

**SYNOPSIS OF THE COLEOPTEROUS FAMILY
CISIDAE (CIOIDAE) of America North of Mexico**

By CHARLES DURY

The beetles in the above area comprised in this family exclusive of the *Rhipidandrinae*, which have been removed to the *Tenebrionidae*, are of small size, subcylindrical form, mostly of black or brownish colors, though a few species of the different heretofore described genera have red or yellow elytral maculation. They live in woody fungi of the different polyporoid kinds. Males of many of the species have variously shaped horns or processes on the head or anterior margin of prothorax, and secondary sexual marks on the first ventral segment. The number of antennal joints vary from eight to eleven in the different genera. The antennae are inserted at the anterior margin of the eyes and the terminal joints are large and form a rather loose club. Tarsi 4-jointed. The Prothorax, which has a lateral margin, is more or less prolonged over the head. Mentum corneus. Labial palpi 3-jointed. Maxillary palpi short and 4-jointed. Ventral segments five in number. The first longest. Anterior and middle coxae oval, not prominent, without trochantin. Hind coxae transverse and separated. Tarsal claws simple. But few species exceed 3mm. in length. Because of their small size and dull colors they are rather unattractive, and have been much neglected by collectors. However, if they are studied with high enough power it will be seen that they are among the most interesting of Coleopterous insects. The secondary sexual characters of the males of some of the species being quite remarkable. The North American species are of but little economic importance so far as is known, though they and their larvae are voracious feeders on the substance of the inner parts of woody fungi. They are generally gregarious and sometimes occur in great numbers. From a small piece of tough, woody polyporus broken from a log, was hatched scores of adults. They continued emerging all winter. When they first hatch they are soft and pale and require several days to acquire the dark colors of the mature

insect. They vary considerably in size and in the degree of development of sexual characters. To study them to advantage they should be clean and have antennae and foretibiae drawn out and some specimens mounted ventral side up. Some of them are very tenacious of life and require strong killing substances. The literature on the family is not very accessible. Mellie's papers are in the Annals of the Entomological Society of France, vol. vi, p. 271, 1848. Casey's paper on the North American species is in the journal of the New York Entomological Society, vol. vi, No. 2, p. 76, June 1898. Dr. E. J. Kraus has a paper, with plates, on the bicolored species, in Proc. Ent. Soc., Washington, D. C., vol. x, Nos. 1 and 2, p. 74. Prof. Blatchley gives descriptions of Indiana species (three new ones described) in Beetles or Coleoptera of Indiana. Geological and Natural History Survey. Le Conte and Horn in the classification, place the *Cioidae* in both the clavicorn and serricorn series, as they exhibit affinities in both directions. Casey considers them serricorn. W. F. Kirby in his textbook (1892) places them in his section *Teredilia*. They are widely distributed in North America, occurring from the Atlantic to the Pacific and from the gulf to Canada. At Cincinnati, Ohio, I have taken sixteen species. In Maj. Casey's paper, referred to above, he gives a table of *Cioinae*, p. 77, which I have modified as suggested by a much larger and more complete material, and added genera and species discovered since its publication. I am indebted to the following who have kindly loaned and presented me with specimens: H. P. Loding, Mobile, Ala.; Prof. W. S. Blatchley, Indianapolis, Ind.; C. A. Frost, Framingham, Mass.; Chas. Leng and Chas. Schaeffer, of New York; W. E. Snyder, Beaver Dam, Wis.; H. W. Wenzel, Dr. Castle, and Phil. H. Laurent, Philadelphia, Pa.; Geo. F. Moznette, Corvallis, Ore.; Dr. F. E. Blaisdell, Prof. H. C. Fall, Dr. A. Fenyes, and G. R. Pilate, of California; R. T. Kellogg, of New Mexico; W. Knaus, of Kansas; Thos. L. Casey, Washington, D. C.; Miss A. F. Braun, Cincinnati, O., and others.

GENERIC TABLE OF CIOINAE

- Antennae with eleven joints..... 1
- Antennae with ten joints..... 2
- Antennae with nine joints..... 7
- Antennae with 8 joints..... 8
- 1—Prosternum long before coxae. Not carinate between them. Lateral thoracic margin entire to apical angles. Maxillary palpi stout, last joint widely truncate..... **Sphindocis**
- 2—Prosternum well developed before coxae. Lateral margin of prothorax entire. Last joint of maxillary palpi bluntly pointed.... 3
- Prosternum very short in front of coxae and transversely emarginate in front..... 6
- 3—Prosternum simple or nearly so..... 4
- Prosternum tumid or carinate along the middle..... 5
- 4—Body setose or pubescent; the vestiture erect and bristling. The anterior tibiae produced and dentiform externally at apex, though sometimes simple..... **Cis**
- Body elongate and glabrous. The anterior tibiae unarmed at apex. Elytral suture margined towards tip. The head rather less deflected than usual. Head and prothorax simple in both sexes. Males with a deep rounded setigerous forea at center of first ventral segment..... **Orthocis**
- 5—Body glabrous or with very short, decumbent pubescence, or inclined setae..... **Xestocis**
- Body opaque and setose. Last joint of maxillary palpi grooved on outer side. Prothorax strongly, obliquely strigose on sides beneath. **Strigocis**
- 6—Body very short and stout, wider behind; pubescence stiff and erect; prosternum deeply emarginate in front..... **Brachysis**
- 7—Body stout, convex, coarsely cribrate and setose. Anterior tibiae strongly, obliquely produced and acute at apex..... **Plesiocis**
- Body oval, small, feebly shining. Anterior tibiae produced externally at apex. Epistoma transversely sulcate. Vestiture of bristling setae. Secondary sexual mark of male on first ventral segment. **Sulcasis**
- Body narrow, subparallel and very small. Antennae with a 2-jointed loosely articulated club. Antennal grooves before the eyes distinct. Elytra striato, punctate..... **Dyphylocis** Reif
- Maphoca** Casey
- Body narrow, cylindrical, feebly sculptured and glabrous. The anterior tibiae thickened and rounded and spinulose externally at apex..... **Ennearthron**

- 8—Anterior tibiae swollen, rounded and spinulose externally at apex as in ennearthron. Head and prothorax strongly modified in the male..... **Ceracis**
 Anterior tibiae narrowly triangular. The external edge straight throughout and minutely spinulose. Head and prothorax not modified in the male..... **Octotemnus**

