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On the North American species of several genera of Apidae

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black spots on the outer margin of the secondaries; two, connected, at one-third the length of the margin from the anal angle, the other, midway between them and the outer angle. Abdomen without spots. Below, immaculate, costa of primaries rosy. Length of body $3\frac{3}{4}$ lines; of the wings $10\frac{1}{2}$ lines.

Philadelphia.

Should these prove to be new, I would propose for them the name of *tri-maculosa*.

On the North American species of several genera of APIDÆ.

BY E. T. CRESSON.

Gen. ANTHIDIUM, Fabr.

The characters of this genus are laid down by Mr. Smith (*Bees of Great Britain*, p. 184) as follows:—

"The body usually adorned with yellow spots or stripes. Head nearly as wide as the thorax; the ocelli placed in a triangle forward on the vertex; the antennæ filiform, the basal joint of the flagellum obconical. The mentum linear, elongate and pointed at its apex; the labium elongate, blunt at its apex and channeled down the middle, one-third longer than the palpi; the latter four-jointed, the first and second joints elongate, gradually narrowed from the base to the apex; the two apical joints minute, placed at the side and near the apex of the second joint. The maxillary palpi consisting of one joint, placed on a cup-shaped basal tubercle (or joint?); the apical lobe of the maxilla sickle-shaped. The superior wings having one marginal and two submarginal cells, the second submarginal cell receiving the first recurrent nervure a little within at the base, the second recurrent nervure uniting with the second transverse nervure. Abdomen incurved, furnished with a dense pollen-brush beneath in the females; the males having the apex armed with spines."

Our species of this beautiful genus are apparently quite rare and may be classed as follows:—

Sect. 1, containing those species which are large, broad and sub-parallel, having somewhat the form of a *Megachile*, the body more or less hairy and subopaque, the wings hyaline, the second recurrent nervure uniting with the second transverse nervure, the abdominal seg-

* In giving the characters of the genera of Apidæ, I copy the excellent descriptions of Mr. Frederick Smith, as given in his Catalogues of Hymenoptera in the British Museum, and think it unnecessary to draw up other descriptions when those of Mr. Smith are full and explicit. These descriptions are here given as an assistance to those not having the original ones convenient

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ments transversely depressed at base, and the apical segments of the males armed with spines.

Sect. 2, containing those species which are short and very robust, the body not hairy, the wings mostly fuscous, the second recurrent nervure passing a little beyond the apex of the second submarginal cell, the abdomen short, glossy, and very convex above, the segments not depressed at base, and the apical segments of the males not armed with spines.

Section 1.

1. *A. emarginatum*, Say.

Megachile emarginata, Say, Long's 2nd Exped. ii, p. 352, ♀ (1824).

Female.—Head black, densely punctured, thickly clothed with rather long pale hairs, which are sparse on the clypeus; a small ferruginous-yellow spot on each side of the vertex over the eyes. Antennæ black. Thorax black, opaque, densely and finely punctured, thickly clothed with pale hairs; the tubercles, anterior part of the tegulæ, and four spots on the posterior margin of the scutellum,—the extreme basal ones being the smallest, yellowish-white. Wings hyaline, nervures fuscous. Legs black, clothed with pale hairs, especially on the tibiæ and tarsi; a yellowish-white vitta on the exterior edge of each tibia; tarsi clothed within with rufo-fuscous pubescence. Abdomen convex, finely punctured, black, somewhat shining; a yellowish-white fascia near the apical margin of each segment, very slightly interrupted on the disk except that on the basal segment, and more or less emarginate on each side anteriorly, the fascia on the basal segment is deeply indented posteriorly; ventral scopa yellowish-white. Length $4\frac{1}{2}$ lines.

Male.—Resembles the female, but differs as follows:—the clypeus, the face on each side of the clypeus and the mandibles are yellowish-white; the posterior margin of the scutellum has only a narrow yellowish-white line on each side of the middle; the vittæ on the exterior edge of the tibiæ are interrupted on the anterior and intermediate pairs, and reduced to a short line at the base of the posterior pair; the wings are faintly tinged with fuscous; the fasciæ on the abdominal segments are broadly, deeply and somewhat squarely indented anteriorly, the indenture on each side of the basal segment extending entirely through and dividing the fascia into four spots, a small one each side of the disk and a large one at each extreme side; the fasciæ on the fourth and fifth segments are scarcely interrupted on the disk;

on the middle of the sixth segment a yellowish-white mark, slightly interrupted in the middle and deeply and acutely indented on its outer margins, giving it somewhat the appearance of the letter X dilated, with its lower angles prolonged on each side; on the extreme sides of the posterior margin of this segment there is a stout acute tooth; the apical segment black, deeply emarginate posteriorly, with a rather slender acute tooth in the middle, and with the lateral angles much produced and obtuse; apical segment beneath with an acute tooth on each side.

Hab.—Kansas. ♂ and ♀. Coll. Ent. Soc. Phila.

Closely allied to *A. maculifrons* Smith, but differs principally in the form and position of the markings.

2. *A. maculifrons*, Smith.

Anthidium maculifrons, Smith, Brit. Mus. Cat. ii, p. 214, ♂. (1854.)

Female. Length 4 lines.—Black, the face has four ovate yellow maculæ, two on the clypeus, and one on each side of it; a stripe on the inferior margin of the mandibles, and a minute spot on the vertex above the eyes, yellow. Thorax, a short stripe over the tegulæ, and four on the margin of the scutellum, a spot on the tegulæ anteriorly, and the tibiæ at their base above, more or less yellow; the thorax, particularly beneath, the face, cheeks and legs have a cinereous pubescence, on the tarsi beneath it is rufo-fuscous; the claws ferruginous. The basal segment of the abdomen has on each side an angular macula and another minute one a little within; the four following segments have on each side, a little within their apical margins, an oblong stripe, pointed within, and deeply emarginate anteriorly, almost dividing the stripes; the apical segment has two central ovate spots, its margin crenulated, and laterally subemarginate, terminating in a short tooth; the ventral scopa yellowish-white.

Hab.—United States."

I have before me three ♀ specimens (2 from Texas, Coll. Ent. Soc. Phila., and 1 from Utah, Coll. Mr. Norton) which answer in every particular to Mr. Smith's description quoted above; in addition to the characters mentioned therein, these specimens are all 5 lines long, and have a small spot on each side of the anterior margin of the thorax; the four spots on the scutellum vary in size and are sometimes nearly confluent; the wings are hyaline with their apical margins slightly

clouded, the nervures are black; the anterior tibiae have on their outer edge a vitta, nearly reaching the tip, and the intermediate and posterior tibiae have an abbreviated vitta on their outer margin at base. All the markings are yellowish-white. I have not seen the ♂ of this species.

3. *A. maculatum*, Smith.

Anthidium maculatum, Smith, Brit. Mus. Cat. ii, p. 216, ♂. (1854.)

"*Male*. Length 5 lines.—Black, the entire insect thinly covered with cinereous pubescence; the clypeus, the face on each side, and the mandibles exteriorly of a yellowish-white; also a minute spot on the vertex above the eyes. Thorax, the scutellum has a narrow line on each side of its posterior margin, a spot on the tegulae in front, and a minute one at the base of the anterior tibiae above yellow; all the tarsi have a dense white pubescence, and the basal joint of the anterior and posterior pairs is pale yellow. Abdomen, the first to the fifth segment have each four subtriangular yellow spots, the sixth has only two oblique spots, the lateral margins having a curved spine, the seventh is armed with three spines on its apical margin, the central one being the shortest.

"*Hab.*—Mexico."

Unknown to me.

Section 2.

4. *A. notatum*, Latr.

Anthidium notatum, Latr., Ann. Mus. Hist. Nat. 13, p. 48 and 231; St. Farg. Hym. ii, p. 370, ♂.

Female.—Head large, wider than the thorax, black, shining, rather densely and profoundly punctured; the face on each side, and an uninterrupted transverse line on the posterior margin of the vertex, yellow; lateral margins of the clypeus broadly yellowish-ferruginous. Antennae black. Thorax black, densely and profoundly punctured, subopaque; anterior margin with an oblong oblique spot on each side, the tubercles, two rather large ovate spots on the posterior margin of the scutellum and a smaller spot on each side above, all yellow tinged with ferruginous. Wings fuliginous, with a few subhyaline spots towards the tip. Legs yellowish-ferruginous, somewhat obfuscated exteriorly and clothed with short pale pubescence. Abdomen short, very convex above, shining, black, regularly and deeply punctured, the punctures smaller towards the tip; a rounded spot on the extreme side of the

first segment, a narrow transverse band slightly interrupted in the middle and a little curved on each side of the second segment, yellow; the third, fourth and fifth segments have each a yellow spot on each side of the disk, those on the third segment the largest, quadrate and very slightly emarginate exteriorly, those on the fifth segment are small and round; remaining segment black; ventral scopa yellowish. Length 3 lines.

Male.—Resembles the female, but differs as follows:—The clypeus, a transverse line immediately above the clypeus, and the mandibles except tips, are yellow; the flagellum of the antennae is sometimes tinged with rufous in front; the femora and the tibiae exteriorly are sometimes vittate with blackish; the small spot on each side of the scutellum is sometimes wanting; the extreme sides of the third, fourth and fifth segments of the abdomen each with a very small yellowish spot, the outer margin of the dorsal spots on these three segments are slightly emarginate; the sixth segment is notched in the middle, with its apical margin narrowly yellow; apical segment sinuate or broadly emarginate posteriorly, with its apical margin yellow; ventral segments sometimes stained with ferruginous.

Hab.—Mass., N. J., Penn., Del. One ♀ and three ♂ specimens. Coll. Ent. Soc. Phila., and Mr. E. Norton.

5. *A. perplexum*, Smith.

Anthidium perplexum, Smith, Brit. Mus. Cat. Hym. ii, p. 214, ♂ ♀, (1854.)

"*Female*. Length 4 lines.—Black, the face on each side of the clypeus and a little above the insertion of the antennae yellow; an uninterrupted line along the margin of the vertex, an ovate spot a little below the insertion of the antennae, the scape and four or five basal joints of the flagellum ferruginous. Thorax, the margin ferruginous, interrupted only on the collar and on the posterior margin of the scutellum; the nervures towards the base of the wings, the tubercles and legs ferruginous; the wings dark fuscous. The basal segment of the abdomen ferruginous, having an ovate yellow macula laterally, its posterior margin narrowly black; the second segment has on each side a curved stripe nearly uniting in the middle, the stripes are tinged with ferruginous, the two following segments have on each side a subquadrate macula similarly colored, the two apical segments black; the ventral scopa yellowish-white.

