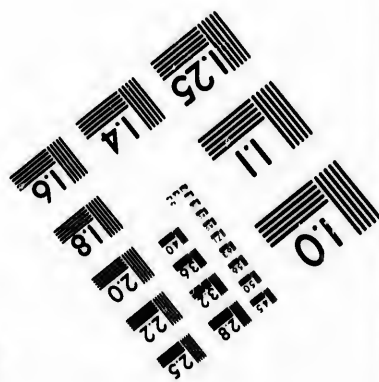
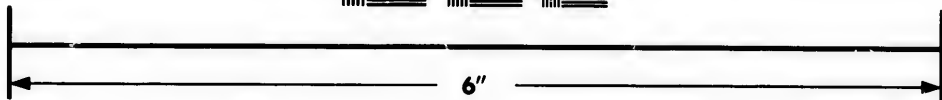
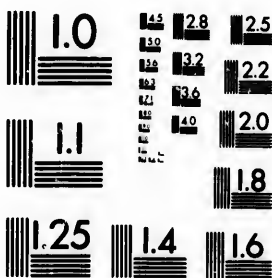


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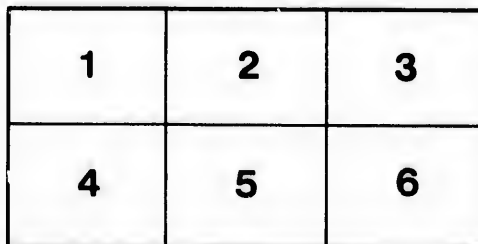
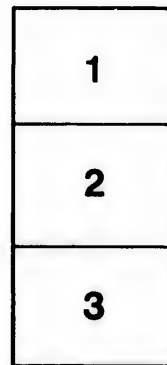
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EDM B. WILSON,
BRYN MAWR,
PENNA.

[FROM THE TRANSACTIONS OF THE CONN. ACADEMY. VOL. IV. MARCH, 1882.]

THE
NORTH AMERICAN SPECIES OF CONOPS.

By S. W. WILLISTON.

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THE NORTH AMERICAN SPECIES OF CONOPS.

By S. W. WILLISTON.

Of the fourteen species of *Conops* recorded in Baron Osten-Sacken's valuable catalogue of North American Diptera, but four are designated by the author as having been recognized, viz: *excisus* Wied., *genualis* Loew, *pictus* Fab., and *sagittarius* Say. As to the last, it is, however, most probable that the species really recognized was *tibialis* Say, our most common one, and which had been confounded by both Wiedemann and Loew, and re-described by both as *nigricornis* Wied., the real *sagittarius* being possibly described anew as *genualis* Loew, which I believe to be its synonym. *C. pictus* is unknown to me; its recognition must depend upon that of its synonym, *Rumoldi* Bigot (teste Loew, vide Osten-Sacken's Catalogue), as the original description of Fabricius is wholly insufficient. In the present paper all of the recognizable descriptions, whose habitats are creditably referred to North America, have been determined with sufficient certainty, except *genualis* Lw., and *castanopterus* Lw., both of which I believe to be of doubtful value. *C. othiops* Walker has been recognized with as much certainty as most of the descriptions of that author will admit of, while none of Macquart's very insufficiently described species have been recognized, nor the South American species identified by him as also pertaining to North America. ?*Conops quadrimaculatus* Ashmead, is a syrphid, probably a *Bacha*.

The material herein described has been wholly derived from Mr. Burgess, to whom my sincerest thanks are due, and my own collections. Although by no means so large as I desired, it is, I trust, sufficient to remove many of the obstacles to the future study of our species. The indiscriminate description of new species, without a considerable knowledge of allied species, is here especially to be deprecated; and, owing to the great individual variation of color, and the paucity of plastic characters, large collections will be essential, eventually, to a complete and satisfactory knowledge.

My knowledge of such variations I have endeavored to supplement by the study of the descriptions of foreign species, and I deem it worth the while to here give a translation of Dr. Loew's very pertinent remarks upon the value of the specific characters in this genus.

"Those specific characters have the greatest weight here, as elsewhere, that are based upon the differences in form; such are not always easy to find, yet the shape of the antennæ and antennal style, the structure of the face, the length of the proboscis, the structure of the abdomen and of the legs, and finally the neurulation offers many good characters. Next in value to these characters are those derived from the yellow or white shimmering markings of the dorsum of the thorax, the pleuræ and the metanotum; so, also, from the form and boundaries of the coloration of the wings, when such is present. The presence or absence of yellow spots on the sides of the metanotum, and the color of the scutellum are also good characters. Finally, the color of the front is quite useful, when cautiously employed, as it is rather changeable in many species. Much less dependence is to be placed upon the characters derived from the dust-markings of the abdomen; least of all upon the coloring of the body in those species that are black and reddish brown, as sometimes they may be quite black, sometimes reddish brown, with more or less black, or sometimes indeed quite ferruginous." (*Neue Beitr.*, i, p. 26.)