GENUS CIS Latreille

Antennae with ten joints. The club 3-jointed. Prosternum well developed before the coxae and rather flat between them. Lateral margin of prothorax acute to apex. Anterior tibiae either finely produced and dentiform or simple at apex. Secondary sexual modifications of the head, prothorax and first ventral segments of males of many of the species. The epistoma and frontal angles being sometimes the only parts affected. The following twelve species are described as new. Following the descriptions is a table of the eighteen species, described since the publication of Col. Casey's paper before referred to. In this paper, p. 78, he gives a tabular description of twenty-two species of the genus *Cis*. Eighteen of which are there described for the first time. Of the species enumerated in the Henshaw check list, some of Mellies' are unknown to me, and it is impossible from the descriptions or figures to tell exactly what they are, and only an examination of the types can positively decide, and it is possible that some of the species described since may be synonymous with some of them. Casey's species described in the paper above referred to (the types of which I have examined) are mostly strongly characterized species. I have yet some species that I think are undescribed, but I await more specimens before describing them.

Cis arizonae, n. sp.

Form stout, elongate, cylindric. Color dark piceous, sub-metallic, shining pubescence, very sparse and inconspicuous, arranged without order. Clypeus produced into two flat, slightly upturned processes. Front flat. Prothorax one-fourth wider than long, with base truncate. Apex in male produced into two stout, rounded processes, obtuse at tip, and the

emargination between them evenly rounded. The apex of the female prothorax being slightly emarginate. The punctuation of prothorax is closer and finer than that of elytra, which are nearly twice as long as wide and rather coarsely and deeply punctured. The first abdominal segment of male without fovea or other mark. Length 4-30 mm. This is the largest species I have seen and was collected by myself on Polyporus fungus in Madera Canon, Santa Rita Mountains, Arizona, July 23, 1915. Twelve specimens.

Cis lodingi, n. sp.

Body stout and thick; very convex, suboval in outline from above; piceous in color. Pubescence yellow, bristling, moderate in length, subdecumbent. Head sunken, flat in front, with a shallow transverse impression across base of epistoma, subfoveate at middle. Epistoma produced with margin reflexed, subangulate in front of each eye, angulate and deflexed at middle. Surface of head alutaceus and with large variolate punctures. Antennae with third joint about as long as fourth and fifth together. Tenth joint longer than wide and pointed at tip. Prothorax very high and projecting over head at apex. Strongly margined. Apex of prothorax slightly emarginate at middle. Punctures variolate, sparse and shallow. Scutellum small and transverse. Elytra slightly wider than prothorax and not twice as long as wide. Bristles not serial in arrangement. Elytral punctures rather coarse and deep. Humeri small, but prominent. Anterior tibiae flattened, carinate on its outer edge, produced at apical angle, terminating in a sharp spur. Prosternum long before coxae; wide and flat between them. Size, 2.08 x 1.01 mm. The above description was drawn from the male which has no secondary sexual mark on first ventral segment. The female does not differ much. Because of its thick body and sunken head this species resembles some *Cryptocephalus* in outline when viewed from the side. Eleven specimens from Mobile, Ala., collected by Mr. H. P. Loding, to whom it is dedicated.

Cis bicolor, n. sp.

Elongate, cylindrical. Colors dark brown and ochre yellow. Head with front margin of epistoma rounded and with the transverse suture deep and strong. Front concave. Antennae 10-jointed. Prothorax dark brown in color, finely, densely punctured. Apical margin simple. Hind angles prominent, wider at base than elytra. Elytra with a transverse dark brown basal band for one-third their length. The brown extending along elytral margin nearly to apex. The apical two-thirds of elytra ochre yellow. Each elytra with an elongate spot of brown in front of declivity. Vestiture of dense, conspicuous setae, arranged without order. Elytra narrower than prothorax and fully twice as long as wide. Two males. The first ventral segment has a large flat fovea, whose surface is finely papillose. Length 2 mm. Tybee Island, Ga. H. W. Wenzel, who has one male, and my own collection, one male. The female has not been seen.

Cis julichi, n. sp.

Form elongate, rounded. Color castaneous, with legs and antennae pale testaceous. Eyes moderate and prominent. Epistoma emarginate at middle in male, with two widely separated blunt angles. The female epistoma is squarely truncate. Third joint of antennae elongate, slender, much longer than fourth. Fifth as long as wide, sixth and seventh wider than long. Punctures single. Vestiture consisting of strong bristles, arranged without order. Prothorax as wide as elytra, with apex simple in both sexes, strongly margined at sides and base. The apex of foretibia is squarely truncate and simple. The fifth ventral segment of male is very short (longer in female) and there are no sex marks on first ventral segment. Length 1.75 mm. New York City. Collected by the late Wm. Julich, to whom it is dedicated. Received from Chas. Leng, who has Cotypes. Six specimens examined.

Cis blatchleyi, n. sp.

Piceous shining. Body rather short and stout, sparsely covered with pale setae, not serially arranged. Punctures

coarse. Head flat. Epistoma reflexed and produced into two small denticles at middle, emarginate between them. Antennae 10-jointed. Eyes not prominent. Prothorax slightly produced at apex into two feeble angles, emarginate between them. Four specs. Length 1.75 mm. Dunedin, Fla. W. S. Blatchley to whom it is dedicated.

Cis cylindricus, n. sp.

Elongate, cylindrical. Black, very like *Cis hystricula* Csy., but differs as follows: Head larger, elytral punctures, very coarse and deep, setae coarse and sparse. Clypeal tubercles porrect. Male with fovea at middle of first ventral segment. I compared this species with the type of *hystricula* in Col. Casey's collection. He agreed with me that it was not the same as that species. Length 2 mm. Umatilla Co., Oregon. Abundant. G. F. Mozzette.

Cis wenzeli, n. sp.

Elongate, cylindrical. Elytra piceous. Prothorax piceo castaneous. Punctures dual and all rather fine. Setae fine, subdecumbent, inconspicuous. Epistoma truncate, feebly angulate each side in front of eyes. Prothorax, with sides parallel, hind angles prominent, apex simple in both sexes. Beneath, the male has first ventral simple. Anterior tibia feebly everted externally at apex. 2 mm. Del. Co. Penn. Four specimens. H. A. Wenzel, to whom the species is dedicated. Taken in abundance in *Polyporus versicolor*.