"*Male*.—This sex closely resembles the female, but differs in having the clypeus yellow as well as a spot above and the mandibles also yellow exteriorly. The abdomen has two additional spots on the fifth segment, and all the spots are emarginate at their outer margins, the sixth segment is sub-bituberculate on its apical margin, the seventh is somewhat produced and rounded, and has a slight central carina, its apical margin as well as the extreme lateral margins of all the segments yellow.

"*Hab*.—Georgia."

A single ♀ specimen of this species from Florida, in the collection of Mr. Edward Norton, agrees exactly with Mr. Smith's description above quoted. It closely resembles *A. notatum* Fabr., but is much larger and more robust. I have not seen the ♂.

6. *A. curvatum*, Smith.

Anthidium curvatum, Smith, Brit. Mus. Cat. ii. p. 215, ♀ (1854).

"*Female*. Length 4 lines.—Black, the clypeus yellow, having a broad black stripe down the middle, the inner orbits of the eyes nearly to their vertex broadly yellow, a minute yellow spot before the anterior stemma and a transverse yellow line on the vertex continued nearly half-way down the outer margins of the eyes. The collar, tubercles and posterior margin of the scutellum yellow, the former slightly interrupted; the tubercles and legs yellow, the latter varied with ferruginous, the femora being fusco-ferruginous towards their base; the wings smoky, darkest towards their anterior margin. The basal segment of the abdomen has a transverse band, deeply emarginate laterally, the three following segments have on each side an oblong stripe curved downwards and pointed at their extremity within; the curved form being given by a deep notch in the middle of each stripe beneath; the fifth segment has two central oblique stripes, the sixth immaculate.

"*Hab*.—Georgia."

Not identified.

7. *A. simile*, n. sp.

Female.—Head black, densely punctured, clothed with short pale hairs; sides of the face nearly to the summit of the eyes, broader on each side of the clypeus, an ovate spot on each side of the clypeus, and a short stripe behind the eyes near their vertex, yellow. Antennæ black. Thorax black, densely punctured; a rather small spot on each

side of the middle of the anterior margin, the anterior half of the tubercles, the posterior margin of the scutellum, slightly interrupted in the middle, and a small spot on the extreme sides of the scutellum at base, yellow; sides of the metathorax clothed with long pale hairs; tegulae ferruginous. Wings fuliginous, the marginal cell almost black; nervures black. Legs black; tips of femora yellowish-ferruginous; tibiae and tarsi yellowish, with an oblong black spot on their exterior surface; tarsi clothed beneath with golden-yellow hairs. Abdomen very convex, shining, black, rather densely, deeply and uniformly punctured, the apical margin of the segments smooth, impunctured; first segment with a short transverse median basal yellow line, and at the extreme sides a basal subquadrate yellow spot, very slightly emarginate within; an oblong yellow spot or stripe obtusely pointed within and rather deeply indented posteriorly, on each side of the second, third and fourth segments; a large yellow spot, slightly emarginate exteriorly, on each side of the fifth segment; the extreme lateral edge of the yellow spots on each side of the second, third and fourth segments are slightly emarginate; apical segment black; ventral scopa golden-yellow. Length 4 lines.

Male.—Resembles the female, but differs as follows:—size rather larger; the clypeus, mandibles and sometimes a small spot immediately above the clypeus, yellow or yellowish-ferruginous; the posterior margin of the scutellum sometimes very narrow, with the lateral basal spot wanting; posterior coxae each with a stout yellow spine; the middle spot at the base of the first segment of the abdomen is smaller and quadrate; the oblong spot on each side of the fifth segment resembles those on the three preceding segments, the sixth segment entirely black; the apical segment yellow, black at base, dilated and rounded on each side, with the apex produced in the middle into an obtuse tooth; ventral segments stained with rufous.

Hab.—Mass., Conn. Coll. Ent. Soc. Phila., and Mr. E. Norton.

The ♀ of this species differs from the description of the ♀ of *A. curvatum* Smith, as follows:—There is no "minute yellow spot before the anterior stemma"; the collar is black, not "yellow"; there is a yellow spot on each side of the thorax anteriorly; the legs are black, vittate with yellow, and not "yellow varied with ferruginous"; the basal segment of the abdomen has three spots, and the fifth segment

has two large spots, emarginate outwardly, instead of "two central oblique stripes." I see no variation in the markings of the three specimens before me.

8. *A. interruptum*, Say.

Megachile interrupta Say, Long's 2nd Expedition, ii, p. 351. ♂ ♀ (1824).

"*Male*.—Body punctured, above glabrous; head black; antennæ, first joint at base and third and fourth joints dull rufous; hypostoma, broad frontal orbits, and mandibles at base, yellow; vertex with a ferruginous band, interrupted in the middle and extending down the cheeks; labrum rufous, a small black spot at base; thorax black, surrounded by a ferruginous margin, which is interrupted before, and passes upon the posterior margin of the scutellum; wings fuliginous; pleura with cinereous hair beneath the wings; feet rufous, tarsi with yellow hair; tergum convex, black, with dilated, obscure, rufous, scarcely definite bands, five in number, on each side of which, excepting the basal one, is another yellow band emarginate each side behind, and the three posterior ones are interrupted in the middle; anus trilobated; lobes yellow, intermediate one small; posterior coxæ each with a robust yellow spine; venter with transverse bands of long, dense, yellow hair. Length nearly two-fifths of an inch.

"*Female*.—The black color of the front extends down upon the middle of the hypostoma nearly to its tip; the rufous color on the basal joints of the antennæ is obsolete; labrum black on the disk; mandibles black, excepting a small, rufous spot at base; the three last bands of the tergum are destitute of any rufous color about them; venter densely covered with hair; mandibles as in the male, three-toothed; posterior coxæ unarmed. Length about the same as the male, but more robust.

"*Hab.*—Missouri."

This and the two following species are unknown to me, and may not belong to this section, but from their description I should judge that they did.

9. *A. jugatorium*, Say.

Megachile jugatoria, Say, Long's 2nd Exped. ii, p. 352, ♀ (1824).

"*Female*.—Body punctured, above nearly glabrous; head with a yellow line on the superior part of the cheeks; hypostoma with a dilated, yellow line, which extends upon the anterior orbits nearly to

their summit; thorax with a widely interrupted line before, extending round above the wings, and two oblique lines upon the scutellum, yellow; wings fuliginous; feet blackish, with dull rufous joints, and tarsal hair; anterior feet before dull rufous; tergum, bands yellow, not at all emarginated each side, the basal band widely interrupted, second band less widely interrupted, the penultimate one hardly interrupted, the ultimate one entire. Length about seven-twentieths of an inch.

"*Hab.*—Missouri."

10. *A. dorsale*, St. Farg.

Anthidium dorsale, St. Farg. Hym. ii, p. 384, ♂ (1841).

"*Male*.—Head black; its hairs rufous: clypeus, cheeks, face, upper part of the mandibles, of a ferruginous-yellow, as well as a spot behind the eyes. Antennæ black with the first joint in front yellow. Thorax black; its hairs whitish, except those of the back which are rufous; a ferruginous line upon each shoulder, prolonged at its two ends; the upper emitting at a right angle a line of the same color, which descends as far as the middle of the back, and the lateral giving rise to another ferruginous line which margins the back along the base of the wings as far as the scutellum. Scale of the wings black, its anterior part ferruginous-yellow. Scutellum ferruginous, except the base of the middle lobe, which is black. Abdomen black, its first segment ferruginous with the base black: the second, third, fourth and fifth having a ferruginous-yellow band, which is dilated upon the sides: the sixth and the anus ferruginous, prolonged in the middle. Legs ferruginous. Wings tolerably transparent, but a little smoky towards the tips. Length 5 lines.

"*Hab.*—Georgia."

Gen. *CHELOSTOMA*, Latr.

"*Head* quadrate, usually wider than the thorax; the antennæ not longer than the head in the female, the flagellum clavate; half as long as the thorax, slender and filiform in the male. The labrum elongate, narrowed anteriorly, and truncate at the apex; the mandibles bidentate at their apex and densely ciliated with hairs on their inner margin; the ocelli placed in a triangle, the posterior pair in a line with the vertex of the eyes. The labial palpi four-jointed, the basal joint about one-third the length of the second, the second joint somewhat attenuated at the apex, the third placed in a line with it, short, the fourth joint clavate-truncate, attached to its side near the apex. The maxillary palpi three-jointed. The anterior wings have one marginal and two submarginal cells; the second submarginal receiving the two recurrent nervures. Abdomen

sublinear, slightly narrowed towards the base; furnished in the *female* with a dense scopa of pubescence. In the *male*, the abdomen is incurved and dentate at the apex."—Smith, *Bees of Great Britain*, p. 187.

Two North American species of this genus have been recorded, the descriptions of which follow. I have not been able to identify either of them.

1. *C. rugifrons*, Smith.

Chelostoma rugifrons, Smith, Brit. Mus. Cat. ii, p. 220, ♀. (1854.)

"*Female*. Length 5 lines.—Black, the head strongly punctured; the face has some white pubescence on each side at the insertion of the antennæ; the mandibles very stout, having a tooth near their base within, their apex tridentate, the middle tooth minute, longitudinally grooved above. Thorax strongly punctured; its pubescence, as well as that of the legs, white, the claw-joints rufo-testaceous, the tarsi beneath fulvous, the wings subhyaline, the nervures black. Abdomen cylindric, shining and strongly punctured; the basal and apical margins depressed; the first and three following segments have very narrow fasciæ of white pubescence, which is rather wider at the lateral margins; the fasciæ cross the segments about one-third within, curving backwards to the lateral apical margins, the sixth segment covered with white pubescence at the base; beneath densely clothed with white pubescence.

"*Hab.*—Georgia."

2. *C. albifrons*, Kirby.

Chelostoma albifrons, Kirby, Faun. Bor.-Amer. iv, p. 270, ♂. (1837.)

