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## TWO NEW BEES OF THE GENUS *COLLETES*, OLIGOTROPIC UPON *PETALOSTEMUM*

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### *Colletes susannæ*, new species

FEMALE.—Length, 9-10 mm. Black, densely clothed with dull, silvery white pubescence. Head broadly oval, about one-fourth wider than long (55×69). Face trapezoidal, narrowed one-sixth between the vertex and the lower margin of the eyes (42:35), making the inner orbits distinctly converging below. Clypeus evenly convex, shiny, closely and coarsely striate-punctate, with a deep transverse depression just before the feebly emarginate apical margin, sparsely clothed with short, inconspicuous, pale hairs. Supraclypeus large, minutely reticulated, opaque, with a few coarse punctures marginally. Face dullish, densely and very shallowly punctured, the punctures fine above antennal level but somewhat coarser on lower face, densely clothed with long, erect, finely branched, dull white hair, becoming shorter, more appressed, and pure white near orbital margins. Facial foveæ short, broadly crescentic, their basins deep and impunctate but occupying only a small space along the extreme upper end of inner orbits. Sides of vertex depressed, shining, impunctate near ocelli but becoming feebly, minutely punctured toward orbits, bare. Occiput and interocellar space with long, dense, erect, copiously finely branched, white hair. Cheeks finely and rather closely punctured, the punctures running into strong striae, this sculpturing concealed in fresh specimens by short, dense, appressed, simple white hair which becomes somewhat longer and erect posteriorly and inferiorly. Malar space very short, dullish, about one-eighth as long as wide (1.5×12). Antennæ black with the flagellum beneath dull fuscous to brownish beyond joint 4, joints 2-5 having the proportion of 4.5:5.5:4.5:5, the median flagellar joints slightly shorter than wide (5×6). Prothorax with very short, sharp, lateral tubercles representing rudimentary spines. Mesoscutum with coarse, round, deep, close punctures, crowded anteriorly but discally separated about one-half the width of one, medially with a small, polished, impunctate discal spot and with the short, lateral parapsidal furrows very broadly bounded externally by impunctate lines. Mesoscutellum narrowly impunctate basally, the greater part of the surface very coarsely, striately punctured. Metanotum dull, roughened by fine, very shallow, cancellate punctures. Superior face of propodeum very well defined by a sharp angulation and a strong rim, divided into well-formed pits, the median ones of which are subquadrate, or sometimes oblong because of subdivision by strong substriae, the lateral ones twice as long as wide, making in all six to ten shining pits. Enclosure on posterior face of propodeum funnel-shaped, wholly smooth and polished. Surrounding area of posterior face of propodeum and sides of propodeum subopaque, feebly and minutely reticulated and bearing very coarse, shallow and feeble punctures on the posterior face, the whole sculpture obscured by long,

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shaggy, dull silvery white hair. Mesopleura crowded with moderately coarse, very shallow punctures, the sculpture nearly concealed by short, copious, shaggy, dull silvery hair, which also covers most of the under side of the thorax. Tubercles impunctate. Whole thoracic dorsum densely covered with short, erect, abundantly branched, silvery white hair, longer and plumose on mesoscutellum and metanotum. Tegulae shining, testaceous with darker bases. Wings short, perfectly clear, nervures and stigma pale yellow, the second submarginal cell usually slightly longer than the third above and receiving the first recurrent nervure at or before its middle. Legs moderately slender, clothed with white pubescence, the tufts on the inner tarsal apices pale reddish, the femora copiously haired, especially the hind pair, which are usually heavily pollen-laden. Anterior coxae with long, blunt, hairy spines. Tibial spurs yellow, the posterior ones of hind tibiae obviously finely pectinate with about fifteen teeth, under a hand lens, but the anterior ones simple. Tarsal claws rufous, the inner tooth distinctly submedian and shorter than the outer one. Hind basitarsi slender, four times as long as wide ( $31 \times 7.5$ ). Abdomen parallel-sided on the first four segments, basally with a ruff of erect, white hair which extends down the sides, the whole tergum except the apex evenly covered with dense, very short, appressed, silvery hairs which conceal the sculpture, the depressed apices of tergites 1-5 covered with densely matted, pure white hair which forms broad and contrasting fasciae, least conspicuous on apical margin of 5, the base of tergite 2 with a similar but usually less conspicuous fascia. Apex conical, discally with sparse, golden-brown hair, not pale tomentose like the preceding tergites. Under the hairy covering, the surface of tergite 1 is shining, finely and strongly punctured, the punctures separated about the width of one; tergites 2 and 3 are similar but more finely and closely punctured, basally not over one-half the width of one; the following tergites are finely, rather closely, indistinctly punctured. Venter dullish, minutely reticulate and sparsely, shallowly punctured, very sparsely provided with long, stiff, appressed, pale hairs, dense enough marginally to form thin fringes to the sternites.

