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PRELIMINARY DESCRIPTIONS OF  
SEVEN NEW SPECIES OF THE  
DACETINE ANT GENUS  
SMITHISTRUMA Brown

(1950)

BY

William L. Brown, Jr.

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From the Transactions of The American Entomological Society  
LXXVI, 37-45

Issued August 25, 1950

1178.30

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This is a separatum from the TRANSACTIONS and is not a reprint. It bears the original pagination and plate numbers, and library copies were mailed at Philadelphia on the above date of issue.

**PRELIMINARY DESCRIPTIONS OF SEVEN NEW  
SPECIES OF THE DACETINE ANT GENUS  
SMITHISTRUMA Brown**

BY WILLIAM L. BROWN, JR.

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(Plate III)

I have recently completed a manuscript in which the genus *Smithistruma* of the world is revised in its entirety.<sup>1</sup> New species from all parts of the range are described in this manuscript. Unfortunately, it appears that final publication of the full revision will not take place for some time. Meanwhile, Dr. M. R. Smith is awaiting the galley proof on a catalog of the North American ants, and he has requested that I publish several of these names so that they may be included in the catalog. Also, several European specialists have indicated to me that they have new species from the Ethiopian region for which description is planned. At least one of the species, held by Sr. Mario Consani, is, I believe, scarcely differentiable from *Sm. truncatidens*, a new species described below. Sr. Consani has indicated that he will wait until my description of *truncatidens* appears before describing his closely related form. Therefore, I am setting forth abbreviated descriptions of five new species from the United States and two from the Ethiopian region. In addition, I have given a key to the known Ethiopian species of the genus in order to facilitate identification in that formerly confused fauna.

*North American Species*

**Smithistruma (Smithistruma) filirrhina** new species

HOLOTYPE WORKER.—Total length (TL) 2.17 mm., head length (HL) 0.56 mm., length of alitrunk (WL) 0.55 mm., cephalic index (CI) 69, mandibulo-cephalic index (MI) 22.<sup>2</sup> Very similar in form of head and

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<sup>1</sup> Thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Biology, Harvard University.

<sup>2</sup> All measurements and indices are followed by symbols in parentheses; these symbols indicate that the values given are strictly comparable to those I have set forth in previous papers on the tribe Dacetini. See Part I of the Revision in Mushi, XX, p. 2 (1949). A fuller treatment of measurements and proportions will be given in the section of the Revision to be published as soon as possible.

in other ways to *Sm. bimarginata* L. and R. Wesson. The clypeus, as in the latter species, is strongly bimarginate along the free border. Disc of the clypeus concave or shallowly transversely sulcate, shining, with a few minute piligerous tubercles mostly restricted to a narrow belt just inside of and following the cultrate dorsal margin of the free clypeal border. The groove between upper and lower margins is filled with a hard black substance, quite conspicuous, which may represent foreign material. Clypeal hairs mostly concentrated along free border, very fine and filiform, their apices appearing not to be enlarged at magnifications of 85X. More of the hairs are concentrated toward the anterior part of the clypeal disc than elsewhere, and most are curved more or less away from the midline. On the posterior half of the disc, inside each lateral corner, there arises a very long, weak and crooked, but perpendicularly erect flagelliform hair. Of this long pair, that on the left side is as long or nearly as long as the clypeal disc itself, while the one on the right side is somewhat shorter and has apparently been broken off just above the middle of its length. On each side, in the general region of the two very long hairs, there are two or three shorter, but still flagelliform, erect hairs with gently posterolaterally curved apices. Pilosity of upper dorsum of head much as in *Sm. laevinasis*, finely filiform and subreclinately arched toward the midline. A pair of long, fine flagellate hairs on the occiput and a single flagellate hair on each lateral occipital border. Other body hairs very fine, much as in other *Smithistruma*.

Mandibles not dissected, but dentition rather distinct even at full closure; basal lamella acute and tooth-like, mostly visible in front of clypeal border; diastema following large and distinct, at least as long as the length of the basal lamella. Dentition and structure much as in *bimarginata* as far as can be determined by direct comparison.

Color medium ferruginous, basal gastric tergite feebly infuscated.

Holotype, a unique, taken in a Berlese funnel sample of pineholly leaf mould at Williamston, North Carolina (D. L. Wray) on Dec. 17, 1946. To be deposited in the United States National Museum.

