

THE GENUS PHLEPSIUS IN NORTH AMERICA (HOMOPTRA)

By HERBERT OSBORN and F. H. LATHROP.

The Genus *Phlepsius* was established by Fieber in 1866 and has as a haplotype the European species *intricatus*. It includes a rather small number of old world species but the number of American forms referred to the genus has been increasing rapidly until now there are more than 70 American species from North of Mexico and a number of species from Mexico, Central and South America.

A number of species have had general recognition although some have been referred to other genera. The first American form described was *irroratus* Say (1831) and except for a few species by Fitch (*fulvidorsum* 1851) Walker (*solidaginis* 1851) and Uhler (*excultus* 1877) but little attention was given to the group until the monograph of the genus by Van Duzee in 1892. In this paper Mr. Van Duzee gave a key to species, describing a number of new forms, making a total list of seventeen species. Of this original list *strobi* as identified by Van Duzee has been referred to *Eutettix* but *costomaculatus* has been included. Since Van Duzee's paper a number of species have been recognized and described by Osborn, Ball, Baker, Crumb, Sanders, DeLong and Lathrop. Inasmuch as this accumulation, with the widely scattered descriptions has made the identification of species difficult and several new species are in hand, making a total of over 80 species, it seems that a key to the known forms with diagnostic descriptions accompanied by outline figures of the genitalia will be useful in further work on the group. Undoubtedly additional species will be found upon careful collecting, particularly in localities as yet unworked and recognition of species will be facilitated by such a paper.

As originally established the genus character was based on the wide vertex and irrorate elytra. The type species possesses a distinctly sharp edged vertex, but evidently this character cannot be counted as of generic value since so many species

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which appear strictly cogenetic vary widely in the acuteness of the edge between the vertex and front. As limited in the present paper the genus includes forms having a single cross nervure, but with more or less distinctly marked irrorations or reticulations within the elytral cells. The vertex is flat or sloping, in a few instances upturned, without transverse furrow; front sloping, straight or convex in profile, sometimes concave on base and decidedly oblique to axis of body. The clypeus is usually more or less widened at apex and the loræ large, approaching margin of face. The elytra are longer than the abdomen, the wings generally fully developed and no species are as yet known of dimorphic short-winged forms. On the whole they are shorter and blunter than species of *Thamnotettix* or *Chlorotettix*. Structurally they resemble *Euscelis* but usually can be separated from this genus by the general fascies and the more oblique head with ocelli nearer the eyes.

Ball has published on Mexican and Central American species and proposed divisions to sub-genera. His basis of division is adopted in the main in our arrangement of species, but in order we have placed the *utahnus* group first, and *majestus* group last.

Most of the species are of grayish or brownish color, however, when a distinct color occurs this is quite constant. The more distinct specific characteristics are the shape of the vertex and the distribution of pigmentation of the elytra, but the most positive character is in the genitalia, both sexes ordinarily possessing a distinct genital structure. In general the size for each species is quite uniform. As a rule the males and females agree very closely in shape and markings and there is little difference in size, the males usually somewhat smaller. In the female the characters consist of distinct sculpturing of the last ventral abdominal segment. This varies greatly in details of hind margin. In the male the shape of the valve, but especially the outlines of plates afford reliable characters.

The genus is distributed in North America throughout the nearctic and in the neotropic region but the greatest known abundance occurs in the Mississippi Valley and it would seem that within this faunal area there has been the greatest opportunity for evolution of different forms. However, the Atlantic and Gulf Coast Region and the southwest states present a considerable array of species having limited distribution. A few

have a very wide distribution; *irroratus* occurs from Maine to Washington and south to the Gulf; *apertus* has a northern range from Atlantic coast to Rocky Mountains; *majestus* from New Jersey to Texas; *superbus* has a southern range from North Carolina to California. Most of the species, however, have limited range so far as determined and are adapted to certain ecological conditions or to restricted food plants. They may range from bogs of the northeast to arid plains of the southwest, but each species is adapted to distinct environmental conditions. In food plants they show wide choice, but most feed on grasses, or low herbs in fields, meadows and grassy plains. But very few have been studied for life history and there is large opportunity for careful work in determining details of habits, life history and ecology.

The authors have worked together on descriptive matter, the senior author especially on the key and technical descriptions and the junior author is especially responsible for the figures of the details for the species, which have been drawn to a common scale and as far as possible from type specimens and both descriptions and figures carefully compared and verified jointly. We have omitted all synonymy and bibliographic references except such as have appeared since the publication of Van Duzee's Catalogue. To have given them in such detail as to have been of value would have greatly extended this paper and it seems fair to assume that any one making use of this paper will have access to Van Duzee's indispensable catalogue.

MATERIAL AVAILABLE.

The materials examined include species collected for many years by the Senior author, collections in South Carolina and Oregon by the Junior author. Also collections from National Museum and Bureau of Entomology. These include many types of Osborn and Ball species as well as for species described by Ball, DeLong, Lathrop and Sanders and DeLong. We are especially indebted to Mr. E. P. Van Duzee, Dr. E. D. Ball, and Messrs. Sanders and DeLong for the opportunity to examine specimens in their collections, including much type material which has made possible the inclusion of many figures that would otherwise have been impossible. We are indebted to the South Carolina Experiment Station for the use of figures from Bull. 199 on Cicadellidæ of South Carolina by F. H. Lathrop.

KEY TO THE NORTH AMERICAN SPECIES OF PHLEPSIUS.

- Pronotum with lateral margins very short, carina faint or obsolete.....1
Pronotum with lateral margins distinct, carina well marked.....10
1. Vertex angulate, elytra densely marked.....2
Vertex rounded or faintly angulate, elytra sparsely obscurely marked.....6
 2. Markings varied with tawny and orange.....*vinclorius*
Markings uniform gray, white and black or fuscous.....3
 3. Elytral pattern irregular.....4
Elytral pattern uniform, with dense ramose lines.....5
 4. Small, vertex with minutely dotted picture.....*ulahnus and arizonus*
Larger, vertex with indefinite picture, oblique stripe on clavus.....*pulchripennis*
 5. Larger, length 4 to 4.5 mm. (Fla.).....*floridanus*
Smaller, 3.5 mm. (Me.).....*graniticus*
 6. With distinct spots on elytra and in the costal cell.....7
All spots on the elytra faint or obsolete.....9
 7. Vertex short, rounded.....*costomaculatus*
Vertex longer, subangulate.....8
 8. Over 4 mm.....*attractus*
Less than 4 mm.....*loculatus*
 9. With scattered small dots on vertex.....*denudatus*
With star-shaped spots on vertex.....*stellaris*
 10. Carina on margin of pronotum very short, less than half short diameter of eye.....11
Carina on margin of pronotum longer, more than half short diameter of eye, head narrower than pronotum.....54
 11. Front margin of head rounded or acute at apex only.....12
Front margin of head thin, acute, front concave below vertex.....46
 12. Head rounded in front, not or very faintly angulate.....13
Head angulate, vertex longer on middle than next the eye.....29
 13. Vertex very short, margins parallel or slightly longer at middle.....14
Vertex perceptibly longer at middle than at eye.....25
 14. Margins of vertex very blunt, rounded or scarcely angled to front.....15
Margins of vertex more angulate.....16
 15. Vertex short very sloping to front without ocellate spots.....*latifrons*
Vertex less sloping, two ocellate spots on hind margin.....*maculosus*
 16. Costal cell without black spots.....17
Costal cell with black spots.....21
 17. Small, 5 mm. long.....*pusillus*
Larger, over 5 mm. long.....18
 18. Dark fuscous, 6 mm.....*fuscipennis*
Light tawny.....19
 19. Over 6 mm., scutellum yellow, not concolorous.....*tigrinus*
Scutellum concolorous tawny or brown.....20
 20. Vertex longer at middle than at eye, elytra with fine lines.....*turpiculus*
Vertex scarcely longer, elytra minutely dotted.....*micronotatus*
 21. Elytra concolorous with head and pronotum.....22
Elytra much darker than head and pronotum.....*collitus*
 22. Front black at base.....*nigrifrons*
Front pale with broken black arcs.....23
 23. Larger, female 7.5 mm.-8 mm.....*vanduzeei, pallidus*
Smaller, length of female 7 mm. or less.....24
 24. Light gray, female 6.5 mm.; male 6 mm.....*cinereus*
Dark gray. Female 7 mm.; male 6.25 mm.....*cottoni*
 25. Apex of vertex with dark spots.....*lascivius*
Apex of vertex not marked with conspicuous black spots.....26
 26. Smaller.....27
Larger.....28
 27. Vertex scarcely longer at middle than at eye.....*altus*
Vertex nearly half longer at middle than at eye.....*collinus*

28. Female segment long, deeply incised, male plates triangular.....*incisus*
 Female segment short, four lobed, male plates spoon-shaped.....*tubus*
29. Not produced nor decidedly acute at apex of head.....30
 Head decidedly produced at apex and acute, rounded toward ocelli.....43
30. Female ventral segment strongly dentate, male plates constricted at middle.....*irroratus*
 Female segment not strongly dentate, male plates less constricted.....31
31. Vertex but little longer at middle than at eye.....32
 Vertex distinctly longer at middle than at eye, sometimes twice as long.....33
32. Female segment truncate.....*truncatus*
 Female segment lobate at lateral angles.....*lobatus*
33. Elytra uniformly irrorate.....34
 Elytra not uniformly irrorate, maculate over entire surface.....*maculellus*
34. A distinct white dot on one or both claval veins at tip.....35
 White dot at end of claval veins faint or wanting.....40
35. Both claval veins with white dots at apex.....36
 Hind claval vein only with conspicuous white dot at apex.....38
36. Vertex shorter, less angulate.....*lenessa*
 Vertex longer, more angulate.....37
37. Larger, 7 to 8 mm.....*rileyi*
 Smaller, 6 to 6.5 mm.....*lorridus, brunneus*
38. Elytra not banded, irrorations fairly even.....*texanus*
 Elytra more or less distinctly banded.....39
39. Vertex less angular (E. U. S.).....*apertus*
 Vertex more angular, longer, (Pacific Coast).....*apertinus*
40. Head, pronotum and elytra uniformly colored.....*carolinus*
 Head and pronotum much lighter colored than elytra.....42
41. Vertex nearly twice as long at middle as at eye.....*fulvidorsum*
 Vertex less than twice as long at middle as at eye.....41
42. Elytra nearly uniformly dark.....brown, *particolor*; black, *eburneolus*
43. Elytra broadly banded; darker on posterior half.....*ullahomi*
 Elytra with narrow distinct bands.....44
44. Head, pronotum and elytra nearly concolorous. *fastuosus, slossoni, lippulus*
 Head and pronotum rufous or tawny, elytra gray.....45
45. Vertex produced, half longer at middle.....*fulviceps, franconianus*
 Vertex less produced, one-third longer at middle.....*strobi*
46. Apex of head produced and sharp edged.....*punctiscriptus*
 Apex of head not specially produced but thin, sharp edged, the thin edge extending to near the ocelli.....47
47. Vertex very short with fore and hind margins parallel.....*planus*
 Vertex longer, longer at middle than at eye.....48
48. Vertex not more than half longer at middle than at eye.....49
 Vertex more than half, sometimes twice longer at middle than at eye.....50
49. Larger, 7 mm. or more.....*solidaginis*
 Smaller, 6 mm. or less.....flecked with red, *josea*; without flecks, *nudus*
50. Larger, 9 mm. gray or light tawny.....*nebulosus*
 Smaller, usually dark gray or fuscous.....51
51. Broad, with rather blunt-headed appearance.....52
 More slender with more pointed head.....*occidentalis*
52. Vertex nearly twice as long at middle as at eye.....53
 Vertex about one-half longer at middle than at eye.....*bifidus*
53. Vertex nearly flat.....*ramosus*
 Vertex sharply upturned.....*lenuifrons*
54. Head wide, flattened, scarcely narrower than pronotum.....*extremus*
 Head narrower, distinctly narrower than pronotum.....55
55. Front wider at base, vertex wider, head but little narrower than pronotum.....56
 Front long and narrow, vertex narrow, head much narrower than pronotum.....68
56. Sutural margin of elytra uniform without distinct light areas.....57
 Sutural margin of elytra with distinct light areas.....63