Cis huachucae, n. sp.

Form oval; short, broad and very convex. Color pale (immature). Punctures shallow, dense. Vestiture of long, stiff, erect sharp-pointed bristles. Epistoma produced with a tooth-like angle in front of each eye and two smaller teeth at middle. Front flat. Prothorax wider than long; sides strongly rounded and convergent at basal and apical angles. Apex produced into two small, gradually formed processes, very close together. A shallow line running from base to apex at middle. Elytra as wide as prothorax and less than twice as

long as wide. A poorly defined fovea on first ventral segment Length 2.25 mm. One male specimen. Huachuca Mountains, Arizona. Miller Canon. This species comes nearest vitula Mann, but is very distinct. Type in collection of H. W. Wenzel.

Cis frosti, n. sp.

Brown; very broadly oval, convex, densely punctured, closely covered with short yellow bristles. Head flat, with shallow forea in middle, clypeus prolonged each side into two flat triangular processes, rather deeply emarginate between them. Prothorax wider than long, apex slightly emarginate at middle and prominent, projecting over the head. Front angles blunt, but very prominent. Side margins broad and strong. Base feebly margined. A shallow impressed longitudinal line at middle. Elytra very broad and ogivally rounded to apex. Length 2 mm. Width .09 mm. Orono, Maine. This is the broadest species for its length I have seen. I have but one male, presented by Mr. Chas. A. Frost, Framingham, Mass., to whom the species is dedicated.

Cis floridae, n. sp.

Form oblong oval. Vestiture fine and long. Epistoma produced into two triangular processes, deeply emarginate between them. Prothorax with sides subparallel, converging towards apex, which is produced into two porrect, flat, rather broad, gradual processes. Punctures fine and moderately dense. Elytra slightly over one and one-half times as long as wide. Punctures coarser than those of prothorax. First ventral with a round fovea on posterior half. The female has epistoma and prothorax simple and lacks the ventral fovea. Color pale castaneous. Length 2 mm. Key West, Florida. A pair only.

Cis serricollis, n. sp.

Broad, oval in form. Color dark brown. Vestiture of short bristles, conspicuous, arranged without order. Head with epistoma subtruncate in front, reflexed each side and narrowly deflexed at middle. Front flat and sparsely punctured. Pro-

thorax wider than long; sides strongly margined. The edge finely serrate, with serrations that resemble elongate beads. Punctures dense and fine. Elytra one and one-half times as long as wide, with punctures dual and dense, the larger ones shallow and shining at bottom. Beneath densely punctured, the ventral segments coarsely so. The anterior tibiae simple at apex. Males without modifications of prothorax or first ventral segment. Length 2-50 mm. Width 1 mm. Three specimens. Linn Co., Oregon. G. F. Moznette.

Cis pusillus, n. sp.

Elongate, oval. Piceo castaneous, shining. Antennae, tibiae and tarsi pale. Vestiture very minute, scant and inconspicuous. Head with epistoma emarginate at middle, with short blunt processes each side. Antennae 10-jointed. Prothorax with strong uniform punctures. Apex with slight emargination at middle. Punctures of elytra dual, the larger ones foveiform, shallow and shining, the smaller sparse scattered and bearing minute bristles. Anterior tibiae slightly everted externally at apex. Male with a fovea just posterior to middle of first ventral segment. Length 1.40 mm. Two specimens. Prof. W. S. Blatchley, Dunedin, Fla. This minute species looks very unlike a typical *Cis*, but the difference in facies is hardly of generic importance.

Cis crebberima, Mellie.

The male has a fovea at middle of first ventral segment. The species is quite variable in size and degree of convexity. Otherwise the description covers the points of structure.

Cis falli, Blatchley

Prof. Blatchley has loaned me his Indiana types of this species, which seems to be abundantly distinct. In addition to the diagnostic points given in the original description (Coleoptera or beetles of Indiana, p. 898). From a fully developed male I note that the last joint of maxillary palpi is truncate at tip and somewhat securiform. The third antennal joint is

as long as the fourth and fifth together. The epistoma has two small teeth or angulations on each side of middle, with a strong emargination between them. The foretibiae are produced externally at tip into a point. The male has a sharply defined fovea on first ventral segment. Taken also at Cincinnati, Ohio and Mobile, Ala.

Cis fuscipes, Mellie

The species that is known as *fuscipes* in collections and was so considered by LeConte, Horn and the older coleopterists, is a stout, rounded piceous species, with pale legs and antennae. The punctures are dual and surface rugulose. The vestiture of conspicuous bristles is arranged in regular rows. The epistoma is simple but reflexed and slightly truncate or feebly rounded in front. The prothoracic apex is rounded and rather prominent in both sexes. The males have no mark on first ventral segment. In size the specimens vary from 1.08 to 3 mm. Specimens have been seen from nearly every state in the United States, even California (Alameda Co.). At Cincinnati, Ohio, it is very abundant and lives in various Polyporoid fungi. No other *Cis* is as common and widely distributed as this. A comparison with the type only will decide if this is the species described as *fuscipes* by Mellie. The form considered *chevrolati* in collections seems to be a variety of the variable *fuscipes*. The species described as *carolinae*, Casey is said to differ in having the third and fourth joints of the antennae equal in length. Specimens from Cincinnati, identified as *carolinae* by Col. Casey, have this character, but I find it a variable one. Otherwise I can see no difference between it and *fuscipes*.

Cis impressa, Casey

Journal, New York Ent. Soc., vol. vi, No. 2, p. 79. This is an abundant species in various localities in California, Oregon, Idaho, and seems to extend across the country as far as East Machias, Me. I also have specimens from Swansea, Mass. I can not see any constant specific difference between

the eastern and western forms. The proportional length of antennal joints is variable, particularly between males and females. They have, in the male, a fovea at middle of first ventral segment. In a male, from Maine, this fovea is concealed by a tuft of yellow hairs. These hairs seem to be wholly or partly removed in other specimens. The females closely resemble *Cis fuscipes*. The males are easily recognizable by the large impressed space at apex of prothorax.