The following table of the American genera of *Conopidae*, adapted from Schmer, with the aid of a considerable number of our own species, will be of service to many:

Third antennal joint with a terminal style; ocelli wanting.	<i>Conops</i> Linn.
Third antennal joint with a dorsal, or sub-dorsal bristle:	
Proboscis bent only at the base.	<i>Zodion</i> Lat.
Proboscis bent at base and near the middle, the anterior part closely folding back:	
Anal cell. short, obtuse:	
Bristle of antennæ dorsal, proboscis not of unusual length.	<i>Dalmanita</i> Roh. [Des.
Bristle of antennæ near the end of third joint (sub-dorsal), proboscis very long, abdomen cylindrical.	<i>Stylogaster</i> Mac.
Anal cell, extending well toward the border of the wing, acute:	
Face much produced, inferiorly, the cheeks broader than the vertical diameter of the eyes, abdomen depressed, short.	<i>Myopa</i> Fab.
Face moderately produced inferiorly, cheeks not broader than the vertical diameter of the eyes; abdomen mostly cylindrical and moderately long.	<i>Oncomyia</i> [Roh. Des.

Schiner has divided the genus *Cnecops*, upon what appears to me insufficient grounds.* I have retained all our American species under the genus in its wider sense.

In the following table I have not attempted to include the species of Macquart, nor his identifications. I have added the original descriptions at the close of the article, although there is very little possibility of their ever being recognized. *C. pictus* F. is also not included in the table, but its description is given:

A.—Small cross-vein nearly opposite or before the tip of the costal vein and near the middle of the discal cell. **a.**

B.—Small cross-vein beyond the tip of costal vein and near the outer third of discal cell; third joint of antennæ much shorter than the second. **e.**

a.—Third joint of antennæ much shorter than the second. Face and cheeks yellow; facial grooves not darkened; front wholly black; wings brownish before, subhyaline behind, picture indistinct.

obscuripennis, n. sp.

—Third joint of antennæ nearly or quite as long as second, brown of anterior portion of wings with distinct outlines. **b.**

b.—Attenuated portion of antennal style very short, head comparatively narrow, proboscis very short, a hyaline crossband before the tip of the wing. Shining black, dust grayish, front blackish or black.

sylvrosus, n. sp.

—Attenuated portion of style quite long; proboscis considerably longer than the head; the brown reaches the whole length of the wing. **c.**

c.—Stripe of dust on upper half of pleura indistinct or without distinct borders. Front black, cheeks brown behind; proboscis about once and a half the length of head. (Dark colored species.)

bulbirostris Lw.

—Stripe of dust on upper half of pleura as sharply defined as on the under half. **d.**

d.—Proboscis twice the length of head, stripe on upper half of pleura narrow. Dust on the sides of mentanotum much narrowed toward the disk; front mostly red, darkest above base of antennæ. (Reddish species.)

cecisus Wied.

—Proboscis scarcely once and a half the length of head, much swollen at the base; pleural stripe broad above. Dust broadly

* Schiner's characters are as follows:

Schenkel nicht verdickt, wenn sie aber verdickt sind, dann ist die Verdickung an der Basis nicht auffallend, sondern von da bis zur Spitze ein regelmässige; zweiter Hinterleibsring nicht auffallend schmaler und länger als die übrigen Ringe.—*Cnecops* Lin.

Schenkel an der Basis plötzlich und in auffallender Weise verdickt, so dass die Verdickung immer unregelmässig erscheint; zweiter Hinterleibsring auffallend schmaler und länger als die übrigen Ringe.

Physocyphala Sch.

covering the sides of metanotum; front mostly yellow; face, cheeks, and under part of occiput yellow; facial grooves with a black spot on each side of middle.

south pacificus, n. sp.

e.—The brown of the wings fills out the discal cell to beyond the great cross-vein.

f.

—Outer portion of discal cell from near the small cross-vein distinctly lighter or hyaline.

g.

f.—Cheeks uniformly black; dust on the humeri indistinct; posterior orbits with a very narrow whitish line. (Black species.)

tibialis Say.

—“Cheeks brownish yellow; posterior orbit with yellowish brown border; humeri dusted with golden yellow.”

gemulus Lw.

—Cheeks with a yellow spot in the middle, brown in front and behind; humeri with distinct yellow dust.

sagittarius Say.

castanopterus Lw.

g.—Cheeks uniformly black or brown; basal joint of antennae very short.

h.

—Cheeks with a yellow spot in the middle; first joint of antennae but little or not at all shorter than the third.

i.

h—Front with deep black transverse and median divaricate stripes. (Dark-colored species.)

foreillatus, n. sp.

—Front with very narrow reddish stripes or wholly yellow; dorsum of thorax with a broad, median, posteriorly abbreviated, black stripe. (Reddish species.)

Burgessi, n. sp.

i.—Ultimate segment of fourth vein nearly twice as long as the penultimate; dorsum of thorax with a narrow, median, black stripe. (Reddish species.)

teanus, n. sp.

—Ultimate segment of fourth vein but little or not at all longer than penultimate.

k.

k.—Facial grooves and frontal stripes black. (Dark-colored species.)

marginatus Say.

—Facial grooves but little or not at all darkened; frontal stripes nearly or quite obsolete; dorsum of thorax with three black stripes, narrowly separated or confluent, the median one more abbreviated behind.

affinis, n. sp.

Conops obscuripennis, n. sp.