MALE.—Length, 7-9 mm. Black, with all of the tarsi and the extreme ends of the tibiae contrasting clear ferruginous, this color sometimes involving the knees more or less and even the inner side of the hind tibiae. Head broadly oval, about one-fourth wider than long ( $53.5 \times 67$ ). Face trapezoidal, narrowed about two-ninths between the vertex and the lower margin of the eyes ( $41:32$ ), making the inner orbits distinctly converging below. Clypeus evenly slightly convex, basally and medially broadly dull, finely, densely and very shallowly punctured, laterally and along apical margin shiny, coarsely striate-punctate, the transverse apical margin narrowly depressed, this sculpture concealed by a copious beard of long, subappressed, simple or minutely branched, silvery white hairs. Supraclypeus and face below antennal level and along orbits punctured like the base of the clypeus. Face above supraclypeus medially carinate, coarsely, densely and shallowly punctured, clothed with erect, long-branched, silvery white hair, the foveae as in the ♀, only even smaller. Sides of vertex depressed, bare, slightly shiny, rather closely punctured with weak punctures of two sizes, the area just outside the ocelli impunctate. Cheeks shiny, finely punctured laterally, the punctures tending to a linear arrangement, becoming coarser inferiorly, the whole clothed with copious silvery white hair, short and appressed near orbits but long, minutely branched, and forming distinct beards inferiorly. Malar space dullish, finely striate, a trifle over one-third as long as wide ( $3.5 \times 10$ ). Antennae black with the flagellum bright brownish beneath beyond antennal joint 3, the scape conspicuously

roughened by dense, fine, shallow punctures, joint 4 only slightly shorter than 2+3, nearly twice as long as 3, the proportion of joints 2-5 being 4:4.5:8:8, the median flagellar joints one and one-fourth times as long as wide ( $8 \times 6$ ). No trace of a prothoracic spine. Mesoscutum punctured as in the ♀, but the punctures less deep and strong, and more separated, discally about the width of one, the broad impunctate lines externally bounding the short, feeble, lateral parapsidal furrows continued back across the segment, the impunctate discal spot larger. Mesoscutellum as in the ♀, but more broadly impunctate at base, nearly one-third the width of the sclerite. Metanotum also similar, but often with spaced striæ at base. Superior face of propodeum well defined by an angulation and a rim but not so sharply so as in the ♀, otherwise as in that sex. Enclosure as in the ♀, the surrounding area of posterior face of propodeum more shiny than in the ♀, only vaguely minutely reticulated and more strongly punctured. Mesopleura more coarsely punctured than in the ♀ and their pubescence less shaggy, of distinctly short-branched hairs. Tubercles impunctate. Hair of thoracic dorsum longer, thinner and of longer-branched hairs than in the ♀. Tegulae shining yellowish, finely white hairy, wings as in the ♀. Legs slender, thinly short-haired even on the femora, the hind basitarsi about five times as long as wide ( $27 \times 5.5$ ), the intermediate hind tarsal joints twice as long as wide ( $II = 10 \times 5$ ). Anterior coxæ with short, tubercle-like spines. Tibial spurs yellow, minutely pectinate under a high lens but this scarcely obvious under a hand lens. Tarsal claws red, equally cleft at apex. Abdomen slender, elongate oval, tergite 1 with long, sparse, erect, simple, white hairs at base and with short, dense, pure white fringes laterally, the apical margins of tergites 1-6 narrowly depressed and testaceous, and covered with narrow but even fasciæ of pure white hair, the interfascial spaces of the segments thinly and inconspicuously clothed with short, white hair not nearly concealing the surface (as occurs in the ♀), the sides of tergites 3-6 with sparse, white, bristle-like hairs. Apex conical, with its tip rather broadly truncate, thinly, finely, pale haired. Tergite 1 shiny, with strong, round, deep punctures separated about the width of one, tergite 2 with similar but smaller and less strong punctures, following tergites dullish, finely and feebly or indistinctly punctured. Venter minutely reticulated and sparsely, indistinctly punctured, the apical margin of sternites 1-5 with very narrow but distinct white fascial fringes, the apical sternite (6th) basally and medially elevated, the depressed latero-apical portions appearing as large, very shallow, oval pits.

