

NEW SPECIES OF SERICA (SCARABAEIDAE), VI

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The present paper is a continuation of a series run in this journal from 1919 to 1922. It is the hope and expectation of the writer to continue the work as rapidly as time and material permit, until all the species have been described and figured. The present number, in addition to presenting nine new species from California, reviews all but one of the remaining eastern species now known to the writer.

Under each species the citation is given concerning the deposition of the type, or of the specimen used in drafting the plate when the holotype was not available for that purpose. Measurements, except those otherwise cited, are made with a micrometer scale under the microscope, and translated into tenths of a millimeter. By this means slight differences in size and proportion may be presented with precision. Colors are first named in a general way and then noted according to Ridgway's "Color Standards." Descriptions, as well as drawings, are based on single, representative, type specimens.

The external characters of the various species are monotonously similar, and individual variation rather strong, so that the student must refer to the genital armature of the male for certain identification of his species. Even here some variation occurs, and judgment must be used in interpretation of the armatures, especially when the claspers are in unusual positions. Since so much depends upon the genital armature, which cannot be successfully described, the writer has drafted the figures with great care and mechanical precision.

***Serica chætosoma*, new species.**

♂. Length 10 mm.; width 6 mm. Color dark brown (warm sepia), opaque with a slight grayish bloom or pollen on the elytra. Entire surface bristling with short, erect, fulvous hairs, perhaps more conspicuous than on any other species except *pilifera* Horn.

Clypeus of usual form with the margins only moderately reflexed, most strongly so at the angles which are prominent and more abruptly rounded

than usual. The prominence of the clypeal angles makes the anterior reflexed margin appear broadly emarginate at the middle. Clypeal puncturation fine, dense and confluent; suture fine and inconspicuous. Measurements of head: diameter through the eyes, 23; distance between inner eye margins, 15.5; extreme width of anterior reflexed margin, 14; antennal club, 8; dorso-ventral diameter of eye, 7.7. As the measurements indicate, the eyes are relatively small.

Pronotum only moderately convex, lacking the bloom seen on the elytra and in consequence appearing contrastingly deep reddish brown, surface with numerous, very fine but strongly setigerous punctures; sides almost evenly arcuate. Measurements of pronotum: greatest width, near posterior angles, 41; width through anterior angles, 24.5; median length, 25.

Elytra with intervals 1, 3, 5, etc., distinctly narrower than the alternating series, slightly costate and impunctate. The line-like striae appear vaguely defined. Punctures everywhere minute, but bearing strong, erect hairs which are definitely aligned on the striae, and in confused alignment down the center of the wider, flat intervals. Median length 8 mm.; greatest width 6 mm.

Genital armature of male (Pl. XXIII) with the left clasper truncate at the apex and of unusually simple form; length 3.7 mm.

♀. Differs from the male in being larger, more robust, with smaller antennal clubs, 6.5 instead of 8, and in having the pygidium strongly convex.

Type: ♂. Saticoy, California, June 11, 1926, (California Academy of Sciences).

Paratypes: 1 ♂, 2 ♀, all from California:

Saticoy, June 6, 1926, 1 ♂, 1 ♀; Santa Paula, June 15, 1926, 1 ♀.

Serica ventura new species.

♂. Length 9 mm.; width, 5 mm. Color a light to middle shade of reddish brown, pronotum, burnt sienna, elytra dulled to hazel by a grayish bloom.

Clypeus with the discal area slightly tumid just below the middle; margins rather strongly reflexed; clypeal suture fine but distinct; clypeal notch obliterated; puncturation rather fine but deep, the punctures separated by about their own diameter. Measurements of head: diameter through the eyes, 21.7; distance between inner eye margins, 15; extreme width of anterior reflexed margin, 11; antennal club, 6.5; dorso-ventral diameter of eyes, 6.6.

Pronotum rather less convex than usual; showing the lateral piceous spots characteristic of the more pallid species; sides distinctly arcuate; surface shining, with fine but distinct punctures, separated by one to three diameters. Measurements of pronotum: greatest width, slightly in front of the

rounded hind angles, 36.5; through anterior angles, 23.5; median length, 20.5.

Elytra dulled by a gray bloom and showing traces of rainbow iridescence; striae line-like, each with a single row of small punctures spaced apart by one to two diameters; odd numbered intervals a little narrower than the even and vaguely costate, with very few punctures, the even numbered intervals nearly flat and with scattered punctures. Length 6.5 mm.; width 5 mm.

Margins of pronotum, elytra and basal segments of legs fimbriate with shaggy, yellow hairs. Metasternum and hind coxal plates with fine deep punctures separated by one to two diameters, surface shining and very thinly clothed with fine, short, yellow hair.

Genital armature of male (Pl. XXIV) with a distinctive, longitudinal median ridge and truncate apex on the short or left clasper; length 3 mm.

♀. With antennal club little if any smaller than that of the male, but with the pygidium distinctly more convex and shining.

Type: ♂. Saticoy, California, June 20, 1926, (California Academy of Sciences).

Paratypes: 29 ♂, 23 ♀, all from California:

Oxnard, 1 ♂; Santa Ana, 1 ♀; Santa Paula, 1 ♂; Saticoy, 3 ♂, 3 ♀; Ventura, 24 ♂, 19 ♀.

Serica personata new species.

♂. Length 9 mm.; width 5 mm. Color dark brown (warm sepia to chocolate), elytra slightly gray pruinose, and with traces of rainbow iridescence in strong, shifting lights.

Clypeus and lower front strongly and densely punctured, the punctures separated by half, or less than half, their own diameter, and partially or largely obscuring the clypeal suture; clypeal margins only moderately reflexed, angles distinct, but little rounded, clypeal notch almost or quite obsolete. Measurements of head: diameter through the eyes, 22; distance between inner eye margins, 16; extreme width of anterior reflexed margin, 12; antennal club, 6.6; dorso-ventral diameter of eye, 7.2.

Pronotum moderately convex, especially in the anterior half; viewed from above with the sides nearly parallel to the middle, than strongly arcuate and convergent to the anterior angles; surface with small but deep punctures separated by about one diameter. Measurements of pronotum: width through posterior angles, 37.5; through anterior angles, 23.3; median length, 22.

Elytra with the characteristic line-like striae, each with a single row of punctures, but the latter much, or entirely, obscured by crowding from the rather close and strong punctures of the intervals; the odd numbered intervals usually distinctly narrower, with the punctures largely limited to the sides thus making them appear slightly costate, the even numbered inter-

vals wider and with numerous scattered punctures. Striæ, and to a lesser extent the wider intervals, bearing short, erect, golden-brown hairs.

Margins and under parts fimbriate with golden brown hairs. Metasternum and posterior coxal plates closely and strongly punctured.

Genital armature of male (Pl. XXV) closely resembling, but distinct from, that of *ventura*, length 3 mm.

Type: ♂. California, (Horn Collection, Philadelphia).

Paratypes: 12 ♂, 12 ♀, all from California:

California, 2 ♀; San Louis Obispo, 12 ♂, 10 ♀.

***Serica caliginosa* new species.**

♂. Length 10 mm.; width 5.4 mm. Color black with a rusty or piceous tinge; elytra with a grayish or frosty bloom.

Clypeus shining, with strong but rather small punctures separated by about half their own diameter; with a slight submarginal impression, and strongly reflexed edges. Clypeal notch shallow and feebly indicated; anterior reflexed margin, viewed perpendicularly, straight, at an angle from above, very slightly elevated at the middle, angles broadly rounded. Front opaque, with small feeble punctures separated by one to three diameters. Eyes relatively small and antennal clubs of moderate size. Measurements of head: diameter through the eyes, 25.5; distance between inner eye margins, 17.8; extreme width of anterior reflexed margin, 14.4; antennal club, 10.5; dorso-ventral diameter of eye, 7.7.

Pronotum rather strongly convex, with the sides almost evenly arcuate from base to apex, and fimbriate with coarse reddish brown hairs; surface opaque with a slight, grayish bloom; punctures fine and shallow, separated on the average by three to four diameters. Measurements of pronotum: width through posterior angles, 43.3; through anterior angles, 26.7; median length, 25.5.

Elytra with distinct line-like striæ, each with a row of small shallow punctures spaced apart by two to four diameters, but the definiteness of the row obscured by the irregularly placed, similar punctures of the alternate, distinctly wider intervals, 2, 4, 6, etc.; length 7.5 mm.; width 5.4 mm.

Beneath finely punctured and very sparsely covered with fine reddish brown hairs, becoming coarser, denser and more evident on the coxæ, femora and middle of the metasternum.

Genital armature of male (Pl. XXVI) somewhat resembling that of *personata* (a smaller, more delicate species often approaching *caliginosa* in color); length 3.2 mm.

♀. More robust with coarser and more conspicuous hair beneath; antennal club smaller, 7.7 instead of 10.5.

Type: ♂. White River, Tulare Co., California, April 14, 1905
(Ralph Hopping), (California Academy of Sciences).

Paratypes: 5 ♂, 6 ♀, with the same data as the type.

Serica acicula new species.

♂. Length 9 mm.; width 5.2 mm. Color testaceous (auburn), opaque with a silvery gray bloom or powder on the elytra.

Clypeus very feebly tumid just below the middle; margins gradually but strongly reflexed; lateral clypeal notch entirely absent; surface with small, distinct punctures separated by one-half to two-thirds their own diameter. Viewed perpendicularly, the anterior clypeal margin is nearly straight at the middle, and very broadly, evenly arcuate at the angles with the sides; viewed at an angle from above, slightly arcuate and more abruptly reflexed at the middle. Front with punctures less closely and regularly placed. Measurements of head: diameter through the eyes, 23.9; distance between inner eye margins, 15.5; extreme width of anterior reflexed margin, 11.7; antennal club, 8.3; dorso-ventral diameter of eye, 7.7.

Pronotum convex with sides strongly rounded anteriorly, and fimbriate, surface with fine shallow punctures separated by one to four diameters. Measurements of pronotum: width through posterior angles, 38.3; through anterior angles, 25.0; median length, 22.2.

Elytra with the even numbered intervals slightly wider than the odd; striae line-like with a single row of small punctures separated by one to three diameters; wider intervals with fine scattered punctures; lateral margins fimbriate; median length 7 mm.; greatest width, 5.2 mm.