♂. Face and cheeks yellow, facial grooves not darkened; near the orbits a rather broad, glistening, yellow border, extending as a line to the vertex. Proboscis nearly black, about as long as the antennae, much swollen at the base. Antennae nearly black, first and third joints reddish below, of nearly equal length, scarcely more than one-half as long as second joint; second joint of style moderately projecting; third joint gradually tapering, of medium length. Front wholly black; with a coppery luster, when viewed obliquely. Occiput black, with a rather narrow golden yellow border along the orbit. Thorax black; spots on the inner sides of the humeri, the

upper border of the disk of the metanotum, and large spots in front of the halteres nearly golden yellow, a small spot below each humerus, and one above the root of the wing, less distinct, of the same color. Upper portion of pleural stripe not distinctly defined. Abdomen black, second segment mostly brownish, its tip, and beginning of the third, pure yellow; first and second segments narrowly, or indistinctly, dusted; third, fourth and fifth with moderately broad yellow hind borders; sixth segment covered on the end with yellowish dust. Legs brown or black; base and tips of femora and basal portions of tibiae, yellow. Coxae and anterior tibiae on their outer portions with a more golden satiny luster. Wings darker before the third longitudinal vein, sub-hyaline behind; the darker portion nowhere with distinct outlines, a little clearer nearer the humeral cross-vein; slightly darker, narrow clouds before the fifth and sixth veins. Posterior cross-vein at right angles. Long. corp., 8–10^{mm}. Five specimens, Va. (Davis); S. Ca., Ga. (Morrison); Mass. (Burgess).

Conops sylvosus, n. sp.

♂. Face obscure white, or yellow, with a broad border of silvery dust near the orbit, extending, obliquely narrowed, to near the vertex; facial grooves not darkened. Checks like the face, oral border sharp. Front obscurely, or quite black, extending down on the sides of the base of the antennae. Vertical callosity black, or reddish-black, flattened, extending far forward. Antennae black, red on the under sides, third joint as long as second, first joint more than half as long. Second joint of style projecting very little, third joint rather short, with a very brief bristle-like end. Proboscis brownish black, scarcely as long as the two last joints of the antennae. Occiput black; orbits, except on the upper part bordered with yellowish dust. Thorax black, shining; inner sides of humeri, disk and sides of metanotum, faintly dusted with white. Abdomen black, shining; sides of the second segment more or less red. All the segments, except the sixth, with nearly uniform, rather narrow, yellowish white hind borders; fifth, and especially the sixth, dusted with whitish. Legs black; coxae, particularly the first pair in front, and a small spot near the tip of each of the anterior tibiae, with satiny white luster. Extreme base and tips of femora, red or yellow; basal three-fifths of anterior, and two-fifths of hind tibiae, light yellow; distal portions and tarsi, reddish brown. Wings light brown and pure hyaline, costal cell scarcely lighter; the brown is limited by the third longitudinal

vein as far as the small cross-vein; then by the fourth longitudinal to the great cross-vein, beyond which is a hyaline cross-band reaching the costal margin, excepting sometimes a faint, narrow cloud along the third vein. A brown spot in the end of the submarginal cell that extends a short distance on the posterior side of the third vein; great cross-vein and the anterior side of the fifth vein from near the small cross-vein, with brownish clouds. Great cross-vein not at all oblique. Long. corp., 9–11^{mm}; Long. al., 6–7½^{mm}. Three specimens. On underbrush, Mass., July 1; Conn., June 25. New England (Sanborn); Burgess' col.

The hairs on the vertex, dorsum of thorax and sides of first abdominal segment, are longer and more abundant than in any other species known to me. Its parasitic habits will probably be found to be quite different from any of the following.

***Conops excisus* Wied.**

Aus. Zw. ii, 234. Lw., Neue Beitr., i, 28.

- ♂. Face yellow, the orbits with a rather broad glistening border of yellowish white, extending as a narrow line nearly to the vertex; facial grooves not darkened; cheeks more reddish. Proboscis about twice the length of the head; reddish brown; at base and tip black. Antennae red or reddish brown, more or less black near the end of the third joint; first joint more than half as long as second, second and third of equal length; second joint of style with a very inconspicuous process; third joint at the base not very broad, and soon attenuated into a long, bristle-like point. Vertex red or reddish brown; front mostly filled out with dark, reddish brown, blackish above the base of the antennae. Occiput brown, orbits with a line of yellowish dust, broader above and extending across below the vertex. Thorax black; humeri, scutellum, and the upper parts of the sides of the metanotum, red. The lateral borders of dorsum may be of the same color. Humeri on their inner sides and extending outwards along their hind border; a small spot in front below; another in front of the roots of the wings above; narrow pleural stripes, distinctly margined above; upper margin of the metanotum; and a large spot in front of each halter, bright golden yellow. Smaller spots on the sides of the disk of the metanotum and just back of the root of the wings, more grayish yellow. Abdomen chiefly black; second segment on its sides or almost wholly, red; the three or four following segments with only the hind border, red, or also with large

spots on the sides. Hind borders of the segments with bright golden yellow bands, broad on the second, narrower on the third and fourth, and broad again on the fifth; sixth segment behind, similarly colored. Anterior parts of second, fifth, and sixth segments more grayish dusted. Legs red; base of tibiae yellow, anterior pairs on the outside with white luster; tarsi brownish black, first joint reddish black. Wings rather dark brown and hyaline, distinctly clearer before the first longitudinal vein. From the small cross-vein the discal cell, except a dark brown cloud before the fifth vein, is nearly hyaline, limited in front by a very clear streak between the fourth vein and a sort of spurious vein, extending between the anterior ends of the small cross-vein nearly to the posterior; last segment of the fourth vein with a rather narrow clearer space in front. Sixth vein with a dark brown cloud. Long. corp., 13–16^{mm}. Long. al., 10–11^{mm}. Ga., Flor., N. Carolina (Morrison).