This species belongs to the *bimarginata* group. It may be distinguished from *bimarginata* by the much finer and otherwise different pilosity of the clypeus and verticoccpit. From the members of the *clypeata* group, some of which show slight clypeal bimargination, it may be distinguished by the very sparse and differently formed clypeal pilosity and by the large and prominent mandibular diastemata.

**Smithistruma (Smithistruma) wrayi** new species (Plate III, fig. 5.)

HOLOTYPE WORKER.—Total length (TL) 2.02 mm., head length (HL) 0.53 mm., length of alitrunk (WL) 0.50 mm., cephalic index (CI) 70,

mandibulo-cephalic index 17. Resembling and very close to *Sm. talpa* (Weber), of which *Strumigenys* (*Cephaloxys*) *venatrix* L. and R. Wesson is a synonym. The chief difference is one of clypeal pilosity, and this is very striking even at first glance. Sides of free clypeal border each with four prominent well-spaced, inverted spoon-shaped hairs, broader than the corresponding hairs of *talpa* and curved strongly away from the midline, the apices of some directed more or less posteriorly. Four reduced hairs at the center of the anterior portion of the free border also are directed somewhat laterally. Disc of clypeus granulose-punctulate, opaque, with inconspicuous but rather abundant and evenly distributed small, posteriorly inclined finely subspatulate hairs. Gastric costulae extending more than  $\frac{1}{2}$  the length of the basal tergite, considerably longer and more distinct than in most *talpa* workers I have seen. Color medium ferruginous, first gastric segment a bit darker and more brownish. In all other characters this species resembles *talpa* very closely.

Holotype, a unique, deposited in the Museum of Comparative Zoology at Harvard University; collected with the aid of a Berlese funnel from leaf mould at Fayetteville, North Carolina. This species is named for the collector, Dr. David L. Wray, who has added very substantially to the knowledge of the Nearctic ant fauna through his zealous efforts to make known the microgenton of North Carolina.

**Smithistruma (Smithistruma) flitalpa** new species (Plate III, fig. 4.)

HOLOTYPE WORKER.—Total length (TL) 2.06 mm., head length (HL) 0.54 mm., length of alitrunk (WL) 0.52 mm., cephalic index (CI) 66, mandibulo-cephalic index (MI) 17. Similar to *talpa*, but perhaps a little more slender than is usual in the common species. Clypeus extremely slightly broader than long, opaque, differing from that of *talpa* in its pilosity, which is slightly longer, more abundant, and with the individual hairs clearly more slender, weaker, and not having their apices enlarged at magnifications of 60X–120X. The fringing hairs are curved weakly anteromedially; those on the surface of the disc are evenly distributed, weakly arched-subreclinate, nearly or quite as long as the fringing hairs. Hairs on the verticocipit stouter, more nearly clavate or spatulate and more erect than in *talpa*. Lateral borders of occipital lobes each with two long outstanding weak flagelliform hairs.

Pronotum in profile shallowly but distinctly concave, meeting the mesonotum through an obtusely rounded angle. Median pronotal carina very indistinct, but continued a bit more distinctly on the mesonotum. The feebly concave parts of the pronotum with sculpture more or less effaced, so that large areas of the pronotal dorsum appear smooth and shining, as is also the case with the petiolar node. Basal costulae of gaster shorter than in *talpa*, extending not quite  $\frac{1}{4}$  the length of the basal tergite. Color light ferruginous.

Holotype, a unique, in the collection of the United States National Museum, the label stating, "Pike Co., Arkansas, [collected by] W. F. Turner."

The two new forms *wrayi* and *flitalpa* appear to be divergent-pilosity variants of the *talpa* group. *Wrayi* parallels *Sm. reflexa* L. and R. Wesson of the *pulchella* group so far as clypeal pilosity is concerned, while *flitalpa* appears to parallel *pilinsis* of the *clypeata* group in the same way. The pilosity of *flitalpa*, however, is even finer than that of *pilinsis*. While both of these new species are known from single specimens, I believe they will be found more abundant when Berlese funnel collecting is extended to the more open, grassy areas where the *talpa* group species appear to flourish.