Beneath sparsely clothed with fine, pale brown, shaggy hairs; metasternum and hind coxal plates shining, finely and densely punctured.

Genital armature of male (Pl. XXVII) with left clasper "aciculate"; length 3.25 mm.

♀. Differs from the male by the smaller antennal clubs, 6.7 instead of 8.3, and by the much more convex and shining pygidium.

Type: ♂. Hynes, California, April 29, 1921 (L. L. Muchmore), (U. S. National Museum).

Paratypes: 33 ♂, 10 ♀, all from California:

"Calif.", 4 ♂; "S. Calif.", ♂; Garden Grove, 5 ♂, 4 ♀; Hynes, 6 ♂, 2 ♀; Huntington Beach, 1 ♀; Los Angeles Co., 9 ♂; La Crescenta, 2 ♂; Los Angeles, 6 ♂, 3 ♀; San Gabriel, 1 ♀; Zuba Co. Buttes, 1 ♀.

Serica pavonia new species.

♂. Length 8 mm.; width 4.7 mm. Color light brown or testaceous (hazel to russet), elytra with a beautiful rainbow iridescence in strong shifting lights—hence the name "*pavonia*."

Clypeus shining, finely and closely punctured, punctures separated by about their own diameter; clypeus very feebly tumid beyond the middle; clypeal notch obsolete or only faintly indicated; margins only moderately reflexed; anterior reflexed margin, viewed perpendicularly, strongly and

evenly arcuate, viewed at a strong angle from above, more prominent medially and at the rounded angles. Front semi-opaque with fine scattered punctures. Measurements of head: diameter through eyes, 21.5; distance between inner eye margins, 15.5; extreme width of anterior reflexed margin, 11.5; antennal club, 5.5; dorso-ventral diameter of eye, 7.2.

Pronotum only moderately convex; hind angles rounded and sides evenly arcuate; with mid-lateral, submarginal, piceous spot; punctures fine and shallow, separated by about two diameters, surface sub-opaque with traces of iridescence. Measurements of pronotum: greatest width, in front of posterior angles, 35.0; width through anterior angles, 22; median length, 19.

Elytra with line-like striae marked by single rows of fine, minutely setigerous punctures spaced apart by one to two diameters; intervals flat, the even numbered series very slightly wider than the odd and with fine scattered punctures, especially near the striae, the odd or narrower intervals with very few punctures. Length, 6 mm.; width 4.7 mm.

Margins and under surface moderately fimbriate with yellow hairs.

Genital armature of male (Pl. XXVIII) somewhat resembling that of *perigonia* but with the left clasper shortened and not ligulate at the tip as in that species; length 2.5 mm.

♀. More robust than the male and with slightly shorter antennal clubs, 5.0 instead of 5.5; pygidium slightly more convex and shining.

Type: ♂. Garden Grove, California, July 19, 1927, (California Academy of Sciences).

Paratypes: 10 ♂, 16 ♀, all from California:

“Calif.”, 3 ♂, 5 ♀; Colton, 2 ♂; Garden Grove, 1 ♂, 1 ♀; Ontario, 2 ♂; San Bernardino, 3 ♂, 9 ♀; San Diego, 1 ♀.

***Serica falli* new species.**

♂. Length 8 mm.; width 4.3 mm. Color testaceous (amber brown to Brussels brown) elytra slightly gray pollenose.

Clypeus almost flat, margins moderately elevated; clypeal notch obsolete; clypeal suture distinct; punctures small but deep, separated by about their own diameter and showing a tendency to coalesce transversely. Front with puncturation sparse and variable. Measurements of head: diameter through the eyes, 21.7; distance between inner eye margins, 14.4; extreme width of anterior reflexed margin, 11; antennal club, 10.8; dorso-ventral diameter of eye, 7.2.

Pronotum not strongly convex, sides subparallel to the middle, then arcuately narrowed to the anterior angles; surface with fine, shallow punctures, separated by one to four diameters; with a submarginal, midlateral piceous spot. Measurements of pronotum: through posterior angles, 33; through anterior angles, 23; median length, 20.

Elytra with intervals almost equal, separated by line-like striæ, each with a single row of fine punctures spaced apart by one to two diameters, but the rows somewhat obscured by crowding from the confused puncturation of the intervals. Length 6.5 mm.; width 4.3 mm.

Margins and under surface fimbriate with fine yellow hairs.

Genital armature of male (Pl. XXIX) nearly symmetrical and with the stalk more strongly arcuate than usual in the genus; length 2.5 mm.

Type: ♂. Owens Lake, California, May 14, 1917, (Collection of H. C. Fall).

Paratypes: 18 ♂, 3 ♀, all from California:

Olancha, Inyo Co., June 5, 1917 (Fox), 15 ♂; Owens Lake, May 12-14, 1917, 3 ♂, 3 ♀.

***Serica ligulata* new species.**

♂. Length 9.5 mm.; width 5.5 mm. Color chocolate brown (chocolate to bay), glabrous and sub-shining.

Clypeus feebly tumid at the middle of the apical third; margins rather strongly and suddenly reflexed, the sides elevated almost as much as the anterior margin; anterior reflexed margin viewed perpendicularly, broadly or arcuately emarginate between the prominent rounded angles, viewed at a strong angle from above, showing a median elevation which, with the prominent lateral angles forms an almost evenly crenate edge. Surface densely punctate, the punctures of moderate to small size but strong or deep, and separated by about one-half their own diameter. Clypeal suture fine but distinct. Front less closely punctured, and often a shade or two darker than the clypeus. Measurements of head: diameter through eyes, 24.5; distance between inner eye margins, 15; extreme width of anterior reflexed margin, 12; antennal club, 8.5; dorso-ventral diameter of eye, 8.5.

Pronotum moderately convex; sides arcuate only in the anterior two-fifths, sparsely and inconspicuously fimbriate with short brown hairs; surface closely and finely punctured, punctures separated by one-half to three diameters. Measurements of pronotum: width through posterior angles, 41; through anterior angles, 25.5; median length, 22.

Elytra approaching the typical sculpture of the eastern species of the genus, in that the intervals 1, 3, 5 etc., are only very slightly narrower than the alternate ones, and in that the striæ are relatively wide, shallow grooves carrying three confused rows of punctures, however, in shifting lights the grooves show sharp line-like impression at the bottom. Punctures of moderate size, strong and separated by about their own diameter except on the crests of the intervals where they are widely scattered. Lateral margins of elytra feebly and inconspicuously fimbriate; median length 7 mm.; greatest width 5.5 mm.

Genital armature of male (Pl. XXX) symmetrical and showing strongly "ligulate" tips on the claspers; length 2.5 mm.

♀. Very similar to the male, but with smaller antennal clubs, 5.5 instead of 8.5.

Type: ♂. Kaweah, Tulare Co., California, 1,000 ft., April, 1911 (Hopping), (California Academy of Sciences).

Paratypes: 14 ♂, 1 ♀, all from California:

"Calif.", 3 ♂; Fresno Co., 1 ♂; Huron, 2 ♂; Owens Lake, 1 ♂; Tulare Co., 1 ♂, 1 ♀; Kaweah, 5 ♂; Watson's Spring, 1 ♂.

***Serica praetermissa* new species.**

Praetermissa is a counterpart of *ligulata* in external characters. The differences between the holotypes of the two species are not greater than the variations to be expected between individuals in a series of a single species.

The genital structures, in conjunction with the geographical distribution, however, indicate two species, a costal form *praetermissa* (Pl. 9), and an inland form *ligulata* (Pl. XXXI). As a supplement to the figure of *praetermissa* one should note that the position of the parts (which is characteristic of this form) is such as to obscure the much greater width of the basal end of the claspers, and their inward flexure which is like that figured for *ligulata*.

It may be that we are here dealing with a plastic species where several races will have to be defined, all under the name *ligulata*, but the radical armature characters scarcely justify that disposition of *praetermissa* at present.

Type: ♂. Paraiso Springs, California, June 26, 1926 (L. S. Slevin), (U. S. National Museum).

Paratypes: 9 ♂, 3 ♀, all from California:

"Calif.", 1 ♂; Alhambra, 1 ♂; Carmel, 3 ♂; Pasadena, 1 ♂; San Diego, 2 ♂, 3 ♀; Vanderventer Flat, 1 ♂.

***Serica georgiana* Leng**

Serica georgiana Leng, Journ. N. Y. Ent. Soc., xix, p. 219, 1911.

The writer is indebted to Mr. Leng for the privilege of studying the type series, mounting the genitalia of the males, and drafting the figures (Pl. XXXII) here presented from the male holotype.

The species is easily recognized by the character of the armature in conjunction with the strong tumidity of the entire cly-

peal disk. The most closely related species, *lecontei*, differs by having the stalk of the armature more suddenly inflated, and the clypeus nearly flat, (Pl. ix, Vol. xxix).

Specimens examined: 105 ♂, 83 ♀:

New Hampshire: Manchester, 3 ♂.

Massachusetts: "Mass.", 1 ♂, 3 ♀; Blue Hills, 2 ♂; Bristol Co., 1 ♂; Cohasset, 2 ♀; Danvers, 1 ♀; Dracut, 1 ♀; Fall River, 9 ♂, 4 ♀; Forest Hills, 1 ♀; Framingham, 9 ♂, 3 ♀; Ipswich, 1 ♀; Marion, 1 ♂; Milton, 2 ♂; North Saugus, 1 ♀; Sherborn, 1 ♂, 1 ♀; Tewksbury, 2 ♂, 2 ♀; Tyngsboro, 7 ♂, 4 ♀; Wilmington, 1 ♂.

Connecticut: East River, 1 ♀; Guilford, 1 ♂; Lyme, 2 ♂; New Haven, 8 ♂, 3 ♀; Stamford, 1 ♀.

New York: "N. Y.", 1 ♂; New York City, 3 ♂; Brooklyn, 1 ♂; Buffalo, 1 ♀; Hudson, 1 ♀; Ithaca, 1 ♂, 1 ♀; Ramapo, 1 ♀; Staten Island, 2 ♀.

Pennsylvania: Charter Oak, 1 ♂, 2 ♀; Cresco, 1 ♀; Enola, 2 ♂; Forburg, 1 ♀; Inglenook, 3 ♂, 1 ♀; Marsh Run, York Co., 1 ♂, 2 ♀; Nalor's Run, Del. Co., 1 ♀; Nicholson, 1 ♂; Oil City, 1 ♂; Philadelphia, 3 ♂; Pittsburgh, 2 ♂, 1 ♀; Rockville, 2 ♂, 3 ♀.

