Osmia wheeleri Cockerell. At *Cercis* and *Nemophila exilis*. There has been much confusion as to the identity of *O. brevis* Cresson, and it may be that the species here recorded is the true *O. brevis*.

Ceratina acantha submaritima (Cockerell). Both sexes. It was found on *Cryptantha flaccida*, *Nemophila maculata*, *N. exilis* and *Oenothera*.

Ceratina nanula rigdenae Michener. One male at *Nemophila maculata*, May 11.

Ceratina punctigena Cockerell (or possibly *C. subpunctigena* Michener). One male at *Oenothera*, May 10 (W. P. Ckll.).

Xylocopa orpifex Smith. One male at *Nemophila patula* (W. P. Ckll.).

Psithyrus crawfordi Franklin. One, May 10.

Bombus vosnesenskii Radoszkowski. May 11. A variety with the light hair on head and thorax very pale.

A NEW SPECIES OF TIPHIA FROM CALIFORNIA

(Hymenoptera, Tiphiidae)

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The following description of a new species of *Tiphia* is offered at this time so that a name will be available for some observations on the biology by Dr. E. G. Linsley and Dr. C. D. Michener. Dr. Linsley has been kind enough to permit the writer to place the type series in the collection of the United States National Museum except for a pair of paratypes which are to be deposited in the collection of the California Academy of Sciences.

Tiphia shastensis Krombein, new species

Female. 14.5 mm. long. Black; mandible in the middle castaneous; flagellum beneath and apex of pygidium ferruginous. Body inconspicuously clothed with grayish, suberect pilosity which is longer, more conspicuous, and tending toward yellowish at the apices and sides of the abdominal segments; hind tibial calcaria black; some of the tarsal spines fulvous. Wings brownish, somewhat infumated; stigma and basal veins dark brown, the apical veins lighter.

Head shining, moderately closely and coarsely punctured; mandible not denticulate along the superior or inferior margin; clypeus on basal half with several rows of subcontiguous punctures, apical half impunctate, apical margin broadly rounded;

vertex much less closely punctured than the front; areas immediately in front of the fore ocellus and laterad of the hind ocelli deeply impressed so the fore ocellus faces forward and the hind ocelli more laterad than is normal for the genus; postocellar distance three-fifths the ocellocular distance; a slight groove runs from between the antennal insertions about one-third the distance to the fore ocellus; post-mandibular triangle glossy with a very delicate shagreening and several minute punctures.

Dorsal surface of pronotum shining, anterior transverse carina lacking, posterior third impunctate, anterior two-thirds moderately closely punctate, minute, interspersed punctures lacking; lateral surface of pronotum subopaque with delicate oblique rugulae on upper half and oblique carinae on lower half, median oblique groove lacking; propleuron subopaque, moderately closely punctate with a few scattered, interspersed, minute punctures; scutum shining, with a median patch of dense minute punctures and a few scattered larger ones on the adjacent areas; tegula glabrous, about as broad as long, with a groove along the outer and posterior margins; scutellum shining, with a few large punctures which are concentrated on the lateral and posterior margins of the disk; postscutellum shining, with a few scattered large punctures; mesopleural disk shining, with scattered large punctures and a few interspersed minute ones, posteriorly with numerous minute punctures; propodeum dull above, enclosure subrectangular, slightly over twice as long as wide, the base a bit wider than the apex, and with a distinct median ridge, area adjacent to enclosure moderately shagreened and with numerous minute punctures; posterior surface of propodeum shagreened and dull, set off from the dorsal and lateral surfaces by strong ridges and with a few irregular carinae at the upper angles and along the sides; lateral surface of propodeum shining on the upper half, with 18 to 20 strong oblique ridges, the lower half with numerous oblique rugulae and a few scattered minute punctures; sensorium of hind tibia shallow, broad and pyriform in outline; hind basitarsus with a longitudinal groove; forewing with basal angulation of radial vein about one-third the distance from stigma to first complete transverse cubital vein.

