zimm., and *angustulus*, Fauvel, these representing respectively the retracted and elongate forms.

New York to Louisiana.

C. parvulum, n. sp.—Rufo-piceous, moderately shining, subdepressed. Head and thorax very sparsely and finely punctured, sparsely pubescent. Thorax slightly wider than the thorax, sides regularly arcuate, base feebly sinuate on each side, hind angles obtusely rectangular. Elytra distinctly wider than long, surface very sparsely punctured and pubescent. Abdomen very sparsely punctured, last three segments with bristles. Body beneath paler than above, legs testaceous. Length .08 inch; 2 mm.

This species was thought to be *pedicularium*, Grav., but the description by Erichson does not seem to apply.

Two specimens, North Carolina, easily known by their very small size and sparsely punctured elytra.

C. basale, Erich.—Pitchy black, shining, finely pubescent, each elytron with a median basal red spot. Head black, very sparsely punctulate. Thorax slightly broader than the elytra, sides regularly arcuate and narrower to apex, base feebly sinuate on each side, angles obtusely rectangular, surface sparsely and finely punctulate, intervals smooth. Elytra slightly broader at base than long, surface moderately densely and finely punctulate, a red spot on each nearer the suture than the margin. Abdomen piceous black, apical margins of segments paler, surface finely punctulate, each segment with a seta from the upper surface at the sides and two at the margin. Body beneath piceous,

abdomen more distinctly punctured, legs and coxæ rufous. Length .12—.14 inch; 3—3.5 mm.

Occurs over the entire region east of the Rocky Mountains.

Varies in color from immaturity to rufous or testaceous.

C. opicum, Say.—Resembles the preceding in form and color and differs as follows: Thorax minutely transversely strigose or alutaceous between the punctures, elytra with entire basal band red. Length .12—.14 inch; 3—3.5 mm.

Occurs more especially in the Gulf States.

Whether the differences indicated above will be found to be constant remains for future determination. The color of the base of the elytra can hardly have much weight and I have separated our specimens entirely by the strigosity of the thorax.

C. scriptum, n. sp.—Pale rufo-testaceous, sparsely pubescent, thorax with a spot on each side of middle at base, elytra at tip and discal spot piceous. Antennæ as long as thorax, rufo-testaceous. Head and thorax shining, scarcely visibly punctulate. Thorax slightly wider than the elytra, sides regularly arcuate and narrower in front, base truncate, hind angles obtuse. Elytra as long as wide, sides near apex, apex and discal spot behind the middle piceous, surface sparsely punctulate, a row of setigerous punctures near the lateral margin. Abdomen sparsely punctulate, setigerous at the sides, darker in color than the elytra. Body beneath pale rufo-testaceous. Length .08—.10 inch; 2—2.5 mm.

This species is easily known by the setæ, usually six in number, at the sides of the elytra. The color may become piceo-testaceous and the discal spot extend so as to join the apical margin.

Occurs abundantly from Michigan to Louisiana.

The sexual characters are very nearly uniform in all the species and are as follows:

Male.—Anterior tarsi more or less dilated. Sixth ventral segment triangularly emarginate, seventh elongate oval, entire. Last dorsal entire.

Female.—Anterior tarsi simple. Last ventral elongate oval, fimbriate at middle of posterior margin. Last dorsal quadrid.

BOLITOBIVS Steph.

The correct arrangement of the species of this genus presents many difficulties, owing to the relative importance to be assigned to the different characters, the more prominent of which have already appeared in the books. Certain departures from the normal form of the maxillary palpi occur in two species, in which these organs become considerably shortened, the joints more robust and often pubescent, especially the third joint. In these also the last joint loses the strictly slender form and becomes decidedly conical as in *Bryoporus*. Here therefore is the point where the two genera approach and if the latter genus is to

be suppressed at all it must be as a section of the present and not of *Mycetoporus* as suggested by Fauvel.

In all our species the middle and posterior tibiæ are fimbriate at tip with unequal and rather coarse spinules. In *Bryoporus* the spinules are short, equal and closely placed, while in *Mycetoporus* the species are variable, some have unequal and others equal spinules. The femora have usually three apical bristles such as have been noticed in *Conosoma*, etc.

The thorax has the usual marginal punctures but none on the disc. The elytra have three rows of punctures, a sutural, a marginal, and a discal series, as in *Mycetoporus*, while *Bryoporus* has many rows of rather deeply impressed punctures.

The head varies very greatly in length being shortest in those at the beginning of the table, the species being arranged dichotomously, so that, while other characters are kept in view, the head gradually increases in length. In the short headed species the antennæ are more flattened, the joints more closely placed and from the fifth to the tenth transverse and twice as broad as long. These appear to be allied to those for which the genus *Megacronus* was proposed.

Those species which have rufo-testaceous elytra with black spots seem rather indefinite and will require to be separated by a careful examination of the sexual characters, those used in the table being rather for convenience.

Nothing however is less to be depended on than the color of the elytra and it is only to be considered when other characters can be found to substantiate it.

The sexual characters are extremely feeble and will be mentioned with the species in which they have been observed.

The following is the proposed arrangement of the species.