New Jersey: Closter, 2 ♂, 2 ♀; Fort Lee District, 1 ♂, 1 ♀; Palisades, 1 ♂.

Maryland: Beltsville, 2 ♂, 1 ♀; Glen Echo, 2 ♂; Meyersville, 1 ♀; Plummer's Island, 2 ♂, 1 ♀.

District of Columbia: Rock Creek Park, 3 ♀; Washington, 3 ♂, 1 ♀.

Virginia: Penington Gap, 1 ♀.

Indiana: Brown Co., 1 ♀; North Vernon, 1 ♀.

Tennessee: Cumberland Co., 1 ♀; Fentress Co., 1 ♂, 3 ♀.

North Carolina: "N. C.", 1 ♂, 1 ♀; Andrews, 1 ♀; Ashville, 1 ♀; Black Mts., 5 ♂, 6 ♀; Cataloochee, 2 ♂; Crestmount, 1 ♂; Highlands, 3 ♂, 3 ♀, (paratypes) + 1 ♀; Hendersonville, 1 ♀; Retreat, 1 ♀; Sunburst, 2 ♀.

Georgia: Clayton, 1 ♂ (holotype), 1 ♀ (paratype); Rabun Co., 5 ♂.

Alabama: Le Roy, 1 ♂.

Texas: "Texas," 1 ♀.

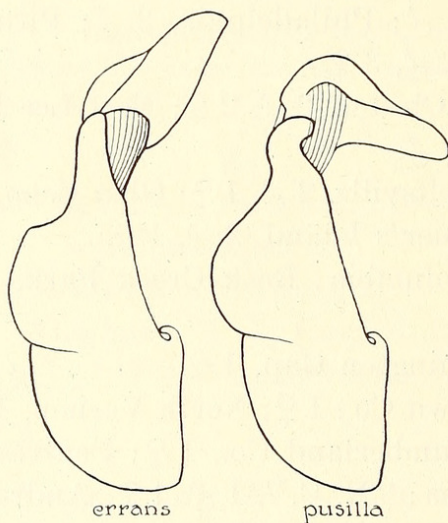
***Serica pusilla errans* Blatchley**

Serica errans Blatchley, The Florida Entomologist, xiii, p. 35, June, 1929.

Serica errans Blatchley, Blatchleyana, Nature Pub. Co., Indianapolis, 1930, p. 50, (holotype designation).

The writer is indebted to Mr. Blatchley for the privilege of studying the type series of *errans* and extracting the genitalia of the males.

Because of the great similarity between *errans* and *pusilla* it seems best to regard the two as forms of a single species, *pusilla*. The best and perhaps only certain criterion for their separation is the genital armature. The accompanying outline figures (supplementing the original drawing of *pusilla*, Pl. xvii, JOURN. N. Y. ENT. Soc., xxx) should make clear the distinguishing features. The most significant characters in the armature of *errans* are the obtuse angulation or prominence on the mid-dorsal line and the more nearly straight outline of the distal end of the stalk. Some of the differences, seeming at first glance to



obtain, between the two figures are the result of the position of the claspers, flexed basally, and partially rotated laterally in *pusilla*, and directed distally and nearly closed right to left, in *errans*. Thus the tension on the articular membranes is considerably modified, and the perspective of the claspers somewhat changed.

It is probably a good working hypothesis to assume that where any structure varies to an extreme degree between the species of a natural genus, as does the genital armature of *Serica*, one should also expect more than the usual individual variation in that structure within specific limits. Proceeding on this basis one would scarcely separate *pusilla* and *errans*. However, as additional material accumulates, intergradation should supply the evidence for synonymy, or conversely lack of intergradation, the evidence for varietal or even specific recognition.

The writer infers that Mr. Blatchley overlooked the description of *pusilla* when he described *errans*.

Specimens examined: 14 ♂, 4 ♀, all from Florida:

Dunadin, 3 ♂ and Ocala, 2 ♀, the type series; Gainesville, 9 ♂, 1 ♀.

To the best of the writer's recollection 1 ♂ from Orlando and 1 ♂, 1 ♀ from Tampa, seen some time ago, would be referable to the form *errans*.

***Serica evidens* Blatchley**

Serica carinata Blatchley, Coleoptera of Indiana, pp. 956-7, 1910.

Serica evidens Blatchley, Can. Ent., 13, p. 153, 1919, (new name).

Serica evidens Blatchley, Blatchleyana, Nature Pub. Co., Indianapolis, p. 36, 1930, (type designation).

The fine "carinate" line bisecting the front and following the clypeal suture, along with the fine, very dense puncturation of the head and pronotum should enable one to place this species rather easily. The male genital armature of Mr. Blatchley's holotype is figured on Plate XXXIII.

Specimens examined: 11 ♂, 22 ♀:

Illinois: White Heath, 1 ♂.

Indiana: (type series) Crawford Co., 2 ♀; Fountain Co., 1 ♀; Marion Co., 1 ♀; Posey Co., 1 ♂ (holotype), 1 ♀; Vigo Co., 1 ♀.

Iowa: Iowa City, 1 ♀.

Nebraska: Nebraska City, 3 ♀; Omaha, 1 ♀.

Kansas: "Kan.", 3 ♂, 1 ♀; Douglas Co., 3 ♂, 3 ♀; Lawrence,

1 ♂; Manhattan, 1 ♂; Riley Co., 1 ♂, 6 ♀.
New Jersey: Riverton, 1 ♀.

***Serica intermixta* Blatchley**

Serica intermixta Blatchley, Coleoptera of Indiana, p. 957, 1910 (in part).

Serica intermixta Blatchley, Blatchleyana, Nature Pub. Co., Indianapolis, 1930, p. 36 (holotype designation).

Mr. Blatchley's description of *intermixta* was drawn up from a composite series including *intermixta*, *loxia* and *campestris*. In 1918 all the specimens then remaining in his collection were kindly submitted to the writer for study. By mutual agreement between us the male holotype was selected, and as above noted, has recently been recorded by Mr. Blatchley. All determinations made by the writer have been based upon this agreement.

The figures here presented (Pl. XXXIV) of the genital armature are not from the holotype, but from a specimen carefully matched with it, in which the armature was in a more satisfactory condition for drawing. This specimen bears the data, "Queen's Park, Aylmer, Quebec, Sept. 26, 1924, (A. R. Graham)" and is being deposited in the U. S. National Museum for reference of future students.

The genital armature of *intermixta* is so distinctive and characteristic that nothing more is needed for positive identification. In fact the writer believes that a full description of the external characters would only hinder the recognition of the species by making students think they could recognize it by that means. The species is very wide ranging and variable, and grades so close to the variants of *campestris*, *lecontei*, *loxia*, *atricapilla*, *carolina* and others in turn, that only one with comparative material at hand and who has had some experience with the genus can be sure of identifying it without the aid of the genital armature. With this reservation the following notes are offered.

Clypeus relatively long and narrow, distinctly impressed near the margins, making the clypeal suture appear prominent or subangulate; clypeal notch narrow; anterior depressed area of clypeus with sparse, coarse, erect hairs. Eyes and antennal clubs of moderate size.

Specimens examined: 249 ♂, 170 ♀:

New Hampshire: "N. H.", 1 ♂; Manchester, 1 ♂, 1 ♀; Three Mile Island, 4 ♂, 2 ♀.

Massachusetts: Sherborn, 1 ♀.

Connecticut: Stonington, 1 ♂.

New York: Ithaca, 6 ♂, 2 ♀; Newport, 4 ♂; Peru, 1 ♀; West Point, 1 ♂.

New Jersey: "N. J.", 1 ♂; Riverton, 1 ♀.

Maryland: "Md.", 2 ♂, 3 ♀; Laurel, 2 ♀; Plummer's Island, 5 ♂; Plum Point, 1 ♀.

District of Columbia: Washington, 5 ♂, 4 ♀.

Virginia: "Va.", 1 ♂, 1 ♀.

Michigan: "Mich.", 1 ♂; Ann Arbor, 1 ♀; Bad Axe, 1 ♀; Charity Isl., 1 ♂; Douglas Lake, 3 ♂, 2 ♀; Marquette, 1 ♂, 1 ♀; Montmorency Co., 1 ♀; Port Huron, 1 ♂.

Wisconsin: Bayfield, 1 ♀.

Illinois: "Ill.", 5 ♂, 9 ♀; Algonquin, 2 ♀; Champaign, 1 ♀; Cook Co., 1 ♀; Rock Island, 1 ♂.

Indiana: Jennings Co., 1 ♂ (holotype); Lafayette, 2 ♀; Lake Co., 1 ♀ (paratype); Millers, 1 ♂; New Albany, 1 ♀; Vigo Co., 1 ♀ (paratype).

Tennessee: "Tenn.", 1 ♀; Fentress Co., 1 ♀.

North Carolina: Black Mts., 3 ♂, 1 ♀; Chapel Hill, 1 ♂; Durham, 1 ♂; Raleigh, 1 ♂; Southern Pines, 3 ♂.

South Carolina: "S. C.", 1 ♀; Columbia, 1 ♀.

Georgia: Macon, 1 ♂; Rabun Co., 1 ♀.

Florida: Gainesville, 2 ♂, 3 ♀.

Missouri: "Mo.", 2 ♀.

Iowa: Ames, 1 ♂; Ft. Dodge, 1 ♂; Lake Okoboji, 5 ♂, 1 ♀; Sioux City, 1 ♂.

Minnesota: "Minn.", 1 ♀; Duluth, 2 ♂, 1 ♀; Minneapolis, 9 ♂, 11 ♀; St. Paul, 1 ♂, 9 ♀.

North Dakota: Jamestown, 1 ♀.

South Dakota: Englewood, 5 ♂, 1 ♀; Spearfish Canyon, 1 ♂.

Nebraska: Hooper, 1 ♂; Monroe Canyon, 1 ♀; Neligh, 5 ♂; South Bend, 1 ♂; West Point, 3 ♂, 3 ♀.

Kansas: "Kan.", 5 ♂, 1 ♀.

New Mexico: "N. M.", 1 ♂; Gallinas Canyon, 1 ♂; Trout Springs, 1 ♂.