First tergite of abdomen with anterior declivous portion covered with minute punctures and a few interspersed larger ones, base of posterior horizontal portion without a transverse carina, the horizontal portion posteriorly with a shallow transverse groove bearing two to three rows of subcontiguous punctures, the apex of the first tergite not strangulate; second tergite shining, with scattered fine punctures dorsally and several rows of subcontiguous punctures just before apex; third to fifth tergites subopaque from delicate shagreening, each more closely punctured than the second on the disk and with a denser concentration of subcontiguous punctures near the apex; pygidium on basal portion coarsely and closely punctate with a small impunctate area at apex medianly, the

apical portion moderately shagreened without punctures or rugulae, the apical margin unusually broadly rounded, subtruncate; first sternite dull, closely and minutely punctured, median length of the disk about two-thirds the width at apex; second sternite shining, with scattered punctures; third to sixth sternites subopaque from fine shagreening, finely and more closely punctate than the second.

Male. Differing from female as follows: 9.0 mm. long. Mandible, flagellum and apex of pygidium black.

Clypeus rather closely punctate on basal half, median production impunctate, about one-fourth as wide as basal width of clypeus, apical margin of the production with a broad obtusely angulate emargination; front subcontiguously punctured, with a slight median carina extending from between the antennal insertions halfway toward fore ocellus; areas anterior to and laterad of ocelli impunctate, the ocellar triangle punctured; postocellar distance about two-thirds the ocellocular distance; vertex and temples with numerous minute punctures and a few interspersed larger ones; postmandibular triangle impunctate; fourth to thirteenth antennal segments each with a longitudinal carina on outer surface.

Anterior two-thirds of dorsal surface of pronotum closely punctate; propleuron with numerous minute punctures and a few interspersed larger ones; scutum and disk of scutellum with scattered punctures about equal in size to those on pronotum; postscutellum with a median longitudinal groove; mesopleural disk posteriorly with the minute punctures more numerous though not so closely placed; propodeal enclosure two-thirds as wide at apex as at base, area adjacent to enclosure with a few large punctures near enclosure and a few irregular carinae at antero-lateral corners; lateral surface of propodeum shining on upper and posterior portions with 10 to 12 oblique rugae, remainder of surface subopaque with numerous oblique rugulae; sensorium of hind tibia much narrower; forewing with second complete transverse cubital vein curved outwardly, the apex of the second submarginal cell extending slightly farther distad than apex of marginal cell.

Abdominal segments 3 to 7 subopaque owing to delicate shagreening; anterior declivous portion of first tergite closely punctate; third to sixth tergites more closely punctured than second on the disk; seventh tergite subopaque, finely and subcontiguously punctured, with a median longitudinal impunctate line; anterior portion of disk of first sternite with a few subcontiguous large punctures, posteriorly with scattered minute punctures, the median length of disk about three-fourths the apical width; second sternite about as sparsely punctate as the corresponding tergite; third to fifth sternites each without lateral teeth or ridges; third to sixth sternites minutely punctured, the punctures more concentrated toward the apices; seventh sternite rather closely punctured on basal two-thirds, the apical third and a median longitudinal ridge on apical two-thirds impunctate.

Type ♀ Old Station, Shasta County, California; May 29, 1941 (E. G. Linsley) [U. S. National Museum, Type No. 55680]. Allotype ♂ taken in attempted copulation with and mounted on same pin as type [U. S. N. M.]. Paratypes 3♀, 1♂ topotypical and taken on same date as type (C. D. Michener) [2♀ in U. S. N. M.; 1♀, 1♂ in Calif. Acad. Sci.].

The female paratypes vary from 14-15 mm. in length and the male paratype is 9.5 mm. long.

Tiphia shastensis appears to be most closely related to *T. rugulosa* Malloch and *T. odontogaster* Viereck. The following triplet gives in some detail the structural characters separating the three species.

Basal angulation of radial vein of forewing about one-third the distance from stigma to first complete transverse cubital nervure; wings brownish, somewhat infumated; third to fifth tergites in female and third to sixth in male more finely and closely punctate than in *rugulosa* and *odontogaster*, the interspaces subopaque from fine shagreening. *Female*: Apex of pygidium very broadly rounded, the apical margin subtruncate; sensorium of hind tibia broad, shallow and pyriform in outline; length 14-15 mm. *Male*: Fifth sternite without lateral tooth or ridge; dorsal surface of propodeum adjacent to enclosure punctate and dull.....*shastensis* Krombein, n. sp.