GENITALIA.—Stipites notched, the apex rather large, curved, broadly spatulate, provided with long, simple, bristle-like hairs, the central joint with a large, concave, glabrous internal area the inferior and apical margin of which is rather heavily fringed with long, plumose hairs. Sagittæ swollen basally, this swollen portion distinctly overlapping the apex of the basal stipital joint but not so much so as in *wilmattæ*; beyond the swollen portion the sagittæ are rapidly attenuated and converge until they meet, as in *aberrans*, after which they are narrowly produced to sharp, slightly diverging terminations and are externally expanded into short, broad, subtriangular, membranous wings. Volsella large, though considerably shorter than the apex of the central stipital joint and distinctly less than one-half as long as that portion of the sagittal rods distad of the volsellal base, largely because of the extensively, straight-produced tips of the rods. Seventh ventral plate with lobes approximate, broadly oval with the outer inferior edges shallowly emarginate, the internal margins recurved or overlapping as in *aberrans*, but not so much so, and with the lower part of the margin heavily fringed, the basal one-third of the lobes rather heavily haired but

the apical two-thirds hyaline and thinly long-haired, the apical margin sparsely and finely short-haired.

TYPE LOCALITY.—Lincoln, Lancaster County, Nebraska.

TYPE.—A female collected on *Petalostemum purpureum*, July 26, 1904, by M. H. Swenk. In the collection of M. H. Swenk.

ALLOTYPE.—A male collected with the type. In the collection of M. H. Swenk.

GEOGRAPHICAL DISTRIBUTION.—Upper Austral life zone, from southern Illinois (Carlinville) west across Nebraska (Meadow, Weeping Water, Lincoln, Niobrara, Neligh, Carns, Gordon, Halsey, Haigler and Sioux County) to southwestern South Dakota (Rosebud), and across Kansas (Clark County, Logan County) to Colorado; probably confined to the range of *Petalostemum purpureum*.

Following Robertson, this species was at first confused with the quite different *Colletes albescens* Cresson. The Nebraska specimens ran down directly to *C. albescens* in Robertson's table of Illinois species (Can. Ent., XXXVI, p. 276), but then did not agree exactly with Cresson's diagnosis of *C. albescens* (Proc. Bost. Soc. Nat. Hist., XII, p. 168), so in May 1906, I sent a specimen to Mr. H. L. Viereck for comparison with the two female cotypes of *C. albescens* in the collection of the Philadelphia Academy. He replied that my species was in his estimation distinct from *C. albescens* Cresson, noting the possession of spines on the anterior coxæ, the longer and submedian inner tarsal claw tooth and the longer malar space. I then sent a specimen to Mr. Robertson, who compared it with his single female specimen of supposed "*albescens*," and he replied that it was the same and that he thought Mr. Viereck was in error in considering it as different from *C. albescens* Cresson. In 1909, I fortunately had an opportunity of making a direct comparison of the two, and was able to easily realize the differences pointed out by Mr. Viereck, as well as several others; in fact, the general appearance of the two species, when directly compared, is very different, owing to the uniformly, finely, pale-haired areas on tergites 1-5 between the very broad, feebly contrasting, white apical fasciæ in *C. susannæ*, and the broad, greatly contrasting, white fasciæ on these tergites in *C. albescens*, where the interfascial hair does not obscure the black integument color.