Colorado: "Col.", 4 ♂, 3 ♀; Colorado Springs, 1 ♂, 1 ♀; Douglas Co., 1 ♀; Durango, 1 ♂; El Paso Co., 1 ♂; Estes Park, 1 ♂; Ft. Collins, 1 ♂; Golden, 2 ♂, 1 ♀; Greeley, 1 ♀; Platte Canyon, 2 ♂, 1 ♀; Rist Canyon, 1 ♂; Williams Canyon, 1 ♀.

Arizona: Tucson, 3 ♂, 3 ♀.

Montana: Helena, 1 ♂; Maiden, 9 ♂; Monarch, 1 ♀.

Canada:

Ontario: W. Ontario, 1 ♀; Gull Lake, 7 ♂; Hastings, 1 ♂; Ottawa, 16 ♂, 14 ♀; Port Hope, 1 ♂, 2 ♀; Prince Edward Co., 1 ♀; Rostrevor, 1 ♂; Sudbury, 1 ♂; Toronto, 2 ♂; Trenton, 5 ♂, 1 ♀.

Quebec: Chelsea, 11 ♂, 8 ♀; Montreal, 2 ♂, 1 ♀; Aylmer, 1 ♂; St. Anne's, 1 ♂; St. Johns, 12 ♂; St. Therese Isl., 9 ♂; Three Rivers, 4 ♂, 1 ♀.

Manitoba: Aweme, 12 ♂, 9 ♀; Melita, 1 ♀; Miami, 1 ♂, 1 ♀; Onah, 5 ♂, 5 ♀; Wawansea, 1 ♂; Winnipeg, 13 ♂, 13 ♀.

Alberta: Edmonton, 12 ♂, 7 ♀.

British Columbia: "B. C.", 1 ♀; Cawston, 1 ♂, 2 ♀; Savana, 2 ♀.

North West Territory: "N. W. T.", 2 ♀.

***Serica sericea* Illiger**

In 1922 *sericea* was redescribed (JOURN. N. Y. ENT. SOC., xxx, p. 154) and neotypes were designated in the belief that Illiger's specimens were no longer extant. Recently through the kindness of Dr. Heinrich Kuntzen of Berlin the writer has been permitted to examine Illiger's type series of five specimens. Like several other type series it is composite. One male and two females are *mystaca*, one male *parallela* and one female the *sericea* of American authors of the past century. This female specimen, labelled "Georgia, Francillon, Knoch collection," is here designated as the holotype of Illiger's species *sericea*. Fortunately there is neither justification, nor necessity for disturbing the nomenclature of the three species concerned.

***Serica atricapilla* Kirby**

Camptorhina atracapilla Kirby, Fauna Boreali-Americana, iv, p. 129, 1837.

Serica cucullata Dawson, JOURN. N. Y. ENT. SOC., xxvii, p. 34, 1919.

It is certain that Kirby had several specimens, since he says in the original description: "Taken in Canada by Dr. Bigsby, and in Nova Scotia by Capt. Hall." There is every probability that his series contained *intermixta*, the prevailing Canadian species, *lecontei*, which must have given the inspiration for the name "black-capped" and which probably accounts for Le Conte's recorded synonymy with *vespertina*† (Le Conte not Gyllenhal), and *cucullata*. A single female specimen of his material remains, and is deposited in the British Museum where it is held to be the holotype. The writer is indebted to Dr. C. E. Mickel and Dr. Gilbert Arrow for carefully comparing in joint session all the North American species which theoretically might be concerned, and for making a positive identification with the species *cucullata*.

The known range of *atricapilla* has been extended into eleven new states since the publication of the description of *cucullata*. It therefore seems desirable to record all the data.

Specimens examined: 131 ♂, 63 ♀:

Maine: Paris, 1 ♀; Salisbury Cove, 1 ♂.

New Hampshire: Mt. Moosilauke, 1 ♂; Three Mile Island, 1 ♂, 1 ♀; Walpole, 1 ♂.

Vermont: St. Johnsbury, 1 ♂.

Connecticut: Cornwall, 1 ♂; Colebrook, 1 ♂.

New York: Allegany Park, 1 ♀; Cranberry Lake, 6 ♂; Ithaca, 6 ♂, 4 ♀; McLean Bogs, 2 ♂; Newport, 3 ♀; Peru, 1 ♀; Saranac Inn, 2 ♂; Sullivan Co., 1 ♂; Trenton, 1 ♂, 1 ♀.

Pennsylvania: Allegheny Co., 1 ♂; Inglenook, 1 ♀; Jeanette, 1 ♂; Pittsburgh, 2 ♂; York Co., 1 ♀.

New Jersey: Bergen Co., 1 ♀; Closter, 1 ♂.

Maryland: Glen Echo, 2 ♀; Hyattsville, 2 ♂; Jackson's Island, 1 ♂; Laurel, 1 ♂; Plummer's Island, 2 ♂.

District of Columbia: Washington, 5 ♂.

Virginia: "Va.", 1 ♂; Falls Church, 3 ♂; Great Falls, 2 ♂, 1 ♀.

Michigan: Beaver Island, Charlevoix Co., 4 ♂, 1 ♀; Big Stone Bay, 1 ♂, 1 ♀; Charity Island, 2 ♂; Detroit, 2 ♂;

Douglas Lake, 3 ♂, 2 ♀; Eagle Harbor, 1 ♂; Eagle River, 1 ♂; High Island, 3 ♂; Lake Superior, 1 ♂; Mackinac Co., 2 ♂; Mackinaw City, 2 ♂; Marquette, 9 ♂, 4 ♀; Point Austin, 1 ♂; Pellston, 1 ♀; St. Ignace, 4 ♂.

Wisconsin: "Wis.", 1 ♀; Cranmoor, 1 ♂; Trout Lake, 1 ♂.
Illinois: Chicago, 1 ♀.

Tennessee: Burrville, 1 ♀.

North Carolina: "N. C.", 2 ♂; Black Mts., 3 ♂, 2 ♀; Cata-loochee, 1 ♂; Round Knob, 1 ♂; Sunburst, 1 ♂.

Georgia: Clayton, 1 ♂, 1 ♀.

Florida: Gainesville, 1 ♂.

Alabama: Baldwin Co., 1 ♂.

Minnesota: Duluth, 1 ♂, 3 ♀; Itasca Co., 2 ♂, 4 ♀; Lake Itasca, 2 ♀; Minneapolis, 20 ♂, 13 ♀; St. Paul, 1 ♀.

Canada:

Ontario: Gull Lake, 2 ♂; Hastings Co., 1 ♀; Ottawa, 1 ♂, 1 ♀; Sudbury, 1 ♀.

Quebec: Hemmingford, 1 ♂; Montreal, 2 ♂; Murray Bay, 1 ♂, 1 ♀; St. Therese Island, 1 ♂; Seven Islands, 1 ♀.

New Brunswick: St. John, 1 ♀.

Nova Scotia: "N. S.", 1 ♂; Kentville, 1 ♂.

Manitoba: Aweme, 1 ♂; Winnipeg, 1 ♂.

British Columbia: "B. C.", 1 ♀.

***Serica trociformis* Burmeister**

Serica trociformis Burmeister, Handbuch Ent., iv, 2, p. 179.

Serica trociformis Le Conte, Journ. Acad. N. S., Phil., Ser. 2, iii, p. 277.

To again describe *trociformis* is unnecessary, but a supplement to the recorded information is needed. Through the courtesy of Dr. Walther Horn the writer was permitted to examine Burmeister's type series of five specimens. They are exactly like the form collected at Southern Pines, North Carolina, by the late A. H. Manee, and distributed by him to many collections. The pronotum is shining and glabrous, evenly convex, entirely lacking the median groove expanding basally as described by Blatchley.

The accompanying figure of the genital armature (Pl. XXV) is from a specimen deposited in the U. S. National Museum, and

bearing the label "Southern Pines, N. C., iv, 23, '12, A. H. Manee."

Specimens examined: 137:

South Carolina: 5 specimens, Burmeister's type series.

North Carolina: Aberdeen, 9 ♂, 12 ♀; Eagle Springs, 17 ♂, 23 ♀; Ellerby, 5 ♂, 3 ♀; Southern Pines, 33 ♂, 26 ♀; White Lake, 1 ♂, 3 ♀.

Serica trociformis blatchleyi new variety.

Serica trogiformis Blatchley, Coleoptera of Indiana, p. 958, 1910.

The evidence at hand seems to indicate that the form described by Blatchley as "*trogiformis* Uhler" should be designated as a distinct race. It differs from the type form by the possession of a median groove on the pronotum, which usually expands into a distinct sub-basal impression. Frequently supplementary impressions occur on each side of the median groove just anterior to the middle of the pronotum. Thus a pattern of impressions faintly suggesting the conventional skull, or monkey face is produced. Sometimes one or two faint sublateral impressions also occur. An opaque surface lustre with traces of sericeous iridescence often accompanies the pronotal pattern of impressions. These pronotal modifications are evanescent, the last thing to weaken and fade out is the median groove. However, when seen at their maximum development they present a type strikingly distinct from that described by Burmeister, where the pronotum is shining and evenly convex. The apparent correlation of these pronotal characters with geographical (possibly ecological) distribution makes it desirable to distinguish both forms by name.

No tangible character has been discovered in the genital armature separating the variety *blatchleyi* from typical *trociformis*.

Type: ♂. Sudbury, Mass., C. A. Frost, (U. S. National Museum).

Specimens examined: 108 ♂, 78 ♀: Most of this material has long since been returned to the collections from which it was borrowed. If it could now be re-examined in the light of recent information it is possible that an occasional specimen might be referred to the typical form; however it is believed that the record is essentially correct.

Massachusetts: "Mass.", 11 ♂, 14 ♀; Berkeley, 2 ♀; Bourne, 1 ♀; Dartmouth, 4 ♂, 6 ♀; Dighton, 1 ♂; Fall River, 1 ♂, 1 ♀; Framingham, 9 ♂, 3 ♀; Lexington, 2 ♂, 1 ♀; Lowell, 1 ♀; Natick, 5 ♂, 1 ♀; Sharon, 1 ♀; Springfield, 1 ♂; West Springfield, 1 ♀.

Rhode Island: "R. I.", 1 ♂; Barrington, 2 ♂, 1 ♀; Spring Green, 1 ♀; Washington, 1 ♀.