57. Elytra uniformly and finely irrorate.....	58
Elytra coarsely reticulate or spotted.....	62
58. Length 7 mm. Female segment excavated to base (Mex.).....	<i>eugeneus</i>
Length less than 7 mm. Female segment not excavated to base.....	59
59. More slender species.....	60
Robust species.....	61
60. Front with light arcs on dark ground.....	<i>superbus</i>
Front with dark arcs on light ground.....	<i>rufusculus</i>
61. Vertex short, but little longer at middle than at eye.....	<i>cumulatus</i>
Vertex longer, one-half longer at middle than at eye.....	<i>umbrosus</i>
62. Vertex depressed. Length 6 mm. (U. S.).....	<i>areolatus</i>
Vertex convex. Length 6.75 (Mex.).....	<i>mexicanus</i>
63. Vertex, pronotum and scutellum light, elytra dark.....	<i>excultus</i>
Vertex pronotum and scutellum concolorous with elytra.....	64
64. Elytra with coarse distant spots.....	65
Elytra finely and evenly irrorate.....	66
65. Elytra white coarsely spotted with black (N. C. to Fla.).....	<i>distinctus</i>
Elytra pink, smaller, (Oregon).....	<i>annulatus</i>
66. Vertex flat, or with depressed areas.....	67
Vertex convex, smaller species, elytra not flaring.....	<i>ovatus</i>
67. Vertex with distinct light line between ocelli. (Mex.).....	<i>hosanus</i>
Vertex with less distinct line between ocelli, and the basal part more or less dotted. (U. S.).....	<i>notatipes, graphicus, decorus</i>
68. Smaller species, 7.5 mm. or less.....	69
Larger species, 8.5 mm. or over.....	75
69. Larger, 7.5 mm., vertex banded.....	70
Smaller, 6 mm. or less, vertex not banded.....	71
70. Paler.....	<i>spatulatus</i>
Darker.....	<i>sabinus</i>
71. Elytral markings distinct, color.....	72
Elytral markings faint, color light ashy.....	74
72. Length 4 mm.....	<i>denticulus</i>
Length about 6 mm.....	73
73. Male pygofer twice as long as plates.....	<i>neomexicanus</i>
Male pygofer half longer than plates.....	<i>incurvatus</i>
74. Length 6 mm.....	<i>cinerosus</i>
Length 4 mm.....	<i>delicatus</i>
75. Vertex flat with a narrow light margin (Mex.).....	<i>elongatus</i>
Vertex convex with a broad light margin.....	76
76. Vertex twice wider than long, female segment with a shallow notch.....	77
Vertex narrower, female segment with a deep narrow slit (Mex.).....	<i>handlirschi</i>
77. Pale tawny, female segment with a shallow notch (Mex.).....	<i>hebraeus</i>
Dark tawny, female segment with a narrow notch, toothed, (U. S.).....	<i>majestus</i>

NOTE.—*Phlepsius marmor*, *hemicolor* and *palustris*, described and figured by Sanders and DeLong, Proc. Ent. Soc. Wash., vol. 25, pp. 152-3, issued Nov. 26, 1923, are not included, as their publication came after our paper was in type. *Marmor* is near *graphicus* Ball, *hemicolor* near *fulvidorsum* and *palustris* seems to fall near *pianus*. *Phlepsius atropunctatus* DeLong, Hemip. Conn., p. 131 (1923), is *Fieberiella flori*, Stål. an European species evidently recently introduced, and taken also near Boston, Mass., and Rutherford, N. J. *Phlepsius dentatus* Baker is referred to *solidaginis* Walker.

Sub genus DIXIANUS Ball

Phlepsius tinctorius Sanders and DeLong. (Pl. XXV, Fig. 1).

Annals Ent. Soc. Am., Vol. XII, p. 235.

Head scarcely wider than pronotum, sub-angulate, vertex depressed on middle, nearly one-half longer at middle than next the eye, margin obtuse, front convex; pronotum with the lateral margins short, not carinate. ♀ ventral segment one-half longer than penultimate, simple and truncate behind, male valve small, angular, plates elongate triangular, compressed, not reaching tip of pygofer. Dark fulvous, vertex with the disk fulvous, anterior border and two spots on posterior margin yellowish, bordered with black. Pronotum fulvous with blackish irrorations, scutellum orange, with a black sutural spot, spots on lateral margin and apex ivory white. Elytra tawny or fulvous with whitish spots on discal and apical cells, veins and reticular lines black. Face black with small yellow dots. Length, ♀, 5.5 mm.; ♂, 5 mm.

New Jersey, on *Aralia spinosa*.**Phlepsius utahnus** Ball. (Pl. XXV, Fig. 2).

Head distinctly wider than thorax; vertex narrow, one-half longer on middle than next eye, angulate, rounding to front, front in profile convex. ♀ segment short, truncate, slightly carinate, pygofers short and stout; ♂ valve long, roundly pointed, the lateral margins concave at base, plates together equilaterally triangular, twice the length of the valve. Milky white, finely irrorate with dark fuscous. Front densely irrorate with dark fuscous, without distinct arcs. Venation tawny, indistinct. Length, 4 mm.

Utah, Mexico.

Phlepsius arizonus, n. sp. (Plate XXV, Fig. 3).

Similar to *utahnus*, slightly larger; vertex shorter, more completely covered with dark spots; head distinctly wider than pronotum, sub-angulate; vertex wider than long, one-third longer at middle than at eye. Pronotum one-half longer than vertex, hind border nearly straight. ♀ segment short, scarcely longer than preceding; hind border faintly sinuate. A deep slit at middle reaching nearly to base. Gray; vertex pronotum and face densely irrorate with blackish; elytra closely inscribed with blackish ramose lines; legs annulate and spotted with black. Length, 4.25 mm.

Described from one specimen, (type), Osborn collection, Tempe, Arizona, 9, 26; '17, collected by H. L. Dozier.

Phlepsius pulchripennis Baker. (Fig. 1).

Head wider than pronotum; vertex angulate, one-third longer on middle than at eyes, rounding to the front; front convex in profile. ♀ segment, nearly twice as long as preceding, truncate; ♂ valve

triangular rounded behind; plates short, triangular, margins slightly concave. Gray and milky white, with fuscous and black lineations and spots. A black spot on clavus and four conspicuous black spots on costa. Length, ♀, 4.75–5 mm.; ♂, 4–4.25 mm.

Southern States.

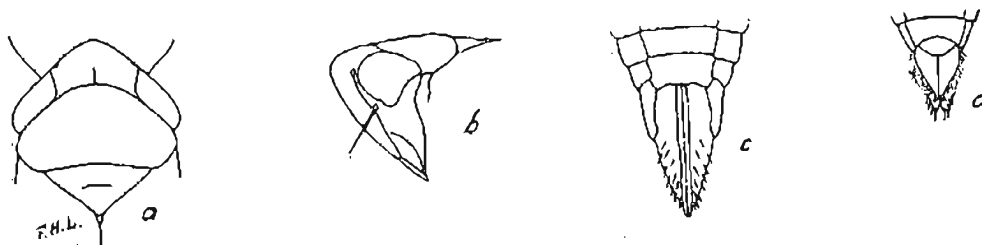


Fig. 1. *Phlepsius pulchripennis* Baker.
a, dorsal view; b, profile; c, ♀; d, ♂.

***Phlepsius floridanus* Ball. (Pl. XXV, Fig. 4):**

Resembling *irroratus* but smaller, form of *pulchripennis*, but with a longer vertex and about seven spots on the costa. ♀ segment rather long, rounding posteriorly with a pair of small rounding lobes on the median fourth.

What appears to be a male of this species has a broad, large valve nearly equalling the preceding segment in length; plates triangular, outer margins nearly straight, apices acute, about two and one-half times as long as valve. Length, ♀, 5 mm.; ♂, 4.5 mm.

Florida. South Carolina, North Carolina, Alabama.

***Phlepsius graniticus* n. sp. (Pl. XXV, Fig. 5):**

Resembles *P. floridana* in size and shape, but has very distinct pigment lines; genital plates shorter. Head wider than pronotum. Vertex convex, subangulate, slightly longer on middle than next the eye, anterior edge obtuse. Front broad at base; ocellus close to the eye. Clypeus long, widening slightly to apex, loræ elongate. Cheeks sinuate below the eye, narrowed toward clypeus. Pronotum strongly arcuate in front, distinctly sinuate behind, lateral margins very short. ♂ valve broad and short, scarcely angulate behind; plates short, narrowing very abruptly from the bases, which scarcely reach the side margins of the valve, borders scarcely sinuate, black margined, lined with fine cilia. Dark gray, whitish, with deep fuscous dots and pigment lines. Vertex with two transverse fuscous spots between the eyes; front fuscous with minute dots and traces of arcs whitish. Elytra milky white, the veins and pigment lines blackish, a series of about 8 larger spots on costa. Length, ♂, 4 mm.

One specimen, Fryeburg, Me., collected by C. P. Alexander. This species cannot be associated with any other known form, although it has evident affinities with *P. floridana*. Type, Osborn collection.

Phlepsius costomaculatus Van D. (Pl. XXV, Fig. 6).

Head wider than pronotum; vertex roundingly subangulate, slightly longer on middle than against eyes, broadly rounding to front. ♀ segment about twice as long as preceding, nearly truncate. ♂ valve rather long, rounded; plates short, triangular outer margins straight, apex acute. Light gray with a distinct spot on the clavus, four black spots on the costa, pattern on elytra like *pulchripennis* but lighter. Length, 4 mm.

Texas, Mexico.

Phlepsius attractus Ball. (Pl. XXV, Fig. 7).

"Resembling *floridanus*, but with an evenly rounding vertex and a smaller number of spots on the costa." ♀ segment half longer than preceding, with border bisinuate. ♂ valve broad and short, bluntly rounding; plates small, margins slightly concave, their rounding apices upturned, about three times the length of the valve. Disc of the plates ivory white, polished. Length, ♀, 5 mm.; ♂, 4.25 mm.

Florida.

Phlepsius oculatus Ball. (Pl. XXV, Fig. 8).

Small; head wider than pronotum; vertex narrow, slightly longer than basal width, as long as pronotum, obtusely angled; apex bluntly rounded; front long, narrow; elytra long, narrow; venation as in *costomaculatus*. ♀ segment short, hind margin slightly notched at middle; pygofers long. ♂ valve triangular; plates together equilaterally triangular. Dark brown or black and white, ashy appearance; vertex white, sometimes suffused with yellow, with two pairs of brown dots on front margin near apex. Pronotum milky, with four broad mottled dark brown stripes; elytra milky with black markings similar to *costomaculatus*. Length, 3 to 3.5 mm.

Utah and California.

Phlepsius denudatus Ball. (Pl. XXVI, Fig. 1).