"Body black, thickly punctured. Mouth bearded with white; mandibles carinated above, armed with two strong terminal teeth; nose square, flat, clothed with decumbent silver pile; antennæ filiform; scape black; the other joints are rufo-piceous underneath; trunk very hirsute with white or subeinerous hairs; wings a little embrowned, with black veins and base-covers; legs hairy; abdomen subcylindrical, hirsute with black hairs, incurved with the apex of the four intermediate segments fringed with white hairs; anal joint with a concavity above, obtuse; last ventral segment forcipate, rufo-piceous. Length of the body $4\frac{1}{2}$ lines."

Hab.—North America ("Lat. 65°").

Monumetha obsoleta, described below, agrees tolerably well with

the description above quoted, but I have separated it on account of its 5-jointed maxillary palpi, which excludes it from *Chelostoma*.

Gen. *HERIADES*, Latr.

"The labial palpi four-jointed, the basal joint not quite half the length of the second, the third and fourth joints minute, placed at the side and near the apex of the second joint. The maxillary palpi three jointed, the two basal joints stout, the apical joint cylindric, slender and pointed at the apex. The wings as in the genus *Chelostoma*.

"This genus only differs from *Chelostoma* in having two minute apical joints to the labial palpi, which are placed near the apex of the second joint at its side. *Chelostoma* has only one minute apical joint, the third being attached to the apex of the second, and in a line with it; in other respects they coincide."—Smith, *Bees of Great Britain*, p. 191.

The two following species appear to have but three joints to their maxillary palpi, and probably belong to this genus.

1. *H. carinatum*, n. sp.

Female.—Head subquadrate, rather large, black, deeply, roughly and densely punctured; clypeus prominent on the disk; mandibles stout and obtusely bifid at tip; antennæ short and black. Thorax convex above, rounded in front, black, shining, deeply and roughly punctured, with scattered pale pubescence; metathorax longitudinally impressed on the disk. Wings subhyaline, the apical half clouded, nervures black. Legs short, black, sparsely clothed with pale pubescence, tarsi clothed with yellowish pubescence. Abdomen elongate, subcylindric, convex above, slightly narrowed at base, black, shining, deeply and uniformly punctured, the punctures smaller and more dense towards the tip; apical margin of the segments transversely impressed and narrowly fringed with white pubescence; the anterior face of the basal segment deeply concave and bounded above by a rounded carina; apical segment rounded; ventral scopa pale yellowish-white. Length 3 lines.

Male.—Resembles the female, but the head is smaller, transverse and clothed in front and beneath with whitish hairs; the antennæ are almost as long as the thorax; the abdomen is incurved at the apex, and the first ventral segment has on its disk a rather large, obtuse tubercle; the tarsal claws are bifid and rufo-testaceous.

Hab.—Conn., Penn. Nine specimens. Coll. Ent. Soc. Phila., and Mr. E. Norton.

2. *H. simplex*, n. sp.

Female.—Head subquadrate, black, finely and densely punctured, sparsely clothed with pale hairs; antennæ short, black. Thorax black, finely and densely punctured, shining; metathorax longitudinally impressed on the disk; tegulæ tinged with rufous. Wings subhyaline, apical half clouded; nervures fuscous. Legs black, with scattering pale pubescence, that on the tarsi beneath dense and yellowish. Abdomen subovate, convex above, black, shining, minutely punctured; basal segment rounded in front; some of the segments have an obsolete marginal fringe of pale pubescence; ventral scopa yellowish-white. Length about 3 lines.

Hab.—Connecticut. One specimen. Coll. Mr. E. Norton.

Resembles the preceding species, but is distinguished at once by the much finer punctation, and by the rounded front of the basal segment of the abdomen.

ANDRONICUS, nov. gen.

Head transverse, as wide as the thorax; *ocelli* placed in a curve on the vertex; *antennæ* (♂) half as long as the thorax, scape rather long and robust, most slender at base, flagellum unequal, joints 2–5 dilated, joint 6 suddenly narrower and the following joints gradually attenuated to the tip which is pointed; *mandibles* rather acutely bidentate at their apex. *Labial palpi* four-jointed, the two basal joints elongate, of equal breadth from the base of the first joint to almost the tip of the second joint which is acute, basal joint about half the length of the second, the two apical joints minute, of about equal length and placed at the side and near the apex of the second joint. *Maxillary palpi* four-jointed, the three basal joints rather long and about equal in length, apical joint slender, cylindric, pointed at its apex and about half the length of the third joint; lobe of the maxilla long, slender and moderately curved. *Superior wings* with one marginal and two submarginal cells, the first recurrent nervure uniting with the first transverse nervure, and the second recurrent nervure received by the second submarginal cell a little within its apex. *Abdomen* elongate, sublinear, slightly narrowed towards the base; apex (♂) incurved.

The specimen upon which I have founded this genus resembles in general form that of *Chelostoma*, but the maxillary palpi are four-jointed. The structure of the antennæ is very singular, having somewhat the appearance of the figure of an antennæ given by St. Fargeau, Hymen. Pl. 26, fig. 6 bis. I have not been able to identify this and the two following genera with any that has been already established.

A. cylindricus, n. sp.

Male.—Head black, minutely punctured; face below the antennæ

and the cheeks clothed with long, rather dense yellowish-white hairs; vertex sparsely clothed with short pale hairs. Antennæ black. Thorax convex above, rounded in front, black, densely and finely punctured, somewhat shining, clothed with long whitish hairs which are sparse on the upper surface; metathorax more finely punctured, with a deep longitudinal impressed line on its disk. Wings subhyaline, faintly clouded on their apical margins; nervures fuscous. Legs rather long, black, punctured, shining, clothed with rather short pale hairs; femora and tibiæ robust, subclavate, the latter short, especially the intermediate pair; tarsi nearly as long as the femora and tibiæ put together, clothed beneath with dense short yellowish pubescence; claws bifid. Abdomen elongate, cylindric, finely and densely punctured, black, shining, very sparsely clothed with short whitish pubescence, which is more dense toward the tip; apex very much incurved, apical margin rather broadly compressed and somewhat produced; anterior and posterior margins of the segments above compressed, the basal segment rounded and convex in front; ventral segments flat, the basal plate margined posteriorly by a semicircular, well defined carina, on the disk of this plate a small bifid tubercle; on the third or fourth ventral segments there are two oblique tubercles, one on each side of the disk; margins of the segments ciliated with pale yellowish hairs; last ventral segment forcipate, piceous, and fringed with long yellowish hairs. Length $5\frac{1}{2}$ lines.

Female.—Unknown.

Hab.—Connecticut. One specimen. Coll. Mr. E. Norton.

ALCIDAMEA, nov. gen.

Head transverse, as wide as the thorax, *ocelli* placed in a curve on the vertex; *antennæ* (♂) half as long as the thorax, scape rather long and very robust, slender at base, joints of the flagellum compressed, submoniliform, of nearly equal length, slightly attenuated towards the tip, apical joint suddenly constricted into a slender curved spine, rather acute at tip. *Labial palpi* four-jointed, the two basal joints elongate, slender, the second joint about one-third longer than the basal, the two apical joints minute, placed at the apex of the second joint. *Maxillary palpi* four-jointed, the first two joints robust, the basal joint short, about half the length of the second, the third and fourth joints more slender, cylindric, the third about twice the length of the apical joint; lobe of the maxilla very long, slender and much curved. *Superior wings* with one marginal and two submarginal cells, the second submarginal cell receiving the two recurrent nervures. *Abdomen* subovate, convex above; slightly incurved in the males, and the second ventral segment more or less produced on the disk.

This genus is also allied to *Chelostoma* and *Heriades*, but differs by the four-jointed maxillary palpi. It approaches *Andronicus*, but differs in the shape of the labial and maxillary palpi, and also in the structure of the ♂ antennæ, which is again remarkable in this genus; the abdomen is neither elongate or cylindric. Two species, both males, are at present known to me.

1. *A. pilosifrons*, n. sp.

Male.—Head black, minutely punctured, clothed with long yellowish-white pubescence, which is very dense on the face; scape of the antennæ black, the flagellum rufo-testaceous beneath, rufo-piceous above. Thorax convex above, densely and finely punctured, black, shining, densely and uniformly clothed above and beneath with rather long yellowish-white pubescence; tegulæ rufo-piceous, shining. Wings hyaline; nervures blackish. Legs simple, black, shining, sparsely clothed with pale hairs; tibial spurs testaceous; apical joints of the tarsi ferruginous, claws bifid, tipped with black. Abdomen subovate, black, shining, finely punctured, convex above, rather flat beneath, apex incurved and pointed; each segment having an apical marginal fringe of short white pubescence, sides of the segments clothed with pale hairs; on each extreme side of the sixth segment posteriorly a stout acute tooth; apical segment narrow, pointed, carinated above; beneath, the second ventral segment has on its disk a rather large, transverse, obtuse projection; the last segment forcipate, rufo-testaceous. Length 4 lines.

Female.—Unknown.

Hab.—Connecticut. One specimen. Coll. Mr. E. Norton.

2. *A. producta*, n. sp.

Male.—Head black, finely and densely punctured; face on each side, the cheeks and the vertex sparsely clothed with rather short whitish pubescence; antennæ black, the flagellum tinged with rufo-testaceous in front and towards their tips. Thorax black, finely and densely punctured, subopaque, clothed with whitish pubescence which is short on the disk above and long on the pleura, scutellum and sides of the metathorax; tegulæ black, shining. Wings subhyaline; nervures fuscous. Legs black, sparsely clothed with short pale hairs; tarsal claws bifid. Abdomen subovate, convex above, black, shining, finely punctured, apex incurved and pointed, each segment with a narrow apical

marginal fringe of short white pubescence, interrupted on the middle of the segments; on each extreme side of the sixth segment posteriorly, a short stout rather obtuse tooth; apical segment narrow, pointed, and carinated on each side above; beneath, the second ventral segment has its disk produced into a large somewhat acute tubercle; posterior margins of the third, fourth and fifth ventral segments carinated, the carina interrupted in the middle. Length $3\frac{1}{2}$ lines.

Female.—Unknown.

Hab.—Virginia. One specimen. Coll. Ent. Soc. Phila.

Allied to *A. pilosifrons* n. sp., but not so hairy, the apical segment of the abdomen not so narrow, the projection of the second ventral segment much larger and more acute. The structure of the antennæ is exactly the same in the two species.

