Males.

Hind claws long, with a very short inner tooth; hind metatarsus arcuate, bevelled at the expense of its posterior inferior border, produced anteriorly; mandibles at apex bidentate, exterior angle spined; clypeus trilobed, with transverse apical whitish band; joint 3 of antennæ about as long as 4, 5-12 slightly diminishing in length; segments 6 and 7 of abdomen with dentiform lateral apical angles.....*C. impomææ*.

Hind claws cleft; hind metatarsus simple; clypeus entire.....1.

1. Joint 3 of antennæ = 4 + 5; base of mandibles yellow, with an internal tooth; clypeus largely yellow; segments 5 and 6 of abdomen with lateral basal spines, stronger on 6.....*X. strenua*.

Joint 3 of antennæ about one-third as long as 4, 5-12 slightly diminishing in length; mandibles tridentate, base black; clypeus with yellowish spot; apex of abdomen without spines...*P. pruinosa*.

DESCRIPTIONS OF NORTH AMERICAN BEES.

BY H. L. VIERECK, PHILADELPHIA, PA.

Coelioxys Foxii, n. sp.

Coelioxys vigilans, Fox, not Sm. Tr. Am. Ent. Soc., XVIII., 344, 1891, ♀ ♂.

Conspicuous by its deeply-punctured thoracic dorsum and the orange to yellowish pubescence.

♀. Length, 10.5 mm. Clypeus rugose, with close, large, poorly-defined punctures, covered with a fine whitish pubescence, and having a whitish moustache; sides of the face covered with a yellowish appressed pubescence; near the ocelli this becomes erect; around the latter the hairs are dark brown, and form an erect fringe; a raised space in front of anterior ocellus, tapering down in front to a point terminating between insertion of antennæ, has a longitudinal impressed line along the middle on its lower half, and branches up to on each side of the anterior ocellus impunctate, dullish, the space between and surrounding punctured; an impunctate space between lateral ocelli and eye margins; top of the head punctured, dullish, the punctures smaller than those on dorsulum, almost bare; cheeks with appressed pubescence paler than that on sides of face. Dorsum of thorax with large deep punctures, shining, the punctures on dorsulum usually well separated, those on scutellum sparse, a narrow longitudinal area on the middle of scutellum impunctate; a semi-circular collection of appressed pubescence on scutellum, a spot of

the same adjoining the tegulæ and a line on anterior margin of dorsulum orange colour. The rest of the dorsum with inconspicuous black hairs. Posterior border of scutellum with a sharp edge, only slightly produced medially, the lateral teeth short and blunt. The pleura covered with pubescence similar to that on cheeks, only so thick as to obscure the tegument on the anterior and posterior borders of the mesopleura, which are deeply punctured and dullish; the legs covered with a white pubescence, that on the tibiæ and tarsi within golden. Wings darkened brownish, especially near the margins, nervures and stigma dark brown. First adominal segment with a groove on the anterior edge formed by the sharp edge and the almost ridge curve in back of the edge, with distinct, small, separated punctures; all of abdomen polished, the apical segment less than one and a half times as long as broad at base, tapering to a blunt point at apex, slightly pinched on the sides at the middle, a median longitudinal raised line on posterior half, an impunctate line on anterior half; the punctuation on the narrow part of apical segment indistinct, that on the broader half distinct, fine, the punctures separated; the rest of the segments with punctures only on the anterior and posterior margins; all the segments, except the apical one, with a narrow apical band of yellowish appressed pubescence, a line of appressed pubescence on each side of apical dorsal segment; the ventral segments with apical bands.

Black, mandibles, tegulæ, legs, basal segment and ventral segment dark ferruginous.

♂. Length, 8.5 mm. Essentially the same as the ♀ in sculpture and coloration, with the usual exception in structural characters incident to this sex; the face uniformly covered with thick appressed pubescence; the lateral scutellar spines more produced; apical dorsal segment less than one and a half times as long as broad, at apex drawn out into four sharp spines, the emargination not so deep, more semicircular, the width from spine to spine a little more than half the width of the apical segment at base; the upper spines a little shorter than the lower ones, one spine on each side long and narrow, the broad median furrow extending to within a short distance of the base of the apical segment.

Types: Coll. Am. Ent. Society. Type locality, Port Antonio (♀), Jamaica (W. J. Fox).

The ♂ is from Kingston, Jamaica. Both specimens are part of a collection made in Jamaica during April, 1891, by Mr. C. W. Johnson and Mr. W. J. Fox.

In sculpture and structure this species comes nearest to *C. abdominalis*, Guer., but that has the abdomen all red, is larger and different in various details.

Coelioxys Slossoni, n. sp.

Head and thorax black, dullish; abdomen shining, first three segments ferruginous, the rest black; wings fulvous, darker apically; antennæ dark brown to black.