Almost white, very pallid, irrorations almost obsolete. Head wider than thorax; vertex one-third longer on middle than next eye, rounding to front; front convex in profile. ♀ segment about twice as long as the penultimate, the lateral angles feebly, angularly produced; the margin between them very slightly rounding with a small semicircular median emargination. ♂ valve small, short, broad, rounded behind, plates broad, triangular, together forming a nearly equilateral triangle. Whitish with obscure irrorations, vertex with broken black spots near anterior border, black behind eyes on pronotum, triangular black spots on basal angles of scutellum and a smaller pair on the disc; front with faint brownish arcs. Length, 4.5 mm.

S. W. New Mexico, Arizona, S. California.

Phlepsius stellaris Ball. (Pl. XXVI, Fig. 2).

Similar to *loculatus* in structure, and *denudatus* in color. Head broad; vertex short, obtusely rounded; scarcely longer at middle than next the eye; front short; elytra long, narrow; venation obscure. ♀ segment broad, short, almost parallel with margin, with a slight median notch. Creamy white; ocelli and four equidistant dots on vertex margins between these dark, a pair of irregular star-shaped spots on anterior disk of vertex; one ray of each star including the outer margin spot on either side, and another touching the eye; elytra creamy; nervures faintly fulvous; face and below creamy; with brown arcs on either side of the front between the antennal sockets, attached to a brown cloud in center forming a spider like marking on face. Length, 4 mm.

St. George, Utah.

Sub genus *PHLEPSIUS* Fieb.*Phlepsius latifrons* Van D. (Pl. XXVI, Fig. 3).

Head wider than pronotum, vertex short, evenly rounding, scarcely longer on middle than against eye, front in profile convex. ♀ segment very long, deeply notched on middle, lateral lobes slightly reflexed, tips edged with black. Dark gray, coarsely irrorate with dark fuscous; vertex creamy with dark brown irrorations arranged in clouds on each side of middle; front mottled with whitish, with about four indistinct arcs on each side. Length, 7 mm.

Tennessee, North Carolina, Georgia, Florida.

Phlepsius maculosus Osborn. (Pl. XXIII, Fig. 1).

Phlepsius maculatus Osb. (Pre-occupied), Ohio Nat., Vol. V, p. 276, 1905.

Large, coarsely maculate; head equalling pronotum in width, vertex short, scarcely longer on middle than next eye, rounding to front; slightly more acute at apex, front in profile distinctly convex. ♀ segment two and one-half times as long as preceding, narrowing to hind border, produced medially with a central black disc, polished black either side the median line. Milky white with dark irrorations blending into maculations on head, pronotum and elytra. Four dark spots on anterior margin of vertex, two rounded blackish spots, including whitish pupil, next hind border. Length, 7 mm.

One specimen from Sandusky, Ohio, (Type in Osborn Coll.) Also taken in New York (Olsen).

Phlepsius pusillus Baker. (Pl. XXVI, Fig. 4).

Head broad, wider than thorax; vertex broad, slightly longer on middle than against eye, evenly rounding, rounding to front; front in profile convex. ♀ segment twice as long as preceding, posterior angle lobate, median part truncate or slightly produced, a distinct median carina, on each side of which is a dark point. ♂ valve short, angulate behind, plates about 3 times as long as valve, narrowing to behind

center, extending into acute points. Brown with fine irrorations; vertex with two white spots near hind border, ocelli margined with white, front with fragments of a few arcs, elytra with milk-white patches. Length, 4.75 mm.

Described from Maryland. Redescribed from specimen from Washington, D. C.

***Phlepsius fuscipennis* Van D. (Fig. 2).**

Head slightly wider than pronotum, scarcely angulate, short; vertex slightly longer at middle than next the eye; front broad. Pronotum short, slightly concave behind; elytra narrow and flaring toward tip. ♀ segment one-half longer than preceding; hind border bisinuate, a rather broad lobe at center margined with black. ♂ valve long, angulate, rounded at tip; plates broad at base, sides concave, tip acute. Dark brown to fuscous, uniform above, closely irrorate; elytra sometimes with darker spots. Length, ♀ 6 mm.; ♂ 5.25 mm.

Eastern United States, New York to Florida; west to Illinois, Kansas and Louisiana.



Fig. 2. *Phlepsius fuscipennis* VanD.
a, dorsal view; b, profile; c, ♀; d, ♂.

***Phlepsius tigrinus* Ball. (Pl. XXVI, Fig. 5).**

Head wider than pronotum; vertex short, scarcely longer on middle than next eyes; sloping, rounded at front. Front in profile convex, broad at base, narrowing to clypeus. ♀ segment twice as long as preceding; posterior margin slightly emarginate, middle third weakly produced and dark margined. ♂ valve triangular, plates narrowing to rounded tips. Tawny brown, reticulations faint; scutellum light yellow, basal angles tawny; front with arcs very faintly indicated. Length, 6 mm.

Cantwell Cliff, Ohio. In Pine Association. Described from Washington, D. C.

***Phlepsius turpiculus* Ball. (Pl. XXVI, Fig. 6).**

Head as wide as pronotum, vertex but little longer at middle than next the eye, margin roundly angulate, front broad above, subangulate at antennæ, narrowing sharply to clypeus, which is narrowed

near its base. ♀ segment twice as long as penultimate, with a slight notch at middle, sinuated each side, lateral angles rectangular. ♂ valve triangular, margins indented midway to apex; plates narrowed to near middle then tapering to acute tips, similar to *irroratus*. Dull creamy white, rather minutely irrorate with brownish or fulvous, a lighter tip and crescent on the vertex and faint arcs on the front. Length, ♀ 7 mm.; ♂ 6 mm.

Originally described from Holly and Ft. Collins, Colo., and Stratton, Neb., and with later records from Ontario and New York. We have specimens referred to this species which extend its range to Hodgman Co., Kans. (Lawson), Olivia and Brownsville, Tex., (H. O.), Shreveport, La., (Mally), Langdon, Mo., Chicago, Ill. (J. G. S.), Union Pt., Ga., and Columbia Orangeburg, Yemassee and Charleston, S. C. (F. H. L.), Bay Pt., Marblehead, Ohio (H. O.).

***Phlepsius micronotatus* n. sp. (Pl. XXIII, Fig. 3).**

Somewhat like *turpiculus* but with the elytral reticular pigmentation in minute dots; a double black spot on base of front, barely showing above. Head slightly broader than thorax, broadly rounded, scarcely angulate. Vertex scarcely longer on middle than next the eye, margin obtuse; front broad, narrowing uniformly from antennae to clypeus; lorae broad; cheeks sinuate below the eye. Pronotum short, nearly semicircularly arched in front; posterior border distinctly concave. Elytral venation rather faint, mostly obscured by the minute pigment granules. ♀ segment about twice as long as preceding, posterior border sinuate, median third slightly produced, notched on middle with a bifid black spot, lateral angles distinct. ♂ valve short, broad, obtusely angulate behind; plates narrowing uniformly to rather blunt divergent tips, lateral margins slightly concave, set with six short spines on dark dots. Gray, faintly suffused with tawny or yellowish. Vertex light yellowish minutely dotted with fuscous. Pronotum and scutellum minutely irrorate. Elytra dull whitish, densely covered with minute dots, leaving occasional open spaces. Front whitish, minutely dotted with fuscous, arcs faintly indicated. Length, ♀ 7 mm.; ♂ 6.5 mm.

Described from three females and four males. Guadalajara, Mexico, Aug. 12, 1903. Type and paratypes, Osborn Coll.

***Phlepsius collitus* Ball. (Fig. 3).**

Head as wide as pronotum, vertex scarcely longer at middle than next the eye, anterior edge angled. ♀ segment twice as long as penultimate, faintly notched at middle, either side of which there is a distinct sinus, the borders of which are blackened. ♂ valve broadly triangular, plates broad, short, margins scarcely sinuate. Vertex, pronotum and scutellum ivory white, contrasting with the darker elytra which are

densely reticulate with fuscous, and with obscure whitish bands at middle and end of clavus. Face fuscous mottled with whitish and with pale arcs on the front. Length, ♀ 6 mm.; ♂ 5.75 mm.

From Maine to Florida and west to Iowa. In meadows. A pale variety has been taken at Buckeye Lake, Ohio.

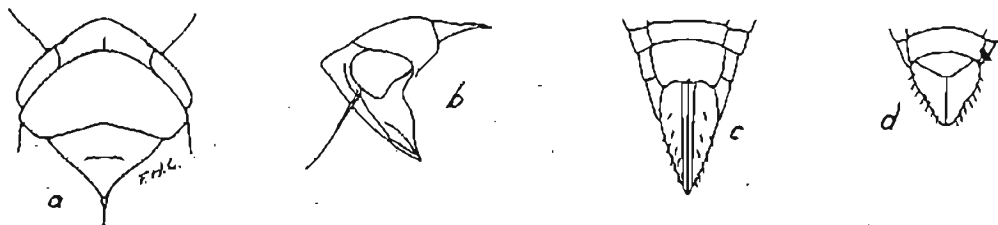


Fig. 3. *Phlepsius collitus* Ball.
a, dorsal view; b, profile; c, ♀; d, ♂.

Phlepsius vanduzei Ball. (Pl. XXVII, Fig. 1).

A large species of the form of *cinereus*, gray cinereous with a trilobate commissural line; vertex bluntly conical, one-fourth longer at middle than at eye, rounded to front; front short; clypeus long, wedge-shaped, broadest at apex; elytra broad, flaring at apex. ♀ segment interrupted, appearing as a narrow strip either side, within which is a thin membrane shaped much as apertus. ♂, valve triangular; apex obtusely angular; plates broad at base, roundly triangular; apices depressed and slightly divergent. Dull whitish, sometimes washed with yellow on vertex and pronotum; vertex with a round black spot either side at base. Pronotum and scutellum faintly marked; elytral veins yellow and fuscous; areoles finely, sparsely marked with ramose lines. Length, 8 mm.; width, 2.75 mm.

Described from Rifle, Colo. Type in Ball Collection.

Phlepsius nigrifrons Ball. (Pl. XXVII, Fig. 2).

Head wider than pronotum; vertex short, slightly longer at middle than next the eye; front full, broad at base; elytra broad, compressed behind, resembling *vanduzei*, but with apical cells short. ♀ segment wanting or appearing as a pair of widely separated rectangular plates, a pair of roundly pointed plates overlap these on their inner margins, leaving the median fourth exposed. Male valve rounding, with the apex bluntly produced; plates together nearly semicircular, with the apices bent up and slightly produced. Vertex pale yellow in female, a pair of brown spots at base and a small pair just back of apex, black. The black of front is visible from above, either side of apex. In the male an arch of irregular dots connect the basal spots. Two or three dots inside ocelli and the frontal markings extend up to the apical spot; front black at base with faint light arcs. Pronotum, scutellum and elytra pale with fuscous irrorations and lines; an interrupted black stripe from base beneath claval suture to first cross-nervure then becoming indistinct. Length, 7 mm.

Arkansas. Known only from type specimen in Ball collection.

Phlepsius pallidus Van Duzee.

Similar to *cinereus*; larger. Head a little wider than pronotum; vertex short, rounded to front. Pronotum nearly flat, nearly two and one-half times as long as vertex. ♀ segment long, obtusely subtriangular; apex broad, emarginate, sides interrupted by small lobate lateral angles. Pale cinereous, tinged with fulvous beneath and on disk of pronotum; pronotal irrorations irregular in front, leaving four to six white spots; elytra white with a narrow sub-basal band and about three coalescing bands beyond middle, forming an obscure w, pale fulvous. Length, 7.5 mm.

Texas.

Phlepsius cinereus Van D. (Pl. XXVI, Fig. 7).

Phlepsius optatus Crumb. Ann. Ent. Soc. Am., Vol. VIII, p. 194, (1915).