Connecticut: Granby, 1 ♂; Hamden, 3 ♂; Manchester, 8 ♂; New Haven, 6 ♂, 5 ♀; Rainbow, 2 ♂; Westville, 1 ♂.

New York: New York City, 3 ♂; Karner, 2 ♀; Long Island, 2 ♂, 1 ♀; Plains, Whiteface Mountain, 1 ♀.

Pennsylvania: "Pa.", 1 ♂; Philadelphia, 1 ♀; Shirleysburg, 1 ♂, 3 ♀.

New Jersey: "N. J.", 9 ♂, 7 ♀; Buena, 1 ♀; Fort Lee District, 3 ♂, 3 ♀; Jamesburg, 1 ♂; Ocean Co., 1 ♀.

Maryland: "Md.", 3 ♂, 3 ♀; Bladensburg, 1 ♂; College Park, 1 ♂; Odenton, 1 ♂, 3 ♀.

District of Columbia: Washington, 5 ♂; Rock Creek, 1 ♂, 1 ♀.

Virginia: Glencarlyn, 5 ♂, 3 ♀; Mount Vernon, 4 ♂.

Indiana: Posey Co., 1 ♂ (recorded by Blatchley).

Kentucky: Louisville, 1 ♀.

Tennessee: Eastern Tennessee, 2 ♂, 2 ♀ (approaching typical form); Fentress, 4 ♂.

North Carolina: Asheville, 2 ♂, 4 ♀.

Missouri: "Mo.", 1 ♀.

***Serica imitans* Chapin**

Omaloplia trogiformis Uhler, Proc. Acad. N. S., Phil., vii, p. 415, 1855.

Serica imitans Chapin, Proc. Biol. Soc. Washington, 44, p. 5, 1931.

A curious taxonomic confusion is involved in the name for this species. In the same year (1855) both Burmeister and Uhler endeavored to validate the manuscript name *Omaloplia trociformis* Germar. Each had a different, though very similar species. Burmeister called his *trociformis*, and Uhler called his *trogiformis*, (a better spelling). Both names have been used (though Burmeister's has priority) and nobody has suspected that two species were involved. While the writer was debating what to do with the "twin names for twin species," Mr. Chapin discovered Uhler's species and described it as *imitans*.

Since the names *trociformis* and *trogiformis* are clearly of the same origin, meaning and intent we may interpret the case as

coming under Article 35 of the International Code of Zoological Nomenclature, and declare *trogiformis* Uhler a homonym, thus freeing the way for the acceptance of Mr. Chapin's name *imitans*. Such a procedure will avoid the endless confusion that would certainly result from the retention of the twin name *trogiformis*.

The writer is indebted to Mr. Chapin for the male paratype from which the figures on Plate XXXV were drafted. It bears the data "Egg Harbor City, N. J., May, M. Decker, '29," and is being returned for deposition with the holotype in the U. S. National Museum.

Identification of *imitans* is easily made without the aid of the genital armature by the short erect and sparse hair on the pronotum. In this character it begins to approach *iricolor* Say.

Specimens examined: 9 ♂, 9 ♀:

New Jersey: "N. J.", 2 ♂, 3 ♀; Atco, 1 ♂; Buena, 2 ♂; Clementon, 1 ♂, 1 ♀; Da Costa, 3 ♀; Egg Harbor City, 2 ♂, 2 ♀; Lakehurst, 1 ♂.

Maryland: Hyattsville, 1 ♂.

Serica iricolor Say

Melolontha iricolor Say, Journ. Acad. N. S. Phil., iii, p. 246, 1824.

Serica iricolor Burmeister, Handb. Ent., iv, 2, p. 178, 1855.

Serica iricolor Le Conte, Journ. Acad. N. S. Phil., Ser. 2, iii, p. 275, 1856.

Serica iricolor Blatchley, Coleoptera of Indiana, pp. 956, 958, 1910.

This is the only species of North American *Serica* upon which there was correct unanimity of opinion prior to the date of employment of the genitalia as an aid to specific determination. Its small size, dark color, iridescence and dense, erect, rusty, pronotal hair sufficed to mark it definitely. For completeness of the record of eastern species the genital armature is here figured (Pl. XXXVI) and the distribution known to the writer recorded. The specimen used for the drawing bears the data "Mass.," may be regarded as a neotype, and is deposited in the U. S. National Museum.

Specimens examined: 135 ♂, 93 ♀:

New Hampshire: "N. H.", 1 ♂; Three Mile Island, 2 ♂, 2 ♀.

Massachusetts: "Mass.", 4 ♂, 3 ♀; Attleboro, 1 ♂; Berkley, 1 ♂; Blue Hill, 1 ♂; Cape Cod, 1 ♀; Fall River, 12 ♂, 5 ♀; Martha's Vineyard, 1 ♀; Wellesley, 2 ♂, 1 ♀; Woods Hole, 1 ♀.

Rhode Island: Lonsdale, 1 ♀.

New York: "N. Y.", 18 ♂, 10 ♀; Ft. Montgomery, 1 ♀; Huntington, 2 ♂, 1 ♀; Ithaca, 20 ♂, 10 ♀; Peekskill, 1 ♀; Port Jefferson, 1 ♂, 2 ♀.

Pennsylvania: "Pa.", 2 ♂, 2 ♀; Bethlehem, 1 ♀; Carlisle Junction, 1 ♀; Lancaster, 2 ♂; Landisburg, 4 ♂, 3 ♀; Rockville, 3 ♂, 1 ♀; South Mts., 1 ♀; Water Gap, 1 ♂.

New Jersey: "N. J.", 5 ♂, 2 ♀; Hewitt, 1 ♂; Husted, 1 ♂; Lakehurst, 11 ♂, 2 ♀; Manchester, 1 ♂; Riverton, 4 ♂, 2 ♀.

Maryland: "Md.", 5 ♂, 10 ♀; Bladensburg, 1 ♂, 4 ♀; Beltsville, 2 ♂, 2 ♀; Hyattsville, 10 ♂, 2 ♀; Odenton, 2 ♀.

District of Columbia: Washington, 3 ♀; Rock Creek Park, 10 ♂, 9 ♀.

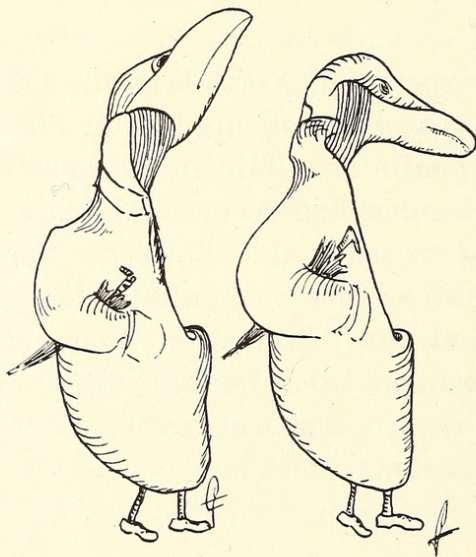
Virginia: Four Mile Run, 1 ♀; Great Falls, 1 ♀; Penington Gap, 1 ♀.

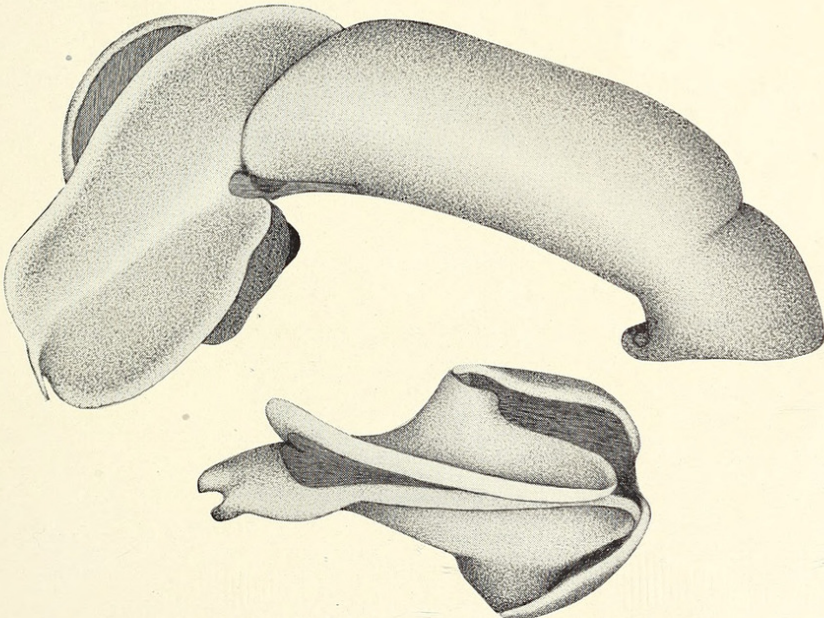
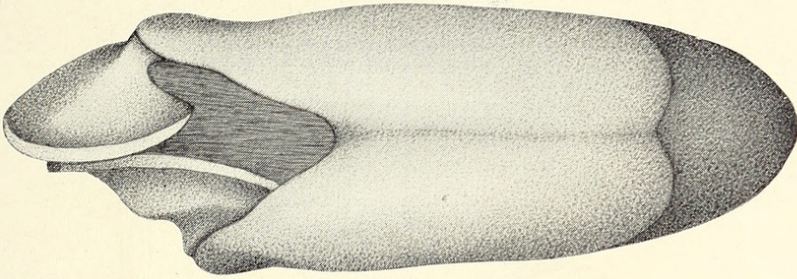
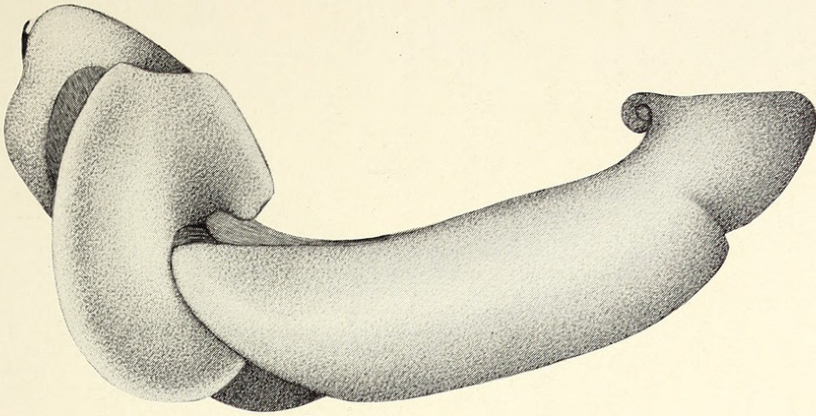
Tennessee: Fentress Co., 1 ♂; Knoxville, 1 ♀.