♀. Length, 12 mm. Face covered with appressed whitish pubescence, which hides the surface of the tegument; head above an imaginary line across posterior ocelli deeply punctured, the punctures separated irregularly, none very far apart. There is an impunctate line extending down to the margin of the eye from each lateral ocellus; a compact, spade-shaped, raised area in front of anterior ocellus has its borders impunctate, dull, the space within punctured. Cheeks punctured, with white appressed pubescence not so dense as on the face; dorsulum with deep, good-sized punctures not all the same distance apart, some very close, not at all widely separated, an impressed line over the anterior half of dorsulum in the middle, a narrow band of yellow pubescence extends to each side of the impressed line, curved and meeting the tegulæ at the sides; scutellum punctured, much like dorsulum, duller, the spines short and rounded. Mesopleura flattened in front, giving the side a strong edge, the sides of mesopleura punctured, much like the dorsulum, pubescence very sparse, excepting on the margins, where it is abundant, and on the sides of the metathorax. Wings with space between first transverse cubitus and first recurrent nervure on the cubitus a little greater than that between the second transverse cubitus and the second recurrent nervure on the cubitus; transverse median nervure interstitial; nervures and stigma dark brown, almost black; tegulæ testaceous. Abdomen about twice as long as broad at base, first segment with well-defined large and small punctures, the larger ones a little smaller than those on dorsulum, second segment with much the same-sized punctures as those on the first, an impunctate narrow band across the middle. On the remaining segments the pattern is the same, excepting the apical segment, the puncture on each segment a little smaller than on the preceding, the impunctate band wider; apical segment with a medial longitudinal impunctate raised line; apical segment less than twice as long as broad at base, its outline that of a cone slightly pinched in the middle, the apex rounded; dorsal

segments, except the apical one, with a narrow white fascia, narrowest in the middle, the fascia on first segment narrow from side to side.

Black; legs from ferruginous to testaceous, chiefly a dark shade of the latter; anterior and median coxæ black. The legs have a whitish pubescence, except on the inner side of tibiæ and all of tarsi, where the pubescence is golden.

♂. Length, 11.5 mm. Exactly like the ♀, except for the usual sexual characters; pubescence on face abundant and not appressed; dorsal apical segment with six spines, one on each side at base testaceous, the four at apex black, simple, the lower pair longer than the upper, sharp, the upper pair short, blunt; scutellar spines longer than in ♀, broader at apex than at base.

Types: Coll. Am. Ent. Society. The ♀ deposited by Mr. Fox.

Type locality, Lake Worth, Florida (Mrs. A. T. Slosson).

The male is labeled "Fla." Two ♀ ♀ from Lake Worth; the co-type is identical with the type.

Megachile manumuskin, n. sp.

Thorax shining, punctured; scopa white, on apical segment black; inner side of tarsi in both sexes brilliant brownish.

♀. Length, 14 mm. Margin of clypeus almost even, the clypeus and a small space above closely punctured, the surface shining and almost bare, the rest of the face up to the ocelli indistinctly punctured, covered with an erect whitish pubescence, which extends down and covers the lower corners of the clypeus; top of the head not so closely punctured as the clypeus, shining, sparsely covered with black hairs; checks indistinctly punctured, covered with erect pubescence whiter than that on the face; space between posterior ocelli seemingly a little greater than that between them and eye margins; mandibles the shape of an obtuse angled triangle, with four teeth, the upper surface separated from the lateral surface by a raised opaque line, the upper surface with drawn-out punctures; antennæ with the first joint of the flagellum a little longer than the second. Dorsum of thorax shining, punctures on dorsulum close together; on the sides, in front, in the middle and behind the punctures are well defined and separated; punctures on scutellum distinct, closer than those on the middle of the thorax; the thorax above almost bare in the middle, near the margins with sparse black hairs, surrounded by white hairs on the margins; surface of the rest of the thorax indistinctly sculptured; metathorax almost smooth, opaque, almost

hidden by the abundant white pubescence. The legs, except the tarsi in back, largely covered with short, almost appressed whitish pubescence. Wings brownish hyaline, nervures very dark brown; tegulae shining, punctured. Abdomen shining, the dorsal segments with a polished, then a punctured band, an apical subopaque band finely punctured; first segment with erect whitish pubescence, the second dorsal segment with short whitish pubescence at the base, a narrow whitish band of appressed pubescence on the apical border of the punctured band; segments two, three and four with similar fasciae, otherwise the segments have short, black, erect hairs in abundance; the apical segment is finely, closely punctured, slightly impressed on each side, black haired. Almost entirely black, claws dark brown in part.

♂. Length, 11.5 mm. Very similar to the female; hair on face yellowish, the clypeus with a long moustache, hairs on top of head pale and fine; first joint of flagellum plainly shorter than the second; anterior coxae armed with a prominent spine; apical dorsal segment with a broad, uneven, elliptical emargination, the sides of the segment with large teeth, the right side having but one, the left side two; the pointed process of apical ventral segment long; when looked at from back, its tip is on a level with the tips of the sides of the apical dorsal segment.

Types: Coll. Acad. Nat. Sciences, Philadelphia.