Head scarcely wider than pronotum, vertex rounding scarcely angulate, scarcely longer on middle than next eye, margin obtusely angulate front convex. ♀ segment twice length of preceding, ridged and elevated, posterior margin nearly truncate, lateral angles rectangular, two black points either side of a median notch. ♂ valve short, broadly rounded, plates narrow, bases scarcely broader than valve, tapering to bluntly rounded tips, exceeding pygofer. Light gray. Milky whitish with fuscous irrorations and lines and a distinct blackish spot at end of claval vein. Length, ♀, 6 mm.; ♂, 5 mm.

Described from Texas and now known from Iowa, Kansas, Florida, Mississippi, Louisiana, Ohio, North Carolina.

Optatus Crumb seems to merge into *cinereus* when any large number of specimens are compared and we have concluded that it must be placed as a synonym.

Phlepsius cottoni, Sanders & DeLong, (Pl. XXVII, Fig. 3).

Proc. Ent. Soc. Wash., Vol. XXIV, p. 98, 1922.

Head blunt, short; vertex margins nearly parallel, a trifle longer on middle than next the eye. Pronotum more than twice as long as vertex; elytra broad, tips flaring. ♀ segment "twice as long as preceding. Side margins abruptly narrowed about one-third the distance to apex, then convexly produced to posterior margin, which is slightly sinuated forming four indistinct lobes, a small one at either side and two larger ones at middle, the latter two separated by a rather broad, shallow notch." ♂ valve triangular, almost equilateral, longer than last ventral segment; plates divergent, produced the length of valve beyond its apex, outer margins at base almost straight then abruptly narrowed at two-thirds their length to the robust, parallel margined and bluntly rounded apices. Vertex, pronotum, scutellum and face white, rather heavily but irregularly irrorate with brown. Scutellum more heavily marked, with three conspicuous white spots, one at apex and one midway

on either side. Elytra white, rather sparsely and irregularly inscribed with brown. Posterior half more heavily inscribed, apex and spots along costa dark brown.

Described from Florida. Specimens from Raleigh, N. C. July, 1919, (Osborn and Metcalf).

Phlepsius lascivius Ball. (Pl. XXVII, Fig. 4).

Head scarcely wider than pronotum, vertex slightly longer on middle than next to eye, rounding to front; front in profile convex. ♀ segment very long, hind margin truncate, middle third slightly produced, with a median notch. ♂ valve broad, obtusely angulate behind; plates broad to base, narrowing rather uniformly, distinctly divergent. Yellowish white with brownish fuscous irrorations, vertex white at tip with polished black spot on each side, a few indistinct arcs on front. Length, 6 mm.

Holly, Pueblo, Ft. Collins, Colorado; Kimball, Nebraska, (Ball); also Devil's Lake, N. D. (H. O.); Kalispell, Mont. (H. O.); Lewis Springs, Arizona, (H. M.).

Phlepsius collinus n. sp. (Pl. XXVII, Fig. 6).

A small, dark, rather broad species, with head broader than pronotum, and general appearance somewhat similar to *altus*, but with distinct genitalia. Head slightly wider than pronotum, distinctly angulate. Vertex rather narrow, about twice as wide as long, nearly half longer on middle than against eye, distinctly angled to front; front broad and short, narrowed abruptly from antennal sockets to clypeus; clypeus long, over twice its basal width; lora large, nearly half the width of the cheek; margin of cheek sinuate. Pronotum short, more than twice wider than long, broadly arcuate in front, nearly twice length of vertex, scarcely concave behind; lateral margins short, carina very short but distinct. Claval veins approaching each other near the middle. Elytra but little exceeding the abdomen. ♀ segment twice as long as penultimate; hind border slightly produced, notched on middle; lateral lobes rounded, median apical third polished black. ♂ valve broad, obtusely angulate behind; plates short, abruptly narrowed to the rounded, closely attigent tips. Apical part of valve and median part of plates lighter, margin dusky, with a few short, whitish hairs. Dark gray to fuscous. Vertex, pronotum and scutellum dark fuscous, faintly irrorate with whitish dots. Elytra milky white with dark brown veins and blackish lines and dots. Face dark fuscous minutely dotted with yellowish. Abdomen beneath dark fuscous. The whole insect with a faint metallic lustre. Length, ♀, 5 mm.; ♂, 4.5 mm.

Anacostia D. C. (J. G. Sanders). Type, (Osborn collection.)

Also collected in grass in a wash or gully, on a hillside, at State Experiment Farm, Swannanoa, N. C., August 22, 1919.

Phlepsius altus O. & B. (Pl. XXVII, Fig. 5).

Small, ovate, head slightly wider than pronotum, vertex short, about one-fifth longer on middle than next eye, bluntly angulate to front; front in profile convex. ♀ segment with the lateral angles extended into blunt lobes; between these the margin is transverse and black marked. ♂ valve rather large, triangular, plates short, about twice as long as valve, narrowing uniformly to subacute tip. Grayish white, minutely and rather regularly irrorate with fuscous dots and lines, ocelli circled with whitish; front with faint indications of arcs.

Length, 5 mm.

Western prairies and plains, on grass. Also recorded for New Jersey, Maryland, Florida (V. D.) but these records may include *collinus*.

Phlepsius incisus Van D. (Pl. XXVIII, Fig. 1).

Head scarcely wider than pronotum; vertex short, angulate, slightly longer on middle than against eye, distinctly angled with front, front convex in profile. ♀ segment elongate, narrowed behind, notched on middle, outer border of lateral lobes edged with black. ♂ valve broad, obtusely angulate behind; plates two and one-half times as long as valve, margin sinuate, apex roundingly acute. Grayish, irrorate with tawny and fuscous; vertex with broken ivory white line on anterior margin, front with three or four arcs and a few distinct light points near the base. Length, 6 mm.

Massachusetts, Ohio, New York, Pennsylvania, Michigan, Tennessee.

Phlepsius tubus Ball. (Pl. XXVIII, Fig. 2).

Similar to *fuscipennis*. Head wider than pronotum; vertex narrow, rounded to front, slightly produced at tip; front broad, short, elytra broad, slightly flaring. ♀ segment broad, short, hind margin with four rounded lobes, the middle pair slightly broader than the lateral ones, black margined. ♂ valve long, triangular; plates short, rugose at base, bluntly spoon-shaped at tip. Vertex, pronotum and scutellum fulvous-brown, irrorate with yellowish; elytra finely reticulate with ivory-white; veins tawny. Length, 5.25 to 5.75 mm.

District Columbia, North Carolina and Alabama.

Phlepsius irroratus Say. (Fig. 4).

Head slightly wider than pronotum; vertex obtusely angulate, about one-fourth longer at middle than next the eye; margin nearly right-angled with front. Elytra long, narrowed toward tip. ♀ segment deeply notched each side of an acute central tooth, lateral lobes rectangular, their inner part blackish, a median carina and a faint carina on each side extending to the tip of the lateral lobes. ♂ large, broad;

plates abruptly narrowed to before the middle, then narrow strap-like, bluntly pointed and reaching tip of pygofer. Dull yellowish with fuscous irrorations on head and pronotum and ramose lines on elytra. Length, ♀, 6 mm.; ♂, 5.5 mm.

Widely distributed from Atlantic to Pacific and Canada to gulf. Especially common in meadows and pastures and of economic importance. (See Osborn Bull. 108, Bur. Ent., U. S. Dept. Ag.).

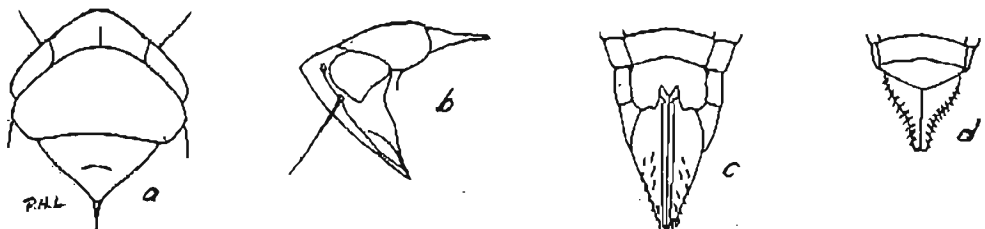


Fig. 4. *Phlepsius irroratus* Say.
a, dorsal view; b, profile; c, ♀; d, ♂.

***Phlepsius truncatus* Van Duzee. (Pl. XXVIII, Fig. 3).**

Resembles *irroratus* but with entirely different genitalia. Head slightly wider than pronotum, vertex obtusely angulate, about one-fourth longer at middle than next the eye. ♀ segment twice as long as penultimate, raised on the disk, central part truncate at tip, the lateral portions slightly convex, rounded at the angles. ♂ valve broad, short, scarcely angulate; plates elongate triangular, acute at tip. Dark gray, fuscous irrorations and pigment lines on whitish ground. Length, ♀, 5.5 mm.; ♂, 5.25 mm.

Pennsylvania to Florida and west to Iowa.

***Phlepsius lobatus* Osborn. (Pl. XXIV, Fig. 1).**

Head slightly wider than pronotum; vertex subangulate, slightly longer at middle than next the eye. ♀ segment rounded at middle with a median and lateral carina, lateral angles produced into prominent lobes. ♂ valve short, rounded behind; plates short, broad at base, narrowing abruptly to blunt tips. Vertex dirty yellowish, with fine irrorations. Front minutely irrorate, with a pair of oblique spots and four arcs. Elytra whitish with brown and fuscous dots and lines. Length, ♀, 5 to 5.25 mm.; ♂, 4.5 mm.

Iowa, Wisconsin, Kansas.

***Phlepsius maculellus* Osborn. (Pl. XXVIII, Fig. 4).**

Head wider than pronotum, subangulate, vertex about one-fourth longer on middle than next eye, rounding to front; front in profile convex. ♀ segment long, about twice length of preceding, lateral angles produced in short rather acute lobes, hind border nearly straight

elevated, notched at middle, broadly bordered with black. ♂ valve triangular, obtusely angled behind, plates short, broad at base, narrowing abruptly to obtuse tips, about one and one-half times as long as valve. Ochraceous; elytra coarsely maculate with blackish irrorations, leaving quite distinct areas of milky white, vertex with two rather distinct roundish spots near hind border, front coarsely irrorate, without distinct arcs. Length, ♀, 6 mm; ♂, 5.5 mm.

One specimen Orono, Maine, August 5th, (Type, Osborn Col.), one Cranberry Lake, N. Y., (C. J. D.) Aug. 10, 1917, and both sexes Cranberry Lake, Aug. 11-12, 1920. (Osborn and Drake).

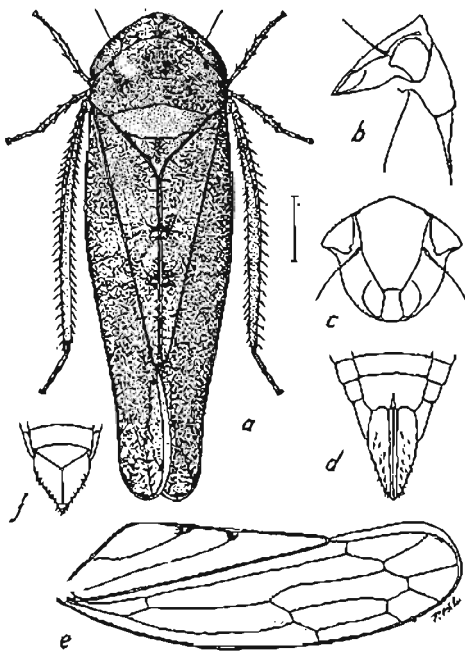


Fig. 5. *Phlepsius tenessa* DeLong.
a, dorsal view; b, profile; c, face;
d, ♀; e, elytron; f, ♂.