The female, according to Loew, has an unusually large process on the underside of the fifth segment. The red color on the sides of the segments is not a sexual marking.

Conops bulbirostris Loew.

Neue Beitr., i. p. 30.

Very closely allied to the foregoing, yet evidently distinct. A single female specimen was described by Loew which agrees nearly perfectly with two male specimens before me, from Carolina and Georgia. (Burgess' collection.)

The second joint of the antennae is proportionately a little longer, but I can see no difference in the length of the terminal joint of the style; the proboscis, however, is distinctly shorter, and at its base more swollen. The second segment of the male abdomen, in my specimens, at least, is narrower.

♂. Front wholly and quite black, vertex a more brownish black, face yellow, cheeks brown, the brown not reaching far forward. Antennae black, somewhat reddish on the undersides of the first and third joints. Thorax and abdomen black throughout. The grayish or grayish yellow, and much less distinct dust markings of the head and thorax are quite as in *excisus*, except that the spot on the side of the dorsum of the thorax, before the root of the wing, is less distinct, the dust on the disk of the metanotum broader and less sharply defined, and the pleural stripe is indistinct or diffused on the upper half. The third and fifth segments of the abdomen have rather narrow, the

fourth very narrow, gray or slightly yellowish hind borders; sixth segment, on the end, thickly dusted with gray, yellowish at the tip. Legs reddish brown (or "brownish black," Loew), marked quite as in *excisus*. Color of wings rather darker than in *excisus*, especially before the first vein; the first and second basal cells near the fourth vein are lighter or with hyaline streaks; otherwise scarcely at all different. "Of the size of medium specimens, and the shape fully as in *excisus*" (13-14^{mm}), Loew. The specimens before me measure 16-17^{mm}.

An additional female specimen from Georgia has the antennæ and proboscis nearly as in *excisus*, but its coloration and markings similar to *bulbivox*; the process of the fifth abdominal segment, below, is of extraordinary size. It measures but 9^{mm}. I believe it to be distinct.

Conops xanthopareus, n. sp.

♂ ♀. Face and cheeks yellow, with glistening dust near the orbits, extending narrowly upon the sides of the front. Facial grooves with a black spot on each side of the median prominence; proboscis reddish brown, black at the ends; base much swollen, scarcely once and a half the length of the head. Antennæ reddish brown, considerably blackened at the end of the third joint; first joint more than half as long as second; second and third of equal length; process of second joint of style small, but more projecting than in the two preceding; third joint moderately long, the attenuated portion scarcely as long as its basal portion. Front and vertex yellow, brownish above the base of the antennæ. Occiput brown, its under part pure yellow. Posterior orbits with borders of grayish yellow dust. Thorax black, humeri and more or less of the scutellum red. A spot on the inner side of each humerus, a small spot below; broad pleural stripes, distinctly limited above; upper border of disk of metanotum, extending broadly on its sides, golden or grayish yellow. Abdomen mostly black, sometimes quite reddish upon the sides, especially of the second segment; the four anterior segments rather broadly bordered with golden or grayish yellow, nearly the whole upper surface of the fifth and sixth segments thickly dusted with the same; process of the fifth segment of the female rather small below. Legs red, basal half of tibiæ yellow. Coxæ and outer distal part of anterior tibiæ with silvery luster; tarsi brownish black, last four joints, quite black. Wings brown in front, subhyaline be-

hind, a stripe in the first basal cell, and the base of the anal cell, pure hyaline. The subhyaline fills out a larger part of the discal and first posterior cells; the stripes along the fifth and sixth veins not so well marked as in *eccisus*, otherwise similar. Long. corp., 11–12^{mm}, long. al., 10^{mm}. Four specimens, Texas (Belgrave); Mass., Conn.

Two additional male specimens from Connecticut, differ in their much deeper black, the legs in part, the antennae almost wholly so, the spot above the base of the antennae larger, the humeri and scutellum scarcely reddened, and the dust markings throughout are more gray.

Conops tibialis Say.

Journal Acad. Phil., vi. 171.

C. nigricornis Wied., Aus. Zw. Ins., ii. 236, 4. Loew, Neue Beitr., i. p. 31.

♂ ♀. Face waxy yellow; cheeks black, with a narrow silvery line near the orbit; facial grooves deep black. Proboscis black, considerably swollen at the base. Antennae black; the under sides of the first and third joints somewhat reddish brown; first and third joints of nearly equal length, scarcely half as long as the second; process of second joint of style only moderately projecting; third joint conic, rather short. Vertical callosity nearly black, rather shining, bordered in front by a black, opaque, transverse stripe, continued as a median stripe to near the base of the antennae, where it divaricates Δ -like on to the sides of the face. Occiput black, dusted with whitish, above posterior orbits with a narrow white line. Thorax deep black, with whitish bloom when viewed obliquely; humeri usually concolorous, sometimes slightly tinged with red, faintly or not at all dusted with white above; sides of metanotum inconspicuously dusted with white. Abdomen black, first and second segments with broader, remaining segments with narrower, posterior yellowish white borders, fourth, fifth, and sixth with white dust above, becoming most abundant on the sixth. Legs black, coxae with satiny white luster; trochanters, base and extreme tips of femora, yellowish red; basal halves of tibiae yellow, distal portions reddish brown; anterior pairs, on their outer distal portions with satiny white luster. Tarsi: anterior pairs reddish, becoming black at tips, hind pair mostly black. Anterior half of the wings dark brown, before the first longitudinal vein not much clearer; the brown accompanies the fifth longitudinal vein nearly to the border of the wing, then follows