TABLE OF CIS (DESCRIBED SINCE 1898)

Bicolored species, with well-defined markings on prothorax and elytra.	1
Piceous or brown-colored species (paler when immature), without well-defined markings.	2
1—Straw yellow, maculate with piceous. Epistoma not punctured, opake. Slightly elevated and subquadrate. Elytra with black at base and transverse band at apical, third extending along suture to apex. Length 1.02 mm. Cayamas, Cuba. Florida.	
	superbus Kraus
Brownish yellow, maculate with blackish. Epistoma sparsely punctured, broadly semielliptical. Elytra black at base and with two spots posterior to middle. Length 1.05 mm. Victoria, Texas.	
	bimaculatus Kraus
Dark brown, maculate with yellow. Epistoma, with deep transverse groove at suture. Elytra brown at base, with apical two-thirds yellow; two elongate brown spots or clouds in front of declivity. Length 2-mm. Subopake, Tybee Island, Ga.	bicolor Dury
2—Larger species 2.50 mm. or over in length. Punctures single. Vestiture not serial in arrangement.	3
Medium sized species not over 2 mm. in length.	4
Very small species less than 1.50 mm. in length.	5
3—Very large and convex. Elytral punctures fine and dense. Male with strong secondary sexual characters on prothorax and first ventral segment. Epistoma, with two flat, sharp processes. Length 4-30 mm. Santa Rita Mountains, Ariz.	arizonae Dury
Smaller, very convex. Elytral punctures sparser. Male sexual characters on epistoma, which is angulate and deflexed at middle. Length 2.08 mm. Mobile, Ala.	lodongi Dury
Short, broad, convex. Vestiture fine, long and conspicuous. Male sexual marks at apex of prothorax and first ventral segment. Epistoma with two large, blunt, triangular processes. Length 2.06 mm. Indiana—Ohio.	cornuta Blatch.
Shaped like cornuta . Vestiture coarser. Epistoma quadridentate. Length 2.25 mm. Huachuca Mountains, Ariz.	huachucae Dury

- Elongate, convex, shining black. Vestiture scant, inconspicuous. Elytral punctures dual, strong and dense. Epistoma emarginate at middle, with a small denticle each side. Length 2.02 mm. Indiana, Ohio and Alabama.....**falli** Blatch.
- Broad, oval; brown in color; punctures dual. Vestiture abundant, conspicuous. Prothoracic margin serrate. Epistoma deflexed at middle. Length 2.50 mm. Linn Co., Oregon....**serricollis** Dury
- 4—Elongate; smaller and more depressed than **falli**. Piceous in color. Allied to that species. Length 2 mm. Indiana and Alabama.
confusus Blatch.
- Elongate, cylindrical, black. Elytra with coarse, deep, single punctures. Vestiture short and bristling. Epistoma of male with porrect tubercles. Near **hystricula** Csy., but differs in the larger head and coarser punctures. Length 2 mm. Umatilla Co., Oregon.
cylindricus Dury
- Elongate, cylindrical, piceous. Vestiture fine and subdecumbent. Punctures dual. Epistoma truncate, feebly angulate each side in front of eyes. Length 2 mm. Delaware Co., Penn....**wenzeli** Dury
- Elongate, rounded in form. Color castaneous. Punctures single. Epistoma emarginate at middle, with widely separated blunt angles each side in the male. Squarely truncate in the female. Length 1.75 mm New York City.....**julichii** Dury
- Oblong, oval. Epistoma strongly produced into triangular processes. Prothorax with subparallel sides. Length 2 mm. Key West, Fla.
floridae Dury
- Short and stout. Piceous, shining. Vestiture sparse and inconspicuous, arranged without order. Epistoma reflexed and produced into two small denticles at middle. Length 1.75 mm. Dunedin, Fla.
blatchleyi Dury
- Very broad, oval. Brown in color. Vestiture of conspicuous yellow bristles. Epistoma prolonged into flat triangular processes each side, deeply emarginate between them. Length 2 mm. Framingham, Mass.....**frosti** Dury
- 5—Elongate, oval. Pico-castaneous, shining. Vestiture minute and sparse. Epistoma emarginate at middle, with blunt processes each side. Length 1.40 mm. Dunedin, Fla.....**pusillus** Dury

ORTHOICIS, Casey

Orthocis longula, n. sp.

Form very narrow and elongate. Shining, rufo piceous in color. Punctures coarse, legs and antennae pale. Head with the clypeal margin slightly angulate, each side in front of eye

and strongly reflexed at sides, but not so at middle. Eyes moderate in size, but very convex and prominent. Antennae with ten joints. Third joint long and slender, fourth not as long as third, also slender. Fifth and sixth short, slightly longer than wide. Seventh beadlike, not longer than wide. The three joints comprising the club as long as wide. Prothorax about as long as wide. Elytra two and one-half times as long as wide. The Prothorax is subquadrate in form and as wide at front angles, which are right angles, as at base. Sides straight. Ligula narrow and strongly concave along middle. Length 1.06 to 2.08 mm. Five specimens. Pennsylvania and Florida. This species has the head flatter than *Orthocis punctata* Csy., but the punctuation of the two species is about the same. It varies much in size. *Orthocis punctata* Csy. also seems to vary much in size. Specimens from North Georgia being very large. 3.02 mm. in length. New Jersey specimens are 2.5 mm., while one from Michigan is but 2.02 mm. The strength of the sutural margin also varies. One from Tybee Island, Ga., has it almost obsolete. I have not taken it at Cincinnati, Ohio.

Orthocis aterrима, Csy.

I have only seen the type of this species. There were no specimens in any of the California collections examined. It is from Alameda County, California. The five species of *Orthocis*, which genus is described in Casey's paper, before referred to, p. 84, tabulate themselves as follows:

Elytra unicolorous.....	1
Elytra bicolored.....	2
1—Ligula broad and flat. Third antennal joint nearly or quite as long as the next two combined. Georgia, Michigan, New York, New Jersey and Massachusetts.....	punctata Mellie
Ligula narrow and strongly concave. Third antennal joint as long as the next two, nearly as long as the next three combined. Pennsylvania and Florida.....	longula Dury
Ligula narrow and convex. Third antennal joint distinctly shorter than the next two combined. California.....	aterrima Casey

- 2—Elytra straw yellow; maculate with black in shape of band from base to apex along suture, with cross bands to side margin, at base and middle. Third antennal joint as long as next three combined. Key West, Florida. 1-07 mm. *huesanus* Kraus
- Elytra yellow, with a transverse black band at base and another at apical third. Third joint of antennae much shorter. Key West, Fla. 1-03 mm. *pulcher* Kraus

XESTOCIS, Casey

Journal of New York Entomological Society, No. 2, vol. vi, 1898, p. 85.