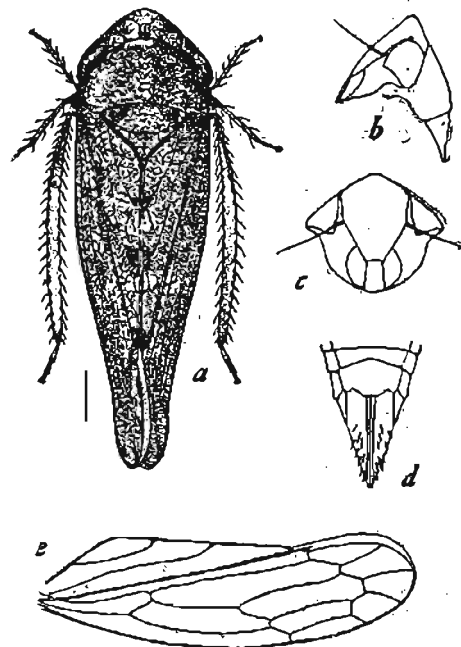


Fig. 6. *Phlepsius torridus* Lathrop.
a, dorsal view; b, profile; c, face;
d, ♀; e, elytron.

***Phlepsius tenessa* DeLong. (Fig. 5).**

Head scarcely wider than pronotum, vertex angulate, one-half longer at middle than next eye, margin more acute at apex than next the eye. ♀ segment about twice the length of the penultimate, hind margin sinuate, notched at middle, lateral lobes slightly produced and rounded, black margin on median portion and a black line extending nearly half way to the base. ♂ valve large, broad, roundly angulate, plates short, broad, narrowing to slightly produced rounded apices, numerous submarginal bristles, a light patch on disk and light border at apex. Dark gray, head, pronotum and scutellum yellowish white, closely inscribed or irrorate with fuscous; elytra milky white with

fuscous dots and pigment lines, with five more distinct spots on apical half of elytra; face dark with dense fuscous irrorations on a yellowish ground and four or five irregular frontal arcs. Length, ♀, 7 mm.; ♂ 6.5 mm.

Described from Tennessee, recorded for South Carolina, and specimens at hand from southern Ohio, Washington, D. C., Raleigh, N. C., South Carolina and Texas.

Phlepsius torridus Lathrop. (Fig. 6).

Head slightly wider than pronotum, vertex broadly angular, one-half longer at middle than next the eye, anterior edge bluntly angular. ♀ segment twice as long as preceding, median part slightly notched at middle, lateral angles obtuse. Golden brown, nearly uniform above, front dark with a few arcs, clypeus and loræ lighter, a light spot on the cheek just above the upper angle of the lora. Length, ♀, 6 mm.

Described from South Carolina. A specimen taken at Swannanoa, N. C., slightly larger agrees very perfectly with the type except that the ultimate ventral segment of the female is more depressed at the sides of the median lobe.

Phlepsius rileyi Baker. (Pl. XXVIII, Fig. 5).

Head scarcely wider than pronotum, vertex rather narrow, one-half longer on middle than against eye, distinctly angulate, bluntly angled with front, front in profile slightly concave near margin, below straight to clypeus. ♂ valve rather long, distinctly angulate behind, plates elongate, nearly twice length of valve, tips rather acute. Tawny, elytra irrorate with fuscous, vertex with two transverse bars; front brown, with indistinct whitish arcs and central line and spots near base. Length, 8 mm.

Texas.

Phlepsius brunneus DeLong. (Pl. XXVIII, Fig. 6).

Head scarcely wider than pronotum. Vertex flattened, distinctly but obtusely angled, half longer on middle than next the eye, margin acute at tip, rounding toward the eye. ♀ segment twice length of preceding, median part slightly produced, elevated, black margined, lateral lobes rounded. ♂ valve large, slightly longer than preceding segment, obtusely angled; plates broad at base, rather short, tips rounded. Brown with yellowish or whitish dots and irrorations. Front fuscous at base, brownish at tip, two dots below the margin, four or five irregular arcs. A large light spot on disc of the lora. Length, ♀, 7 to 7.5 mm.; ♂, 6 to 6.5 mm.

Tennessee (DeLong). East Sister Id., Lake Erie (H. O.).

Phlepsius texanus Baker. (Pl. XXIX, Fig. 1).

Head wider than pronotum; vertex short, obtusely angulate, slightly longer at middle than next the eye; front broad at base, tapering nearly uniformly to clypeus; pronotum more than twice as long as vertex, faintly concave behind; elytra broad, long, slightly flaring at tip. ♀ last ventral segment half longer than preceding; lateral angles slightly produced into short lobes, between which the border is nearly straight, margined with fuscous. ♂ valve short, obtusely angled; plates short, broad at base, tips broadly rounded. Dark gray, irrorate with fuscous; claval veins tipped with white; elytra clouded with fuscous patches, composed of fine lines and dots; legs banded with fuscous. Length, 6.5 mm to 7 mm.

Texas.

Phlepsius apertus VanDuzee. (Pl. XXIX, Fig. 2).

Head slightly wider than pronotum, vertex roundly angulate, about one-third longer at middle than next eye, anterior edge bluntly angled. ♀ segment with a broad excavation, the middle third reaching to near base, lateral lobes quadrangular with the inner margin blackened. ♂ valve large, broad subangulate, plates broad at base, narrowing sharply to about the middle then extending as narrow bluntly tipped upturned processes exceeding the pygofer, much like *irroratus*. Dark gray, fuscous irrorations on whitish ground, an obscure whitish band crossing before the middle of the clavus and a whitish area at tip of clavus. Length, ♀, 6 mm.; ♂, 5 mm.

Northern U. S., extending from Maine to Rocky Mountains.

Phlepsius apertinus n. sp. (Pl. XXIX, Fig. 3).

Head slightly wider than pronotum, distinctly angulate, vertex about one-third longer at middle than next eye, acutely angled with front on apical third, one-half longer on middle than next the eye; front broad, sides parallel to antennæ, then narrowing sharply to clypeus; clypeus narrow, slightly wider at apex than at base, loræ broad, nearly reaching border of cheeks; pronotum strongly arched in front, shallowly concave behind; elytra slightly flaring. ♀ segment excavated on median third to base as in *apertus*, lateral lobes converging but not meeting at apex. ♂ valve much as in *apertus*, broad, obtusely angled behind; plates broad at base, narrowing to beyond the middle, terminating in blunt strap-like lobes; plates are longer and more nearly parallel than in *apertus*. Dark brown or blackish, vertex, pronotum and scutellum whitish with irrorations varying from dark fulvous to blackish; elytra with heavy dark fuscous or blackish pigment lines, leaving a distinct irregular light band before the middle of clavus, a few large whitish spaces on apical part of clavus and elytra, a series of dark, distinct blackish spots on the costa; front distinctly black at base, becoming lighter at clypeus with about four irregular broken

arcs; clypeus yellowish, a central dark line at apex; loræ irrorate with a lighter patch on outer border; legs annulate with fuscous. Length, ♀, 6.5 mm.; ♂, 6 mm.

This species is very much like *apertus* in the genitalia but the excavation on the female segment is wide at base and converging at tip and the male plates longer while the vertex is longer and more acute at tip and the narrow whitish band on the elytra presents a different picture.

Described from specimens collected at Corvallis, Oregon, by the junior author and Van Duzee and Thompson in California. Type and paratypes, in collections of the authors and Cal. Acad. Sci.

***Phlepsius carolinus* Lathrop. (Pl. XXII, Fig. 1).**

Head wider than pronotum; vertex long, subangulate, one-third longer on middle than next eye, angulate with front; front in profile convex. ♀ segment twice as long as preceding, central area elevated and flat, laterally fluted, hind margin deeply sinuate on fluted portion. ♂ valve wide, short, rounding behind, plates narrowing uniformly to blunt tips, nearly three times as long as valve. Ashy gray, with slender irrorations and reticulations; vertex with dark spot near apex with slender light median line, expanding on tips, front brown with minute yellow dots, two light areas on each side of disc; no distinct arcs.

Specimens from South Carolina (Lathrop), Tennessee (DeLong).

***Phlepsius particolor*, Sanders & DeLong, (Pl. XXIX, Fig. 4).**

Penna. Department of Ag., Vol. III, p. 15.

Head short, slightly produced; vertex one-half longer at middle than next to eye; margin bluntly angled at side, sharp at tip. Pronotum strongly arched, concave behind; elytra broad, tips flaring. ♀ segment produced, triangular, twice as long as preceding segment; apex with a broad incision narrowed at half its depth, and extending one-third its distance to base; margin and incision bordered with black. Vertex, pronotum and scutellum yellowish, slightly mottled with brown; elytra whitish, inscribed with dark brown; two white spots at tip of claval veins; costa with small irregular brown spots; face finely irrorate with brown. Length, ♀, 7 mm.

Kane, Pa.

***Phlepsius fulvidorsum* Fitch. (Pl. XXIX, Fig. 5).**

Head scarcely wider than pronotum, vertex one-half longer at middle than next eye, angulate, margin acute at apex, more obtuse at eye. ♀ segment nearly twice as long as penultimate, posterior border slightly produced, raised on middle, lateral lobes prominent and depressed.

♂ valve rather large, obtusely triangular, plates broad at base, narrowing rather uniformly to acute, upturned apex. Vertex, pronotum and scutellum light fulvous, contrasting distinctly with the darker elytra. Elytra milky white with pigment lines and dots of fuscous and brown; face fuscous, minutely dotted with yellowish, frontal arcs distinct. Length, ♀, 6 mm.; ♂, 5.75 mm.

North-east U. S. west to Rocky Mountains, south to North Carolina. On grass in pine woods.

***Phlepsius eburneolus* n. sp. (Pl. XXIV, Fig. 3).**

Similar to *fulvidorsum* but the ivory like anterior part of body contrasts still more sharply with the dark elytra and the female genital segment is quite different.

Head broader than pronotum, vertex obtusely angular, one-third longer at middle than next the eye, apex at center sharp-edged, ocelli close to eyes; front broad at base, tapering sharply to apex; clypeus narrow, nearly twice as long as wide, truncate at apex; loræ longer than broad, reaching nearly to margin of cheek; genæ slightly angled. Pronotum strongly curved in front, deeply sinuate behind; scutellum large; elytra densely marked with ramose lines. ♀ segment over twice as long as penultimate, narrowed and truncate behind, with a small central notch. ♂ valve triangular; plates elongate triangular, acute at tip. Vertex, pronotum and scutellum light ivory yellowish white with faint fulvous irrorations on the anterior margin of vertex, a faint broad fulvous stripe in the center of scutellum and the basal angles faintly fulvous. There are two blackish spots on the margin of scutellum each side and the elytral ramose lines are dark brown to fuscous, giving a chocolate tinge, although the interstices and cells are milky white. Fairly distinct spots of blackish occur on the elytra beyond the tip of clavus and along costal apical border and the legs are banded with blackish. Length, ♀, 5.25 mm.

Described from one specimen female, (type) in Osborn collection, labeled "Vinita, Ind. Ter. June 8, 1899" and collected by H. F. Wickham. A female (paratype) and ♂ (allotype) from Ashburn, Va., collected by L. A. Stearns. The first specimen has been in hand for many years and the description deferred in hopes that additional material and especially the male might be secured but this hope was not realized until the species was collected in Virginia by Mr. L. A. Stearns.