- Maxillary palpi elongate, slender, glabrous..... 1.
- Maxillary palpi short, stout, third joint sometimes pubescent..... 4.
- 1.—Head oval or moderately elongate, never widest at base..... 2.
- Head very elongate, twice (or even more) longer than wide and widest at base, (fig. 32)..... 7.
- 2.—Abdomen variable but always unicolorous..... 3.
- Abdomen bicolored, red, apical two joints black..... 6.
- 3.—Antennæ with joints 5—10 decidedly transverse, MEGACRONUS, (fig. 31, a).
- Elytra unicolorous, black or piceous..... **niger.**
- Elytra black, apex narrowly, and a broad discal vitta, testaceous. **axillaris.**
- Antennæ with joints 5—10 distinctly longer than wide. Elytra maculate... 5.
- 4.—Antennæ with joints 5—10 transverse.
- Elytra bicolored, black, basal half red..... **dimidiatus.**

- Elytra unicolored, rufous.....**intrusus.**
 Antennæ slender, joints not transverse.....**cingulatus.**
 5.—Thorax in part piceous or black. Head oval.
 Disc entirely piceous, lateral and basal margins narrowly testaceous.
cincticollis.
 A large black spot in each anterior angle, the two confluent at middle.
anticus.
 Thorax entirely rufous or rufo-testaceous.
 Head oval, scarcely longer than wide.
 Dorsal series of elytra with few punctures..... **pygmaeus.**
 Dorsal series with many punctures..... **trinotatus.**
 Head much longer than wide. Dorsal series with few punctures.
obsoletus.
 6.—Head elongate, dorsal series with few punctures.....**cinctus.**
 7.—Thorax black, lateral and basal margins testaceous; legs pale...**longiceps.**
 Thorax entirely black; legs pitchy black.....**quaesitor.**

B. niger, Grav.—Black, shining. Head smooth, black, shining, oval. Antennæ piceous, terminal and two basal joints paler, as long nearly as head and thorax, first three joints cylindrical, five to ten flattened and decidedly transverse, eleventh longer, oval at tip. Maxillary palpi moderately elongate and slender. Thorax smooth black, shining, not wider than the elytra, narrower in front, hind angles broadly rounded. Elytra as long as wide, slightly broader at apex than base, smooth black, shining, the punctures of the three rows almost obsolete. Abdomen black, shining, apical margin of penultimate segment often paler, surface sparsely punctured and pubescent, the first three visible segments smoother at middle. Body beneath and legs black, abdomen sparsely and evenly punctured. Length .28—.46 inch; 7—11.5 mm.

Male.—Sixth ventral tricarinate at middle, the middle carina short; between the ends of the outer carina the edge is slightly emarginate.

Female.—Abdominal segments simple.

Variety.—Smaller forms occur of piceous or rufo-piceous color not differing however in any essential character from the normal form.

Occurs in Pennsylvania, Canada, Michigan, Illinois, but is not common anywhere.

B. axillaris, Grav.—Pitchy black, shining, legs piceo-testaceous, elytra with narrow border at tip also a broad dorsal stripe testaceous. Head elongate oval, smooth, black, shining. Antennæ longer than head and thorax, piceous, basal joint testaceous, joints five to ten moderately transverse. Palpi moderately elongate and slender. Thorax slightly broader than the base of the elytra, narrowed in front, hind angles broadly rounded, surface smooth black, shining. Elytra as long as wide, the sutural row of punctures very fine, discal row of five more distinct, lateral series more numerous. Abdomen as in *niger*. Body beneath black, shining, abdomen coarsely punctured. Length .20—.28 inch; 5—7 mm.

Male.—Sixth * ventral segment with a small dentiform carina at middle.

Female.—Abdominal segments simple.

This species is easily known by the ornamentation of the elytra.

Occurs in the Gulf States, not common.

* Erichson says the fifth, but erroneously.

B. dimidiatus, Er.—Piceous shining, basal half of elytra rufous, legs testaceous. Head smooth, black shining, oval. Antennæ as long as head and thorax, piceous, basal joints paler, five to ten transverse, eleventh oval. Thorax piceous, slightly broader than the elytra at base, smooth, shining. Elytra as long as wide, smooth, shining, punctures obsolete, basal half nearly, and an extremely narrow apical border yellowish-red. Abdomen piceous, apical margins of segments paler, surface sparsely punctate. Body beneath piceous, abdomen coarsely punctate. Legs testaceous, anterior coxæ darker. Length .16—.20 inch; 4—5 mm.

Male.—Seventh ventral distinctly sinuate, the middle more prominent.

Female.—Abdomen simple.

This species may be known by the color of the elytra. The palpi are short and stout, third joint distinctly pubescent, fourth evidently conical.

Occurs in the Gulf States, but not common.

B. intrusus, n. sp.—Piceous shining, elytra rufous, legs testaceous. Head oval, smooth black, shining. Antennæ as long as head and thorax formed as in *dimidiatus*. Palpi as in *dimidiatus*. Thorax variable in color from rufo-piceous to black, smooth shining, form as in *dimidiatus*. Elytra entirely rufous or rufo-testaceous, the series of punctures as follows; sutural moderately distinct, dorsal of five distinctly impressed, lateral finely and obsoletely punctured. Abdomen pitchy black, tips of segments paler, punctured as in *dimidiatus*. Body beneath piceous, abdomen coarsely punctured, apical half of segments smoother last two segments with longer fimbriæ. Legs testaceous. Length .24 inch; 6 mm.

Male.—Sixth ventral longitudinally rather deeply impressed and near the tip a spongy space divided in two lateral portions. Anterior tarsi rather strongly dilated.

Female.—Ventral segments simple.

I am not positive concerning the validity of this species. Specimens have been returned to some of his correspondents in this country by Fauvel as *cingulatus* var. The sexual characters are so well marked that there will be no difficulty in determining the identity of the present species with any of those of Europe. The appearance in the present genus of the spongy space so often seen in *Tachinus* is rather remarkable, while the general aspect also approaches that genus.

This species is very variable in the color of the thorax, some are entirely black, others piceous with paler basal margin, others again have the thorax and elytra similar in color. The anterior coxæ are also variable in color.

Occurs from Canada to Pennsylvania.

B. cingulatus, Mann.—Black, shining, elytra and often the thorax rufous, legs testaceous. Head black, shining, rather broadly oval. Antennæ slightly longer than the head and thorax, piceous, terminal and two basal joints paler. Palpi short, stout, last joint distinctly conical. Thorax variable in color from rufous to black, smooth shining, slightly broader at base than the elytra, hind

angles less broadly rounded than in *dimidiatus*. Elytra slightly longer than wide, rufous, sutural and lateral series of punctures fine, dorsal series obsolete. Abdomen pitchy black, apical half of the fifth and sometimes the sixth rufous, sparsely punctured and pubescent. Body beneath piceous, abdomen sparsely punctured, legs and anterior coxæ testaceous. Length .28 inch; 7 mm.