MONUMETHA, nov. gen.

Head ♂ transverse, as wide as the thorax, ♀ subquadrate, rather wider than the thorax; ocelli placed in a curve on the vertex; antennæ filiform, rather short; mandibles stout, deeply bifid at tip. Labial palpi four-jointed, two basal joints elongate, first joint rather more than half the length of the second; the two apical joints minute, about equal in length, slender at base, thickened and truncate at tip, placed at the side and near the apex of the second joint. Maxillary palpi five-jointed, the two basal joints robust, first joint very short and about half the length of the second; third and fourth joints about equal in length and longer than the second joint; apical joint slender, cylindric, pointed at tip. Superior wings with one marginal and two submarginal cells, the second submarginal cell receiving the two recurrent nervures. Abdomen ♂ sublinear, convex above, apex incurved, claws bifid; ♀ subovate, rather short, furnished beneath with a short dense pollen-brush; claws simple.

Also allied to *Chelostoma* and *Heriades*, but distinct by the five-jointed maxillary palpi.

1. *M. argentifrons*, n. sp.

Male.—Head black, finely punctured, clothed about the base of the antennæ and on the vertex with long yellowish hairs; clypeus flat, clothed with short silvery-white decumbent pile, anterior margin truncate, and slightly emarginate in the middle; antennæ black, rather short. Thorax black, clothed with rather long dense yellowish-white hairs. Wings hyaline, apical margins clouded, nervures black. Legs black, shining; anterior femora clothed beneath with long whitish hairs; tarsi clothed within with fuscous pubescence. Abdomen elon-

gate, cylindric, convex above, finely and densely punctured, shining, black; apical segments very much incurved; the five basal segments with an apical fringe of whitish pubescence, more dense on the two first segments and narrow on the others; apical segment obtuse, abruptly depressed above into a large deep fovea; ventral segments flattened, with several small obtuse projections; apical segment forcipate. Length $5\frac{1}{2}$ lines.

Hab.—Pike's Peak, Colorado Territory. Two specimens. Coll. Ent. Soc. Phila.

2. *M. obsoleta*, n. sp.

Male.—Head black, finely and densely punctured, sparsely clothed with pale hairs, which are more dense about the insertion of the antennæ; clypeus flat, clothed with short decumbent silvery-white pile, its apical margin truncate; antennæ black, the flagellum tinged with rufo-piceous towards the tip. Thorax black, finely and densely punctured, rather sparsely clothed with whitish hairs which are short in front and beneath, and long on the scutellum and metathorax, the latter longitudinally impressed on the disk. Wings subhyaline, stained with fuscous towards the tip; nervures dark fuscous. Legs black, sparsely clothed with short pale hairs, which are long and white on the anterior femora beneath. Abdomen elongate, cylindric, convex above, finely punctured, shining, black; apical segments very much incurved; the apical margins of the second and three following segments with an obsolete fringe of pale pubescence; apical segment depressed as in *M. argentifrons*; ventral segments flattened, and having on each side a short obtuse projection, apical segment forcipate, tinged with rufo-piceous. Length $5\frac{1}{2}$ lines.

Hab.—Pike's Peak (Coll. Ent. Soc. Phila.), Hudson's Bay Territory (Coll. Mr. E. Norton).

Closely resembles the preceding species in size and form, but is evidently distinct; the wings are differently colored and the clypeus is not emarginate in front. The specimens are apparently somewhat rubbed. It answers tolerably well to the description of *Chelostoma albifrons* Kirby, but it cannot belong to that genus as it has the maxillary palpi five-jointed instead of three.

3. *M. borealis*, n. sp.

Female.—Head rather large, black, finely and densely punctured,

face about the antennæ thickly clothed with yellowish hairs, the clypeus, vertex and cheeks clothed with black hairs; mandibles very stout, carinated above, tip broad, with two or three stout teeth, the outer one acute, the others blunt; antennæ short, black. Thorax convex above, finely and closely punctured, densely clothed above with yellowish-white hairs, beneath with black hairs. Wings subhyaline, slightly tinged with fuscous, especially the marginal cell, at the apex of the second submarginal cell a faint hyaline spot; nervures black. Legs black, clothed with black hairs, the tarsi with fuscous hairs. Abdomen convex above, short, subovate, minutely punctured, black and shining; on the apical lateral margins of the first and second segments above a tuft of whitish pubescence (the surface being apparently rubbed, all the segments, in well-preserved specimens, may have their entire apical margins fringed with whitish pubescence); ventral scopa short and black. Length $6\frac{1}{2}$ lines.

Hab.—Great Slave Lake, British America. One specimen. Coll. Smithsonian Institution.

This may eventually prove to be the female of *M. argentifrons*, as it bears some resemblance to that species.

Gen. *CERATINA*, Latr.

"Head transverse, the ocelli placed in a triangle on the vertex; the labrum subquadrate; the mandibles short and stout, tridentate at their apex. The labial palpi four-jointed, the two basal joints elongate, the third and fourth minute, placed at the side and near the apex of the second joint. The maxillary palpi six-jointed, the three basal joints of about equal length; subclavate, the apical joints minute. The superior wings with one marginal and three submarginal cells; the second submarginal cell receiving the first recurrent nervure a little beyond the middle, the third submarginal receiving the second recurrent nervure also beyond the middle. Abdomen clavate."—Smith, *Bees of Great Britain*, p. 193.

Two species of these little bees are known to me, one of which (*C. dupla*, Say.) is rather abundant, and is said to excavate the pith of our common Mullein (*Verbascum Thapsus*). Four species have been described from Panama. I have not seen any of them.

1. *C. dupla*, Say.

Ceratina dupla, Say, Bost. Jour. Nat. Hist. i, p. 399. (1837.)

Female.—Body dark green, sometimes varying to deep blue, shining, densely punctured. Head rather large, the face on each side

above the clypeus depressed, the antennæ inserted in the depressions; clypeus sparsely punctured with a longitudinal obconic yellowish-white spot on the disk, which is sometimes obsolete or wanting; labrum clothed with short suberect pale hairs; antennæ short, black, slightly tinged with green or blue. Thorax with the punctures more or less sparse on the disk which has five slightly impressed longitudinal lines, the two lateral ones abbreviated in front; posterior half of the tubercles white, anterior half black; tegulæ piceous, smooth and shining. Wings subhyaline; nervures blackish. Legs black, tinged with green or blue, shining, sparsely hairy; extreme base of the tibiæ exteriorly with a small whitish spot which is sometimes obsolete; apical joints of the tarsi rufo-testaceous. Abdomen rather short, ovate, when the segments are distended it is more or less clavate; convex above, sparsely punctured on the disk of the three basal segments and more dense on the apical segments; extreme tip of the apical segment acute; ventral segments flat, densely and rather deeply punctured and clothed with pale hairs especially toward the tip. Length 2—4 lines.

Male.—Resembles the female, but the head is smaller, the clypeus has on its disk a yellowish-white mark which is suddenly and broadly dilated on each side along the anterior margin, somewhat resembling a trefoil; the labrum has a yellowish-white spot in the middle, and the sixth segment of the abdomen above has on its disk a small more or less obtuse tubercle which is, as well as the apical margin of the segment, densely clothed with whitish pubescence.

Hab.—Mass., Conn., N. Y., N. J., Penn., Del., Va., Ill. Numerous specimens. Coll. Ent. Soc. Phila., and Mr. E. Norton.

This pretty little bee is rather common, and varies considerably both in size and color.

2. *C. Tejonensis*, n. sp.

Male.—Body dark bluish-green, shining. Head deeply but not densely punctured, the punctures very sparse on the clypeus which has a whitish subtrefoil mark, similar to that on the ♂ of *dupla*; the labrum sparsely punctured with short pale pubescence, and having on its disk a quadrate whitish spot; the antennæ rather short, inserted in a depression on each side of the face above the clypeus, tinged with rufo-testaceous towards the tip. Thorax sparsely punctured, with five slightly impressed longitudinal lines as in *dupla*, the punctures on

the pleura, the scutellum and post-scutellum are dense; tegulæ dark rufo-piceous, smooth and shining; tubercles entirely green-black. Wings subhyaline; nervures black. Legs bluish-black, shining, tarsi clothed with yellowish pubescence, apical joints rufo-testaceous; posterior femora produced beneath into a broad obtuse tooth; tibial spurs testaceous. Abdomen ovate, finely and densely punctured, shining bluish-green, apical segment clothed with short pale pubescence; near the posterior margin of the sixth segment above there is an obtuse projection which is densely clothed with pale pubescence; apex of the seventh segment fringed with rather long pale hairs; ventral segments densely and finely punctured, the apical margin of the segments ciliated with pale pubescence. Length $4\frac{1}{2}$ lines.

Hab.—Fort Tejon, California. One specimen. Coll. Mr. E. Norton.

Resembles *C. dupla* Say, but distinguished at once by the finer punctation of the abdomen, and the shape of the posterior femora. The tubercles and tip of the tibiæ are without the whitish spots which are conspicuous in *dupla*.

3. *C. eximia*, Smith.

Ceratina eximia, Smith, Trans. Ent. Soc. Lond. 3d ser. i, p. 40. (1862.)

Female. Length $4\frac{1}{2}$ lines.—Head and thorax of a bright metallic green, and strongly and closely punctured; the flagellum obscurely rufo-piceous beneath; an oblong spot on the clypeus and a minute triangular one on each side, cream-colored; the mesothorax with three longitudinal impressed lines in the middle, and an abbreviated one outside opposite the tegulæ; the wings subhyaline, the nervures and tegulæ ferruginous; the legs pale ferruginous, and thinly covered with cinereous pubescence; a minute spot at the apex of the anterior femora above, and a line on the tibiæ; also a minute spot at the extreme base of the posterior tibiæ, white. Abdomen bright purple, finely punctured, the three apical segments rugose."

Hab.—Panama.

4. *C. placida*, Smith.

Ceratina placida, Smith, Trans. Ent. Soc. Lond., 3d ser. i, p. 41. (1862.)