**Smithistruma (Smithistruma) californica** new species

HOLOTYPE FEMALE.—Total length (TL) 2.41, head length (HL) 0.64, cephalic index (CI) 67, mandibulo-cephalic index (MI) 17. Closely related to *Sm. rostrata* (Emery) and to the Japanese species *rostrataeformis* Brown and *incerta* Brown. Differs from *rostrata* in considerably smaller size and in the shorter, broader hairs of the free clypeal border, particularly those on the anterolateral "corners" of the clypeus. Humeral angles each with a distinctly flagelliform hair; gastric hairs flagelliform, erect, distinctly more numerous than are those of either worker or female of *rostrata*. Propodeal teeth short, compressed, subtended by convexly expanded infra-dental lamellae. Dorsum of petiole with sculpture more or less effaced, subopaque to weakly shining in varying lights. Mandibles shorter than those of *rostrata*, but appearing similarly toothed; no diastema evident, even in partially open mandible. Differs from the types of *incerta* (female and worker) and *rostrataeformis* in details of pilosity and in proportions of head, clypeus and mandibles. The anterior median clypeal emargination is present but very weak, not so well developed as in *incerta*, but perhaps a little stronger than in the majority of *rostrata* females. Color ferruginous yellow; apex of gaster slightly darkened. Remnants of wings present.

Holotype and single paratype (see below) taken at Claremont, California (C. F. Baker). The data go no farther, as might be wished in the case of the only certain record for a member of the genus from west of the Great Plains in North America. Whether this locality is in the irrigated, intensively cultivated region around Claremont or in one of the canyons near the city may make the difference between an ant introduced from the Orient or one native to California. Dr. A. C. Cole claims to have taken another *Smithi-*

*struma* near the Oregon-California border, and Dr. M. R. Smith, who saw this specimen, thought it belonged to the *clypeata* group. This information has been transmitted to me in a series of letters, but the actual specimen appears to have been misplaced. We urgently need confirmation of this find through further collections.

The *paratype*, also a female with large parts of the wings remaining, unfortunately lacks a head. The two females were probably captured during or just after the nuptial flight. These two (holotype and paratype) specimens, now in the Museum of Comparative Zoology, are the basis for the record of *rostrata* from California. Wheeler made the original determination, and this record appeared in Smith's revision of 1931. Dr. W. S. Creighton has rightly called this record to question in his book on North American ants (1950).

**Smithistruma (Smithistruma) bunki** new species (Plate III, figs. 2, 3.)

HOLOTYPE WORKER.—Total length (TL) 2.24 mm., head length (HL) 0.58 mm., length of alitrunk (WL) 0.55, cephalic index (CI) 66, mandibulo-cephalic index (MI) 18. Head shape as in *pulchella* and *rostrata*; clypeus distinctly broader than long and more than half the breadth across the occipital lobes. Mandibles as in fig. 2, with 5 principal teeth in the apical series (only 4 in *creightoni*) and the diastema very small, shorter than the length of the basal lamella. The anterior clypeal border is transverse, with a slight suggestion of emargination in some views.

The pilosity very similar to that of *Sm. creightoni* (M. R. Smith), but the hairs less numerous, and those on the free clypeal margin larger, broader, and spaced farther apart than in *creightoni*. Each humeral angle with a stiff, outstanding simple hair, about twice as long as the other pronotal hairs. Head without erect hairs. Alitrunk like that of *creightoni* in form, but the infradental lamellae a little broader, not strongly concave, slightly convexly expanded below. Color light ferruginous.

Holotype in United States National Museum; selected from a small colony-series taken in a pine woods near Landon, Mississippi (A. C. Cole, Jr.). The paratypes represent the type locality and specimens from four other colonies taken at three additional localities: Savannah, Georgia, two colonies (H. T. Vanderford). Bayou Liberty, Slidell, Louisiana (W. L. Brown). Welaka, Putnam Co., Florida (A. Van Pelt). Paratypes will be deposited in the collections of the United States National Museum, the Museum of Comparative Zoology, the Academy of Natural Sciences of Philadelphia, Dr. A. C. Cole, Jr., and those of other individuals and

institutions. The female will be described in the full revision.