parallel to the great cross-vein till it reaches the last segment of the fourth, which it accompanies to near the tip, and then borders the last segment of the third longitudinal in the second posterior cell; sixth longitudinal vein with a dark brown stripe in front. Posterior cross-vein but slightly oblique; third and fourth longitudinal veins distinctly angulated at the tips of the small cross-vein. Long. corp., 11–13^{mm}. Long. al., 9–10^{mm}. Thirty specimens. Indiana (Say); Mass., Conn., D. C., Va., N. C.

Our most common eastern species, and very uniform in its markings. Of the synonymy, there can be no doubt. Loew's description of the first and third joints of the antennae being about *one-third* as long as the second, I can attribute only to an error, as in neither this nor *sagittarius* is the discrepancy nearly so great. The differences between *tibialis* and *sagittarius* are such that Wiedemann's supposition of the synonymy, drawn from Say's brief description, is quite excusable and fully accounts for his doubts in giving a new name. The description of *tibialis* by Say appeared but a short time previous to Wiedemann's second volume of his *Zweiflügelige Insecten*, and was also apparently overlooked by Loew. The two species are most readily separated by the color of the cheeks, a character which I have found of excellent value in all the specimens of the genus examined by me.

Two female specimens from Georgia (Morrison), and Texas (Bel-fragé), in Mr. Burgess' collection, differ in their much larger size (16^{mm}), and deeper black color throughout, yet they are evidently the same.

Conops sagittarius Say (*non* Wied., Loew).

Journ. Acad. Phil., iii, 83, 2.

? *C. genualis* Loew, Neue Beitr., i, p. 32.

? *C. castanopterus* Loew. loc. cit.

♂ ♀. Face waxy yellow; cheeks behind and a transverse spot in front, reddish brown, or brownish black, enclosing a quadrate yellow space; a white line near the orbits, not extending higher than the antennae. Facial grooves black, lighter in the median line. Proboscis reddish brown, black at the end, considerably swollen at the base. Antennae red, or reddish brown, deeper on the upper sides of the joints, first and third joints of nearly equal length, scarcely half as long as the second; process of second joint of style a little more prominent, and third joint more acuminate than in *tibialis*. Vertex varying from red to brownish black, bordered in

front by a black, opaque, transverse stripe, continued as a median stripe to its divarication, near the base of the antennae. Occiput black, dusted with white, posterior orbit with a moderately broad yellowish white line. Thorax black, with whitish bloom, scutellum wholly or in part red; humeri red or reddish yellow, with a very conspicuous spot of golden yellow dust above, continued on their inner sides, and less conspicuously behind; the narrow, and on the upper half indistinctly limited oblique stripes of the pleure, upper border of the disk of the metanotum and large spots on the sides with yellowish gray dust. Abdomen black, more or less red near the tip of second segment: first segment with white, end of second with yellowish dust; hind borders of third, fourth, and fifth segments conspicuously golden yellow, broadest on the fourth; fourth, fifth and sixth segments conspicuously dusted with white or yellowish. Legs red or reddish brown, often quite black on basal half of femora, behind; basal halves of tibiae yellow, anterior pairs in their distal portions with a satiny white luster, like the coxae; tarsi black near the tips. Anterior half of wings brown, the markings quite as in *tibialis*, a small subhyaline space more frequent in the first posterior cell. Long. corp., 11–13^{mm}. Long. al., 8–10^{mm}. Seven specimens, Penn. (Say). Mass. Com.; N. Carolina (Morrison).

Loew's description of *genualis* agrees very well, throughout, except that the cheeks are *brownish yellow*. *C. castanopterus* agrees in some respects even better. I give here careful translations of both descriptions, as they are rather inaccessible.

Conops genualis Loew.

Nene Beitr., etc., i, p. 32.

♂ ♀ "Face yellow; facial grooves black, the cheeks brownish yellow, without luster except on the under half of the orbit, where there is a white line. Front on the sides yellow with a narrow median black line, bifurcous above the antennae and passing as a black line upon each side of the face. Vertical callosity yellowish brown, bordered in front by a narrow black transverse band. Occiput blackish brown, posterior orbit with a border of yellowish brown dust, below yellow. Antennae dark brown, below nearly ferruginous: first joint about half as long as the second; the third at the end attenuated; second joint of the style moderately large, strongly projecting, the third short. Thorax black, humeri and scutellum blackish brown, the former with nearly golden yellow

dust above which extends inwards on the front border of the thorax and behind nearly to the roots of the wings; pleuræ with an indistinct white stripe; metanotum above and the two spots on the sides with grayish yellow dust. Abdomen quite black, the first and second segments with rather narrow bands of yellowish dust; on the third segment only a finely yellowish dusted posterior line; the fourth and fifth segments of the male abdomen with a similarly dusted somewhat broader posterior border; the fifth segment with a very narrow posterior line; the last two segments in both sexes with yellow dust. The extension of the fifth segment below in the female as in [*tibialis*], but the last segment somewhat shorter. The coloration of the wing and the venation wholly as in my specimen of [*tibialis*]. Length of body as in [*tibialis*]."