Female. Length $3\frac{1}{2}$ —4 lines.—Dark bronze color, with tints of bright green on the head and thorax; a triangular spot on the clypeus anteriorly, and a similar spot on each side of it touching the eyes, the latter sometimes continued up the inner orbit of the eyes, yellowish

white; a narrow line behind the eyes; the head strongly and closely punctured; the flagellum piceous beneath. Thorax strongly punctured, with a smooth shining space in the middle of the disk; the mesothorax with three central smooth impressed lines, and an abbreviated one outside of them opposite the tegulae; the wings subhyaline, the nervures blackish; the legs nigro-piceous; a process in front of the anterior femora at their base, which is produced into an acute spine on each side. The abdomen strongly punctured, the three apical segments rugose; beneath bright green."

Hab.—Panama.

The two following species of this genus, described from Cayenne, are also recorded as having been collected at Panama:

5. *C. punctulata*, Spin.

Ceratina punctulata, Spin., Ann. Soc. Ent. Fr. x, p. 139 (1841); Smith, Trans. Ent. Soc. Lond. 3d ser. i, p. 40.

"The specimens from Cayenne, described by Spinola, only differ from those from Panama in having a white spot on the labrum: I have little doubt of their identity."

6. *C. laeta*, Spin.

Ceratina laeta, Spin., Ann. Soc. Ent. Fr. x, p. 138; Smith, Trans. Ent. Soc. Lond. 3d ser. i, p. 40.

Gen. *EPEOLUS*, Latr.

"Head transverse, the ocelli placed in a curve on the vertex; the labrum transverse-ovate, the anterior margin sub-emarginate, with a minute tooth in the centre of the emargination, the angles produced; in the middle, two minute teeth placed in a line with the angles of the emargination. The labial palpi four-jointed, about one-fifth shorter than the labium; the two basal joints elongate, the first joint one-third longer than the second, the two apical joints minute, placed at the apex of the second joint; the paraglossae short and lanceolate. The maxillary palpi one-jointed, the joint ovate and minute. The superior wings having one marginal and three submarginal cells, the marginal cell elongate-ovate, slightly narrowed towards the apex; the first submarginal cell nearly as long as the two following, the second much narrowed towards the marginal, and receiving the first recurrent nervure a little beyond the middle; the second submarginal also much narrowed towards the marginal cell, and receiving the second recurrent nervure a little beyond the middle. The legs have the calcaria and claws simple. Abdomen oblong-cordate."—Smith, *Bees of Great Britain*, p. 143.

These pretty bees are easily recognized by the yellowish-white or cinereous bands of the abdomen. The abdomen is acute in the males,

and obtuse-truncate in the females; the fifth segment in the latter sex has on its disk above, a subtriangular depressed space, somewhat rugose, and clothed with short decumbent hairs which sometimes have a silvery reflection in certain lights. Only four species of this genus are at present known to me; three of these are very abundant in August, on flowers in the neighborhood of Philadelphia. They are easily captured, being very sluggish in their habits.

1. *E. remigatus*, Fabr.

Melecta remigata, Fabr. Syst. Piez. p. 387 (1804).

Female.—Head black, shining, finely punctured, interspersed with larger punctures on the clypeus, clothed with a few yellowish hairs above the antennae and on the vertex; a small impressed puncture on each side of the clypeus. Antennae black. Thorax black, opaque, finely punctured, above yellowish-white, with a large cordate black mark occupying nearly the whole disk; anteriorly, the middle black lobe is prolonged to the collar, the lateral lobes short; the collar, an angulated mark on each side of the pleura almost covering the tubercles and extending half-way down the sides of the pleura and then suddenly angulated posteriorly, yellowish-white. Scutellum black, with the posterior margin and two small spots close together on the middle of the anterior margin, and the post-scutellum yellowish-white; a tuft of long pale hairs on each side behind the base of the wings. Wings fusco-hyaline. Legs black or brown-black, sparsely clothed with short pale glittering pubescence. Abdomen black, opaque, minutely punctured; basal segment yellowish-white, interrupted on the disk by a longitudinal black line which is dilated on its middle; the second segment has a yellowish-white band, slightly interrupted on the disk and very much dilated on each side; the third and fourth segments have on their apical margins a narrow uninterrupted yellowish-white band; the fifth segment has on each side a small cinereous spot; beneath brown-black, shining. Length 6 lines.

Male.—Like the female, except that the fifth and sixth segments of the abdomen above have fasciae like those on the third and fourth segments.

Hab.—Pennsylvania and New Jersey. Coll. Ent. Soc. Phila., and Mr. E. Norton.

Easily distinguished by the large cordate black spot on the disk of the thorax, and by the whitish band of the second segment of the abdomen above being broadly dilated on each side.

2. *E. lunatus*, Say.

Epeolus lunatus, Say, Long's 2nd Exped. ii, p. 354, ♂ ♀ (1824).

Female.—Head black, densely punctured, those on the clypeus and labrum very fine, close and interspersed with larger punctures; labrum and a spot on the mandibles rufous; a patch of yellowish sericeous pubescence around the base of each antenna; occiput fringed with pale hairs. Antennæ black, three basal joints rufous, especially in front. Thorax black, densely, finely and confluent punctured; the disk with a longitudinal impressed line; a line over the collar almost encircling the tegulæ and extending backwards, sometimes obliquely, on each side of the pleura, a line over the insertion of the wings, sometimes bordering the posterior margin of the mesothorax, two short abbreviated lines on the disk of the metathorax anteriorly, the posterior margin of the scutellum, the post-scutellum, and an angulated patch, pointed within, on each side of the metathorax, all pale yellowish; scutellum black, subbilobate on the disk and having on each side a slightly divergent, stout, rather acute tooth; on each side of the post-scutellum a tuft of long yellowish-white hairs; tegulæ rufous. Wings fuscohyaline, apical margins darker. Legs rufous, clothed with very short silvery-white pile, especially the posterior legs and trochanters; the coxæ, trochanters and femora more or less stained with blackish. Abdomen opaque velvety-black, minutely punctured; basal segment pale yellowish, interrupted anteriorly and posteriorly, and on the disk by a rather large transverse triangular black spot; apical margin of the second, third and fourth segments pale yellowish; the fifth segment has on each side a triangular cinereous patch; beneath black, the segments sometimes obsoletely margined with cinereous. Length 5—6½ lines.

Male.—Differs from the female in having the labrum, mandibles, three basal joints of the antennæ, the tegulæ and legs mostly black, sometimes obsoletely tinged with rufous; the fourth, fifth and sixth segments of the abdomen above have their posterior margins cinereous; the apical segment is narrow and rounded at tip, and silvery in certain lights.

Hab.—Conn., Penn., Del., Va., Ill. Collection Ent. Soc. Phila., and Mr. Edward Norton.

The yellowish markings of this, as well as of the other species, are composed of appressed scale-like pubescence, and the color sometimes varies to a very pale yellowish-white or cinereous.

I cannot agree with Mr. Smith (Brit. Mus. Cat. ii, p. 256), that this species is identical with *E. remigatus* Fabr., for I have examined numerous specimens of both species and find that the characters which separate them are constant and with no intermediate grades of variation. In *lunatus* the face about the insertion of the antennæ is always yellowish, in *remigatus* it is black in all the specimens I have examined; in the ♀ *lunatus* the labrum, the three basal joints of the antennæ, the tegulæ and the legs are always rufous, in *remigatus* they are always black; the yellowish band on the second abdominal segment of *lunatus* is narrow and not dilated laterally as is always the case in *remigatus*, and the dorsum of the mesothorax in *lunatus* has only two short longitudinal lines, whereas *remigatus* has the mesothorax above yellowish-cinereous, with a large cordate black spot on the disk, or as Fabricius describes it, "*macula magna, dorsali antice trilobu nigra*."

3. *E. mercatus*, Fabr.

Epeolus mercatus, Fabr. Syst. Piez., p. 389 (1804).

"Small. Head black, clypeus shining, with silvery pubescence. Thorax black, with a yellowish line on the anterior and posterior margins. Abdomen black, with five cinereous bands. Feet rufous.

"*Hab.*—Carolina."

I have not seen this species. It seems intermediate between *E. lunatus* Say, and *E. donatus* Smith. Say thought it distinct from his *lunatus*, and Mr. Smith indicates it as being in the Collection of the British Museum.

4. *E. 4-fasciatus*, Say.

Epeolus 4-fasciatus, Say, Western Quarterly Reporter, p. 81 (1823).

Body deep opaque black; three basal joints of the antennæ, clypeus and labrum, rufous; front around the base of the antennæ, yellow; thorax with an anterior and posterior yellow line, the latter so arquated as nearly to attain the former; a broader line beneath the wings; beneath the scutellum a whitish band and two oblique lanceolate spots; tergum, 4-banded with yellow, first band very broad, interrupted

by a line which is very slightly dilated in the middle; remaining bands narrower, submarginal, entire; terminal segment with an oblique yellow lateral spot; feet rufous. Length three-fifths of an inch.

"*Hab.*—Arkansa. On flowers near the Rocky Mountains. It is much larger than *E. mercatus* F."

I have not seen any specimens which answer exactly to the above description, but with the exception of the rufous clypeus, and the absence of the two short medial lines of the thorax, it agrees with *E. lunatus* Say, and may possibly be a bright colored variety of that species.

5. *E. donatus*, Smith.

Epeolus donatus, Smith, Brit. Mus. Cat. ii, p. 256, ♂ ♀ (1854).

Female.—Head black, densely and finely punctured, interspersed with larger punctures on the clypeus, a patch of silvery pubescence on each side of the face above the clypeus. Antennæ black. Thorax black, densely, finely and confluent punctured, somewhat shining; a line on the collar, an irregular mark behind the tubercles which it margins posteriorly, two short lines on the disk anteriorly which are usually obsolete, the posterior margin of the thorax and scutellum, sometimes a line over the wings, the post-scutellum, and a curved line on each side of the metathorax, cinereous; a tuft of cinereous hairs on each side behind the base of the wings. Wings fusco-hyaline. Legs black, having a thin glittering pubescence. Abdomen black, minutely punctured, somewhat shining; basal segment margined with cinereous, the basal and apical margins interrupted on the disk, the apical margins of the second, third and fourth segments cinereous, sometimes slightly interrupted on the disk; on each side of the second segment there is sometimes a cinereous spot or line proceeding from the apical band; the fifth segment with a triangular cinereous patch on each side; beneath black, shining. Length 6 lines.