North Carolina: Asheville, 4 ♂, 1 ♀.

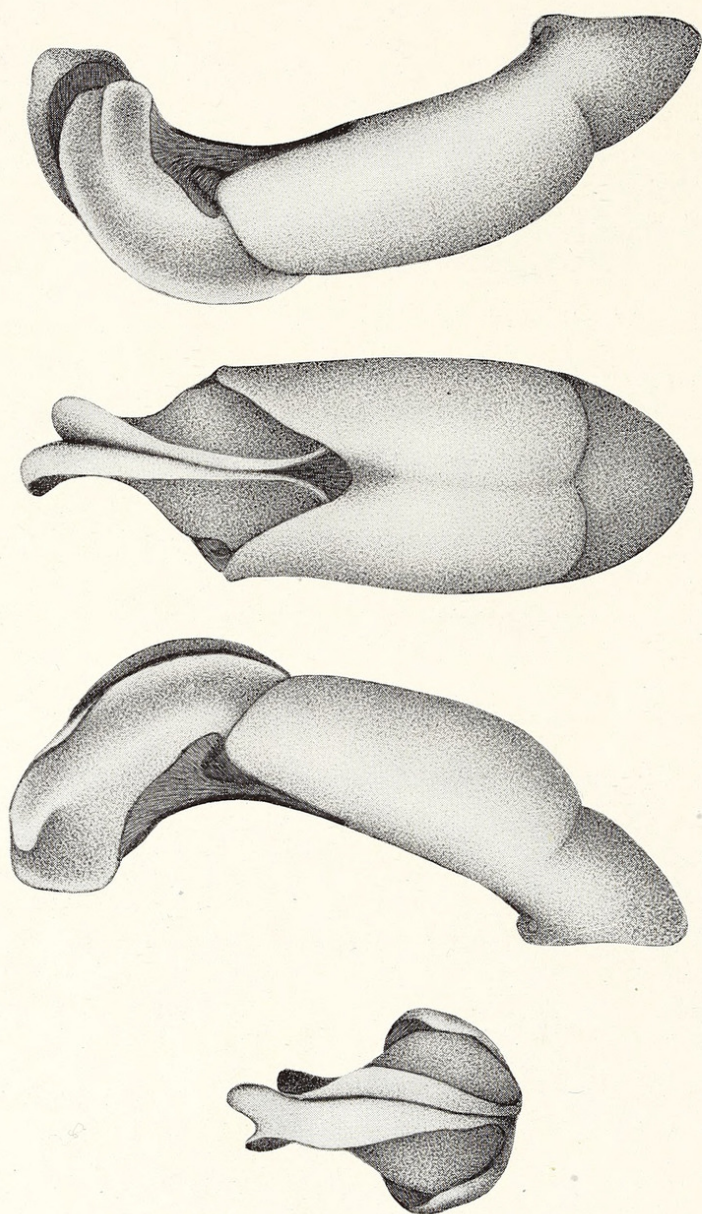
Georgia: Gainesville, 1 ♂.

Florida: "Florida," 1 ♂; Key West, 1 ♀.