C. castanopterus Loew.

Neue Beitr., i. 33.

"A third species further removed from [*tibialis*] but more nearly related to *gemialis*. It is most readily distinguished by the more blackish brown color of the anterior part of the wings, which is distinctly clearer before the first longitudinal vein, by the ferruginous color of the humeri, the lateral margins of the thorax, the scutellum, and a larger or smaller, sometimes a very large part of the abdominal segments and the legs. The third joint of the antennæ is at the end yet more attenuated; on the cheeks a large yellow spot lies between the brown. In all else quite as in *gemialis*. Georgia, Carolina."

Conops furcillatus, n. sp.

? *C. æthiops* Wlk., List., etc., iii. 671.

♂. Face waxy yellow, facial grooves not darkened, cheeks black. Proboscis black, not much swollen at the base. Vertical callosity black, bordered in front with opaque black, extending as a median stripe to the antennæ and there divaricating and passing as a black line upon each side of the face. Antennæ brownish black, first and third joints more reddish below, first joint very short, scarcely a third as long as second, third joint about half as long; third joint of style short, conical. Occiput black, broadly dusted with whitish below the vertex. Dorsum of thorax black, more or less reddened near the borders; humeri with a spot of yellowish white dust on their

inner sides. Scutellum more or less reddish, the usual spots on the metanotum indistinctly dusted. Pleurae chiefly reddish, especially along the sutures, the disks of the segments sometimes mostly blackish. Abdomen black, the second segment, on its sides, and sometimes the beginning of the third, reddish brown; first segment with distinct, second with broader, especially on the sides, third and fourth with moderately broad, fifth with narrower borders of grayish yellow dust; posterior part of fourth, with the fifth and sixth distinctly whitened above. Legs reddish or reddish brown; fore and hind coxae darker, with satiny luster; femora sometimes darker toward the base, basal halves of all the tibiae yellow, tips of all the tarsi dark brown or black. Wings brown on the anterior half, lighter before the first longitudinal vein; from a little before the small cross-vein the discal cell is hyaline, excepting a narrow dark cloud before the fourth longitudinal vein, reaching nearly or quite to the great cross-vein; on the anterior side of the fourth vein an oval longitudinal space in the first posterior cell, reaching nearly the whole length of the segment of the vein, a lighter spot in the outer part of the submarginal cell, near the margin. Petiole of the first posterior cell about as long as the posterior cross-vein. Long. corp., 10–12^{mm}, long. al., 7–9^{mm}. White Mts. (Patton, Morrison). Three specimens.

The very short first joint of the antennae renders it probable that this is Walker's *athlops*, but his very indefinite description of the front and wings prevents me from feeling at all sure of it.

Conops Burgessii, n. sp.

♀. Face and front yellow, vertex concolorous or reddish, when the latter, with a more or less faint narrow median stripe, scarcely reaching the base of the antennae. Facial grooves not distinctly darkened, cheeks red. Proboscis brownish red, black at tip. Antennae red; first joint very short, scarcely a third the length of second; third joint a little more than half as long as second, rather symmetrically attenuated. Style black, process of second joint small, not conspicuous, third joint not thickened, moderately long, conical. Occiput red, not distinctly dusted. Thorax red; a broad, median, posteriorly abbreviated stripe, spots in front of the humeri and disk of metanotum, except the sides and upper edge, black. No, unless very indistinct, spots of dust near the humeri, nor elsewhere on the thorax. Abdomen red, sometimes somewhat blackish on the sides of the segments, especially of the third; faint spots of dust on the first and near the tip of

second segment, posterior segments very faintly dusted on their upper sides. Process of fifth segment below, in the female, not large. Legs red, anterior coxae blackened in front, without distinct luster. Coloration of wings as in the preceding species, the cloud along the fifth vein in the outer part of discal cell, often quite obsolete, scarcely any along the sixth. Long. corp., 10-11^{mm}, Colorado (Prof. Snow); Mendocino, Cal. (O. T. Baron). 16 specimens.

Conops texanus, n. sp.

♂. Face and front yellow, anterior border of the vertical callosity a little darker, a narrow median stripe, divaricate at base of antennae, brown; facial grooves not darkened. Cheeks with a transverse brown spot in front, continued as a narrow line along the oral border to the brown of the posterior part. Antennae red, a little darker at the tip of third joint, third joint short, hardly as long as first, distinctly less than half the length of second; second joint of style projecting strongly, nearly as far as third, third short, conic. Proboscis red, base and tip blackish. Occiput brownish below, posterior orbit with a yellowish white border, broader above, continued as a narrow line behind the eye, and broader on the sides of the face. Dorsum of thorax, pleurae, and scutellum red, humeri lighter, a narrow median dorsal stripe and triangular spot on the disk of metanotum, black; humeri above, a spot on the inner side and behind, with yellow dust, oblique stripe of the pleurae (diffused on the upper half), upper border of disk and sides of metanotum with fainter, less yellow dust. Abdomen brownish red, with more or less black on upper parts of the segments, first segment distinctly, the others more faintly, dusted. Coxae usually black, satiny luster distinct, but not conspicuous. Legs red, basal halves of tibiae yellow. Wings brown and hyaline; costal cell much lighter, nearly hyaline. Discal cell from before the small cross-vein, except a cloud along the fifth vein, and an oval spot in first posterior cell, nearly hyaline. The penultimate segment of the fourth vein is scarcely three-fifths the length of the ultimate. Long. corp., 16^{mm}, long. al., 10^{mm}. One specimen. Waco, Texas (Belknap, Burgess' col).