Male.—Like the female, except that the fifth and sixth segments of the abdomen above have each an apical cinereous band like those on the two preceding segments; tibiae and tarsi and the apical margins of the ventral segments have a cinereous pubescence. The wings are sometimes hyaline.

Hab.—Conn., N. J., Penn., Del. Coll. Ent. Soc. Phila., and Mr. E. Norton.

Differs from *E. lunatus* Say, by the markings being always cinereous, by the face having a silvery-white pubescence, by the labrum, antennæ, tegulæ and legs being always black and clothed with a very fine, short, silvery-cinereous pubescence, by the more hyaline wings, and by the basal segment of the abdomen above being only narrowly margined with cinereous. Among the many specimens of this species that I have examined, I find no intermediate grades of variations between this and *E. lunatus* Say.

6. *E. scutellaris*, Say.

Epeolus scutellaris, Say, Long's 2nd Expedition, ii, p. 355, ♀. (1824.)

"*Female.*—Body deep black, densely punctured; front with a white spot surrounding the base of each antenna; antennæ black-brown, three basal joints and mandibles rufous; thorax with the collar, obsolete line over the wings, dilated posterior teeth and scutel, ferruginous; wings dusky on their terminal margin; feet rufous; tergum black-brown; two distant bands on the first segment, of which the first is obsolete, and the other is interrupted in the middle, second and third segments each with a band on their posterior margins, pale yellow; remaining bands indistinct. Length from three-tenths to nearly seven-twentieths of an inch.

"*Hab.*—Middle States.

"Much smaller than the preceding, and about equal in size to *E. mercatus* Fabr., from which it differs by various characters, and particularly by the much more dilated form of the posterior thoracic teeth." Not seen.

7. *E. zonatus*, Smith.

Epeolus zonatus, Smith, Brit. Mus. Cat. ii, p. 257, ♀. (1854.)

"*Female.* Length 4 lines.—Head and thorax black, the antennæ, labrum and mandibles ferruginous, the face has a little silvery pubescence. Thorax encircled with ferruginous; the collar, sides of prothorax, tegulæ and scutellum being red, the scutellum armed on each side with a short stout acute tooth; legs ferruginous, the wings fusco-ferruginous, the nervures ferruginous. Abdomen, the two basal segments ferruginous, the apical ones black; the apical margins of the segments have fasciæ of short white pubescence, usually much interrupted; the extreme base of the abdomen black.

"*Male*.—This sex differs in having the apex of the clypeus ferruginous, and only the basal segment of the abdomen of that color.

"*Hab*.—United States; St. John's Bluff, East Florida."

Unknown to me.

8. *E. fumipennis*, Say.

Epeolus fumipennis, Say, Bost. Journ. Nat. Hist. i, p. 403. (1837.)

"Body densely punctured, black: head carinate between the antennæ: antennæ honey-yellow at base, beneath: labrum with an obsolete, minute, ferruginous dot each side: mandibles honey-yellow at base: thorax with two slender whitish abbreviated lines and whitish lateral edge: collar with a ferruginous disk, contracted in the middle; a ferruginous dot before the wings: wing-scale and scutellum ferruginous: wings fuliginous: tergum, first and second segments with a yellow band, the first broader and widely interrupted; remaining segments with a whitish band, the last segment with the addition of an obscure rufous terminal margin: tibiæ and tarsi honey-yellow. Length three-tenths of an inch.

"*Hab*.—Mexico.

"The *lunatus* nob. also has a bilineated thorax, but it is a larger species, has a whitish spot around the base of the antennæ; lunated spot at base each side of the tergum, &c. Smaller than *mercatus* F. and *scutellaris* nob."

Unknown to me.

9. *E. pusillus*, n. sp.

Female.—Head black, finely and densely punctured, the face about the base of the antennæ silvery-white; labrum tinged with rufous on each side; mandibles rufous; antennæ black, as long as the thorax, the three basal joints rufous in front. Thorax finely and densely punctured, black, opaque; a line over the collar passing down on each side behind the tubercles, another line in front of the scutellum extending forward, rather obsoletely, over the base of the wings, two short longitudinal lines on the disk in front, the posterior margin of the scutellum, the post-scutellum, and a patch on each side of the metathorax, all pale cinereous; the tubercles, tegulæ and legs rufous, the latter somewhat clothed with short glittering pile. Wings hyaline, with their apical margins fuscous. Abdomen rather short, opaque velvety black, finely and densely punctured; base of the first segment and the apical mar-

gins of four basal segments, cinereous, that on the second segment slightly interrupted in the middle; fifth segment cinereous, with the depressed space small and silvery in certain lights; beneath brown-black, disk of second segment stained with rufous, and the apical margins of the segments obsoletely fringed with cinereous. Length 3 lines.

Hab.—Massachusetts. One specimen. Coll. Mr. F. G. Sanborn.

Rather smaller than *E. variegatus* of Europe, and marked somewhat like *E. donatus* Smith, but distinct from any described species.

Gen. *CELIOXYS*, Latr.

"Head as wide as the thorax; the ocelli placed in a triangle on the vertex; the eyes lateral, elongate, and covered with pubescence. The labial palpi four-jointed, the basal joints elongate, the second rather longer than the first, the third and fourth minute, placed at the side and near the apex of the second joint. The maxillary palpi three-jointed, the basal joint very short, thick and subglobose; the second joint not so thick, but of about the same length; the apical joint of equal length, but slender and cylindric. The labrum elongate, transverse at the base and produced at the lateral angles. Thorax globose, the scutellum armed with a tooth on each side; the superior wings with one marginal and two submarginal cells; the marginal cell narrow, elongate, and rounded at the apex; the second submarginal cell receiving the two recurrent nervures, the first near its base, and the second near its apex. Abdomen conical, acute at the apex in the females; in the males the apex is dentate. The claws simple in the females; in the males bifid at their apex. The males have their anterior coxæ toothed."—Smith, *Bees of Great Britain*, p. 144.

These bees are parasitic on the genus *Megachile*. They are easily known by their conical abdomen, which is acute at tip in the females and armed with spines in the males. They are generally black, strongly punctured and having the abdominal segments fringed with white pubescence; the scutellum is produced, posteriorly and armed on each side with a short or long, stout tooth, and the segments of the abdomen, in most species, have a more or less deep transverse impressed line on their middle.

In separating our species, I have used Dr. Nylander's excellent specific characters, i. e., the form of the anal plates of the ♀ abdomen; the upper and lower plates differ in shape and are constant in each species; the inferior plate is more or less longer than the superior, being in some species only slightly longer, and in others nearly half as long again. The males are very difficult to determine, and their habits will have to be studied well before they can be correctly separated.

1. *C. rufitarsus*, Smith.*Celioxys rufitarsus*, Smith, Brit. Mus. Cat. ii, p. 271, ♂ (1854.)

"*Male*. Length $5\frac{1}{4}$ lines.—Black, the head and thorax coarsely punctured, the face covered with white pubescence, the cheeks and the thorax beneath have a long white pubescence as well as the sides of the metathorax, the tegulae testaceous in the middle, the wings subhyaline, their nervures ferruginous, all the tarsi bright ferruginous; the apical margins of all the segments have a white marginal fascia; the fifth segment has on its apical margin laterally a short blunt tooth, the sixth has a more acute one on each side in the middle, the apex having four teeth, placed two above and two beneath, the latter being the longest and most acute.

"*Hab.*—United States."

Not seen. *C. dubitata* Smith, is most probably the female of this species.

2. *C. dubitata*, Smith.*Celioxys dubitata*, Smith, Brit. Mus. Cat. ii, p. 272, ♀. (1854.)

Female.—Head black, clothed with yellowish-white pubescence, which is longer about the insertion of the antennae and on the apex of the clypeus; vertex deeply and roughly punctured. Antennae black. Thorax black, deeply, roughly and rather densely punctured; an obsolete line on the anterior margin, interrupted in the middle, a line over the tegulae and a spot behind them, two spots in front of the scutellum and an obsolete line behind it, a double line on each side of the pleura continued uninterrupted beneath, of short white pubescence; sides of the metathorax densely clothed with white pubescence; tegulae black; scutellum with a stout, bent tooth on each side behind. Wings subhyaline, dusky towards the tip; nervures fuscous. Legs black, tip of the femora and the tarsi rufous; the femora and tibiae clothed with short white pubescence. Abdomen conical, black, shining, distinctly and sparsely punctured; the five basal segments with an apical white marginal fringe; the superior plate of the apical segment finely and densely punctured and having a slight longitudinal carina towards the tip; on each side of the segment the margin is suddenly narrowed at half its length, forming on each side a sharp angle, from which it gradually narrows to the tip which is obtuse and rounded; the inferior plate is lanceolate, longer than the superior and very slightly notched on each side near the tip; ventral segments densely and deeply punctured,

tured, and each having an apical white marginal fringe, which is sometimes interrupted in the middle. Length 6 lines.

Hab.—Conn., Penn., Del. Four specimens. Coll. Ent. Soc. Phila., and Mr. E. Norton.

Most probably the female of *C. rufitarsus* Smith. It is larger than *C. 8-dentata* Say, from which it differs principally by the more sudden angulation of the lateral margin of the last abdominal segment above, and by the inferior plate having the slight notch on each side removed further from the tip, which is consequently more elongate beyond the notches.

3. *C. 8-dentata*, Say.*Celioxys 8-dentata*, Say, Long's 2nd Exped. ii, p. 353, ♂; Bost. Journ. Nat. Hist. i, p. 400, ♀.

Female.—Head black, deeply and roughly punctured on the vertex, finely punctured on the face which is clothed as well as the cheeks with short whitish pubescence; about the base of each antenna there is a tuft of long yellowish hairs; clypeus fringed with yellowish hairs; antennae black. Thorax black, deeply, roughly and somewhat densely punctured; a line on the anterior margin which continues down on the sides of the pleura and behind the fore-legs, interrupted on the disk above, a line over the tegulae and a spot behind them, a short line or two spots before the scutellum as well as its posterior margin, all of short white pubescence; sides of the metathorax densely clothed with white pubescence, the pleura and thorax beneath sparsely so; the posterior margin of the scutellum broadly rounded and armed on each side with a stout, rather acute, slightly divergent tooth; tegulae ferruginous. Wings subhyaline, apical margins fuliginous; nervures fuscous. Legs ferruginous, the coxae and sometimes the femora and tibiae more or less blackish; the femora beneath clothed with short whitish and the tarsi with short yellowish pubescence. Abdomen conical, black, shining, rather deeply but not densely punctured; the posterior margins of the five basal segments above fringed with short white pubescence; the superior plate of the apical segment finely and densely punctured, apex lanceolate, with a slight longitudinal carina; on each side of the segment the margin is rather suddenly narrowed at half its length, forming on each side a subacute angle, from which it narrows to the apex which is rounded and obtuse; the lower plate is lanceolate,

longer than the upper and very slightly notched on each side near the tip which is obtusely pointed; ventral segments black, sometimes stained with rufous and having a posterior white marginal fringe, sometimes slightly interrupted in the middle. Length 5 lines.