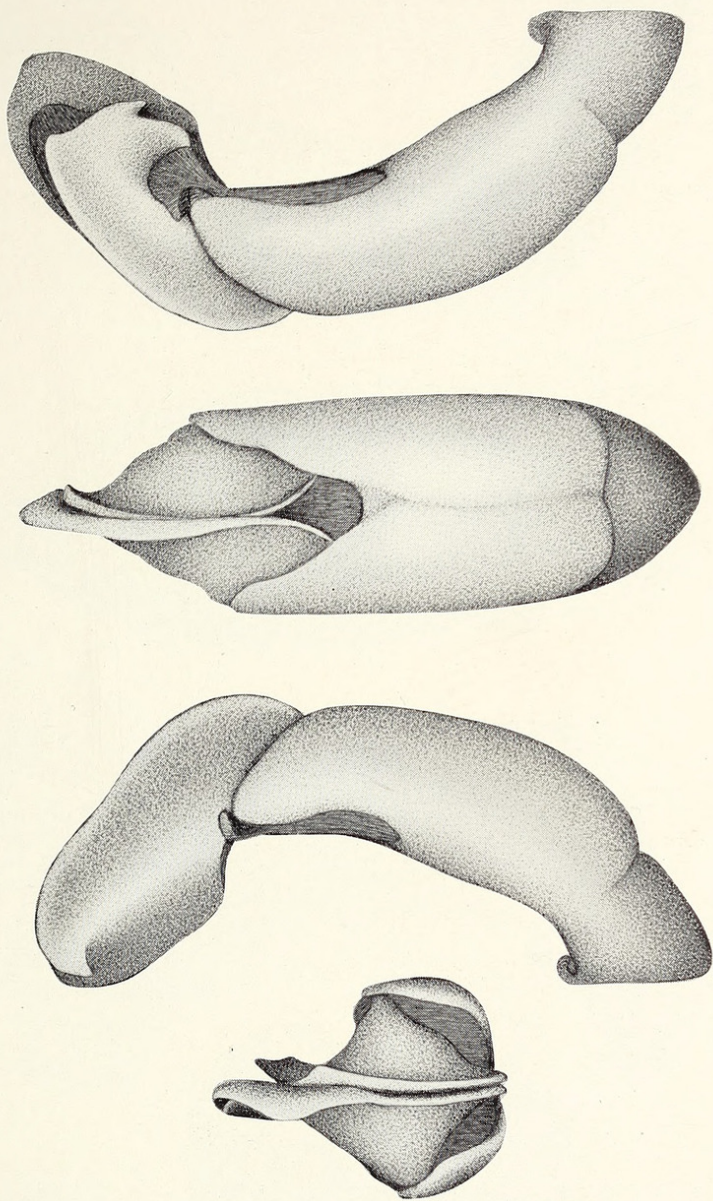




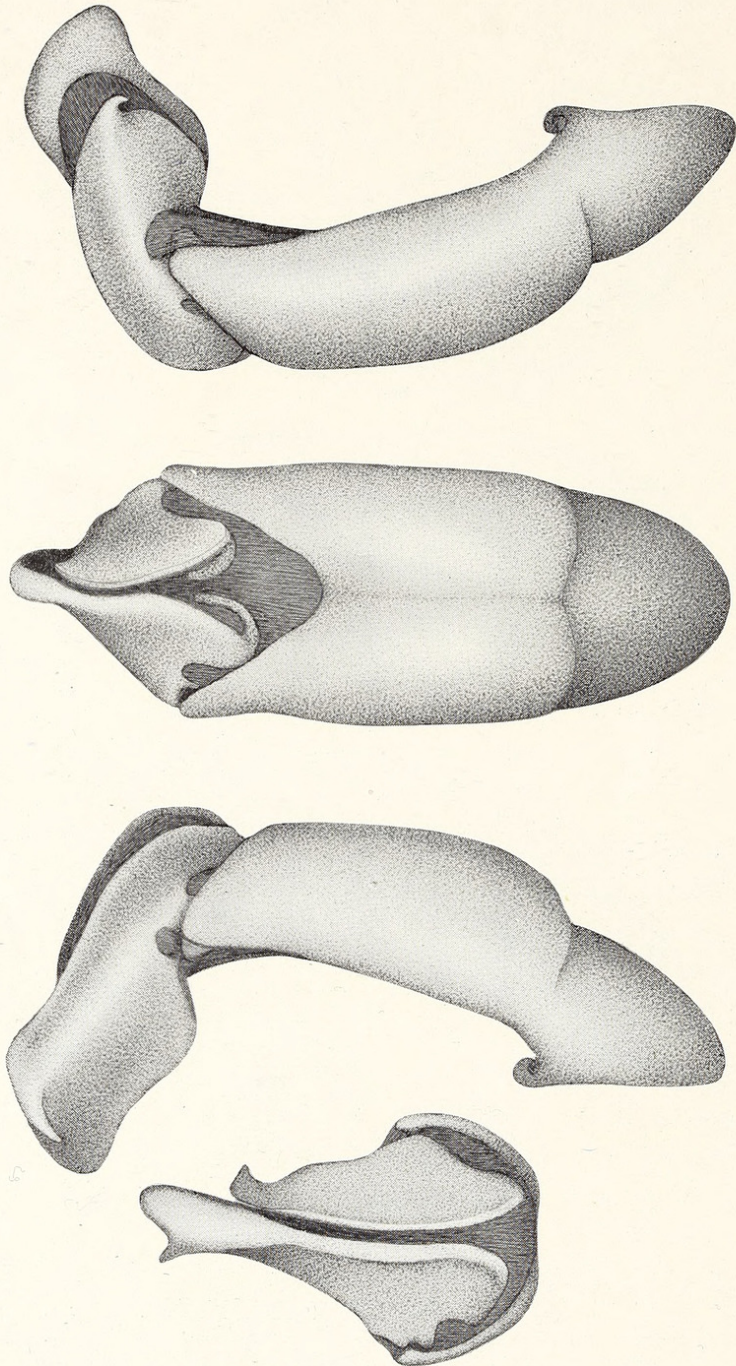
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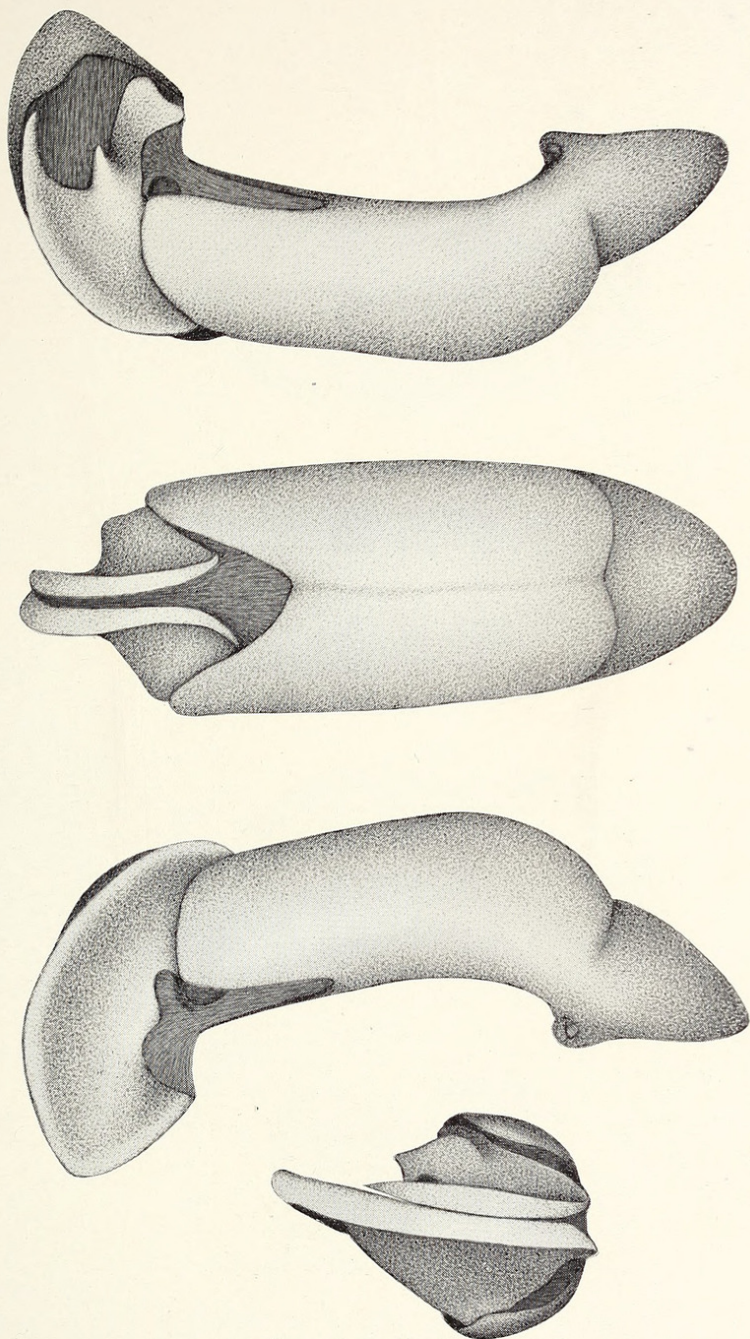
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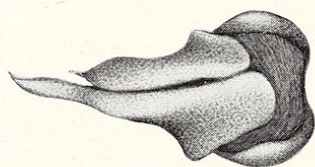
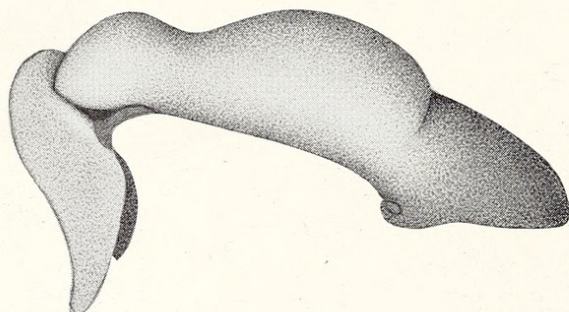
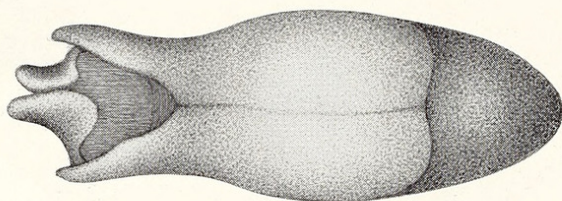
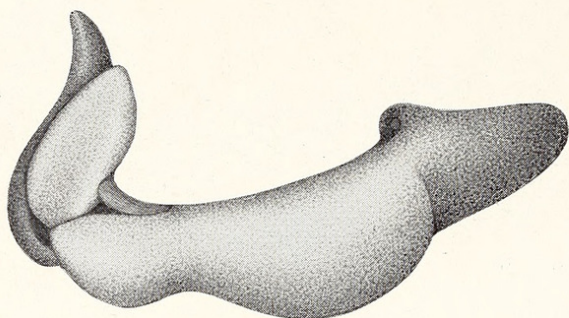
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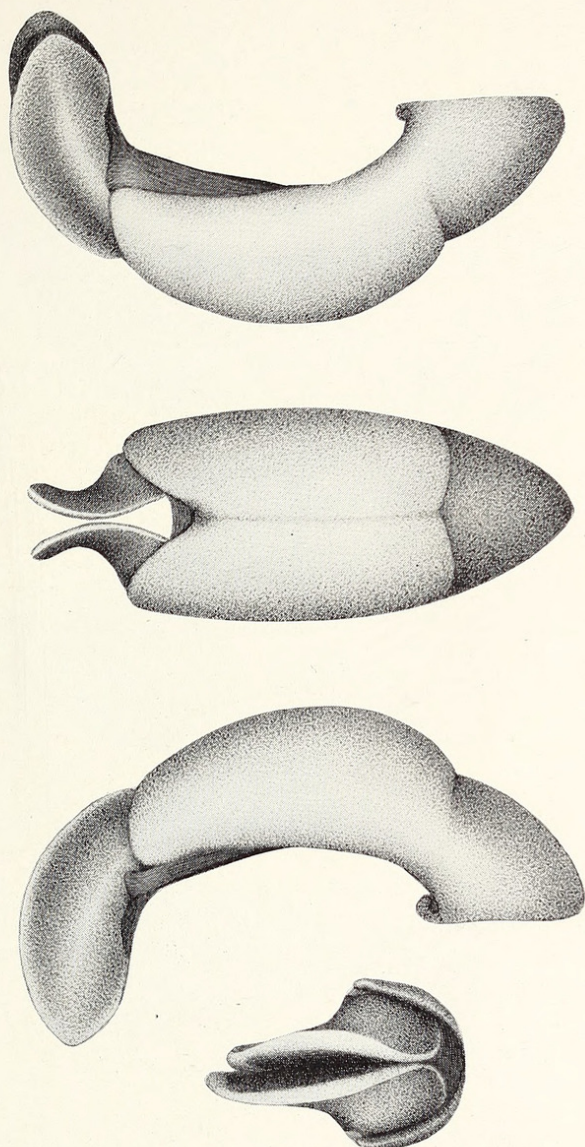
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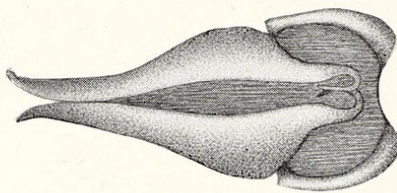
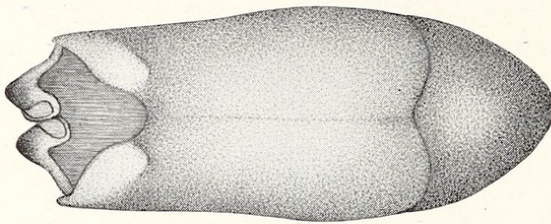
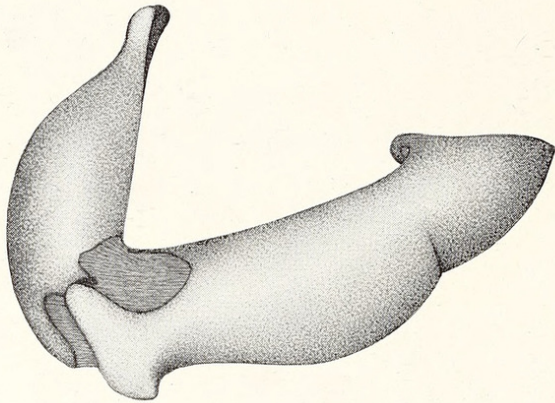
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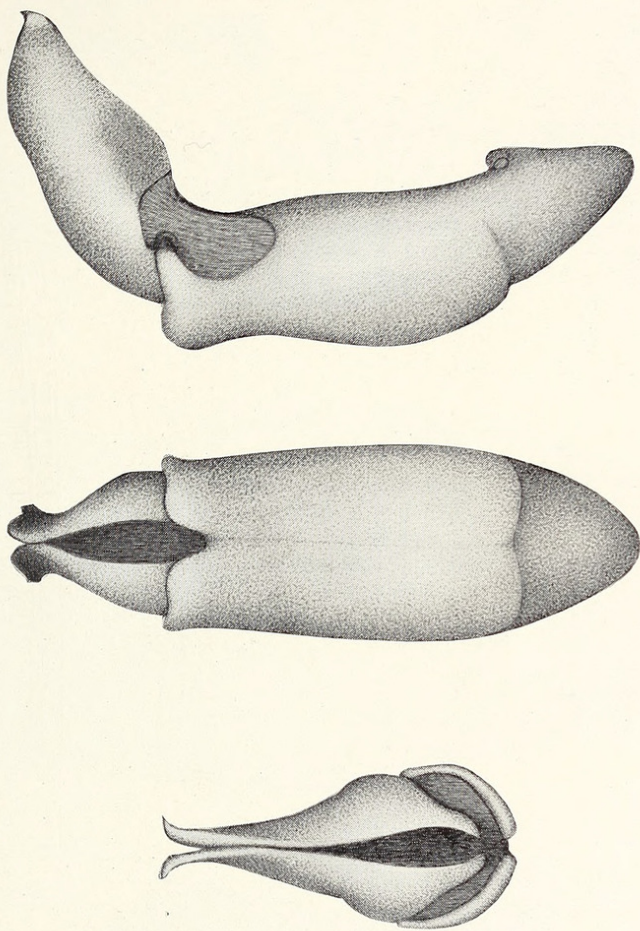
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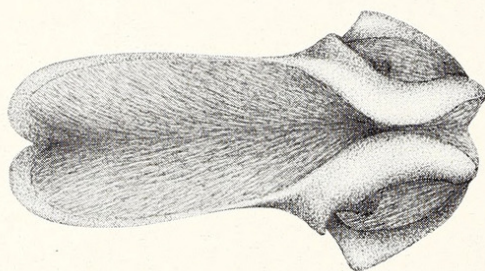
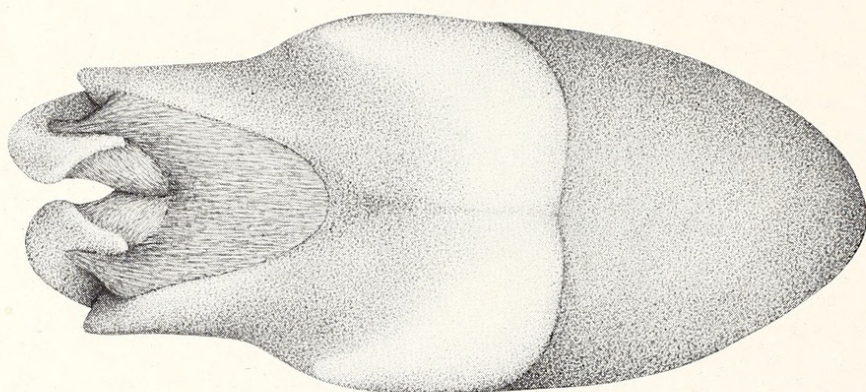
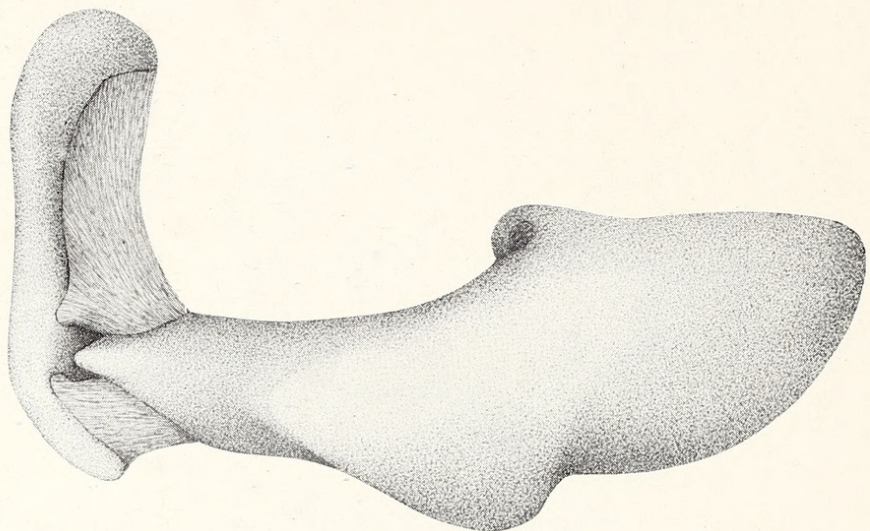