***Phlepsius tullahomi* DeLong. (Pl. XXIX, Fig. 6).**

Head wider than pronotum, obtusely angulate; vertex one-fourth longer at middle than next the eye, somewhat depressed; margin acute at middle; front broad, narrowing nearly uniformly to clypeus; clypeus long, widening toward tip; loræ large, nearly reaching border of cheek; cheek margins rounded, gently sinuate. Pronotum about three times as long as vertex; hind border distinctly concave. ♀ segment one-half

longer than preceding, hind border sinuate at sides, with median produced tooth, notched at the middle. ♂ valve large, angled behind; plates broad at base, nearly triangular, tips acute. Length, ♀, 6 mm.; ♂, 5.25 mm.

Described from Tennessee, and specimens are in hand from Cantwell Cliff, Ohio, Aug. 4, 1921, (Osborn); Auburn, Alabama, May 23, 1922, "at light," (F. E. Guyton), and Pennsylvania, (De Long).

***Phlepsius slossoni* Ball. (Pl. XXII, Fig. 3).**

Phlepsius franconianus Lathrop, Bull. 199, S. C. Ex. Sta., p. 93.

Head slightly wider than pronotum, broadly angular; vertex one-half longer on middle than next the eye. Anterior edge acute, sharpest at apex. Front slightly concave below apex of vertex. ♀ segment one-half longer than penultimate, posterior margin slightly produced and minutely notched on middle, shallowly sinuate laterally, lateral angles obtuse. Dark gray, a dull cloud on apex of vertex. Pronotum suffused with blackish on disc. Scutellum light. Elytra whitish with delicate dots and lines. Face white, minutely dotted with brown. Beneath whitish. Length, 6 mm.

Florida, South Carolina (F. H. L.), Southern Pines, N. C., (Manee).

***Phlepsius fastuosus* Ball. (Pl. XXX, Fig. 2).**

Similar to *slossoni*, larger. Vertex short, obtusely angular; apex blunt, nearly twice longer at middle than next eye; disk flat; anterior margin thin, slightly foliaceous at apex. ♀ segment long, hind margin truncate, nearly two-thirds angularly produced, elevated, slightly notched at apex. Vertex brownish-gray, a cross on the apex; lateral margins and a few dots on the disk ivory white. Pronotum brownish-gray, irrorate with whitish; elytra milky white, with fine reticulations and small dots of brownish fuscous, mostly arranged in two bands, one rather narrow and definite across posterior third of clavus, the other broader, less distinct, occupying space behind clavus. Length, 7.5 mm.

New Mexico.

***Phlepsius franconianus* Ball.**

Head wider than pronotum; vertex subangulate, margin thin, acute at tip, rounded near eye; front in profile concave above, convex below. ♂ valve triangular, two-thirds the length of the ultimate segment; plates long, triangular, their margins straight, apices acute, two and one-half times the length of the valve, slightly exceeded by the pygofers. Light gray; vertex and pronotum fawn color, elytra finely irrorate with brown lines and dots forming faint bands at middle of clavus at apex of clavus and before tip of elytra. Front minutely irrorate, a white mark at base, with faint indications of light arcs. Length, ♂, 5 mm.

New Hampshire.

***Phlepsius lippulus* Ball. (Pl. XXIX, Fig. 7).**

Head wider than pronotum, vertex distinctly angulate, half to two-thirds longer on middle than against eye, flat, margin acute at tip, rounded near eye; front in profile, deeply concave above, convex below. ♀ segment long, about twice length of preceding, truncate, middle third produced into a feeble lobe. ♂ valve short; plates triangular, acute. Vertex, pronotum and scutellum gray, with whitish band back of middle of clavus, another at tip of clavus, forking midway and terminating on costa in two black spots; another band on apex blackish.

Florida, Mississippi, Texas.

***Phlepsius fulviceps* n. sp. (Pl. XXX, Fig. 1).**

Similar to *strobi*, but with distinctly longer, angular vertex; the head fulvous; eyes red-brown; pronotum irrorate with fine yellowish dots; elytra milky white, with fulvous bands. Length, 5.25 mm.

Head scarcely wider than pronotum, distinctly angular; vertex twice as long at middle as next the eye; tip flattened; front concave below the tip, forming a flattened blunt margin; clypeus half longer than wide. Pronotum about two-thirds longer than vertex; hind border concave. ♀ segment about twice as long as preceding; hind border slightly sinuate, produced at middle into a broad obtuse tooth. Face, vertex, pronotum and scutellum pale fulvous; face with minute dots of yellowish; vertex with a faint trace of forked median line. Pronotum faintly irrorate with yellowish, transverse dots; scutellum with a yellow spot each side opposite the suture; elytra milky white with a fairly distinct fulvous band across at middle of clavus; another at tip of clavus dividing to form an arm to the costal dark spots; another near tip of apical areoles. There are numerous minute fuscous dots especially on the fulvous areas. Three dots on the costa and an apical spot at end of the apical band, fuscous. Beneath gray, minutely dotted with fuscous.

Described from one specimen, female, (type), collected at Leesville, La., April 28, 1905, by Wilmon Newell.

This species appears to be quite distinct, but has, until recently been supposed to belong to *lippulus*, Ball. It is, however, quite different from that species in the length of vertex and other characters, in some points being nearer to *strobi*, Fitch, from which it differs particularly in the length of vertex and the concave base of front.

***Phlepsius uhleri* Van Duzee.**

Head wider than pronotum; vertex scarcely longer at middle than next the eye; front broad at base, narrowing with faint sinuation opposite eye; clypeus nearly twice as long as wide at base, widened to tip; cheeks broad, margins sinuate. ♂ valve short, obtusely angulate behind; plates triangular, outer margin slightly convex, tips acute,

scarcely acuminate, reaching tip of pygofer. Fulvous brown, minutely irrorate; elytra with indefinite lighter bands of whitish hyaline dots. 1st just back of scutellum, 2nd at tip of clavus, 3rd across base of apical areoles, middle one angled, reaching pretty closely to basal veins of anteapical areoles. Length, 4 mm.

"Odenton" Aug. 1, "Md." "*Phlepsius uhleri* V. Duz." Uhler's handwriting.

***Phlepsius strobi* Fitch.** (Pl. XXX, Fig. 3).

Bythoscopus strobi Fitch, Fourth Report, N. Y. State Lab. N. H., p. 58, (1851).
Phlepsius strobi Osborn, Ohio Jour. Sci., Vol. XXIII, p. 160, 1923; (not *P. strobi* Van Duzee).

"Resembling *Phlepsius uhleri* but with longer, angular edged vertex and with three whitish bands on elytra the anterior one extending from scutellum to half way point on clavus. Head wider than pronotum, vertex angular, one-half longer at middle than next the eye, margin angular; front longer than wide, clypeus with sides nearly parallel, apex truncate loræ nearly touching margin of cheek. Pronotum twice as long as vertex, hind border slightly emarginate. ♀ segment long with median third produced. ♂ valve short rounded behind, plates triangular, tips acute. Gray fulvus. Vertex fulvus mottled with whitish and with pronotum and scutellum brown, irrorate with gray or whitish, elytra with bands of white and brown, a white band across base from middle of scutellum to middle of clavus, another just beyond apex of clavus and the third just before the apex, inscribed with delicate brown lines." Length, ♀, 4.5-5 mm. ♂ 4.1 mm.

New York and Ohio.

***Phlepsius punctiscriptus* VanDuzee.** (Pl. XXX, Fig. 4).

Head scarcely wider than pronotum, vertex half longer at middle than next the eye. Disc depressed. Anterior edge acute at tip, rounding near the eye. ♀ segment nearly twice the length of the preceding, slightly produced at middle, apex minutely notched, lateral angles scarcely produced. ♂ valve very small, plates narrowing sharply to about one-third from base then tapering to acute tips exceeding the pygofer. Light gray to whitish; vertex tinged with fuscous, with ivory white spots on the anterior border. Head, pronotum, scutellum and elytra with minute dots; face creamy white with minute brown dots leaving a fairly distinct median line on front and traces of obscure frontal arcs. Length, ♀ 7 mm., ♂ 5 mm.

Recorded from Florida, Tennessee, Kansas, Texas and Nebraska. Males referred to this species from Texas and Iowa.

***Phlepsius planus* Sanders & DeLong.** (Pl. XXX, Fig. 5).

S. & DeL., Pr. Ent. Soc. Wash., Vol. XXIV, p. 98, 1922.

Related to *P. nebulosus* but with very short vertex. Markings of elytra in distinctly parallel lines. Head wider than pronotum, vertex

depressed short, scarcely longer on middle than next eye, anterior edge acute. Front scarcely concave below apex of vertex, broad, cheeks rounded, scarcely sinuated below eye. Pronotum short, anterior margin broadly curved; lateral carinae distinct, long, about as long as short diameter of eye; posterior margin distinctly concave. Elytra long, claval veins straight and parallel, cross vein faint or wanting. ♀ segment about twice length of penultimate. Hind margin sinuated, incised on middle, lateral lobes rounded. ♂ valve short angulate behind; plates broad at base narrowing to middle, tapering to blunt upturned tips. Ash gray with brown or fuscous markings. Vertex whitish, minute brownish irrorations. Vertex with white spots on posterior edge behind ocelli. Face minutely irrorate with white dots, frontal arcs faintly indicated. Pronotum and scutellum irrorate with brownish and white. Elytra dull milky whitish, veins brown, mostly margined with pigment dots, lines of pigment dots in discal, apical, and anteapical cells. Beneath, gray. Length, ♀, 7 mm., ♂, 6 mm.

Redescribed from one female, four males, Gainesville, Fla., collected by C. J. Drake; one specimen Orlando, Fla., (G. F. Ainslie).

Phlepsius nebulosus VanDuzee. (Pl. XXIII, Fig. 4).

Head wider than pronotum, roundly angular, vertex slightly depressed nearly twice as long at middle as next eye, anterior edge acute, front slightly concave at base; ♀ segment three times as long as penultimate, middle half nearly truncate, elevated, ridged laterally to form depressed lateral lobes which are rounded at angles; ♂ valve large broad angulate, plates long, strap-like, evenly tapering to divergent obtusely pointed tips, pygofer broad, exposed at sides of plates and much exceeded by the long plates. Gray brown, vertex and anterior border of pronotum dull yellowish with brownish irrorations, disk of pronotum darker with light irrorations scutellum yellowish sparsely irrorate with brownish; elytra whitish, subhyaline, with brownish pigment lines and dots, front fuscous with yellowish dots and about five fairly distinct arcs. Length, ♀ 8 mm., ♂ 8 mm.

Eastern U. S. to Colorado, also reported for Manitoba.

Phlepsius solidaginis Walk. (Pl. XXX, Fig. 7)

Head wider than pronotum, broadly angulate, vertex depressed margin acute, front scarcely concave below apex of vertex; ♀ segment twice as long as preceding, elevated and distinctly produced at middle with a small median notch, lateral lobes rounding; ♂ valve long, roundly subangulate behind, plates long, tapering to acute tips. Light tawny with light irrorations, elytral rather densely reticulate with traces of transverse bands. Length, ♀ 7 mm., ♂ 6 mm.

Eastern U. S. and Canada west to Kansas and south to Tennessee.

Phlepsius josea Ball. (Pl. XXX, Fig. 6).

Similar to *humidus*, much smaller. Vertex flat, slightly depressed posteriorly; twice as long at middle as next the eye; front margin thick but foliaceous. ♀ segment one-half longer than preceding; hind margin roundly truncate; lateral angles rounded; ♂ valve very small, rounding, almost concealed; plates broad at base, semi-circularly rounding; thin, produced into long style-like attingent points. Pale yellowish-olive, flecked with irregular spots and blotches of blood red, giving a red appearance to the whole insect above and below. Length, 5.25 mm.

Colorado.

Phlepsius occidentalis Baker. (Pl. XXXI, Fig. 2).