Male.—Like the female, except that the face is densely clothed with yellowish-white pubescence; the extreme lateral apical margin of the sixth segment produced into a short blunt tooth, the apical segment is produced into two bifurcate processes, the upper teeth short and obtuse, the lower teeth longer, more slender and acute, also a tooth on each side of the segment, broad at base and rather suddenly narrowed towards the tip which is acute.

Hab.—N. Y., Penn., Del., Va. Ten specimens. Coll. Ent. Soc. Phila., and Mr. E. Norton.

The legs sometimes varies from ferruginous to almost entirely black, and the white markings of the body sometimes obsolete; the apical segment of the ♀ abdomen of this species has the lateral margins of the superior plate much less suddenly narrowed in the middle than in *C. dubitata* Smith, and the inferior plate is rather shorter and broader, and has the slight notch on each side nearer the tip.

4. *C. brevis*, n. sp.

Female.—Head black, the face and cheeks densely clothed with short whitish pubescence, which is more sparse on the clypeus; antennæ black. Thorax black, densely and roughly punctured; a line on the anterior margin interrupted on the disk, a spot behind the tegulæ, a transverse line or two spots before the scutellum, a double transverse line on each side of the pleura and the sides of the metathorax, of short white pubescence; posterior margin of the scutellum rounded and having on each side a stout slightly bent tooth; tegulæ ferruginous. Wings subhyaline, their apical margins clouded. Legs ferruginous, the coxæ and base of the femora black. Abdomen conical, black, shining, rather densely punctured; the five basal segments each with an apical white marginal fringe; apical segment short, densely punctured, and having a longitudinal carina above towards the tip which is obtusely rounded, sides rather abruptly narrowed about the middle; the lower plate longer than the upper, broad and gradually narrowed to the tip, before which on each side is a slight notch; ventral segments black, densely and strongly punctured, the basal seg-

ment has a large spot of white pubescence on its disk and the four following segments have an apical, white, marginal fringe. Length 4½ lines.

Male.—Resembles the female, from which it differs as follows:—The head is larger and has the face densely clothed with rather long yellowish-white pubescence; the abdomen is short, conical, the apex obtuse, the extreme lateral apical margin of the sixth segment is produced on each side into a short blunt tooth; the apical segment produced into two bifurcate processes, the upper teeth short and blunt, the lower teeth a little longer and more acute; on each side of this segment there is a stout acute tooth. Length 4 lines.

Hab.—Conn., N. J., Penn., Md. Five specimens. Coll. Ent. Soc. Philad., and Mr. E. Norton.

Resembles the preceding species, but the superior anal plate of the ♀ abdomen is shorter and the sides not so suddenly narrowed as in that species. The males are rather small, short, and robust.

5. *C. mæsta*, n. sp.

Female.—Head black, densely punctured, sparsely clothed in front and on the cheeks with short pale pubescence; antennæ black. Thorax black, densely and strongly punctured, the pleura and metathorax especially the sides, clothed with rather long whitish hairs; the scutellum rounded posteriorly and having on each side a short blunt tooth; tegulæ black, smooth and shining. Wings subhyaline, their apical half dusky. Legs black, shining, the tarsi clothed beneath with short yellowish pubescence. Abdomen conical, black, shining, rather sparsely punctured, the four basal segments having a narrow apical white marginal fringe, that on the third and fourth segments subobsolete; apical segment densely punctured, subopaque, depressed towards the tip, which is slender, pointed and having on its disk a slight longitudinal carina; the lower plate slender, much longer than the upper, and having a slight notch on each side near the tip; ventral segment densely and strongly punctured, subopaque. Length 5 lines.

Hab.—Connecticut. One specimen. Coll. Mr. E. Norton.

Resembles the two preceding species, but differs in the shape of the apical plates of the abdomen, being longer, narrower and more acute than in those species.

6. *C. modesta*, Smith.

Calioxys modesta, Smith, Brit. Mus. Cat. ii, p. 271, ♀. (1854.)

"*Female*. Length $4\frac{1}{2}$ lines.—Black, head and thorax covered with large distinct punctures, the face covered with white pubescence. Thorax, a line on the collar, a spot behind the tegulæ, and a line at the base of the scutellum of white pubescence; the sides of the metathorax have some long white hairs, and the legs above are covered with very short white pubescence, the legs rufo-testaceous, as well as the tegulæ and nervures of the wings, the latter fusco-hyaline, darkest towards their apical margins; the scutellum rounded behind and armed on each side with a short bent tooth. Abdomen shining, the punctures scattered, all the segments have fasciæ of white pubescence, frequently interrupted; the apical segment has the lower plate broad, rounded at the apex, and having a minute point in the middle, the margins of the plate fringed with fuscous pubescence.

"*Hab.*—United States."

I have before me a single ♀ specimen from Pennsylvania (Coll. Ent. Soc. Phila.), which agrees with the above description, except that the tegulæ and legs are rufo-piceous instead of "rufo-testaceous." The superior plate of the apical segment of the abdomen is a little shorter than the inferior, the posterior half of the plate is depressed, gradually narrowed to the tip which is acute and bent upwards; the lower plate agrees with the description given by Mr. Smith. I have very little doubt of their identity.

7. *C. funeraria*, Smith.

Calioxys funeraria, Smith, Brit. Mus. Cat. ii, p. 272, ♂ (1854).

"*Male*. Length 5 lines.—Black, head and thorax strongly and very closely punctured, the face covered with snow-white pubescence; the thorax has some long white pubescence on the collar, metathorax beneath, and on the sides; wings subhyaline, the nervures ferruginous, the tarsi ferruginous; the scutellum rounded at its posterior margin and armed on each side with a short bent tooth. Abdomen shining, closely and rather strongly punctured; all the segments have a snow-white band on their apical margins, which is narrow in the middle and gradually widened towards the lateral margins and continued uninterruptedly on the ventral segments; the apex armed with six teeth,

placed one on each side, and four at the apex placed two above and two below, the lower pair longest and acute.

"*Hab.*—Canada.

"This species closely resembles the *C. vectis* [of Europe], but differs in having snow-white pubescence on the face, continuous bands on the abdomen, and also in wanting the transverse depressions on each segment; the fifth segment also is not produced at its apical lateral margins."

Unknown to me.

8. *C. lateralis*, n. sp.

Male.—Head black, densely and roughly punctured; the face densely clothed with rather long yellow pubescence; antennæ black. Thorax black, densely and roughly punctured, clothed with rather dense, short, yellowish-fuscous pubescence, the sides of the metathorax and the pleura clothed with dense whitish pubescence; scutellum rounded behind, and having a short, blunt, diverging tooth on each side; tegulæ blackish. Wings subhyaline, dusky at tip. Legs black, the coxæ and femora clothed with whitish pubescence. Abdomen subconical, very slightly narrowed towards the tip, the base being narrower than the thorax; black, shining, covered with dense, deep punctures which are more sparse on the disk above; base of the first segment clothed with fuscous pubescence; on each side of the four basal segments the apical margins are fringed with white pubescence, narrowed to a point inwardly, that on the side of the basal segment large and angular; the extreme lateral margin of the sixth segment is produced on each side into a very short blunt tooth; the apical segment is produced into two bifurcate processes, the upper teeth short and obtuse, the lower teeth a little longer, more slender and acute; on each side of this segment there is a straight well developed acute tooth; ventral segments densely and strongly punctured, each having an apical, white, marginal fringe. Length $5\frac{1}{2}$ lines.

Hab.—Pennsylvania. One specimen. Coll. Ent. Soc. Phila.

This is a very neat and distinct species; the sides of the abdomen are almost parallel and unlike any other species known to me. I have not seen the female.

9. *C. alternata*, Say.

Celioxys alternata, Say, Bost. Journ. Nat. Hist. p. 401, ♂ ♀. (1837.)

Female.—Head black, finely punctured, clothed with short appressed white pubescence, which is rather sparse on the clypeus and vertex; anterior margin of the clypeus rounded and fringed with white pubescence; a slight longitudinal carina between the antennæ; a well impressed puncture on each side of the upper margin of the clypeus; antennæ black. Thorax black, somewhat shining, rather densely and deeply punctured, a transverse impression in front of the scutellum, which is rounded behind, with a stout blunt tooth on each side; a line on the anterior margin of the thorax, curving around to the base of the wings, and a short line in front of the scutellum, white; the pleura, posterior margin of the scutellum, and each side of the metathorax clothed with rather long whitish pubescence; tegulæ piceous, smooth and shining. Wings hyaline, their apical margins slightly clouded; nervures fuscous. Legs black, sparsely clothed with cinereous pubescence; tarsi beneath with dense yellowish pubescence. Abdomen elongate, black, shining, distinctly and rather sparsely punctured, especially on the disk; on each side before the middle of the second and three following segments above, a transverse impressed line, slightly curved downwards and not reaching the disk of the segments, these impressed lines as well as the sides and anterior margin of the first segment and the posterior margin of the first five segments clothed with short white pubescence; sides of the abdomen crenulated, which is caused by the contraction of the segments at their posterior lateral margins; apical segment with its superior plate elongate, lanceolate, sparsely punctured, with a slight longitudinal carina near the tip which is pointed and rather acute; inferior plate a little longer than the superior, rather broad and rounded at the tip which is fringed with fuscous pubescence; beneath densely and deeply punctured, the segments having an obsolete whitish marginal fringe which is interrupted in the middle. Length 6 lines.