Male.—Anterior tarsi strongly dilated. Last joint of antennæ as long as the two preceding. Seventh ventral segment slightly prolonged at tip and with fine spinules near the tip or arranged sparsely along each side of the middle of the segment, sixth ventral with a feeble emargination at middle.

Female.—Tarsi not dilated. Last joint of antennæ slightly longer than the preceding. Ventral segments simple.

This species corresponds so closely with the descriptions that I feel unwarranted in giving it a distinct name.* The antennæ are more slender than any of the preceding species but more robust than those which follow. The palpi seem almost identical with those of *Bryoporus*. The sculpture and general appearance are however that of *Bolitobius*. It is naturally intermediate between the *Megacronus* group of the genus and the maculate species as well as with the two preceding, exhibiting a tendency to *Bryoporus*. The variable color of the thorax is independent of locality. Two from Canada are black and rufous, and from British Columbia and Oregon also similar, and two others from Pennsylvania, one is black the other rufous.

B. cineticollis, Say.—Piceous shining, base and sides of thorax testaceous, elytra rufo-testaceous with large black spot on each of variable size, legs testaceous. Head oblong oval, black, shining. Antennæ slender, longer than the head and thorax, piceous, three basal joints testaceous. Palpi slender, long. Thorax black, shining, sides and base narrowly, hind angles more broadly testaceous, not broader than the elytra, hind angles obtuse but not broadly rounded. Elytra slightly longer than wide, yellowish testaceous, a large black spot near the outer angle not attaining the apical margin but nearly always extending upon the epipleuræ; sutural and lateral series of fine punctures, dorsal series nearly obsolete. Abdomen piceous, the hind margin of each segment paler, sparsely punctured. Legs and anterior coxæ testaceous. Length .14—.22 inch; 3.5—5.5 mm.

The sexual characters are not apparent.

Variations occur in the color of the thorax but nothing is seen to disturb its general character. The elytral spot varies in magnitude, and in one specimen from California the spot is small and round and distant from the sides and apex. In specimens with the abdomen greatly extended there is a conspicuous pale band, formed of the apical third of the sixth and the basal third of the seventh segments.

* Since the above was written I have received specimens from M. Sallé of the European form and find them identical.

This species is quite common in the northern portions of our country, extending its range from Pennsylvania to Canada, and westward to British Columbia and California. It is the representative of the European *trimaculatus* in our fauna.

B. anticus, n. sp.—Piceous or piceo-testaceous, thorax and elytra rufo-testaceous, thorax at apical half, a large spot at the outer angle of each elytron and often a scutellar spot nearly black. Head oval, black, shining. Antennæ piceous, apical and four basal joints testaceous. Thorax slightly broader at base than elytra, hind angles obtuse, disc smooth, shining, rufo-testaceous, a large black spot at each anterior angle the two confluent at middle. Elytra slightly longer than wide, discal series distinct, with fine punctures, sutural and lateral series feeble, color rufo-testaceous, a black spot of irregular size and shape near the outer apical angle, attaining the side but not the apical margin, often a circum-scutellar dark space. Abdomen piceous, apical margins of segments paler, surface sparsely punctured. Body beneath black, abdomen piceous sparsely punctured. Legs testaceous, anterior coxæ at base piceous. Length .16—.20 inch; 4—5 mm.

Sexual characters not apparent except that the anterior tarsi of the male are slightly broader than the female.

This species might be confounded with some of the varieties of *pygmæus* which are said to occur in Europe in which the thorax is partly piceous, but in this species the male has a distinct tubercle on the sixth ventral segment.

Occurs in the New England and Middle States, and Michigan.

B. pygmæus, Fab.—Piceo-testaceous, shining, elytra with a triangular spot at scutellum and at each outer angle black. Head rather broadly oval, smooth black, shining. Antennæ slightly longer than the head and thorax, piceous, first four joints testaceous. Thorax at base slightly narrower than the elytra, hind angles obtuse, not broadly rounded, color yellowish testaceous, smooth, shining. Elytra as wide as long, dorsal series of few punctures, sutural and lateral series nearly obsolete, color yellowish testaceous, smooth shining, a long triangular spot at the scutellum, one at each outer angle of the elytra not attaining the apical margin. Abdomen piceo-testaceous varying to rufous, very sparsely punctured. Body beneath piceous, abdomen paler and moderately punctured. Legs and anterior coxæ pale testaceous. Length .14—.16 inch; 3.5—4 mm.

Male.—Sixth ventral segment with an obtuse tubercle behind which the segment is slightly impressed.

Female.—Abdomen simple.

Specimens are from the Gulf States, and one from British Columbia.

B. trinotatus, Erichs.—Piceo-testaceous, shining, elytra with a spot in each outer angle and frequently a scutellar spot piceous. Elytra with the three series multipunctate.

This species agrees in form and color with the preceding species and differs superficially in having the dorsal series multipunctate.

The male has not the tubercle as in the preceding species, merely a feeble longitudinal impression.

B. pæcilus, Mann., is said by Fauvel to be the same as this species but may prove distinct, there appears to be at the tip of the sixth segment a small tubercle. If this character is a permanent one the species is distinct.

Distribution extended. Massachusetts, Canada, Michigan, Vancouver, Alaska, Pennsylvania, and District of Columbia.

B. obsoletus, Say.—Black, shining, thorax and elytra rufo-testaceous, elytra with large black spot in each outer apical angle, legs testaceous. Head oblong oval, smooth, black, shining. Antennæ piceous, four basal joints paler. Thorax rufo-testaceous, smooth, shining, as wide at base as the elytra, hind angles broadly rounded. Elytra as wide as long, dorsal series of fine punctures, sutural and lateral series nearly obsolete, color rufo-testaceous, shining, a large black spot in each outer apical angle, covering the entire epipleuræ, not attaining the apical margin. Abdomen pitchy black, apices of segments paler, the apex of the sixth and base of seventh conspicuously rufous, surface sparsely punctate. Body beneath black, abdomen more distinctly punctured. Legs and anterior coxæ testaceous. Length .18—.26 inch; 4.5—6.5.