Conops marginatus Say.

Journ. Acad. Phil., iii, 82, 1. Comp. W., ii, 73.

♂. Face and front waxy yellow, vertex rather brownish black, with a broad opaque black anterior border, extended as a narrow

median stripe to the base of the antennae, there divaricating and passing to the sides of the face: facial grooves black, cheeks with a yellow space between two black ones. Proboscis black. Antennae black, first and third joints, below, red, of nearly equal length, scarcely half the length of second, third joint quite unsymmetrically attenuated, about half as broad at base as long, second joint of style with a considerably projecting, rather slender process, third joint moderately long, conical. Occiput black, posterior orbits with a narrow silvery line. Thorax black, scutellum red. Humeri above and on the inner sides with silvery white dust, sides of the metanotum and the oblique stripe of the pleurae (indistinct in its upper part) with white dust. Abdomen black, second segment reddened on the sides near the tip, hind borders of all the segments with yellowish dust, rather broadest on the fourth, fifth and sixth lightly dusted with gray above. Legs brownish red, probably often quite blackish, especially near the base of the femur; coxae black with silvery luster. Wings brown on anterior half. Costal cell lighter, outer part of discal cell hyaline, except a narrow cloud along the fifth longitudinal vein: a more or less large spot in first posterior, hyaline, outer part of marginal cell less deeply colored. Sixth longitudinal vein without brown cloud. Long. corp., 10-11^{mm}. Long. al., 6-7^{mm}. Two specimens. White Mts.

Conops affinis, n. sp.

♂ ♀. Front either wholly yellow, or with the vertex rather more reddish, and with a brownish anterior border extending as a narrow median stripe to the base of the antennae and there divaricating. Face yellow, grooves usually quite the same, sometimes a little reddish near the middle. Cheeks with a yellow spot between the brown. Proboscis red, tip black. Antennae yellowish red, third joint more or less infuscated above. The relation of the joints very nearly as in *marginatus*; the process of the second joint of style is, however, broader, and the third joint shorter and thicker. Occiput brown, posterior orbits with a narrow yellowish line. Thorax red, dorsum with a broad, median, opaque black stripe beginning at the neck and extending beyond the transverse suture, either very narrowly separated or confluent on each with a similar one beginning back of the humerus and extending to near the scutellum. Disk of the metanotum, except the edges, black. Humeri above, a spot on the inner side, a faint one behind, with golden yellow, or in lighter colored specimens grayish dust. Oblique stripes of the pleurae and sides of the metanotum very

faintly dusted. Abdomen red, with more or less black, on the dorsum of the third, fourth and anterior part of fifth segments; posterior part of fourth, the fifth and sixth segments, in well preserved specimens, quite conspicuously dusted with golden yellow. Legs red, coxæ mostly, or at least the middle ones in front, black; basal half of tibiæ yellowish. Wings light brown on the anterior half, coloration very nearly as in the preceding, the first posterior cell, sometimes scarcely at all, sometimes for the larger part, nearly hyaline. Long. corp., 10–11^{mm}. Twelve specimens. Kansas Plains; California (Baron); Washington, Ter. (Morrison).

This species is intermediate between *marginatus* and *texanus*, holding the same relation to the former as *Burgessi* does to *forcillatus*. From *texanus* it may be distinguished by its much smaller size and broad thoracic stripes, from *marginatus* by the shape of its antennal style and the strong difference in coloration.

Conops pictus Fab.

According to Loew, who apparently has recognized this species, (Vide O. Sacken's Catalogue, Note 258), *pictus* F. is not *pictus* Wied. but *Ramondi* Bigot is a synonym of the former. Not having seen the species I give here Fabricius' original description, together with Bigot's:

Fab. Ent. Syst. IV, 391, 3. Caput ferrugineum, rostro nigro orbitaque oculorum aurea. Thorax niger antice utrinque puncto calloso, marginali ferrugineo. Lineolæ duæ parvæ marginis antici, lineæ lateralis, scutellum lineaque punctaque duo sub scutello flavis. Abdomen hamosum, ferrugineum segmenti primo et secunda nigris margine flavo. Alæ hyalinae, costa late flava. Pedes ferruginei, apice nigri.

C. Ramondi Bigot, Ramon de la Sagra, 808.

"Niger, capite ferrugineo; oculis brunneis; antennis ferrugineo-brunneis, basi pallidis; haustello ferrugineo, acumine brunneo; facie ferruginea, aureo-nitente; fronte ferrugineo, lineâ media brunnea; orbitis, postice, flavidis; thorace nigro-piceo, antice, lineâ transversali sinuata, interrupta, flava; metathorace postice subtus lineâ lata transversali, flava; pleuris externe auratis; alis hyalinis, antice margina ferruginea; margine magna apicali fusca; abdomine petiolato, segmentis duobus primis nigris, incisuris pallide flavis; omnibus segmentis posterioribus rubescentibus; incisuris superne obscure brun-

neis; pedibus, antice, ferrugineis, postice, pallide auratis; tarsi nigricantibus; pulvillis ferrugineis.—Longit. 23 millim.