Male.—"Body black, punctured; the punctures not much crowded; head with short, white hair almost naked on the vertex: front with long, white, dense hair: antennæ, tip of the basal joint obscurely piceous: thorax, an interrupted, arcuated, white line before, curving over the wings; a line before the scutel, and another at its tip, white:

wing-scale dull honey-yellow: wings yellow fuliginous, more dusky at tip: tergum polished, punctures more sparse than on the thorax; segments, particularly the basal ones, white on their posterior margins; and each segment excepting the ultimate and basal ones, with a white interrupted band before the middle; tail concave above, with about ten spines: feet black, more or less piceous: venter banded with white. Length over two-fifths of an inch."

Hab.—Indiana (Say); Pike's Peak, 2 ♀ specimens. Coll. Ent. Soc. Phila. ♂ not seen.

A very distinct species. The apical abdominal segment of the female is long, and slender at tip; the inferior plate only slightly longer than the superior.

10. *C. rufipes*, Guér.

Celioxys rufipes, Guér. Icon. Règ. Anim. Ins. p. 452; tab. 73, fig. 9.

Female.—Head black, sparsely punctured on the vertex, clothed with short decumbent whitish pubescence, which is very dense on each side of the face, on the cheeks and on the apical margin of the clypeus; antennæ black. Thorax black, sparsely and deeply punctured; an arcuated line on the anterior margin, interrupted on the disk, a line over the tegulæ ending in a large spot behind, a transverse line in front of the scutellum, a double line on each side of the pleura, the disk of the thorax beneath and the metathorax in greater part, snow-white; scutellum obtusely angulated behind with a very short blunt tooth in the middle and a rather long, obtuse, slightly divergent tooth on each side; tegulæ black, smooth and shining. Wings fusco-hyaline, fuliginous at tip; nervures black. Legs rufous, the coxæ, the femora beneath and the tibiæ outside covered with very short white scale-like pubescence. Abdomen elongate, conical, black above, very glossy, with fine scattering punctures; the segments having the transverse impressions very faint and the apical margins of the five basal segments fringed with dense snow-white pubescence; apical segment short, densely and finely punctured, with a well defined longitudinal dorsal carina near the tip which is rounded, and clothed above with rather short erect, blackish hairs; lower plate longer than the upper, broad towards the base and suddenly constricted towards the tip into a long slender acute spine, densely fringed with long fuscous hairs; ven-

tral segments dark rufous, sparsely punctured, shining, on the disk of the basal segment a large spot of snow-white pubescence, and the apical margins of the five basal segments rather broadly fringed with snow-white pubescence. Length 8 lines.

Male.—"Black, head, except the vertex, covered with very dense yellowish-white silky pubescence. Thorax with two small transverse lines in front, a small longitudinal line on each side near the insertion of the wings, and a fine margin at the base of the scutellum, white; sides of the thorax and the posterior part of the metathorax clothed with white hairs. Abdomen black, shining, with the base of the first segment beneath yellow; each segment margined with white above and beneath; superior anal plate armed with six teeth as in *C. conica*. Wings hyaline, with the extremities slightly smoky. Legs yellow, with a line of white pubescence on the exterior surface of the femora and tibiae. Length 10 mill."

Hab.—Cuba. One specimen: Coll. Ent. Soc. Phila.

A very beautiful and distinct species. The Society is indebted to Mr. P. R. Uhler, for the ♀ specimen from which the above description is taken. The ♂ is unknown to me. Guérin says, "We possess a female which in truth belongs to this species, but we have received it from Mexico. The superior anal plate terminates in a point and is carinated above; the inferior plate is longer, nearly straight, and a little hollowed out on each side towards the extremity." The shape of the anal plates given here does not accord with that of the ♀ specimen from which I drew up the description given above, and therefore either Guérin's ♀ from Mexico, or mine from Cuba belongs to another species.

11. *C. abdominalis*, Guér.

Calioxys abdominalis, Guér. Icon. Règ. Anim. Ins. p. 453; La Sagra, Hist. Cuba, tab. 19, f. 11.

"Black, with the abdomen and feet yellow. Face covered with somewhat golden-yellow silky pubescence. Anterior margin of the thorax, a small spot over the wings, two spots at the base of the scutellum, of a silky yellow; the hairs behind the eyes, at the extremity of the metathorax and the thorax beneath, white. Margin of the segments of the abdomen and the exterior part of the legs fringed with fine white pubescence. Wings transparent, with the extremity brown; their tegulae yellow. Superior anal plate armed with six acute spines

in the male. These parts in the female resemble those of the preceding species [*C. rufipes*]. Length 12 to 14 mill.

"*Hab*.—Island of St. Thomas."

Unknown to me.

In addition to the above, the following European species is said to have occurred in North America. I have not seen any specimens of it taken in this country.

12. *C. quadridentata*, Linn., &c.

Calioxys quadridentata, Smith, Bees of Great Britain, p. 146.

"*Female*. Length 5 lines.—Black; head and thorax roughly punctured, the face with a yellowish-white pubescence, the anterior margin of the clypeus having a dense pale fulvous fringe; the eyes pubescent. Thorax: the posterior margin of the scutellum obtusely angulate and armed on each side with a short tooth; the wings fusco-hyaline, their margins clouded. Abdomen shining, having scattered deep punctures; the apical segment very closely and finely punctured, subopaque, and having a slight longitudinal carina, the apex of the segment lanceolate; the ventral plate lanceolate, elongate, produced beyond the superior plate, and having a lanceolate appendage at the apex.

"*Male*. Length 4½ lines.—Black, punctured as in the other sex, the face having a dense silvery-white pubescence; the thorax as in the other sex; the apical segment of the abdomen produced into two stout bifurcate appendages, having on each side at their base a stout straight acute tooth.

"*Hab*.—(Europe;) United States; Trenton Falls," (Smith).

Gen. *STELIS*, Panz.

"Head transverse, the *stemmata* placed in a triangle on the vertex; antennae filiform in both sexes. The *labial palpi* four-jointed, the two basal joints elongate, the basal joint about two-thirds of the length of the second joint, the two apical joints minute. The *maxillary palpi* two-jointed, the joints minute. The *superior wings* with one marginal and two submarginal cells, the marginal cell as long as the two submarginals, its apex rounded; the submarginal cells of about equal length, the second receiving the first recurrent nervure a little beyond the apex of the second submarginal cell, and unites with the abbreviated cubital nervure; the *legs* having the calcaria simple and the claws bifid."—Smith, *Bees of Great Britain*, p. 151.

1. *S. obesa*, Say.

Stelis obesa, Say, Bost. Journ. Nat. Hist. ii, p. 398. (1837.)

"Body robust, convex, punctured, black: nasus, mandibles at base,

orbits anteriorly and abbreviated line behind, yellow: thorax with a yellow, arcuated line each side extending on the anterior margin: scutellum somewhat indented towards the tip, margined behind with yellow, which is slightly interrupted in the middle: wings fuliginous; nervures fuscous: tergum, six yellow bands, the anterior one widely interrupted, the others gradually less so to the penultimate one which is confluent; the ultimate one broadest, entire: venter yellowish at base: feet yellowish; thighs and posterior face of the tibiae partly black. Length over one-fourth of an inch.

"*Hab.*—Indiana."

"In the abdominal markings it resembles some species of *Anthidium*, but the maxillary palpi have two joints."

Unknown to me.

2. *S. fœderalis*, Smith.

Stelis fœderalis, Smith, Brit. Mus. Cat. ii, 275. ♂ ♀ (1854.)

"*Female.* Length $2\frac{1}{2}$ lines.—Black, the face covered with griseous pubescence, the flagellum rufo-piceous; the thorax as well as the head strongly punctured, the former has a scattered griseous pubescence, the wings fusco-hyaline, the apical margins of the wings faintly clouded, the apical joints of the tarsi dark ferruginous. Abdomen ovate, shining and closely punctured, the basal segment having on each side a somewhat pear-shaped yellowish-white macula; the four following segments have across the middle a slightly interrupted narrow fascia, the sixth immaculate, its margin entire, rounded.

"*Male.*—Closely resembling the female, the face being more densely pubescent; the five basal segments of the abdomen having a subinterrupted fascia of the same color as in the female, the fasciæ on each side are sinuated on their inferior margins; the apical segment rounded.

"*Hab.*—United States."

Unknown to me.

3. *S. lateralis*, n. sp.

"*Female.*—Head black, densely and rather deeply punctured, sparsely clothed with whitish pubescence; antennæ black. Thorax black, densely punctured, sparsely clothed with whitish pubescence; tegulæ black, shining, punctured. Wings subhyaline, apical margin faintly clouded; nervures fuscous; the second recurrent nervure uniting with the second transverse nervure. Legs black, sparsely clothed with pale pubescence.

Abdomen subovate, convex above, black, finely and densely punctured, sparsely clothed with short pale pubescence; apex incurved; on each extreme side of the three basal segments of the abdomen a rather small ovate yellowish-white spot; on each side of the fourth segment a transverse yellowish-white stripe rather deeply indented posteriorly; on each side of the disk of the fifth segment a transverse yellowish-white spot; apical segment black, rotundate. Length $2\frac{1}{2}$ lines.

"*Hab.*—Pennsylvania. One specimen. Coll. Ent. Soc. Phila.

4. *S. elegans*, n. sp.

"*Female.*—Head dark blue, with green reflections, shining, closely punctured; face and cheeks densely clothed with long white pubescence, that above the insertion of the antennæ and on the vertex mixed with fuscous; antennæ black. Thorax same color as the head, shining, closely punctured; rather densely clothed with whitish pubescence; tegulæ greenish-blue, shining, punctured. Wings subhyaline, apical margins faintly clouded, nervures black; the second recurrent nervure received by the second submarginal cell a little within its apex. Legs dark blue, punctured, slightly hairy. Abdomen subovate, convex above, dark blue, shining, finely and closely punctured; apex incurved, clothed with rather short, erect blackish pubescence; on the middle of each of the five basal segments a narrow whitish fascia, interrupted on the disk, and having their posterior margins slightly waved; that on the fifth segment interrupted on the disk and again on each side, making four spots, the extreme lateral ones minute; apical segment immaculate, rotundate. Length 3 lines.

"*Hab.*—Pike's Peak, Colorado Territory. One specimen. Coll. Ent. Soc. Phila.

An elegant little species. The termination of the second recurrent nervure in the wings of this and the preceding species does not accord with that mentioned in the generic description given above, and therefore they may not belong to this genus.