I am unable to detect any sexual differences.

Resembles the next species, but the color of the abdomen and the shorter head distinguish the present.

Occurs from Virginia to Texas.

B. cinctus, Grav.—Rufous, shining, head, body beneath, a large spot on each elytron and last two abdominal segments black. Head elongate oval, smooth, shining. Antennæ piceous, apical and four basal joints testaceous. Thorax rufous, shining, as broad at base as the elytra, hind angles broadly rounded. Elytra as broad as long, discal row with three or four punctures, sutural and lateral nearly obsolete, color bright rufous with a large black spot attaining the sides but not the apex. Abdomen rufous, very sparsely punctured, last two segments black. Body beneath black, abdomen rufous. Legs, anterior coxæ and apical half of middle testaceous. Length .18—.28 inch; 4.5—7 mm.

Male.—Anterior tarsi very feebly dilated, seventh ventral segment truncate.

Female.—Anterior tarsi simple, last ventral elongate oval.

Variations occur having a narrow basal black band on the elytra, others without the basal band have the two elytral spots united at the suture forming a continuous band, (*gentilis*, Lec.).

Occurs nearly everywhere east of the Rocky Mountains and extends westward to British Columbia.

B. longiceps, Lec.—Pitchy black, shining, elytra, basal margin of thorax and legs rufo-testaceous. Head black, shining, twice as long as wide. Antennæ longer than head and thorax, piceous, basal joint paler. Thorax scarcely wider than long, narrower at base than the elytra, hind angles obtuse, color black, base narrowly, sides at basal half more widely margined with rufo-testaceous.

Elytra rufous shining, as long as wide, dorsal series of five or six rather deeply impressed punctures, sutural and lateral series more feebly impressed. Epi-pleuræ black. Abdomen pitchy black, apices of segments paler, surface smooth, sparsely punctured. Body beneath black, abdomen coarsely punctured, more densely on the last two segments. Legs testaceous, anterior coxæ piceous at base. Length (including head), .34 inch; 8.5 mm.

I can find no sexual differences in three specimens.

This species and the next have the head distinctly widest at base. There is in some specimens a darker cloud along the discal series of punctures.

Occurs in Canada.

B. quæditor, (*rostratus* || Lec.)—Black shining, elytra with rufous stripe extending from humerus to apex broader behind. Head more than twice as wide as long, broadest at base. Antennæ black, basal half of first joint paler, also the tip of the last joint. Thorax distinctly wider than long, narrower than the elytra at base, hind angles obtuse. Elytra as broad as long, moderately convex, humeral umbone moderately prominent, discal series of five rather deep punctures, sutural and lateral series much finer; color black with a rufous vitta on each, narrow at the humerus rapidly becoming broader to apical margin attaining the suture. Abdomen black, shining, sparsely punctured. Body beneath black, shining, abdomen coarsely but sparsely punctured. Legs pitchy black. Length (including the head), .28—.40 inch; 7—10 mm.

No sexual characters apparent in two specimens.

The very great length of head is certainly a most remarkable character.

Two specimens, New York and Illinois.

B. biseriatus, Mann., from Alaska, is unknown to us.

BRYOPORUS Kraatz.

This genus has been united with *Mycetoporus* by Fauvel, (Bull. Soc. Linn. de Norm. X, p. 247), but in this I cannot coincide. A careful study of all the specimens which have come before me of both genera has shown that the maxillary palpi have the last joint distinctly conical, as broad nearly at its base as the apex of the preceding joint, and consequently not capable of retraction. In *Mycetoporus* on the contrary the last joint is distinctly subulate, much more slender than the preceding and very plainly capable of retraction to a greater or less extent. Should there be any union at all, this would rather become *Bolitobius* than *Mycetoporus*, from which however the numerous rows of punctures and the structure of the tibiæ at tip readily distinguish it.

As in two species of *Mycetoporus* the middle and posterior tibiæ are fimbriate with closely placed equal spinules.

I am unable to separate the series now before me into any greater number than two species.

Color piceous, elytra with slightly paler humeri, legs pale yellowish testaceous.

flavipes.

Rufo-piceous, thorax and elytra rufous. Legs rufous **rufescens.**

B. flavipes, Lec.—Piceous, elongate, shining, legs yellowish testaceous. Head and thorax smooth and shining. Thorax with the marginal punctures of *Mycetoporus*, the apical more distant from the margin. Elytra slightly longer than wide, piceous, humeral prominence somewhat paler, disc with about seven rows of moderately impressed punctures bearing very short hairs. Abdomen piceous, apices of segments paler, sparsely punctured each puncture bearing a hair. Body beneath piceous, abdomen punctured as above. Anterior and middle coxæ and legs testaceous. Length .16—.18 inch; 4—4.5 mm.

Occurs in Louisiana.

B. rufescens, Lec.—Head piceous, smooth, shining. Thorax rufous, smooth, shining, punctured as the preceding. Elytra rufous. Abdomen piceous, apices of segments rufous. Body beneath piceous, abdomen rufo-piceous. Legs, anterior and middle coxæ rufo-testaceous. Length .14—.18 inch; 3.5—4.5 mm.

I am entirely unable to separate the types of *rufescens* and *rubidus*; *testaceus* is rather smaller and in some specimens the elytral punctures are almost entirely obliterated, but this is a gradual variation from the punctured forms and not a constant character.

Occurs from Michigan to Florida, and from Pennsylvania to California.

The investigation of the two species of *Bryoporus* by means of a still larger series may produce a still further suppression, as I am by no means satisfied that the feeble characters separating them are of that value which should cause them to be retained as distinct.

The sexual characters are extremely feeble and are as in *Mycetoporus*.

MYCETOPORUS Mann.