In Nebraska *C. susannæ* is very abundant. Before me is a series of fifty-eight males and eighty-nine females collected from all parts of the state: Meadow, Weeping Water, Lincoln, Niobrara, Neligh, Carns, Gordon, Halsey, Haigler, Glen, Monroe Canyon, Warbonnet Canyon, Jim Creek and the Bad Lands. I have also a male collected at Rosebud, South Dakota, July 12, 1904 (L. Bruner), two males from Clark and Logan Counties, Kansas, and a male from Colorado (C. F. Baker No. 2153). In Illinois the species is very rare. Robertson, in his many

years of collecting about Carlinville, has captured only one specimen, a female, and that on *Petalostemum purpureum*. In 1898 he visited the same patch of plants throughout the blooming period but could not find any more specimens (*litt.*, May 22, 1906).

*Colletes susannæ*, like *C. aberrans* and *C. wilmattæ*, is an oligotropic visitor of the flowers of *Petalostemum*, and particularly of the common purple-flowered species of that genus, *P. purpureum*. Both sexes visit this plant abundantly in Nebraska and the females gather their pollen from it. Where *P. purpureum* is not plentiful and *P. candidum* is abundant, both sexes frequently visit the latter species for nectar, and the female possibly even for pollen. Both sexes sometimes visit the flowers of *Amorpha canescens* and *Melilotus alba* for nectar, especially in western Nebraska, and the males may also be found occasionally at flowers of *Cleome serrulata* and *Gutierrezia sarothræ*. On one occasion two females were taken on *Helianthus petiolaris*, but they were simply sucking nectar. On the whole, however, the species very largely restricts its visits to the *Petalostemum* blossoms, even when coming for the nectar. This bee, in its dense covering of silvery pubescence, bears a curious resemblance to *Xenoglossodes albata* Cresson, which is also oligotropic upon *Petalostemum purpureum*.

The season of the species in Nebraska is June 19 to August 28 and is remarkably uniform over the whole of the state. The males appear first, the females coming on in early July, and the insects are most abundant during the latter half of July. The measurements in the description are those of the type and allotype.

#### SPECIMENS EXAMINED

Total number 151 (58 ♀, 93 ♂) from localities as follows.

COLORADO: no specific locality, 1; KANSAS: Clark County, 1; Logan County, 1; NEBRASKA: Bad Lands, 4; Carns, 9; Glen, 25; Gordon, 1; Haigler, 7; Halsey, 6; Jim Creek, 6; Lincoln, 15; Meadow, 19; Monroe Canyon, 21; Neligh, 6; Niobrara, 6; Warbonnet Canyon, 2; Weeping Water, 20. SOUTH DAKOTA: Rosebud, 1.

#### *Colletes howardi*, new species

FEMALE.—Length, 9-12 mm. Black, sometimes with the apical tarsal joints more or less ferruginous. Head broadly oval, slightly less than one-third wider than long (65×85). Face trapezoidal, narrowed slightly less than one-eighth between the vertex and the lower margin of the eyes (49:43), making the inner orbits only slightly converging below. Clypeus bare, shiny, convex, closely but rather finely striate-punctate, medially tending to form a smoothish line, the apical margin broadly depressed, smooth and shining and not emarginate. Supraclypeus large, opaque, minutely reticulated, bearing a few coarse, shallow punc-