Xestocis singularis, n. sp.

Oblong, oval, glabrous, shining. Piceo castaneous in color. *Male*—Epistoma reflexed, angulate at sides, slightly marginate at middle. Front deeply concave, smooth. Antennae 10-jointed stout, third joint as long as fourth and fifth together, fifth, sixth and seventh very transverse. First two joints of club as long as wide, last joint longer. Eyes moderate in size, but very prominent. Prothorax as long as wide, wider than elytra, sides arcuate, hind angles rounded, strongly margined at base and sides. The front angles rather acute and extending across front as a carina into the porrect blunt horns or processes. These horns are of very singular shape, being curved upwards and outwards at tip, with a thick carina running lengthways with the horns. The upper edge of this carina being convex and highest in the middle. Between the horns, which are widely separated, is a shining subquadrate depression. At base of horns on outer side it is strongly strigose. It is also strigose at sides and across base of prothorax. Punctures rather fine and uniform. Elytra narrower than prothorax and less than twice as long, substriate. Punctures dual. Large and foveiform ones in rows, and minute ones scattered along interspaces. Beneath the prothorax is long before the coxae, which are large and prominent, with a sharp carina between them. The anterior tibiae are flattened and carinate on outer edge, with a produced apical angle, rounded and finely

denticulate. The first ventral segment has a rounded, finely punctate fovea, with a row of long yellow hairs, springing from its anterior margin and pointing backward over it. Length 2-02 to 1-08 mm. The female is smaller and lacks horns and ventral fovea and her ventral segments are pale. Eight specimens. Cincinnati, Ohio, Kentucky, Alabama and Tennessee. (Cumberland Gap). Specimens in National Museum with larvae, from District of Columbia.

Xestocis moznettei, n. sp.

Oblong oval. Thorax piceous, elytra brown, with a large reddish blotch at humeri and another near apex. Basal joints of antennae and legs paler. Punctures dual, the smaller ones bearing short, pale bristles, not serial in arrangement. Head has epistoma emarginate at middle, on each side of which the margin is reflexed into triangular processes. Front with a shallow foveate depression. Prothorax evenly and finely punctured; sides arcuately rounded and strongly margined around base. Elytra twice as long as prothorax, with the larger punctures substriate in arrangement. Beneath the prosternum is strongly tumid between coxae. Males have a rounded fovea on first ventral segment. The females lack this fovea. Average length 2 mm. Fifty specimens. Bred from *Polystictus*. Corvallis, Oregon, March 10, 1915. Geo. F. Moznette.

Xestocis davisii, n. sp.

Male. Broad, oval. Rather pointed before and behind. Shaped like *opalescens*. Piceo castaneous in color. Clypeus biangulate. Front concave. Prothorax wider than long, finely, closely punctate. Apex produced into a short process, emarginate at tip. Elytra one and one-half times as long as wide; finely, deeply, punctate. Conjointly pointed behind. Beneath with a fovea on first ventral segment. Length 1-50. Width 0-6 mm. Female lacks fovea and process of prothorax. Three specimens. Staten Island, N. Y. Named in honor of Wm. T. Davis, who knows more of the faunae of Staten Island than any one I know of.

Xestocis quadridentatus, n. sp.

Elongate, suboval, shining. Piceo castaneous in color, with pale legs. The male has the epistoma strongly quadridentate and reflexed; front of head concave. Maxillary palpi, with last joint large, oval and bluntly pointed. Antennae 10-jointed. Third joint slender and longer than fourth. Fourth, fifth and sixth decreasing in length and increasing in thickness. Three-jointed club loose, with the terminal joint rather pointed. Prothorax about as wide as long. Sides arcuate and margined as is base. Apex produced into two triangular flat horns. Punctures strong, deep, uniform and close set, as are those of elytra, which are as wide as prothorax and one-half longer than wide, bristling with pale pubescence, arranged without order. A small, deep fovea at middle of first ventral segment. Females are without the epistomal teeth and ventral fovea. Length 1.50 to 2 mm. Twenty-two specimens. Framingham, Mass. Mr. Chas. A. Frost.

Xestocis castlei, n. sp.

Suboval in form, rufopiceous in color. Moderately shining. Horns, head and legs pale. Vestiture composed of rather dense, short, stout, yellow bristles, not at all serial in arrangement. Male. Head broad; eyes small. Front flat, with epistoma reflexed and produced each side into two widely separated sharply pointed horns, which are curved upwards and carinate beneath from their base to apex. Antennae 10-jointed. First joint very thick, second slightly more than one-half as thick and shorter. Third, fourth, fifth, sixth and seventh gradually decreasing in length and much narrower than second. Seventh very transverse. Three-jointed club about as long as the preceding together and with the joints feebly subquadrate. Prothorax as long as wide, sides arcuate and margined to apical angles, which are not prominent. Base truncate and finely margined. Apex produced into two prominent triangular flat horns. Elytra slightly narrower at base than prothorax, with sides visibly arcuate to the ogival rounded apex, and less than twice as long as wide. Suture very finely beaded. Punc-

tures coarser and sparser than those of prothorax. Beneath, prosternum well developed before the coxae and sharply carinate between them. Anterior tibiae slightly thickened and rounded at tip. A circular fovea at center of first ventral segment. Female lacks fovea and horns. Length 1.06 x .06 mm. Cincinnati, Ohio. One hundred specimens. Named in honor of Dr. Castle, of Philadelphia, Pa., a veteran coleopterist and lover of nature.

Xestocis levettei, Casey

Journal New York Ent. Soc., vol. vi, p. 85. I might add to the description above cited, that the punctures are dual, consisting of larger circular ones, shallow and shining at bottom, and smaller deep, ones which bear minute hairs. The male has a large fovea on first ventral segment, which is fringed with long yellow hairs. The species has a very wide distribution. I have specimens from Canada to Florida, and Newfoundland and New Hampshire to Ohio and Indiana. At Cincinnati it is very abundant.