The species of this genus have certain characters in common. The elytra are smooth and shining and with three rows of punctures, usually very distinct sometimes very feeble, placed, one in the sutural channel the second from the humerus to the tip, the other along the lateral margin, the punctures bear fine setæ. The thorax has around its circumference certain constant punctures, four are placed along the apical margin, two basal, three along the lateral margin and two, one behind the other, between the middle and lateral margin. Two species have in addition two discal punctures which are constantly present and wanting in all the other species. The tips of the middle and hind tibiæ in two species are fimbriate with short, equal, closely placed spinules, while the other species have the spinules coarser and very

unequal. The third joint of the maxillary palpi of one species is much more dilated, in fact ovoid truncate at tip, even stouter than in *Tachyporus brunneus*. Color is not to be depended upon in the separation of species except in one instance, *flavicollis*, where the style of coloration is so remarkably different, resembling a *Bolitobius*. By an arrangement of the above characters the following table is produced.

Middle and posterior tibiæ fimbriate at tip with coarse unequal spinules.

Thorax without discal punctures.

Third joint of maxillary palpi slender, similar to the second.....**lepidus**.

Third joint much stouter, ovoid, truncate. Species very slender...**tenuis**.

Thorax with two discal punctures slightly behind the middle.

Elytra with one discal row of punctures.....**lucidulus**.

Elytra with two rows of discal punctures.....**consors**.

Middle and posterior tibiæ fimbriate with equal spinules.

Elytra uniform in color piceo- or rufo-testaceous; abdomen rufo-testaceous, each segment paler at tip**americanus**.

Elytra piceous black, apical third red; abdomen rufous, last two segments black.....**flavicollis**.

Elytra more narrowly rufous at tip and a humeral spot.....var. *pictus*.

M. lepidus, Er.—Color and size variable. Head black. Thorax smooth, shining, without discal punctures but with the others as previously enumerated, slightly broader than the base of the elytra. Elytra as long as wide, slightly broader at apex than base, surface shining with the three series of punctures feebly impressed. Abdomen very sparsely punctured and sparsely pubescent, beneath more coarsely punctured. Length .12—.18 inch; 3—4.5 mm.

The color of this species varies so greatly that nothing can be said in a general way. Several marked variations occur as follows:

I. Color above castaneous, elytra darker at the sides and along the suture, abdomen piceo-rufous, tips of segments paler. Lake Superior.

II. Color above rufo-testaceous, abdomen piceo-rufous. These forms imitate *Tachyporus jocosus*. Michigan, Schwarz.

III. Elytra entirely piceous, a narrow pale stripe adjacent and external to the discal row of punctures. Florida, Schwarz.

IV. I have also a specimen from California which for the present I refer to this species. It appears to be of more slender form but this results from the extension of the last two abdominal segments. Its color is as in the Florida specimen.

The color of the legs also varies with that of the upper surface being either rufous or testaceous.

Occurs from Michigan southward to Florida and westward to California.

M. tenuis, n. sp.—Piceous, slender, shining. Head dark rufo-piceous, smooth shining. Antennæ piceous, three basal joints paler. Thorax as broad as the elytra, smooth, shining, rufous, no discal punctures. Elytra piceo-rufous, as broad as long, striæ of punctures moderately distinct. Abdomen piceous, apices of segments paler, shining, very sparsely punctate and slightly pubescent. Body beneath piceous, abdomen more distinctly punctured, legs and coxæ testaceous. Length .10 inch; 2.5 mm.

This species is very much smaller and more slender than *lepidus* and differs more especially in the stouter third joint of the maxillary palpi.

Collected by Dr. Schwarz, in the Lake Superior region.

M. lucidulus, Lec.—Piceous shining, elytra often rufous. Head almost black, smooth shining. Antennæ rufous, basal joints paler. Thorax piceo-rufous, smooth shining, with the usual marginal and two discal punctures behind the middle. Elytra piceo-rufous or rufous, with the usual rows of punctures, and a single, sometimes several punctures in the space between the sutural and humeral rows, form as long as wide. Abdomen piceous, apical margins of segments paler, coarsely but sparsely punctured and sparsely pubescent. Body beneath piceous. Legs testaceous, anterior coxæ always darker. Length .10—.12 inch; 2.5—3 mm.

This species is readily known by the presence of the discal punctures of the thorax and from the next by the elytral sculpture.

Occurs in Pennsylvania and Illinois.

M. consors, Lec.

This species resembles the preceding but is somewhat more robust in form and has an additional row of five or six punctures within the normal humeral row. In every other respect the two species agree and future collections may add this (represented by an unique), to the preceding. Length .14 inch; 3.5 mm.

One specimen, Michigan.

M. americanus, Er.—Rufo-piceous, shining. Head rufo-testaceous, shining. Antennæ testaceous, middle five joints darker. Thorax rufo-testaceous, smooth shining, no discal punctures, slightly broader than the elytra. Elytra distinctly longer than wide, rufo-testaceous, sutural row of punctures distinctly impressed, humeral row obsolete. Abdomen rufo-piceous or rufous, coarsely but sparsely punctured, sparsely pubescent. Body beneath as above, abdomen more distinctly punctured. Legs testaceous. Middle and hind tibiæ obliquely truncate, fimbriate with short equal spinules. Length .12—.14 inch; 3—3.5 mm.

By the structure of the four posterior tibiæ this species may be known from every other except the next species, from this the characters of the table are amply sufficient to distinguish it.

Occurs rather abundantly in the Lake Superior region and British Columbia, Crotch.

M. flavicollis, Lec.—Head piceous, antennæ rufous, basal and apical joints paler. Thorax reddish-yellow, smooth, shining, no discal punctures, slightly wider at base than the thorax. Elytra slightly wider than long, smooth black, shining, apical third red, disc with the usual rows of punctures. Abdomen rufous, last two segments piceous, the apex of the penultimate segment however paler, coarsely punctured, sparsely pubescent. Body beneath black, abdomen rufous, legs testaceous. Length .16 inch; 4 mm.