“Esta bella especie parece casi idéntica al *C. picta* de Fabr. (*Syst. Nat.*), aunque la descripción que ha dado este autor sea demasiado incompleta para servir á resolver la duda. Por otra parte, nos parece diferir bastante del *C. picta* de Wiedmann (*Aus. Zweiflfig., Ins.*), para autorisarnos á proponerla como nueva. Tal vez así no ofrezca mas que una variedad occidental.”

Conops brachyphynchus Mac., Dipt. Exot., ii. 3, 15, 13.

Long. 5l. ♂. Trompe assez courte, ne dépassant pas le premier article des antennes. Face et front jaunes. Ce dernier brunâtre au milieu. Antennes peu divergentes; premier article testacé; deuxième et troisième noirs, d'égale longueur. Thorax et abdomen noirs; deuxième segment de ce dernier à bord postérieur testacé. Pieds testacés; jambes à base jaune et anneau brun au milieu; tarsi bruns. Balançers testacés. Ailes brunées, bord intérieur brunâtre; première cellule postérieure, discoidale et anale assez claires, nervure terminale de la discoidale oblique. Amérique Septentrionale. M. Bastard.

Conops flaviceps Mac., loc. cit., 15, 14.

Long. 3½ l. ♀. Noir. Face et front jaunes; vertex fauve. Antennes; noirs, massue testacée en-dessous; troisième article court. Thorax à épaules et tache contigue en arrière testacés; cousson et métathorax noirs. Abdomen à pétiole très-muni; premier segment noir; deuxième et partie antérieure du troisième fauves; le reste de ce segment, quatrième et cinquième noirs en-dessus, sixième fauve, à duvet d'un gris jaunâtre pâle, bord postérieure des troisième, quatrième et cinquième à duvet semblable. Pieds fauves; hanches noires, jambes à partie antérieure jaune, les quatre derniers articles des tarsi noirs. Ailes à large bord extérieure brun, terminée carrément, une petite tache brune à l'extrémité. De l'Amérique Septentrionale.

Conops fulvipennis Mac., loc. cit., 13, 10.

Long. 7 l. ♀. Face jaune; partie supérieure de la carene noire, partie inférieure des joues noires. Front fauve à bord des yeux jaune et bord intermédiaire noire. Antennes testacées. Thorax noir, épaule brunes, deux petites taches de duvet jaunâtre en-dessous de ce derniers. Abdomen noir, segments bordes postérieurement de duvet

jaunâtre. Pieds fauves; base des cuisses noires. Ailes: cellule costale d'un jaune pale, un large bord extérieur d'un fauve brunâtre, laissant l'extrémité de la cellule sous-marginale de la première postérieure et de la discoidale, et le bord intérieur hyalin; nervure terminale de la cellule discoidale perpendiculaire à sa base.

Conops analis Fab., Syst. Entom., 175, 3.

Antennae totae atrae. Caput nigrum, ore late flavo, haustello atro, orbita oculorum postica flavo micante. Thorax niger, utrinque lobotmico linea alba, micante impressa. Abdominus petiolus elongatus ater; facia ante apicem flava. Ultimum segmentum macula magna dorsali flava. Alae albo-hyalinae: costa lata nigra. Pedes nigri.

Wied., Aus. Zwei. Ins., ii, p. 237, 5.

Scheitel und Stirn bis zur Fühlerwurzel tief schwarz, wodurch diese Art sich von *costatus* Fabr. leicht unterscheidet, auch ist der Körper überall tiefer schwarz, der obere Rand des Hinterrückens hat nichts Vergoldetes und schimmert kaum an den Seiten ein wenig weisslich messinggelb. An allen Einschnitten des Hinterleibes ist mehr weniger Messinggelbes. Auch die Beine schimmern in gewisser Richtung zum Theil messinggelb. Länge 5 Linien. Aus Südamerika.

C. costatus Fab. Wied., Aus. Zwei. Ins., ii, 238, 6.

Fühlerwurzel goldgelblich, drittes Glied unten ocherbraun; Augenhöhlenränder messinggelb. Untergesicht und Stirn honiggelb; Scheitel mit schwarzer Binde, von deren Mitte eine schwarze Strieme zur Fühlerwurzel absteigt und hier gespalten diese Wurzel umfasst. Rückenschild brännlichschwarz; Schultern vergoldet und neben ihnen nach innen ein vergoldeter Punkt; Seitenränder des Rückenschildes und eine zu den mittleren Hüftgliedern absteigende Strieme vergoldet, auch an dem hintern Rande und den Seiten des Hinterrückens ist etwas Vergoldetes. Das Gelbe an den Rändern der ersten Hinterleibsabschnitte reibt sich entweder leicht ab, oder verschwindet bei schnellem Zusammentrocknen, zuweilen scheint es am zweiten zu fehlen, zuweilen auch sogar am vierten vorhanden; der sechste Abschnitt ist in gewisser Richtung überall gelb. Flügel der Länge nach halb braun, Schwinger gelb, mit schwarzen oder schwarzbraunen Köpfe, Schenkel mehr weniger braun. Länge 5 Linien. Aus Südamerika.

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