Head scarcely wider than pronotum. Vertex roundly angulate, one-half longer on middle than against the eye, depressed, margin acute. Front feebly concave below apex of vertex. ♀ segment more than twice as long as preceding, slightly produced and minutely notched at middle, lateral angles obtuse, margin blackish on each side of central notch. ♂ valve rather large, subangulate; plates short, broadly triangular, together nearly equilaterally triangular. Tips acutely converging, slightly upturned. Dark gray. Vertex and pronotum fuscous with whitish dots or irrorations. Vertex and scutellum lighter than pronotum. Elytra milky white with dense fuscous dots and pigment lines. Front fuscous with minute light dots, irregular arcs, a broad light spot on loræ, and whitish band across middle of clypeus. Male hitherto undescribed differs from female in having vertex slightly longer on middle, margin between vertex and front distinctly marked with ivory white.

Described from State of Washington. Specimens in hand from Pullman, Wash.; Corvallis, Ore.; and reported for San Diego, Cal.

Phlepsius nudus Ball. (Pl. XXXI, Fig. 1).

Similar to *ramosus* but not slender; vertex roundly angled; disk flattened anteriorly; margin thin, produced. Pronotum short, scarcely longer than vertex; elytra broad, short. ♀ segment of female truncate behind, surface strongly convex with a sharp median carina and traces of two lateral ones. ♂ valve equilaterally triangular; apex rounded; plates narrow, long, spoon-shaped, three times the length of the valve, narrowly rounded at apex. Dull straw, slightly tawny on vertex; disk of pronotum and angles of scutellum washed with brown; disk of scutellum pale with a pair of brown points. Elytra sub-hyaline, somewhat milky; veins and ramose lines tawny-brown. Length, ♀ 6 mm.; ♂ 5 mm.

Florida.

Sub genus *PARAPHLEPSIUS* Baker.*Phlepsius bifidus* Sanders & DeLong. (Pl. XXXI, Fig. 3).

Ann. Ent. Soc. Am., Vol. X, pp. 89, 1917.

Head slightly wider than pronotum, roundingly angular. Vertex one-third longer on middle than next eye, flattened, slightly depressed behind the margin; margin acute, sharpest at middle. Front flattened, barely concave below apex of vertex. ♀ segment long, deeply notched on middle, lateral lobes angularly rounded, blackish on apical half. ♂ valve broad, distinctly angular; plates broad at base, narrowing abruptly to rounded tip, together about equilaterally triangular. Dark gray, vertex yellowish with rather sparse irrorations, pronotum yellowish on anterior border, darker on disc, with light irrorations. Scutellum ivory whitish, with a few irrorations. Elytra milky white, with dark fuscous pigment lines, denser behind middle, leaving a suggestion of a lighter band before the middle. Face dark, base of front blackish, apical portion lighter, traces of two or three faint light arcs. Length, 7 mm.

Described from Wisconsin. Specimens in hand, collected at Cranberry Lake, by C. J. Drake and H. Osborn; Elka Park, Greene Co., N. Y. (Drake).

Phlepsius ramosus Baker. (Pl. XXXI, Fig. 4).

Head distinctly wider than pronotum, roundingly angulate, vertex distinctly depressed, margin acute, almost foliaceous, front concave below apex of vertex; pronotum distinctly carinate laterally. ♀ segment nearly three times as long as penultimate, somewhat produced and carinate on middle, lateral angles obtuse. ♂ valve broad, short, roundingly subangulate, plates broad at base, narrowed abruptly to about middle then tapering to blunt points which extend beyond pygofer. Dark brown or fuscous, vertex, pronotum and scutellum fuscous with numerous dots and irrorations; elytra milky whitish with dark fuscous lines and dots more dense behind the middle, leaving a fairly distinct band from base to middle of elytra; front fuscous with minute yellowish dots and traces of arcs. Length, ♀, 7 mm.; ♂, 7 mm.

North-east U. S. west to Ohio.

Phlepsius tenuifrons Sanders & DeLong.

Ann. Ent. Soc. Am., Vol. XII, p. 235, 1919.

Head broader than pronotum; vertex produced, upturned, nearly twice as long at middle as next the eye. Pronotum short, scarcely twice as long as vertex; elytra short, broad, flaring. ♀ segment long, three and one-half times preceding segment; lateral angles rounded; hind border sinuate, a shallow notch separating two small lobes at middle. ♂ valve long, roundingly angled behind; plates broad at base, narrowed abruptly before middle; tips long, blunt, passing the pygofer. Pale, with numerous brown irrorations; a brown line on vertex; face

uniformly irrorate, pale spot at upper end of loræ; elytra milky white, heavily marked with ramose lines; an indistinct saddle across middle, veins brown; beneath uniformly brown. Length, 7 mm.

Greensburg, Pa.

Sub genus ZIONINUS Ball.

Phlepsius extremus Ball. (Pl. XXXI, Fig. 5).

Vertex flattened; head scarcely as wide as pronotum; vertex broad, nearly twice as wide as long at middle, nearly twice as long on middle as next eye; head sub-angulate; front broad at base, narrowing uniformly to clypeus; clypeus long, broad at base; pronotum half longer than vertex; scarcely concave behind; elytra slightly longer than abdomen. ♀ last ventral segment twice as long as preceding, bisinuate on hind margin, faintly sinuate at middle. Light gray, marked with fuscous or black. Vertex mottled with blackish; front rather delicately inscribed with fine brown lines, clypeus and loræ with fine dots. Pronotum, scutellum, elytra whitish marked with black dots or lines. The ramose lines of elytra sparse. Length, ♀, 5 mm.

Described from Colorado, and recorded from California.

Specimen at hand collected by E. P. Van Duzee, Ashland, Oregon, Aug. 2, 1919. The species is characterized by the distinctly flattened vertex.

Sub genus TEXANANUS Ball.

Phlepsius eugeneus Ball.

Ann. Ent. Soc. Am., Vol. XI, p. 384, (1918).

"Nearly of the form of *excultus*, but larger, paler, and lacking the definite markings of that species. Pale grayish or slightly fulvous brown. Length 7 mm., width 3 mm. Vertex convex, one-fourth longer on middle than against eye, twice wider than long. Anterior margin bluntly rounding except at apex, front broader than in *hebraeus*, almost parallel margined until just before the apex. Pronotum but little wider than across eyes. Elytra longer than in *excultus*, flaring behind, the inner anteapical cell very long, the outer one broadest in front. ♀ segment long, angularly narrowing posteriorly, middle half roundly emarginate clear to the base, where there is a slight median tooth. Male valve very short and obtuse; plates large, triangular, with nearly straight margins, white with black spots at the base of the short marginal hairs; the stout spines of the pygofer exceeding those of the plates. Pale yellow, two pairs of approximate dots on suture between vertex and pronotum, as in *excultus*, two indistinct brown spots at apex of vertex, and front brown with pale dots. Elytra milky, inscribed with brown, faintly washed with rufous in most specimens, the tips of the claval nervures fuscous."

Described from various points in Guerrero, also Cuernavaca, and Iguala, Mexico.

***Phlepsius superbus* Van D. (Fig. 7).**

Head narrower than pronotum; vertex roundingly angulate, about one-third longer on middle than at eyes, rounding to front; front profile scarcely convex. ♀ segment broadly roundingly emarginate, about as long at middle as preceding segment. ♂ valve narrow, rather long, slightly angulate behind; plates short, broad, borders rounded, together semicircular. Brown with irrorations and reticulations dark fuscous or blackish; front blackish at base with brownish arcs and light mottlings. Length, 6 mm.

South Carolina, Southern Florida to California, south to Central Mexico.

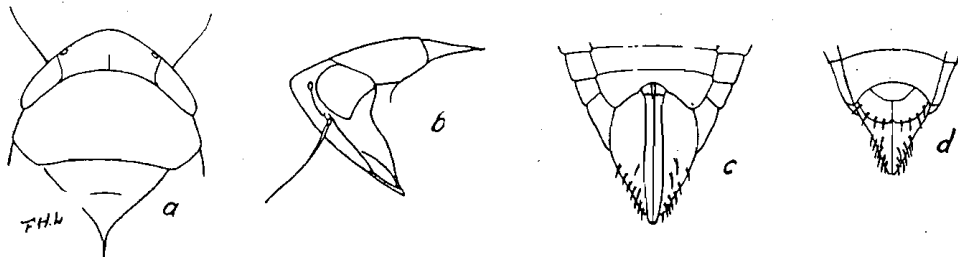


Fig. 7. *Phlepsius superbus* VanD. a, dorsal view; b, profile; c, ♀; d, ♂.

***Phlepsius excultus* Uhler. (Fig. 8 and Pl. XXIII, Fig. 2).**

Head almost as wide as pronotum; vertex short, roundingly subangulate, about one-fourth longer on middle than next to eye, rounded to front, profile of front slightly convex. ♀ segment roundingly excavated to near the base, on median half, exposing lobes of pygofer and base of ovipositor. ♂ valve short, rounded behind, plates triangular, outer border slightly convex, tips acute. Head, scutellum and pro-

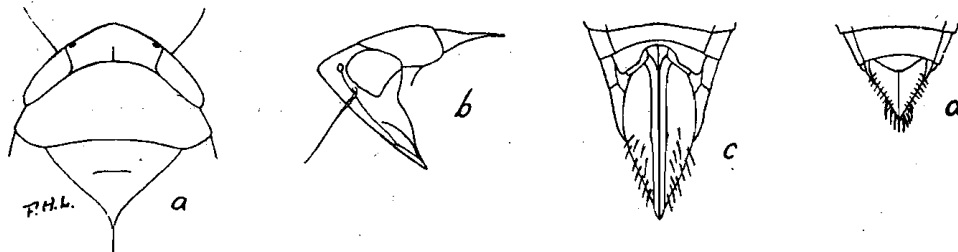


Fig. 8. *Phlepsius excultus* Uhler. a, dorsal view; b, profile; c, ♀; d, ♂.

notum tawny, with scattered, fuscous lines strongly contrasting with elytra; elytra ivory white, densely covered with blackish or fuscous reticulations, with lobate white spots, nerves blackish. Front mottled with light dots, not arranged in arcs. Length, ♂, 6 mm.; ♀, 6.5 mm.

Southern U. S., North Carolina, Florida, to Texas. Also "Mex." Ball. Van Duzee also notes Massachusetts, New York, New Jersey, Pennsylvania, Tennessee, Illinois, Kansas, Minnesota and Colorado.

Phlepsius rufusculus n. sp. (Pl. XXXI, Fig. 6).

Head slightly narrower than pronotum; vertex faintly subangular, about one-fourth longer on middle than next eyes, obtusely rounded to front, profile of front scarcely convex. ♀ last ventral segment nearly twice as long as preceding, faintly produced at middle with very shallow, median notch. ♂ valve narrow, subtriangular, roundly angular behind, plates short subtriangular, finely ciliate, reaching tip of pygofers. Yellowish with reddish brown irrorations, vertex mottled with yellow and brown, anterior border ivory yellow; front with distinct brown arcs separated by median brown area, including minute yellow dots. Length, ♂, 7 mm.; ♀, 7.25 mm.

One female (type) from West St. Louis, Mo.; W. V. Warner, collector. Male (allotype), Portsmouth, Ohio, C. J. Drake, collector.

Somewhat resembles *superbus*, but differs in distribution of mottlings in front and especially in form of genitalia of both sexes. Agreement of structural and color characters makes the associations of sexes here indicated practically certain.

Phlepsius umbrosus Sanders & DeLong. (Pl. XXXII, Fig. 2).

Ann. Ent. Soc. Am., Vol. X, p. 88, 1917.