This species is placed in the *rostrata* group in spite of the weak diastemata present in the dentition of the mandibles. Apparently it represents a pilosity form paralleling *creightoni*; the latter belongs to the *talpa* group. The similarity between this species and *creightoni* is very strong, and it is suggested that determinations be checked by the mounting in balsam of at least one mandible from a worker of any series suspected of belonging to either species. The paratypes of *bunki* show considerable variation in the humeral hairs, which may either be absent or somewhat flagelliform. Named for the late Bunk Johnson, of New Iberia, Louisiana.

*Key to the Workers of the Known Ethiopian Species  
of Smithistruma*

1. Clypeus with a very deep anterior semicircular excision; mandibles very small, partly recessed in the excision (MI 7); clypeal hairs very broadly suborbicular and conspicuous; total length under 2.10 mm. (Belgian Congo) ..... *cavinasis* n. sp.  
Clypeus with a transverse or broadly and shallowly emarginate anterior border; mandibles larger, more projecting (MI over 10); clypeal hairs not broadly suborbicular; total length over 2.10 mm. ....2
2. Head very long and narrow (cephalic index under 65), depressed. (S. Africa) ..... *emarginata* (Mayr)  
Head broader (cephalic index over 65) .....3
3. Anterior clypeal border gently emarginate; prominent erect hairs on alitrunk at most two pairs; MI under 20; mandibular dentition as in fig. 1 (E. Africa) ..... *truncatidens* n. sp.  
Anterior clypeal border straight; more numerous prominent erect hairs on alitrunk; MI over 20; mandibular dentition insufficiently known (from original description) (S. Africa) ..... *transversa* (Santschi)

**Smithistruma (Smithistruma) *cavinasis* new species**

HOLOTYPE WORKER.—Total length (TL) 2.01 mm., head length (HL) 0.55 mm., length of alitrunk (WL) 0.50 mm., cephalic index (CI) 63, mandibulo-cephalic index (MI) 7. Head shape of the *rostrata* group, but occipital border only very shallowly concave, anterior clypeal border deeply and semicircularly excised; the clypeal excision considerably greater than that of any other *Smithistruma* species known to me for the entire world fauna. Antennal scape sharply bent at about its basal quarter; apical segment of funiculus about 1½ times as long as the four basal funicular segments taken together. Mandibles very short, depressed, seen from above and fully closed, with a large part of the length recessed into the clypeal excision.

Dentition apparently consisting of an uninterrupted series of slender acute teeth; no diastema seen; shape of basal lamella not determined. Alitrunk compact; dorsal outline in profile weakly convex; pronotum without humeral angles. Propodeal teeth short, triangular, acute; infradental lamellae very slight, diminishing ventrally. Petiole with a slender peduncle and a small, dorsally rounded, bicarinulate node. Postpetiole broad and very convex, about twice as broad as the petiolar node.

Head, scapes, legs and petiole densely punctulate and opaque. Alitrunk feebly reticulate, subopaque; promesonotal dorsum finely and irregularly longitudinally striate or rugulose. Basal costulae of gaster delicate but distinct, well spaced, extending about  $\frac{1}{3}$  the length of basal tergite. Head with comparatively few, but large and quite conspicuous, whitish, thickened and suborbicularly broadened squamose hairs, the blades set very close to the integumental surface, but not strictly appressed. The hairs are more crowded, flatter and slightly smaller on the clypeal disc; six rather prominent ones bordering the excision. More elongate spatulate hairs on lateral clypeal borders and on anterior scape borders. No erect hairs on head or alitrunk of this specimen, but the first gastric tergite near its basal edge with a single pair of short, mesially inclined clavate hairs; apex of gaster with a few short, fine, erect clavate hairs. Color sordid yellowish-ferrugineous.

Holotype, a unique, returned to Dr. N. A. Weber for eventual deposition in the collections of the American Museum of Natural History. Collected during February, 1948, in the Ituri Forest between Beni and Irumu, Belgian Congo (N. A. Weber, cat. no. 2129).

This very aberrant *Smithistruma* is distinct by so many strong, definite characters from all the other known species that little confusion should be expected with regard to it.