tures, the face finely, densely and shallowly punctured, the whole facial sculpture and the sides of the supraclypeus concealed by short, dense, suberect, closely minutely branched, bright ochreous hair, at places becoming almost squamous, Facial foveæ large, broadly oval, their bases smooth and dullish, concealed by fine hairs. Sides of vertex bare near orbits, dull, minutely and feebly punctured, with a very few coarse, round punctures scattered about, becoming finely hairy near ocelli. A dense interocellar tuft and occipital fringe of erect, rather long, minutely branched, bright ochreous hair. Cheeks shining, their punctures strong but of variable size, from fine to rather coarse, separated about the width of one and tending to a linear arrangement, above covered with short, bright ochreous hair which is closely appressed near orbits, posteriorly and inferiorly becoming a little longer (though yet short), erect, thin and yellowish white. Malar space dull, minutely striate, about one-sixth as long as wide ( $2 \times 13$ ). Antennæ wholly dark, the flagellum brownish fuscous beneath beyond fourth antennal joint, the scape minutely haired and feebly, sparsely punctured, the proportion of joints 2-5 being as 5:5.5:5.5:5.5, the median flagellar joints slightly shorter than wide ( $5.5 \times 6$ ). Prothoracic spine rather long and slender, sharp, not entirely concealed by the dense pubescence. Mesoscutum covered with very dense, short, erect, finely short-branched, bright fulvo-ochraceous hairs, approaching but not attaining the squamous condition found in *aberrans* and *wilmattæ*, the mesoscutellum and metanotum with similar but longer, copiously branched, subnormal or slightly thickened hairs. Under the hairy covering the mesoscutum is very closely, coarsely, very shallowly punctured anteriorly, these becoming well separated, once to twice the width of one, toward a rather large, polished, impunctate area on posterior disk, this area being only thinly haired and centrally with a nude spot. Mesoscutellum with the anterior one-half bare, smooth and shining, the posterior one-half very coarsely and shallowly punctured, the punctures separated about the width of one. Metanotum opaque, densely punctured. Superior face of propodeum very well defined by an angulation and a sharp rim, divided into eight or ten shining subrectangular pits which are longer than wide except sometimes the median pair. Enclosure on posterior face of propodeum funnel-shaped, its base with a second row of about six very imperfect pits, much smaller than those on the superior face, the enclosure otherwise smooth and polished. Surrounding areas of propodeum shining, minutely bristulate and sparsely, shallowly punctured, this sculpture concealed by copious, long, ochraceous hairs, the sides of that segment with very fine, appressed, pale ochreous hairs concealing the surface. Mesopleura shiny, coarsely and very shallowly punctured, the punctures medially separated nearly the width of one, laterally nearly touching, copiously clothed with short, erect, pale ochreous hair, which becomes denser, heavier and clear ochreous under and in front of tegulæ, like the hair of the mesoscutum. Tegulæ pale testaceous. Wings short, yellowish, the nervures and stigma pale testaceous except the black subcostal nervure, the second submarginal cell broader than the third above and receiving the first recurrent nervure at its middle. Legs moderately stout, black, with the apical tarsal joints usually ferruginous and the basitarsi tinged with that color, clothed with white or yellowish white hair except the reddish tufts on the inner sides of the apices of the tarsal joints and some concolorous bristles on the anterior edge of the hind basitarsi, the hind femora with long hairs forming a scopa which is usually heavily laden with reddish pollen. Anterior coxæ with long, rather heavy, blunt-tipped, hairy spines. Tibial spurs yellowish r reddish yellow, the outer hind ones medially distinctly pectinate with about a

dozen dark teeth but the inner hind ones subsimple under a high lens, the pectination of the former pair easily obvious under a hand lens. Hind basitarsi four times as long as wide ( $40 \times 10$ ). Abdomen with the sides of the first three segments subparallel and the last three forming a conical termination, the apical margins of tergites 1-5 broadly, slightly depressed, the depressed portion smooth and on tergites 1-4 covered with broad, even fasciæ of fine, appressed, ochraceous hair, the fascia on 5 feebly developed or rubbed; the sculpture of tergite 1 is mostly concealed by dense, pale ochraceous hair, which is erect on the basal truncation and sides but appressed discally and which leaves only a narrow, linear, prefascial, dark area of exposed integument, tergites 2 and 3 are basally subfasciate with hairs like those on the disk of 1 but have broader, exposed, prefascial, dark integumentary lines, 4 and 5 are without discal hairs (except a very minute, inconspicuous, pale pilosity which is common to all the exposed integumentary areas of the tergites), 6 is black, rounded and bare except for a few fine, pale, appressed hairs, the sides of tergites 3-6 with sparse, pale, bristle like hairs. Tergite 1 is polished, finely but distinctly punctured, the punctures discally separated three or four times the width of one but becoming closer, about twice the width of one, toward the depressed apical margin; tergite 2 is dullish, finely, closely punctured, the punctures separated about the width of one; the following tergites are finely, indistinctly punctured. Venter slightly shiny, minutely and feebly reticulate and rather finely and sparsely, shallowly punctured, the punctures separated twice the width of one or over, the apical margins of sternites 2-5 narrowly smooth and hyaline, the ventral pubescence very sparse, short, fine and inconspicuous, not forming distinct apical fringes on the sternites.