Basal angulation of radial vein of forewing about one-third the distance from stigma to first complete transverse cubital vein; wings hyaline with a slight brownish cast in female, clear hyaline in male; third to fifth tergites in female and third to sixth in male more coarsely but less closely punctate than in *shastensis*, the interspaces glossy. *Female*: Apex of pygidium more narrowly rounded, the apical margin not subtruncate; sensorium of hind tibia narrower than in *shastensis* but broader than in *rugulosa* and deeper than in either species; length 9-10 mm. *Male*; Fifth sternite (occasionally third and fourth also) with lateral tooth or ridge; dorsal surface of propodeum adjacent to enclosure rugulose and shining.....*odontogaster* Viereck

Basal angulation of radial vein of forewing one-fifth to one-sixth the distance from stigma to first complete transverse cubital nervure; wings hyaline with a slight brownish cast; third to fifth tergites in female and third to sixth in male more coarsely but less closely punctate than in *shastensis*, the interspaces glossy. *Female:* Apex of pygidium more narrowly rounded, the apical margin not subtruncate; sensorium of hind tibia narrower than in *shastensis* but about as shallow; length 8-9.5 mm. *Male*: Fifth sternite without lateral tooth or ridge; dorsal surface of propodeum adjacent to enclosure shining and more closely rugulose than in *odontogaster*.....*rugulosa* Malloch

The male of *shastensis* actually keys out at *occidentata* Malloch in Malloch's key (Bull. Illinois Nat. Hist. Survey, XIII, p. 5, 1918) but the latter species is immediately separated by the shape of the first tergite, which is strangulate apically and nodose when viewed laterally. In my opinion *occidentata* belongs to an entirely different species group than do the three species discussed above because of the differently shaped first tergite.

AMPHOROPHORA OSBORNI[1]

(Homoptera, Aphididae)

BY GEORGE F. KNOWLTON

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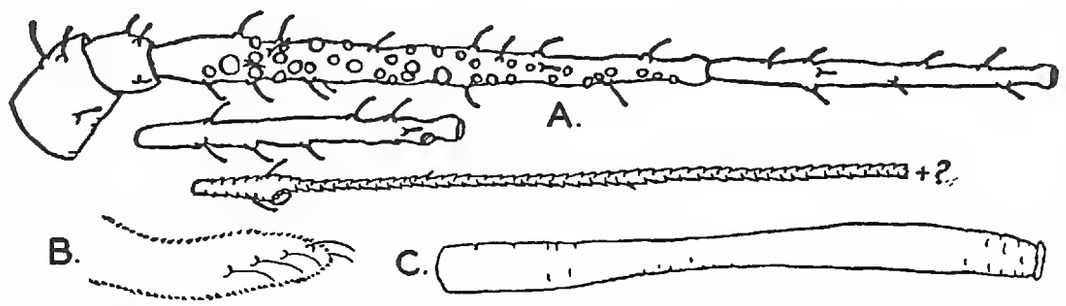
The following description deals with an apparently undescribed aphid, collected in Utah on a black currant bush heavily infested by *Amphorophora ribiella* (Davis), a species which it somewhat resembles.



Amphorophora osborni Knowlton, n. sp. A, antenna; B, lateral view of cauda; C, cornicle, of apterous vivipara.

Amphorophora osborni Knowlton, new species[2]

Apterous vivipara: Color green; body 2.1 mm. long; antennae 2.41 mm., pale except distal ends of III, IV, V, and all of VI which are blackish; antennal III, 0.75 to 0.8 long with 36 to 37 sensoria; IV, 0.448, without sensoria; V, 0.496; VI, 0.128 + 0.86 (+? ends broken off); rostrum reaching hind coxae; rostral IV+V slenderly obtuse, 0.16 mm.; hind tibiae 1.46; hind tarsi 0.13; cornicles pale, 0.87 long, slightly swollen on distal half; cauda pale, 0.34 mm. long, with 3 or 4 hairs on each side of distal one-half.

Collected upon foliage of *Ribes longiflorum*, at Cedar City, Utah, June 15, 1935, by G. F. Knowlton. Type in the collection of the writer.

Amphorophora osborni has more sensoria on antennal III, and its cornicles are longer than those of *A. ribiella* (Davis), *A. nabali* (Oest.) and *A. pergandei* Mason.

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[1] Contribution from the Department of Entomology, Utah Agricultural Experiment Station, Logan.

[2] Named in honor of my former professor, Dr. Herbert Osborn.