Xestocis opalescens, Casey

To description in paper above cited, page 86. I add that the side margins of prothorax are wider behind (subexplanate), and a strongly developed male has the epistoma produced into two broad processes or horns, obtuse at tip. The prothorax at apex is also produced into two broad recurved horns. At posterior middle of first ventral segment is a large round pubescent fovea, with a sharp, deep groove around it. Terminal joint of maxillary palpi thick, oval and bluntly pointed. The anterior tibiae are sharply angulate externally. I have examined the type which seems to be a less strongly developed male. The type is from Pennsylvania. It occurs also at Washington, D. C., Virginia and Cincinnati, Ohio, but does not seem to be anywhere common.

TABLE OF XESTOCIS

Body glabrous.....	1
Body clothed with short pubescence or bristles.....	2
1—Clypeus bidentate in male. Prothorax simple or rounded in both sexes. Eastern United States.....	<i>levettei</i> Casey

- Clypeus bidentate in male. Prothorax armed in male. Body short, broad, shaped and proportioned as in *opalescens*, but smaller and glabrous. Staten Island, N. Y. **davisi** Dury
- Clypeus monocerate in males. Apex of prothorax, with two long slender porrect processes. Rhode Island to Alabama. **miles** Casey
- Clypeus reflexed, angulate at sides. Prothorax, with two thick, porrect, blunt horns, which are carinate above. Ohio. **singularis** Dury
- 2—Vestiture very fine and inconspicuous. Side margin of prothorax very wide; subexplanate. Pennsylvania, Ohio and Virginia. **opalescens** Casey
- Vestiture composed of very fine decumbent, inconspicuous pubescence. Body bicolored. Elytra substriate. Prothoracic side margin narrower. Oregon. **moznettei** Dury
- Vestiture not conspicuous. Composed of fine simple subdecumbent hairs. Prothoracic side margin narrower. Elytra not substriate. British Columbia to Oregon. **biarmata** Mann
- Vestiture composed of very conspicuous squamules. Clypeus quadridentate. Massachusetts. **quadridentatus** Dury
- Vestiture composed of coarse, stiff, suberect squamules. Epistoma in male biangulate and with apex of prothorax subangularly produced and rounded, with tip very narrowly sinuato-truncate. Pennsylvania. **insolens** Casey
- Vestiture composed of rather dense, short, stout yellow bristles. Epistoma reflexed and produced into two widely separated horns, sharply pointed. Apex of prothorax produced into two prominent triangular flat horns. Cincinnati, Ohio. **castlei** Dury

STRIGOCIS, n. genus

Body elongate, subcylindrical. Vestiture, consisting of short, stiff inclined setae. Maxillary palpi, with the terminal joint truncate at tip. The outer edge thickened and grooved, the inner side thin and blade-like. Antennae 10-jointed. The anterior margin of epistoma produced in both sexes. Prosteronum long before coxae, carinate at middle, strongly and obliquely strigose. Front tibiae flattened externally; produced and spinulose at apex. Elytral suture sharply margined. This genus is founded on a species that will not fit any so far defined, having a combination of their characters. Related to *Orthocis* in the margined elytral suture and to *Xestocis* in prosternal carination.

Strigocis opacicollis, n. sp.

Elongate, oval. Color piceous. Legs and antennae pale. Thorax opaque and alutaceous, not closely, but rather strongly punctate. As wide at base as apex. Front angles prominent; sides feebly arcuate. Strongly margined at base and sides to apical angles. Elytra more shining than prothorax and nearly twice as long. Moderately and uniformly punctured, each puncture bearing a light colored bristle, arranged without order. The humeral callus very prominent, shining and resembling a rounded tubercle. Suture finely margined more strongly behind. In the male the clypeus is projected forward in a thin broad bifercate process, behind which the front is deeply excavated into a rounded depression. The apical edge of prothorax is prolonged into an abrupt laminar process, notched at middle. There is a circular fovea at middle of first ventral segment. The female lacks this and also the prothoracic process. Beneath both sexes have the oblique strigosity before described. Fully developed males are 1.8 x 0.7 mm. in size. Females and depauperate males are smaller. Twenty-four specimens. Cincinnati, Ohio, Mobile, Ala., and New Jersey.

SULCACIS, n. genus

Small size bristling with erect setae. The epistoma has the margin subtruncate across its front, with a strong sulcation at its base, between the lower border of the eyes. The apical margin of prothorax is rounded and simple in both sexes. The maxillary palpi are large, elongate and bluntly pointed. The prosternum is broadly excavated in front and flat between coxae. The antennae are 9-jointed. The anterior tibiae are produced and everted at apex. The males have sexual marks on first segment. The structure of this genus recalls *Plesiocis* Csy., but the antennal club lacks the large, sensitive pores filled with white spongy pubescence. It is a rather feebly characterized genus. I have seen two species in the above genus. They are:

Sulcacis lengi, n. sp.

Oblong, oval; cylindric in form; piceous black, subopaque. Bristling with pale setae, arranged without order. Head sparsely punctate; flat in front, with a well-marked sulcation across clypeus, which is slightly produced in front. Antennae 9-jointed, with a 3-jointed club. Club joints rounded, slightly transverse, with a deep fovea on each side. Third joint elongate, as long as the fourth and fifth combined. Sixth very short, much wider than long. Prothorax as long as wide. Sides rounded and margined, as is base. Apex rounded and simple in both sexes. Elytra one and one-half times as long as wide; widest behind middle and evenly rounded to apex. Beneath the prosternum is flat between coxae and strongly transversely excavated in front. The male has a round fovea on first ventral segment, with a row of bristles around it, pointing inwards. Length 1.08 mm. Vermont. From Chas. Leng. Cincinnati, Ohio, abundant. The excavated prosternum points strongly towards *Brachycis*. It also resembles *Plesiocis*, the type of which is a California species.

Sulcacis niger, n. sp.

A species allied to *lengi*. Jet black and more shining and of more cylindrical form. Punctuation and bristles coarser and sparser. The bristles white in color. Prosternum narrower between coxae. Antennal joints differently proportioned, the third joint being as long as the fourth, fifth and sixth combined. The seventh and eighth joints wider than long. The ninth joint only being circular. Length 1.05-08 mm. Three specimens. Southern Illinois. I have received from Mr. H. W. Wenzel, of Philadelphia, a species taken by him in Del. Co., Pa., that is perhaps a race of the above. It has finer punctuation and more abundant bristles, which are more yellow in color. More specimens from intermediate points may show that there is only one species.