This species has also the structure of middle and posterior tibiæ of the preceding species, from which its color will readily distinguish it.

Occurs in Michigan, Florida and Georgia.

The variety? *pictus*, Fauvel mss., is of somewhat more slender form and has also a rufo-testaceous humeral spot. These characters are so exactly in accord with the variations of *lepidus* that I think it better to consider this a variety and not a distinct species.

The sexual characters of the species are not very striking, and consist in the slightly stouter antennæ of the male and the sixth ventral segment much less rounded than in the female.

The following are unknown to me.

M. insignis, Mäkl., Bull. Mosc. 1853, III, p. 186.—Oblongus, niger, nitidus; thorace disco lævissimo, paulo ante marginem basalem punctis quatuor transversim positis impresso, segmentorum marginibus, abdominis, elytris que rufis; his thorace sesqui longioribus in medio macula magna discum totum fere occupante margineque laterali nigris, prope seriem dorsualem punctis duobus impressis; antennis capite cum thorace paullo brevioribus, apicem versus leviter incrassatis pedibusque rufo-testaceis; femoribus posticis infuscatis. Longit. $2\frac{1}{2}$ lin. Latit. 1 lin. In insula Afognak.

The length of this species as given is so much greater than any other in our fauna that there seems to be some error in the generic determination, otherwise it is a remarkably fine species.

M. nigrans, Mäkl., loc. cit. p. 187.—Subelongatus, niger, nitidus, antennarum basi, thoracis margine basali, elytrorum limbo apicali, pedibusque testaceis; antennis apicem versus modice incrassatis articulis penultimis transversis; thorace punctis quatuor multo intra apicem transversim positis et eodem numero paullo ante marginem basalem impresso; elytris serie punctorum dorsuali simplicis. Longit. $1\frac{1}{4}$ lin. Latit. vix ultra $\frac{1}{4}$ lin.

This species seems to be merely one of the varieties of *lepidus*. The description fits very well certain forms of that species before me.

HABROCERUS Erichs.

This genus is especially distinguished by the form of the hind coxæ which are broadly triangular, concealing the insertion of the femora as well as part of the femur itself in repose. The head is deflexed the antennæ slender, capillary, and very fragile. The abdomen is

margined. Elytra slightly longer than the pectus. Tarsi five-jointed. Mesosternum feebly carinate.

H. Schwarzi, n.sp.—Pitchy black, sub-depressed, shining, elytra pale luteous, legs and coxæ testaceous. Head and thorax pitchy black, smooth, shining. Thorax twice as wide as long, sides moderately arcuate and narrowing to the front; apical margin with six punctures arranged equidistantly, base with four, sides one at middle. Elytra luteous, shining, very sparsely and finely punctate, and under high power finely transversely alutaceous, a setigerous puncture near the humeri, another at the outer apical angle; form broader than long, slightly wider at apex than at base. Abdomen piceous, sparsely punctulate and pubescent. Body beneath piceous, abdomen as above. Legs and coxæ testaceous. Antennæ piceous. Length .08 inch; 2 mm.

This species is closely related to the European *H. capillaricornis*, but is smaller in size, less robust, more slender, the elytra are always luteous, the transverse strigæ more distinctly marked and the sutural angle less prominent. I have had the opportunity of making comparisons through the kindness of M. Aug. Sallé.

The sexes differ in the males having the sixth ventral feebly emarginate at middle. The last dorsals have not been satisfactorily observed.

The specimens before me were collected by Dr. E. A. Schwarz, (to whom it gives me great pleasure to dedicate it), at Detroit, Michigan.

Through some unaccountable error of observation I have attributed (p. 81), but ten joints to the antennæ of our species. I am very glad to be able to correct the error in the same paper in which it occurs, the antennæ are *eleven* jointed.

NOTES.

1.—*Hypocyptus Ziegleri*, Lec. From specimens sent me by M. Sallé, I feel constrained to unite this species with *longicornis*, Payk. The unique of the former is somewhat smaller than the specimen sent by Sallé and darker in color, but does not otherwise differ. *H. Crotchii* is however much more distinctly punctured.

2.—On p. 85 I have associated *Trichophyus* and *Habrocerus*, following the course of preceding authors. I have lately had an opportunity of examining the former genus and from the insertion of the antennæ am convinced that it is rather a member of the group Quedii of the tribe Staphylinini, allied to *Acylophorus* and *Heterothops*. It is however rather anomalous in such alliance but no more so than is *Habrocerus* with the Tachyporini.

3.—Types of all the Alaskan species of *Tachinus*, except *apterus*, Mäkl., as well as several of the *Bolitobius* have been examined, specimens having been sent to Dr. Leconte by Chaudoir and Manerheim.

Bibliography and Synonymy.

HYPOCYPTUS Mann.

Brachelytra, 1830, p. 58.

- H. longicornis**, Payk., (*Scaphidium*), Fauna Suec. III., p. 340; Mann. Brachel., p. 58; Erichs. Gen. Staph., p. 215; Duval Gen. Col. Eur., pl. 9, fig. 42.
Ziegleri, Lec., New Species, 1863, p. 30.

H. Crotchii, n. sp.**ANACYPTUS**, n. g.

- A. testaceus**, Lec., (*Hypocyptus*), New Species, 1863, p. 30.

TRICHOPSENIUS, n. g.

- T. depressus**, Lec., (*Hypocyptus*?), New Species, 1863, p. 30.

TACHINUS Grav.

Mier. I., 1802, p. 135.

- T. maculicollis**, Mäkl., Bull. Mosc., 1852, II., p. 311.

T. semirufus, n. sp.

- T. memnonius**, Grav., Mier., p. 192; Erichs., Gen. Staph., p. 258.

batychnous, Grav., loc. cit., p. 191.*rufus*, Sachse, Stettin Zeitschr., 1852, p. 121.**T. tachyporoides**, n. sp.**T. agilis**, n. sp.**T. angustatus**, n. sp.**T. debilis**, n. sp.**T. repandus**, n. sp.**T. scrutator**, Horn.*discoideus* || Mels., Proc. Acad., 1844, p. 32.*Leucoparyphus disc.* Lec., List, p. 22.**T. mimus**, n. sp.**T. addendus**, n. sp.**T. parallelus**, n. sp.**T. nigricornis**, Mann., Bull. Mosc., 1843, II., p. 325.