MALE.—Length, 8.5-9.5 mm. Black, with all of the tarsi and the ends of the tibiæ usually together with the knees, at least the hind knees, and a stripe on the posterior face of the hind tibiæ, clear, bright ferruginous. Head broadly oval, about one-fourth wider than long ( $58 \times 72$ ). Face trapezoidal, narrowed about one-sixth between the vertex and the lower margin of the eyes ( $43:36$ ). Clypeus convex, basally and medially broadly dull, finely, densely and very shallowly punctured, the median dull area flattened and minutely lineolate, laterally and along apical margin shiny, with coarse, mostly separated punctures, the transverse apical margin narrowly depressed and smooth, the whole clypeus normally covered by a copious beard of long, sub-appressed, simple or minutely branched, bright ochraceous hairs, fading to yellowish white in old specimens. Supraclypeus and face below the antennal level finely and densely punctured, the punctures strong and deep on the sides of the face adjacent to the supraclypeus, but elsewhere rather shallow and becoming quite fine and sparse toward the shiny orbital margins, the face above the antennal level rather more coarsely and shallowly punctured and medially carinate, the whole face copiously clothed with erect, finely branched, bright ochreous hair. Facial foveæ as in the ♀ but wholly shiny. Sides of vertex depressed, bare, shiny, finely and closely punctured near orbits but becoming minutely and sparsely punctured toward ocelli, a few coarse, round punctures on the closely punctured portion. Cheeks shining, sparsely and indistinctly punctured, the punctures tending to a linear arrangement, the sculpture covered by short, simple or minutely branched, pale ochreous hair, erect inferiorly and posteriorly but sub-appressed along orbits above. Malar space dullish, finely striate, one-fourth as long as wide ( $3 \times 12$ ). Antennæ black or blackish with the flagellum bright ferruginous beneath beyond the third antennal joint, the scape finely, shallowly punctured and finely haired,

joint 4 very distinctly shorter than 2+3 (subequal in *aberrans*, *wilmattæ* and *susannæ*), not greatly exceeding 3, the proportion of joints 2-5 being as 4:5:6.5:8, the median flagellar joints one and one-fourth times as long as wide ( $8 \times 6$ ). Prothoracic spine short, sharp and triangular, much weaker than in the ♀ and entirely concealed by the pubescence. Mesoscutum uniformly clothed with rather dense, erect, long-branched, fulvo-ochraceous hairs, longer than in the ♀ and not nearly so dense, not at all suggesting a squamous condition, the mesoscutellum and metanotum with similar but longer pubescence. Mesoscutum shiny, bearing coarse, round, deep punctures separated about the width of one anteriorly and laterally but which become separated more than the width of one toward a small, polished, very sparsely punctured area on posterior disk, the parapsidal furrows bounded by impunctate lines. Mesoscutellum with the anterior one-third polished and impunctate, the posterior two-thirds mostly very coarsely, closely punctured, the metanotum feebly shiny and densely, shallowly punctured. Propodeum sculptured about as in the ♀, the pits on the superior face being usually very regular and the secondary row of pits on the enclosure not or but very slightly developed, making the enclosure wholly smooth and shining except for a very short, basal, median carina. Mesopleura sculptured as in the ♀ but the discal punctures less coarse, deeper and more separated, copiously clothed with erect, finely branched, ochreous hair. Tegulae and wings as in the ♀. Legs slender, black varied with ferruginous as described, thinly clothed with yellowish hair, most copious on the femora, the hind basitarsi five times as long as wide ( $30 \times 6$ ), the intermediate hind tarsal joints two and one-half times as long as wide ( $II = 13 \times 5$ ). Anterior coxae not obviously spined. Tibial spurs yellow, the outer hind one minutely pectinate under a high lens but both simple under a hand lens. Tarsal claws dark red, equally cleft at apex. Abdomen broadly oval, tergite 1 with copious, simple, ochraceous hairs, short and erect on the basal truncation but becoming longer and sub-appressed discally, laterally with dense, short, appressed fringes, the apical margins of tergites 1-6 narrowly depressed, this depressed area smooth and subtestaceous and covered with dense, narrow fasciae of pale ochraceous hair (fading to yellowish gray in old specimens), the interfascial spaces with a minute, very sparse, appressed pale pile supplemented on tergites 3-6 with sparse, long, bristle-like, yellowish hairs, both together not obscuring the integument. Apex conical, its tip broadly truncate and slightly but distinctly bilobed. Tergite 1 shiny, with fine, round, distinct and rather strong punctures, subuniformly separated once or twice the width of one, tergite 2 dullish, finely, closely and weakly punctured, the punctures separated about the width of one, following tergites finely, sparsely, indistinctly punctured. Venter minutely reticulated and sparsely, indistinctly punctured, finely, sparsely short-haired, the apical margins of the sternites narrowly whitish testaceous, wider medially, and with thin fringes of short, pale ochreous hairs, the apical sternite slightly elevated medially and this narrowing to form a weak subcarina toward the apical margin, on either side of which the plate is shallowly depressed.