***Smithistruma (Smithistruma) truncatidens* new species** (Plate III, fig. 1.)

HOLOTYPE WORKER.—Total length (TL) 2.36 mm., head length (HL) 0.62 mm., length of alitrunk (WL) 0.64 mm., cephalic index (CI) 73, mandibulo-cephalic index (MI) 14. Related to *Sm. emarginata*, but differing in its more robust body build and especially in its broader, more "normal" head. Superficially, it resembles somewhat the larger members of the Neotropical *schulzi* group. Occipital lobes broadly expanded laterally; preocular laminae approximately parallel and feebly convex. Clypeus subpentagonal, with the anterior border broadly and very shallowly emarginate and anterolateral angles distinct but rounded. Clypeal disc slightly broader than long and about half as broad as the distance across the occipital lobes. Antennal scape bent at about a 40° angle near base, incrassate. Funicular apical segment slightly longer than the four basal segments taken together. Mandibles in place and closed resembling those of *rostrata*,



without a distinct diastema (see fig. 1). The distinctive basal lamella is the basis for the name "*truncatidens*".

Alitrunk slightly depressed; promesonotum weakly convex, posterior mesonotum depressed and nearly continuous with the propodeal dorsum. Petiolar node broader than long and shorter than its peduncle, anterior declivity steep and not, or very indistinctly, bicarinate; spongiform appendages moderately well developed. Postpetiole transversely oval, about 1.3 times as broad as long and about 1.4 times as broad as the petiolar node, its dorsal surface convex and very obscurely and indefinitely longitudinally striate, but at lower magnifications appearing smooth and shining; spongiform appendages fairly well developed posterolaterally and ventrally, but the posterodorsal isthmus poorly developed and interrupted in the middle. Gaster weakly depressed dorsally, but not impressed anteromedially; median basal costulae partially effaced, but those on each side parallel and longitudinal, extending about half the length of the basal tergite. Remainder of gastric dorsum smooth or nearly so; a few roughened patches may represent a hardened secretion. Sculpture of body as usual for the genus, except that the pronotum has obscure longitudinal striation superimposed on the dense punctulation; posterior sides of alitrunk partially smooth and shining.

Head dorsally with rather abundant but inconspicuous, subreclinate to subappressed, short spoon-shaped hairs, a few on the posterior and lateral occipital regions slightly longer, more nearly clavate and obliquely suberect. Hairs on clypeal disc extremely small and inconspicuous; hairs on free clypeal border much larger, spoon-shaped and curved toward the middle, about 12 on each side of the midline, forming a fringe much like that of *rostrata*, except that the hairs on each side of the anterior border, on the anterolateral "angles," while longer than the others, are not so much so as in *rostrata*; in addition, the fringing hairs are all broader than the corresponding ones of *rostrata*. Alitrunk with a very few small, extremely inconspicuous narrow reclinate hairs. No prominent humeral hairs in holotype (or in paratypes); these may have been rubbed off if once present. Mesonotum with a pair of prominent erect hairs, appearing feebly clavate. Petiolar node with a pair of long clavate hairs; postpetiole with about 8 and gaster with 18-24 stiffly erect or suberect clavate hairs.

Color dull yellowish-ferruginous.

Holotype one of four workers taken by K. Bock at Lupembe, Tanganyika Territory. The paratypes (3) vary only very slightly in size and proportions; the largest worker has the head slightly infuscated posteriorly. Holotype in the collection of Sr. Mario Consani, Florence, Italy, together with two paratypes. One paratype in the collection of the Museum of Comparative Zoology.

Another specimen, which I refer to *truncatidens*, was taken by S. Patrizi at Elmenteita, Kenya. The head length (HL) is 0.69 mm. and the cephalic index (CI) 73. The body is larger overall

than in the *truncatidens* types, the substriaion is a little stronger on pronotum and postpetiole, and the basal gastric costulae are stronger; also, there appears to be a sort of superficial shagreening of the gastric surface, but this may be due largely to the presence of a hardened secretion or other matter. There is a small subspatulate hair on each humeral angle, and the color is slightly but distinctly darker (medium ferruginous) than in the Lupembe specimens. The mandibles are identical from external view, and were not dissected. Sr. Consani regards this specimen as possibly representing a different species or subspecies, but I am unable to agree with this on the basis of the present evidence and in view of the fact that the closely related species *emarginata* is highly variable in similar characters. Earlier entomologists would have relegated this form to varietal status, but modern taxonomy has no place for the naming of any infraspecific variant that cannot be certainly placed as a geographical race or subspecies.