- T. luridus**, Erichs., loc. cit., p. 920. Placed erroneously in *Coproporus* in Munich Catalogue, p. 557, as is also *limbatus*.

flavipennis, Dej. Cat.**T. canadensis**, n. sp.*ustulatus*, Fauv. mss.**T. fimbriatus**, Grav., p. 191; Erichs., p. 258.**T. picipes**, Erichs., p. 257.**T. Schwarzi**, n. sp.**T. limbatus**, Mels., Proc. Acad. II., p. 32. See note under *luridus*.**T. fumipennis**, Say, Trans. Am. Phil. Soc. IV., p. 466.*axillaris*, Erichs., p. 261.*colonus*, Sachse, Stettin Zeitschr., 1852, p. 121.**T. frigidus**, Erichs., p. 256.*propinquus*, Mann., loc. cit., p. 226.**T. Crotchii**, n. sp.**T. instabilis**, Mäkl., Bull. Mosc., 1853, III., p. 185.*apterus*, Mäkl., loc. cit., p. 186.**T. circumcinctus**, Mäkl., Bull. Mosc., 1852, II., p. 310.**T. nitiduloides**, n. sp.

TACHYPORUS Grav.

Monogr., 1806, p. 1.

T. maculipennis, Lec., Proc. Acad., 1866, p. 374.**T. elegans**, n. sp.**T. jocosus**, Say, Trans. Am. Phil. Soc. IV., p. 466.*arduus*, Er., Gen. Staph., p. 237.**T. chrysomelinus**, Linn., Fauna Suecc. nr. 855; Erichs., Gen. Staph., p. 235.var. *acaudus*, Say, Trans. Am. Phil. Soc. IV., p. 467.var. *maculicollis*, Lec., Proc. Acad., 1866, p. 374.**T. californicus**, n. sp. (*angusticollis*, Fauv. mss.)**T. nanus**, Erichs., Gen. Staph., p. 240.**T. ? scitulus**, Erichs., Käfer Mark Brand. I., p. 395; Gen. Staph., p. 240.**T. brunneus**, Fab., (*Oxyporus*), Ent. Syst. I., 2, p. 535; Erichs., Gen. Staph., p. 241.*faber*, Say, Trans. Am. Philos. Soc. IV., p. 468, (European Synon. omitted).**CILEA** Duval.

Gen. Col. Eur. Staph., p. 25.

C. silphoides, Linn., (*Staphyl.*), Syst. Nat. I., 2, p. 684; Erichs. Staph., p. 245;

Duval, loc. cit., pl. 10, fig. 46.

marginalis, Grav., Micr., p. 192.*geminatus*, Rand., Bost Journ. II., p. 39.

Synonymy not pertinent to our fauna omitted.

PHYSETOPORUS, n. g.**P. grossulus**, Lec., (*Coproporus*), New Species, Col. 1863, p. 31.**ERCHOMUS** Motsch.

Bull. Mosc., 1858, III., p. 218.

E. inflatus, n. sp. (*idem* Fauvel. mss.)**E. punctipennis**, Lec., (*Coproporus*), New Species, Col. 1863, p. 31.**E. ventriculus**, Say, (*Tachyp.*), Trans. Am. Phil. Soc. IV., p. 466.*gibbulus*, Er., Gen. Staph., p. 252.*acuductus*, Kby., Fauna Bor. Am., p. 90.*affinis*, Kby., loc. cit., p. 91.*punctulatus*, Mels., Proc. Acad. II., p. 32.**E. lævis**, Lec., (*Coproporus*), New Species, Col. 1863, p. 31.**CONOSOMA** Kraatz.

Insecten Deutschl. II., p. 431.

C. littoreum, Linn., (*Staph.*), Fauna Suec. nr. 852; Erichs., Gen. Staph., p. 219.**C. Knoxi**, Lec., Proc. Acad., 1866, p. 374.**C. crassum**, Grav., (*Tachyp.*), Microp., p. 190; Erichs., loc. cit., p. 222.*mæstus*, Say, Trans. Am. Philos. Soc. IV., p. 466.**C. bisignatum**, n. sp.**C. castaneum**, n. sp., (*acutanqulum* Fauvel, mss.)**C. pubescens**, Payk., Mon. Carab. App. 1790, p. 138; Erichs., loc. cit., p. 221;(*adeps*, Zimm., mss.; *angustulum*, Fauvel, mss.)**C. parvulum**, n. sp.**C. basale**, Erichs., Gen. Staph., p. 225.*pulicarius*, Sachse, Stettin Zeitsch., 1852, p. 120.**C. opicum**, Say, (*Tachyp.*), Trans. Am. Philos. Soc. IV., p. 467.*cinctulus*, Erichs., Gen. Staph., p. 226.**C. scriptum**, n. sp., (Fauvel, mss.)

BOLITOBIUS Steph.

Illust. Brit. Ent. V., 1832, p. 171.