GENITALIA.—Stipites notched, the apex long, curved, digitate, copiously provided with long, externally very feebly plumose, bristle like hairs, the central joint with a large, concave, internal area which is moderately hairy marginally with finely plumose hairs. Sagittæ swollen basally, and this swollen portion widest medially, but not distinctly overlapping the apex of the basal stipital joint (as in *aberrans*); beyond this swollen middle the sagittal rods are abruptly narrowed and converge until they meet, after which they continue in a gently diverging curve and are externally expanded into



long, regular, oblong, membranous wings (much as in *wilmattæ*). Volsella large, slightly less than one-half as long as that portion of the sagittal rods distad of the volsellar base. Seventh ventral plate with the lobes large and approximate, contiguous apically, roughly quadrate, both the internal and external margins recurved, the internal costæ heavily haired and the basal one-half of the lobes heavily haired, but the apical one-half hyaline and thinly long-haired, the apical margin finely short-haired.

TYPE LOCALITY.—Southern Pines, Moore County, North Carolina.

TYPE.—A female collected on *Petalostemum corymbosum*, September 8, 1909, by A. H. Manee. In the collection of M. H. Swenk.

ALLOTYPE.—A male collected with the type. In the collection of M. H. Swenk.

GEOGRAPHICAL DISTRIBUTION.—Known only from the type locality, but probably following its pollen-supplying plant, *Petalostemum corymbosum*, south and west in the Austroriparian faunal area to Florida and Mississippi.

This handsome species is a fourth oligotrope on the flowers of *Petalostemum*, visiting the southeastern *P. corymbosum* Michx. The bee resembles *C. aberrans* in general aspect, but the strong prothoracic spine, normal though very dense mesoscutal hair, longer malar space and bright fulvo-ochraceous pubescence easily distinguish it from that species, while from *C. wilmattæ* and *C. susannæ* the dark legs and fulvo-ochraceous pubescence, respectively, give it a very distinct appearance. It shows relationship to the *C. americanus* group, especially in the male genitalia, and seems to represent an intermediate condition between that species and the preceding *Petalostemum* visitors. Mr. Manee says these bees appear in September at the *Petalostemum* flowers, and his dates run from September 3 to 23, with most of the specimens collected September 7 and 8. Both sexes visit the flowers for nectar and the females have their scopæ laden with the pollen. The measurements in the description are of the type and allotype.

*C. howardi* ♂ agrees with F. Smith's description of *C. mandibularis*, described from Georgia, and with Cockerell's notes on the type in the British Museum, but is considerably too large for that species (*mandibularis* is only 6 mm. long); they must be closely related, however.

#### SPECIMENS EXAMINED

Total number 37 (28 ♀, 9 ♂) from locality as follows.

NORTH CAROLINA: Southern Pines, 37.