Type locality, Manumuskin, New Jersey, June 24, 1901 (E. Daecke). Co-type ♀, same date, same place. One ♂, Clementon, N. J., June 5, 1901; DaCosta, N. J., July 14, 1901. The thoracic pubescence in these specimens has an ochreous tint. Two ♂♂, Iona, N. J., June 16, 1902. In one of these specimens the lateral processes and the apical process of apex of abdomen are abbreviated, but hold the same proportion to each other as the typical specimens. The species compares well with *M. frugalis*, Cress., but that differs in the distinct punctuation of head and thorax with shining surface; the emargination is regular, semicircular, the tooth beneath short. The type was compared with the type of *M. frugalis*, Cress., ♂, in the U. S. National Museum.

Frederick Smith described three species of the genus *Colletes* from North America. Up to the present time only one species, *C. thoracicus*, appears to have been identified. I submit descriptions of what are taken to be *C. mandibularis* and *C. nitidus*, the remaining species.

Colletes mandibularis, Sm.

Colletes mandibularis, Sm. Brit. Mus. Cat., I., 5, 1853. ♂. Type locality, Georgia.

♀. Length, 8 mm. Clypeus almost bare, shining, with punctures lengthened and often confluent, near the margins the punctures are more regular, the rest of the face covered with a dirty-looking pubescence, not long nor so thick as to obscure the surface, which is so closely punctured as to have a rugose appearance; the head above shining, indistinctly punctured, the pubescence longer and sparser than on face, rather yellowish; labrum with a distinct dent in the middle, to the sides polished and with traces of dents; mandibles grooved, with an almost obsolete tooth within the apex; the cheeks with a paler pubescence, the sculpture indistinct; first joint of flagellum distinctly longer than the second; hardly any space between eyes and base of mandibles; dorsulum shining, with close, distinct, deep punctures, punctures sparse in the middle of posterior half; scutellum with a few punctures. Mesopleura with distinct punctures, closer than on the dorsulum; disc of metathorax divided into pits, the middle one almost oblong, the largest, the lateral each narrower than the one before; enclosure of posterior face of metathorax with a broad neck, its surface not perfectly smooth, but shining, the neighbouring areas indistinctly sculptured, less shining than the middle area; the thorax above with a short yellowish pubescence, that on the sides whitish, the same on the legs. Abdomen subopaque, very finely sculptured with indistinct punctures, those on first segment not so close as on the rest, therefore it is more shining; the base of abdomen pubescent, much like the dorsum of thorax, the other segments with a thin, light, appressed pubescence, except the apical segment; all with a distinct fascia of appressed yellowish pubescence; ultimate segment with brown hair. Black mandibles and tibiae brownish; wings yellowish, nervures brown; stigma paler; first recurrent nervure received by the second submarginal cell a little before the middle.

♂. Length, 7 mm. Excepting the ordinary sexual characters, the male fits the description of the ♀. Face below antennae hidden with a long, yellowish pubescence; pits on disc of metathorax narrower; tarsi testaceous.

Four specimens from Georgia (Morrison), Coll. Am. Ent. Soc.

Colletes nitidus, Sm.

Colletes nitidus, Sm. New Sp. Hym., B. M., p. 1, 1879, ♀ ♂. Type locality, E. Florida.

♂. Length, 8 mm. Face below antennae hidden by long, pale pubescence, faintly yellowish; face above indistinctly sculptured,

pubescence thinner and darker than that below; top of the head shining, also indistinctly sculptured; cheeks roughened, with white pubescence; labrum with a median dimple; first joint of flagellum equal to the length of the second; space between eyes and base of mandibles very narrow; dorsulum shining, with small, well-separated punctures; scutellum similar. Mesopleura closely punctured, shining; disc of metathorax divided in the middle by a sharp longitudinal ridge, the space on each side divided into pits by less conspicuous ridges; enclosure funnel-shaped, the neck narrow, about twice as long as wide at base, the surface polished, the neighbouring areas shining, indistinctly sculptured in spots; thorax above covered with a slightly yellowish pubescence; the sides, the metathorax in back and the legs covered with white pubescence; wings yellowish hyaline, nervures light brown, the stigma almost testaceous; first recurrent nervure received a little beyond the middle of second submarginal cell. First abdominal segment highly polished, with very fine, widely-separated punctures, the pubescence very thin and long, whitish, the rest of the segments closely, indistinctly punctured, the pubescence whitish, short and lying on the surface, the fasciæ formed by the hairs not at all prominent; apical segment with whitish appressed pubescence.

Black; tarsi and claws almost testaceous; flagellum very deep brown.

One ♂ specimen from College Park, Maryland, September, 1892.
(Received through Mr. Quaintance.)

BOOK NOTICE.

CATERPILLARS AND THEIR MOTHS.—By Ida Mitchell Eliot and Caroline Gray Soule: The Century Co., New York; 302 pages 8vo., 80 plates.
(Price, \$2.00 net).

This is a very interesting and satisfactory book, written in an entertaining manner and full of useful information for any one who is engaged in rearing moths and studying their life-histories. The great value of the work consists in its evident originality; the writers give us their own experiences and record their failures as well as successes. The first portion of the volume describes the simple apparatus employed in rearing caterpillars, how to take care of them, where to look for them, and tells as much as the ordinary collector requires to know about the eggs,