- B. niger**, Grav., (*Tachinus*), Micr. 193, 5; Erichs., (*Bolit.*), Gen. Staph., p. 275.
B. axillaris, Grav., (*Tachinus*), Mon. 29, 11; Erichs., loc. cit., p. 274.
B. dimidiatus, Erichs., loc. cit., p. 276.
B. cingulatus, Mann., Brachel. 64, 2; Erichs., loc. cit., p. 270.
B. intrusus, n. sp.
B. cincticollis, Say, (*Tachinus*), Trans. Am. Phil. Soc. n. s. IV., 465; Erichs., (*Bolit.*), loc. cit., p. 922.
bimaculatus, Couper.
B. anticus, n. sp.
B. pygmæus, Fab., (*Oxyporus*), Spec. Ins. 339; Mann., (*Bolit.*), loc. cit., 65, 10; Erichs., loc. cit., p. 280.
trimaculatus, Say, loc. cit., p. 464.
venustus, Mels., *binotatus*, Mels., Proc. Acad. II., p. 33.
angularis, Sachse, Stettin Zeitschr., 1852, p. 122.
B. trinotatus, Erichs., loc. cit., p. 279.
pæcilus, Mann., Bull. Mosc., 1852, II., p. 312.
B. obsoletus, Say, (*Tachinus*), loc. cit., p. 464.
sellatus, Sachse, loc. cit., p. 122.
B. cinctus, Grav., (*Tachinus*), Micr. 193, 6; Erichs., (*Bolit.*), loc. cit., p. 278.
atricaudatus, Say, Journ. Acad. III., p. 158.
var. *gentilis*, Lec., New Species, 1863, p. 31.
B. longiceps, Lec., New Species, 1863, p. 32.
B. quæstor, Horn, *rostratus*, || Lec., New Species, 1863, p. 32.
B. biseriatus, Mann., Bull. Mosc., 1846, II., p. 508. Alaska. Unknown.
From specimens which I take to be this species collected by Mr. Crotch in British Columbia, it appears to be merely *cincticollis*, Say.

BRYOPORUS Kr.

Nat. Ins. II., 1857, p. 452.

- B. flavipes**, Lec., New Species, 1863, p. 32.
B. rufescens, Lec., loc. cit., p. 33.
rubidus, Lec., *testaceus*, Lec., ibid.

MYCETOPORUS Mann.

Brachelytra, 1830, p. 62.

- M. lepidus**, Grav., (*Tachinus*), Mon. 26, p. 4; Mann., (*Mycet.*), Brachel. p. 63; Erichs., Gen. Staph., p. 284. *European synonymy omitted.*
humidus, Say, Trans. Am. Phil. Soc. IV., p. 465.
M. tenuis, n. sp.
M. lucidulus, Lec., New Species, 1863, p. 33.
M. consors, Lec., loc. cit., p. 34.
M. americanus, Erichs., Gen. Staph., p. 285.
M. flavicollis, Lec., loc. cit., p. 33.
var. *pictus* Fauvel, mss.
M. insignis, Mäkl., Bull. Mosc., 1853, III., p. 186.
M. nigrans, Mäkl., loc. cit., p. 187.

HABROCERUS Er.

Käfer Mark Brand. I., 1837, p. 400.

- H. Schwarzi**, n. sp.

EXPLANATION OF PLATE I.

- Fig. 1.—*Trichopsenius depressus*, (Lec.)
 Fig. 2.—*Trichopsenius depressus*, underside.
 Fig. 3.—*Anacyptus testaceus*, (Lec.); 3 *a*, underside; 3 *b*, antenna, elytral sculpture magnified.
 Fig. 4.—*Hypocyptus longicornis*, (Payk.); underside and antenna.
 Fig. 5.—*Tachinus maculicollis*, Mäkl.; *a*, last two ventrals ♂; *b*, dorsals ♂; *c*, last ventral ♀; *d*, last dorsal ♀.
 Fig. 6.—*T. semirufus*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 7.—*T. memnonius*, Grav., *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 8.—*T. tachyporoides*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 9.—*T. agilis*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 10.—*T. angustatus*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 11.—*T. debilis*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♂; *c*, last ventral ♀; *d*, last dorsal ♀.
 Fig. 12.—*T. repandus*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 13.—*T. scrutator*, Horn, last two ventrals ♂.
 Fig. 14.—*T. mimus*, Horn, *a*, last two ventrals ♂; *b*, last ventral ♀.
 Fig. 15.—*T. addendus*, Horn, *a*, last two ventrals ♂; *b*, last ventral ♀.
 Fig. 16.—*T. parallelus*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 17.—*T. nigricornis*, Mann., *a*, last two ventrals ♂; *b*, last dorsal ♀; *c*, last ventral ♀.
 Fig. 18.—*T. fimbriatus*, Grav., *a*, last two ventrals ♂; *b*, last ventral ♂; *c*, last dorsal ♀.
 Fig. 19.—*T. picipes*, Er., *a*, last dorsal ♂; *b*, last dorsal ♀.
 Fig. 20.—*T. Schwarzi*, Horn, *a*, last two ventrals ♂; *b*, last dorsal ♀.
 Fig. 21.—*T. canadensis*, Horn, last dorsal ♀.
 Fig. 22.—*T. limbatus*, Mels., last dorsal ♀, and variations of middle lobe.
 Fig. 23.—*T. frigidus*, Erichs., last dorsal ♀.
 Fig. 24.—*T. Crotchii*, Horn, last dorsal ♀.
 Fig. 25.—*T. instabilis*, Mäkl., last dorsal ♀.
 Fig. 26.—*T. circumcinctus*, Mäkl., *a*, last ventral ♀; *b*, last dorsal ♀.
 Fig. 27.—*Cilea silphoides*, (Linn.), *a*, last two ventrals ♂; *b*, last dorsal ♂; *c*, last ventral ♀.
 Fig. 28.—*Erchomus punctipennis*, (Lec.), last two ventrals ♂.
 Fig. 29.—*E. ventriculus*, (Say), last two ventrals ♂.
 Fig. 30.—*Habrocerus Schwarzi*, Horn, posterior coxæ; *a*, antenna (after Erichson).
 Fig. 31.—Underside of head of *Bolitobius niger*, showing the margin beneath the eyes; *a*, antenna.
 Fig. 32.—Head and thorax of *Bolit. quæditor*.
 Fig. 33.—Middle femur and tibia of *Conosoma crassum*.
 Fig. 34.—Middle femur and tibia of *C. castaneum* and others.
 Fig. 35.—Maxillary palpi; *a*, *Bolitobius*, (filiform); *b*, *Bryoporus*, (conical); *c*, *Mycetoporus*, (subulate); *d*, *Habrocerus*, (last joint long, slender and acute).