Both new African species, plus also *emarginata* and *transversa*, are placed for convenience in the "*emarginata* group," which may be little more than the African branch of the *rostrata* group.

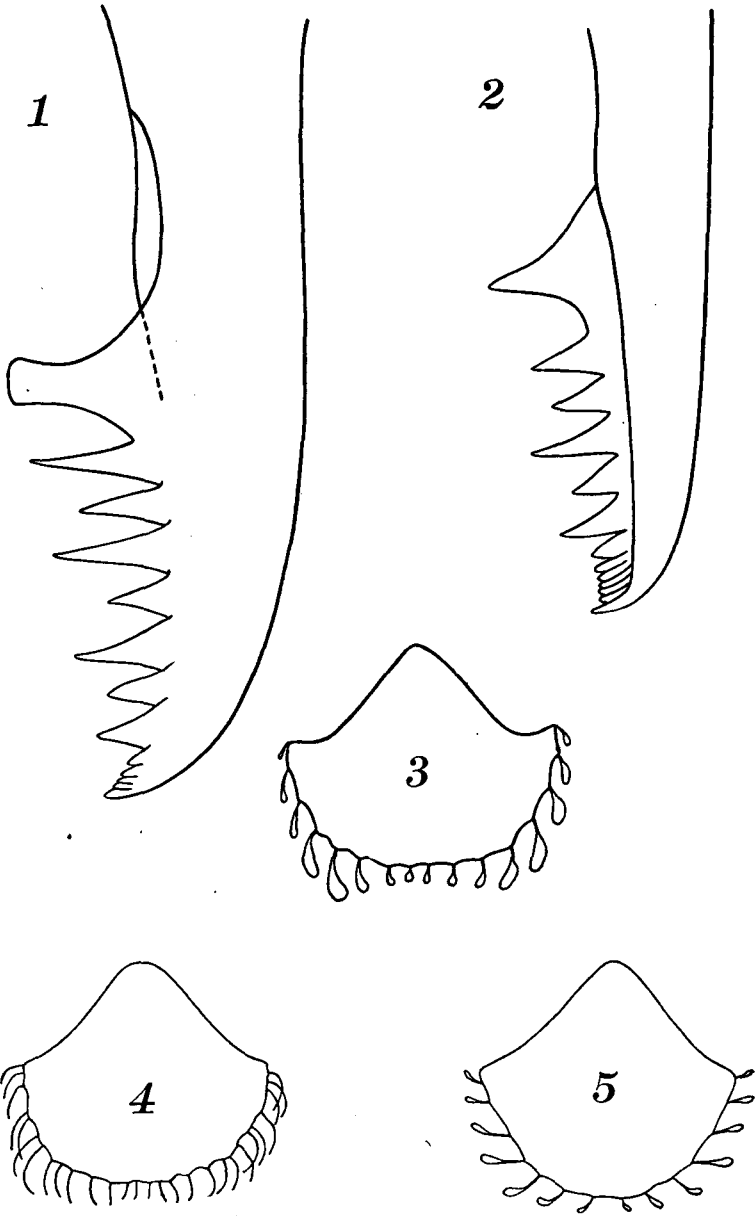
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SMITH, M. R. 1931. *Ann. Ent. Soc. Amer.*, 24: p. 705.

#### EXPLANATION OF FIGURES

##### PLATE III

- Fig. 1.—*Smithistruma* (*Smithistruma*) *truncatidens* new species, paratype worker, left mandible, dorsal view. Lupembe, Tanganyika.  
Fig. 2.—*Smithistruma* (*Smithistruma*) *bunki* new species, paratype worker, right mandible, ventral view. Landon, Mississippi.  
Fig. 3.—*Smithistruma* (*Smithistruma*) *bunki* new species, paratype worker, clypeal outline. Slidell, Louisiana.  
Fig. 4.—*Smithistruma* (*Smithistruma*) *flitalpa* new species, holotype worker, clypeal outline. Pike Co., Arkansas.  
Fig. 5.—*Smithistruma* (*Smithistruma*) *wrayi* new species, holotype worker, clypeal outline. Fayetteville, North Carolina.



BROWN—NEW SPECIES OF DACETINES

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