Brachycis brevicollis, Csy.

To the original description, Journal New York Ent. Soc., p. 86, vol. vi, I add the following: The male has a large circular cicatrix like fovea, a little posterior to the middle of the first ventral segment. The original generic diagnosis says "the side margin of prothorax is obsolescent at apical angles." In seventy-five specimens examined, this margin is sharp and strongly developed around these angles. The front tibiae are produced into a spur at apex and the middle and hind tibiae are obliquely truncate and spinulose. My specimens average 1.07 x 0.8 mm. in size. North Illinois and Mobile, Ala., from which latter place I have bred them from fungus sent by Mr. Loding. They are very abundant in Alabama, but I have not yet found them at Cincinnati.

Plesiocis cribrum, Casey

The description by Casey evidently refers to the female. Some of my smaller females fit this description closely. The males have strong secondary sexual characters. The reflexed epistoma is quadridentate; the prothorax is produced at apex into two short processes, with a broad, shallow emargination between them. The first ventral segment has a sharp, small, round fovea at middle. The females range in size from less than 2 to 3.50 mm. Fourteen specimens. Truckee, Cal., also Humboldt and Sonoma Counties.

ENNEARTHRON, Mellie

Ennearthron compacta, n. sp.

Short, round, thick and compact. Color piceous black, glabrous and shining. Head with epistoma rounded and front transversely sulcate. Prothorax about as wide as long. Sides rounded and margined around front angles, which are prominent. Apex produced into a thin lamellate process, emarginate at tip. Punctures very uniform, sparse and fine. Elytra one and one-half times as long as wide, with punctures closer and

much larger than those of prothorax. Beneath the outer apical angles of anterior tibiae are rounded and spinulose. First ventral segment of male with a circular fovea on posterior half. Length 2 mm. Width 1 mm. Key West, Fla. Bred from *Fomes marmoratus*, Berk., C. G. Lloyd, And three specimens from Round Mountain, Texas, which do not differ from the Florida specimens, received from H. W. Wenzel. This species is the broadest for its length of any I have seen. It deviates somewhat in generic characters, but they are hardly sufficient for another genus.

Ennearthron oregonus, n. sp.

Elongate, cylindrical, slender in form, shining. Head and prothorax red; elytra piceo castaneous in color. Male—Head with epistoma reflexed and produced into a rather long, broad, lamellar process, slightly emarginate at tip. Front with a strong transverse shining concavity. Prothorax about as long as wide. Alutaceous finely and sparsely punctate. Apex produced into a very thin, upturned, gradually formed process, strongly emarginate at tip. Elytra about two and one-half times as long as wide and of same width as thorax. Punctuation slightly rugose and coarser and more dense than that of prothorax. Beneath the apex of front tibiae are rounded and spinulose at apex externally. The first ventral has a small, round fovea on posterior half at middle. Length 1-50 mm. Corvallis, Oregon. Mr. Moznette. Allied to *Convergens* Csy. a large series may show the two to be identical. Two males.

Ennearthron coloradense, n. sp.

Elongate, dark piceous, shining. Head, legs and antennae pale, and the latter very elongate and 9-jointed. The third joint as long as the fourth, fifth and sixth together. Allied to *thoracicornis*, which has the third antennal joint only equal to the next two. Elytra twice as long as prothorax and slightly wider; closely and finely punctate. Prothorax alutaceous, deeply and evenly punctured, the punctures being smaller than those of elytra. Only males were seen. The epistoma.

being strongly reflexed in trapizoidal process, which is emarginate above. Prothoracic process abrupt and deeply emarginate at middle. A circular fovea at posterior border of first ventral segment. The other segments transversely strigose. Length 2.04 mm. I took this species at Grand Lake, Middle Park, Colo. Only males were seen.

A subspecies of the above was taken in Grant Co., New Mexico. It is about the same size and proportions, but differs in having an impressed space behind the prothoracic process, and having this process more gradually formed. The prothorax is always red and the posterior part of elytra is always with traces of this red color. Ten specimens. Both sexes.

Ennearthron thoracicorne, Ziegl

An examination with high power shows that each joint of the antennal club has a large fovea and a small denticle on the outside of joint. The third joint is as long as the first and second.

TABLE OF ENNEARTHRON

Species with elytral maculation. bicolored.....	1
Species with elytra unicolored.....	2
1—Prothorax mostly dark. Elytra with an irregular narrow transverse pale band at middle. Florida, Georgia, Texas and Virginia.	
	transversatum
Prothorax dark medially, elytra with a broad, transverse, dusky band at base and two indistinct dusky spots at apex. Florida.	
	pallidum
Prothorax with anterior half brownish. Elytra with transverse piceous band that narrows towards scutellum. Apex of elytra dusky for about one-third their length. Cuba....	annulatum
2—Male with a long, single, slender, erect clypeal process. Size very small.....	10
Males with the clypeal margin reflexed. Thoracic process bidentate.....	3
3—Males with the thoracic process longer, narrower and more approximate. Punctuation very fine, that of elytra confused in arrangement.....	4
Males with the thoracic process shorter, more widely separated and more lamellarly triangular; punctuation stronger.....	6