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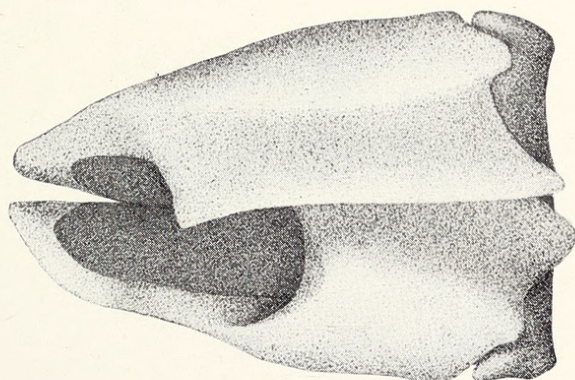
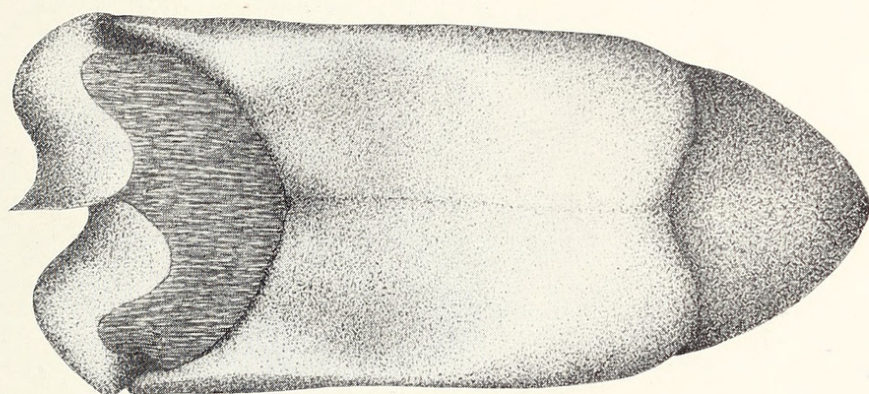
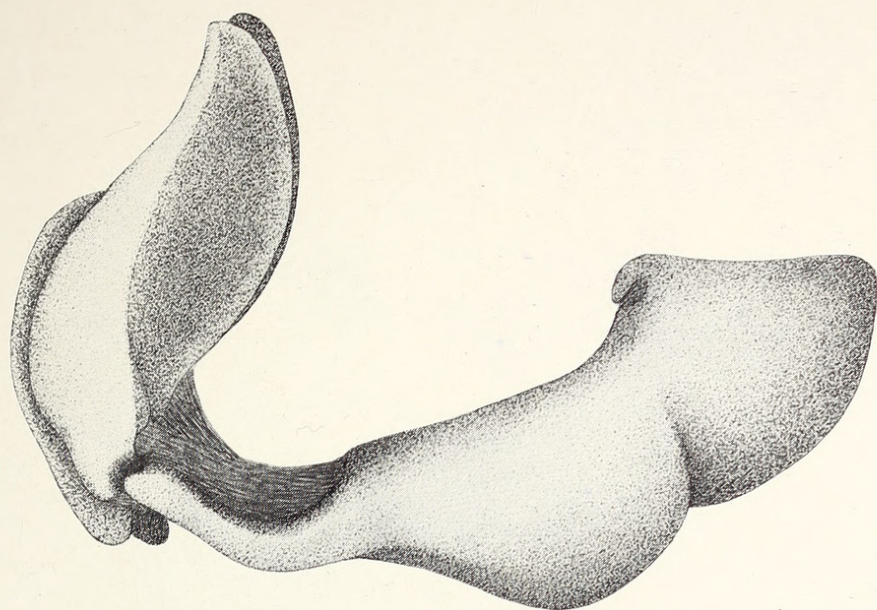
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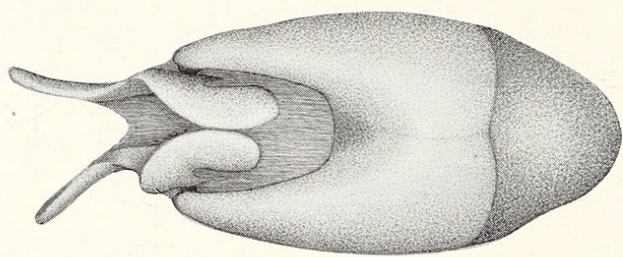
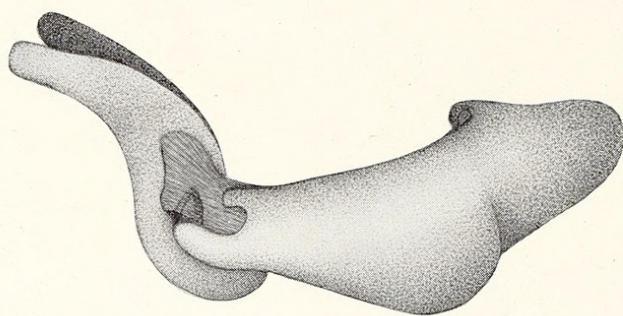
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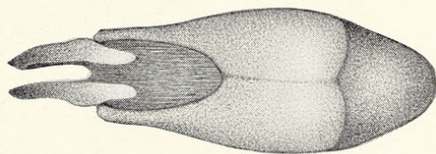
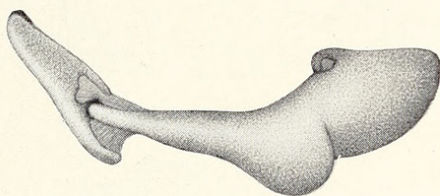
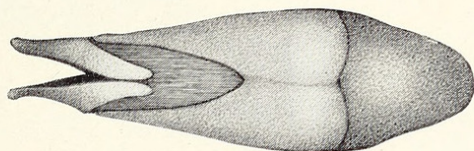
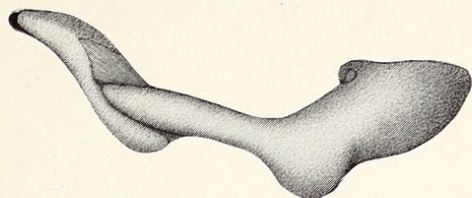
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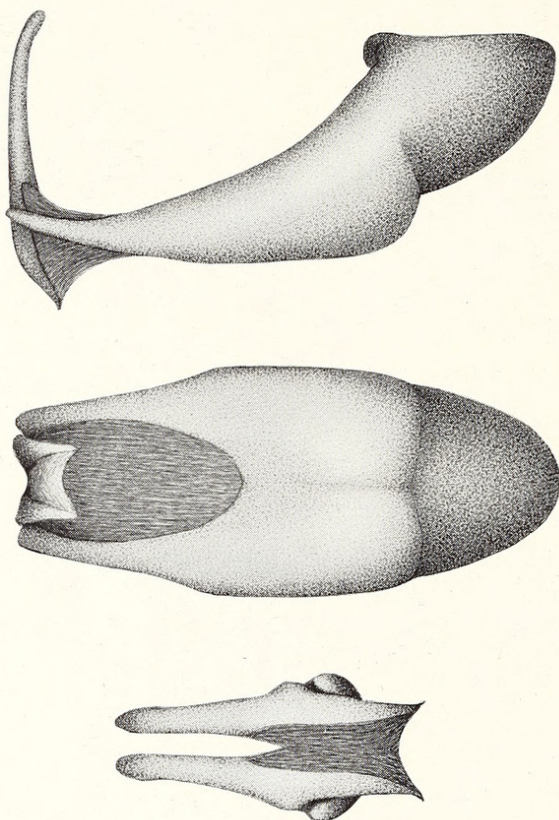
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SERICA INTERMIXTA BLATCHLEY



SERICA TROCIFORMIS BURMEISTER
SERICA IMITANS CHAPIN



SERICA IRICOLOR SAY



Dawson, R. W. 1932. "New Species of Serica (Scarabaeidae), VI." *Journal of the New York Entomological Society* 40, 529–562.

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