- 4—Apex of prothorax rather feebly impressed behind the processes.
Form slender; cylindric..... 5
Apex of prothorax strongly impressed behind processes. Punctures of elytra finer than those of prothorax. Elytra less than one-half longer than wide. Texas and Louisiana..... **piceum**
- 5—Elytra fully one-half longer than the prothorax; slender. Punctures very fine, elytra slightly rugose. Canada to Florida. **thoracicornis**
More slender than *thoracicornis*. Processes of thorax longer and less divergent. Thorax of female more strongly extended over head. Disk of thorax alutaceous and more evenly and coarsely punctured than *thoracicornis*. Indiana..... **oblongus**
Elytra very short and strongly cuneiform; very much less than one-half longer than the prothorax, which is not quite as long as wide. Elytral punctures sparse and very minute. Morgan City, La..... **laminifrons**
- 6—Thoracic process of male very abruptly formed..... 7
Thoracic process of male not abruptly formed, its sides merging gradually and obliquely into the sides of prothorax..... 8
- 7—Elytral punctures rather coarse. Thoracic process one-half as wide as elytra. Clypeal process very broad. California (Southern).
grossulum
Elytral punctures close set. Angles of clypeal process scarcely rounded. Punctures generally very feebly subserial in arrangement. Color blackish. California (especially northern coast regions)..... **californicum**
Elytra with feebly impressed lines. Punctures feebly subserial in arrangement. Piceous. Elytra paler. Prothoracic process rather short. Lamelliform..... 9
- 8—Prothoracic punctures sparse; angles of clypeal process rounded. Color more or less rufotestaceous, the elytra sometimes blackish towards base. California..... **discolor**
Prothoracic punctures fine, dense. Form short, broad and compact. Epistoma rounded in front. Length 2 mm. Width 1 mm. Key West, Fla., Round Mountains, Tex..... **compacta**
Narrowly cylindric, blackish, elytra rufescent at tip. Clypeus with the sides strongly convergent, the apex broadly sinuato-truncate, with angles blunt. California..... **convergens**
Elongate, cylindric. Head and prothorax red. Elytra blackish. Head with the front strongly concave. Angles of processes sharp. Corvallis, Ore..... **oregonus**
Larger, elongate, cylindric, black, very shining. Reflexed process of epistoma very prominent; deeply sinuate; angles sharp. Process of prothorax long and deeply emarginate at tip. Color either piceous or with elytra piceous and prothorax red. Middle Park, Colo., Grant Co., New Mexico..... **coloradense**

- 9—Clypeus only moderately reflexed; its apex broadly truncate. Prothoracic process abruptly formed, rather short, lamelliform, with a triangular incisure at middle. Elytra substriate. Florida and Alabama..... **pullulum**
- 10—Very small. Punctures excessively minute. Male, with clypeal process very long and narrow, with its apex rounded. Key West, Fla..... **unicorn**

thoracorne, *piceum* and *oblongus* are very close, and perhaps but one species, as the characters given to separate them vary. I include the Cuban *annulatum* as it will perhaps be found in Florida. Several of the California species are very close to each other and may prove to be the same. Tables founded on male secondary sexual characters are bad, but with so many closely allied species where characters are so feeble, it seems impossible to do otherwise.

CERACIS Mellie

Ceracis schaefferi, n. sp.

Piceo castaneous in color. Allied to *sallei*, but is smaller and does not have the elytra pale and blackish towards base. Prothoracic punctures sparser than in *sallei*. Elytral punctures dual and much coarser and deeper than in that species. Length 1.50 mm. Brownsville, Texas. Four specimens. Two males and two females received from Charles Schaeffer, Brooklyn, N. Y. The color of *sallei* when mature is characteristic in the male, and most females also have the apical half of elytra pale, which is not the case in any of the specimens of *schaefferi* I have seen.

Ceracis minuta, n. sp.

Very shining, black, with legs and antennae paler. Prothorax wider than elytra, with punctures sparse and finer than those of elytra. Processes of apex strongly developed. Elytral punctures closer and larger than those of prothorax, otherwise the species is like *Ceracis punctulata* Csy., but it is much smaller. 1.01 mm. in length. I took fifteen specimens of this minute species at Palm Beach, Florida, June, 1913. The first ventral segment has a round fovea at middle. This is the smallest *Ciside* I have seen, except the Florida *unicorn* Casey.

Ceracis bifoveatus, n. sp.

A rather slender species, somewhat like *punctulata* above, in shape, color and size. The elytral punctures being coarser and more dense than those of prothorax, which is squarely truncate at base, alutaceous and at posterior angles strigose. The outer tip of anterior tibiae are rounded and spinulose. The male secondary sexual characters are very peculiar. The epistoma is reflexed and emarginate, and the apex of prothorax is produced into an abrupt process which is deeply notched at tip. The first ventral segment has a large circular fovea, surrounded by a deep groove and is convex in the middle with raised papilliae. Posterior to this and joining it is another fovea, around the posterior half of which is a row of outward radiating yellow bristles. The females lack process and ventral fovea, but are unique in having a deep fovea at middle of front. Length 1-04 mm. Five specimens. Three males and two females. Cincinnati, Ohio.

Ceracis, Mellie

Antennae 8-jointed. Male characters affecting epistoma, prothoracic apex and first ventral segment. In facies they resemble *Ennearthron*. The species may be tabulated as follows:

Rufotestaceous. Elytra blackish towards base. Eastern United States, from Canada to Texas. The most abundant species in Ohio.

sallei Mellie

Piceo castaneous. Elytra not blackish towards base. Elytral punctation dual and coarser. Allied to *sallei* Mellie. Brownsville, Tex.

schaefferi Dury

Castaneous. Prothorax with a smooth, median line posteriorly. Elytra distinctly punctate. Lower California.....**similis** Horn

Piceo-castaneous. Elytra strongly rugosely punctate. Secondary sexual marks on both sexes. Cincinnati, Ohio.....**bifoveatus** Dury

Black. Elytra nearly smooth; more finely punctured than prothorax. Florida and Alabama.....**punctulata** Csy.

Black. Much smaller. Elytra strongly and densely punctured. Punctures of prothorax finer than those of elytra. Palm Beach, Fla.

minuta Dury

Octotemnus, Mellie

Casey gives a good generic diagnosis in Journal New York Ent. Soc., vol. vi, No. 2, p. 91, and describes two species, *Octotemnus denuclatus* and *O. laevis*. The former from the west coast and the latter from the Eastern United States. I have seen the types. In a large series of specimens from many localities the characters given to separate them seem to run together so that I can not find any of specific value to distinguish the two. In both forms the prothorax is alutaceous, with punctures about the same. Some specimens of both are more elongate and less oval. The size averages the same. The darker ones are the more mature ones. The species is a glabrous insect, finely punctured, averaging about 1.75 mm. in length. The males are without sexual marks on either epistoma or prothoracic apex. Color from pale to dark. I have seen specimens from Pennsylvania, Ohio, Alabama, Iowa, Kansas, Oregon, Washington and California. At Cincinnati, Ohio, they live in various species of fungi and are very abundant. Those from Oregon were bred from *Coriolus versicolor* and *Polystictus*.