Head scarcely narrower than pronotum; vertex obtusely angled, nearly twice as long at middle as next the eye. Pronotum strongly convex, twice as long as vertex; elytra broad, broadly rounded at tips. ♀, last ventral segment twice as long as preceding; lateral angles produced, sharply rounded; hind margin convex, notched at middle, forming two produced rounded lobes, margined by a broad semi-circular brown spot extending one-half way to base. ♂ valve nearly as long as last ventral segment, slightly concave; apex obtuse; plates long, evenly narrowed to small blunt points. Dark brown; vertex evenly irrorate, a pale spot each side next to eye. Pronotum irrorate and punctulate; elytra milky white, closely and evenly inscribed with dark brown; face dark brown, evenly irrorate with testaceous. Length, ♀, 6 to 6.5 mm.

Described from Grand Rapids, Wis.

Phlepsius cumulatus Ball. (Pl. XXXII, Fig. 1).

Broadly oval, head narrower than pronotum, vertex short, scarcely longer on middle than next eyes, faintly angulate, bluntly rounded to front; front in profile scarcely convex. ♀ ventral segment longer than preceding, nearly truncate, rather broadly notched at the middle, with a shallower notch each side. ♂ valve triangular, plates twice length of valve, sides roundly angulate, tips slightly angularly divergent. Grayish tinged with reddish, reticulations faint; vertex with faint fuscous dots forming a transverse line in front of which is

a series of faint dots; front black on base with yellow dots, arcs distinct, blending with maculations on middle. Length, 6-6.5 mm.

On plains grasses, Western plains, Kansas, Nebraska, South Dakota.

***Phlebsius ovatus* Van D. (Pl. XXXII, Fig. 6).**

Ovate, less robust than *decorus*, head narrower than pronotum, vertex about one-third longer on middle than against eyes, rounding to front; front scarcely convex. ♀ segment slightly emarginate, notched at center. ♂ valve long, triangular, plates short, outer margin curved, together nearly semicircular. Whitish with heavy black or fuscous reticulations on elytra. Vertex with transverse white band interrupted by longitudinal median stripe. Front with irregular arcs at sides, breaking into irrorations on disc. Length, ♂ 4.75 mm.; ♀, 5 mm.

Western Tennessee, Kansas, Colorado, Texas, Oregon; "South to southern Mexico." Ball.

***Phlebsius mexicanus* Ball.**

Ann. Ent. Soc. Am., Vol. XI, p. 385, (1918).

"Closely resembling *P. areolatus*, but quite distinct in shape of vertex and genitalia. A stout species with the brownish fuscous irrorations irregularly distributed, leaving patches of milk white. Length 6.75 mm.; width 3 mm.

Vertex convex, with the front almost conical, nearly half longer on middle than against eye, almost three times wider than long, front broad wedge-shaped, but little longer than its basal width. Elytra broad and short, the apices appressed; apical cells short. ♀ segment reduced, less than two-thirds as wide as the penultimate, consisting of an obtusely triangular plate with the apex produced into a strap-like tooth as long as the segment. A pair of broad plates arising under this segment cover the base of the pygofer and a pair of heavy folds occupy the corners. ♂ valve rounding, plates narrow, scarcely as wide as the valve, concavely narrowing to the blunt points, two and one-half times as long as the valve, not quite as long as the compressed pygofer. Vertex testaceous brown, three irregular blotches on the anterior margin and numerous dots on the disc pale; pronotum testaceous brown, with irregular hieroglyphic light markings on anterior half and light pustulate spots on the remainder. Scutellum with the apex and two marginal spots light. Elytra milky white, the nervures fuscous brown, the vermiculation mostly coalesced into fuscous dots which are larger toward the margins."

Described from Orizaba and Chilpancingo Mexico.

***Phlebsius distinctus* Lathrop (Pl. XXII, Fig. 2).**

Head narrower than pronotum, vertex narrow, subangulate, about one-third longer on middle than next eye, rounding to front. ♀ segment slightly longer than preceding, shallowly emarginate. Ivory white with heavy blackish maculations and blackish irrorations, three con-

spicuous lobate commissural spots white, containing minute black spots in the margin, corium with numerous white areas, front irrorations blending irregularly with arcs scarcely indicated. Length, 5 mm.

South Carolina (Lathrop), North Carolina, Florida, Mississippi (H. O.).

Phlepsius graphicus Ball. (Pl. XXXII, Fig. 5).

Somewhat similar to *decorus*, but paler and with the commissural lobes less pronounced. Head short; vertex one-fourth longer at middle than next the eye; front broad, sinuate, roundingly narrowed from antennal pits; clypeus twice as long as wide; loræ large, almost reaching margin of cheek. Pronotum twice as long as vertex; elytra broad, tapering, slightly flaring. ♀, last ventral segment twice as long as preceding; hind border sinuate and deeply notched at the middle, with a prominent tooth each side the median notch formed by a distinct incision; lateral angles sloping, rounded. ♂ valve short, obtusely angular behind; plates short; outer margins convex; tips blunt, a little more than half as long as pygofer. Yellowish-gray, with vertex, pronotum and scutellum faintly irrorate with pale fuscous or brownish; elytra with rather dense ramose lines and dots; veins fuscous. Beneath pale yellowish; legs spotted. Length, ♀, 6 mm.; ♂, 5.5 mm.

Ft. Collins, Colo.; Kimball, Neb.

Phlepsius annulatus n. sp. (Pl. XXXII, Fig. 3).

Somewhat similar to *decorus*, smaller, tinged with rosaceous, female segment with a square excavation on the posterior third. Head narrower than pronotum, vertex narrow, convex, sloping anteriorly, one-third longer on middle than next the eye, margin obtuse, almost rounded. Ocelli close to the eye. Front scarcely convex, narrowing gradually to the clypeus, cheeks scarcely sinuate beneath the eye. Pronotum strongly arched in front, lateral carina equalling short diameter of eye. Claval veins approaching each other with a cross vein in middle. ♀ segment short, a deep quadrangular excavation on the middle, lateral lobes sinuous and lateral angles rounded. ♂ valve small, angled; plates convex, nearly semicircular, nearly reaching tip of pygofer. Vertex, pronotum and scutellum and inner border of clavus yellowish, more or less irrorate with fuscous. Elytra milky white or hyaline, marked with dark brown and fuscous, female with conspicuous spots at ends of claval nervures. In the male these are less conspicuous, but the pigment lines in the elytral cells appear more numerous. A number of distinct dark patches appear in the costal cells. A rosaceous tinge on elytra of female. Face dark fuscous with yellowish dots, about four oblique arcs on the front. Two distinct fuscous spots on base of clypeus. Legs yellowish, conspicuously annulated with black. Length, ♀ 5.5, ♂ 5 mm.

Described from one female from the base of Mt. Hood, and one male from Alsea Mt., Oregon. (Lathrop). On undergrowth at edge of fir forest.

Phlebsius notatipes n. sp. (Pl. XXXII, Fig. 4).

Similar to *decorus* in size and pattern, but paler and with the legs marked with numerous black dots, those of the femora in longitudinal series. Head narrower than pronotum, short, faintly angulate; vertex slightly longer at middle than next the eye; front broad at base; lateral margin somewhat convex; clypeus widened at tip; loræ large, nearly touching margin of cheek; cheeks broad, distinctly sinuate. Pronotum twice as long as vertex, broadly rounded before, faintly concave behind; elytra short, broad, rounded at tip, slightly longer than abdomen. ♀ last ventral segment short, scarcely longer than preceding; hind border sinuate, slightly produced toward the center, a deep median notch, outside of which is a shallow notch just inside the produced part. ♂ valve small, obtusely angulate behind; plates short, sub-triangular; outer border slightly convex; tips bluntly angular, reaching about two-thirds of the way to the tip of the densely setose pygofer. Light gray; vertex with a faint fuscous pattern of minute irrorations; front dark fuscous with numerous dots and irregular arcs; a few dots on loræ and cheeks. Pronotum, scutellum and elytra with minute fuscous or blackish irrorations and lines; the claval border with three faint ivory white lobes, including minute black lines; the tips of claval veins black. Beneath gray; legs minutely dotted with fuscous and black; the female segment margined with light fuscous; pygofer dotted with light. Length, ♀, 5.75 mm.; ♂, 5.5 mm.

Described from three females, (type and paratypes), and one male, (allotype), collected by F. H. Lathrop at Pullman, Washington, August 11, 1919. On dry hillside, from grass.

Phlebsius hosanus Ball.

Ann. Ent. Soc. Am., Vol. XI, p. 386, (1918).

"Form and general appearance of *decorus* O. & B., slightly smaller and with a definite concave light line between the ocelli. Length 6 mm., width 2.5 mm.

"Vertex transversely convex, slightly sloping to the narrow margin, one-fifth longer on middle than against eye, twice wider than long. Front moderately broad above, wedge-shaped, distinctly longer than wide. Pronotum but little wider than across the eyes. Elytra longer and more flaring than in *decorus*. ♀ segment short, posterior margin nearly truncate with four triangular teeth on the middle third, the outer pair the larger. Vertex brownish fuscous; a spot at apex, the line between ocelli and the base ivory white. Pronotum with tawny markings on the anterior third. Scutellum tawny with light and black spots. Elytra ivory white, with fuscous irrorations coalescing into irregular spots, omitting the inner margin back to apex of clavus. This ivory margin is narrow next the scutellum and is crossed by the inner claval nervure. It widens out on middle of clavus and again before apex and usually bears one or more black spots in each expansion."

Described from Orizaba, V. C. and Tepetlapa Guerrero, Mexico.

***Phlepsius decorus* O. & B. (Fig. 9).**

Robust, elytra flaring, head narrower than pronotum; vertex broadly, roundly angulate, about one-third longer on middle than against eyes, anterior margin bluntly angulate. Front in profile scarcely convex. ♀ segment slightly longer than preceding, hind border truncate with a deep circular notch bordered with brown. ♂ valve small, rounding behind, plates short, triangular, acute at apex. Dull ivory white, tinged with tawny on head, pronotum and scutellum; vertex irrorate with fuscous, with transverse whitish band extended forward to apex at middle, inner margin of elytra ivory white, broadening into lobes on the sutural margin. Front with short fuscous arcs merging into confused irrorations on central portion.

Iowa, Illinois, Ohio, New York, Maine, North Carolina, Tennessee, Florida.

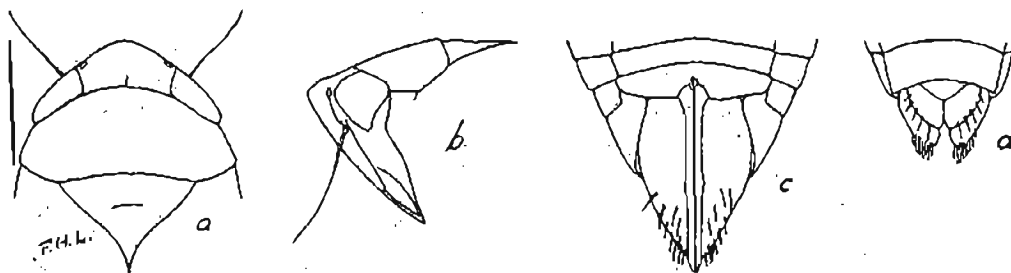


Fig. 9. *Phlepsius decorus* Osb. and Ball.
a, dorsal view; b, profile; c, ♀; d, ♂.

***Phlepsius areolatus* Baker. (Pl. XXIV, Fig. 2).**

Head narrower than pronotum; vertex subangulate, one-third longer on middle than against the eyes, anterior edge sharp, front straight in profile. ♀ segment twice as long as preceding, hind border nearly truncate, slight notch on middle. Ivory white, distinctly tessellate with brown, fuscous and black irrorations or maculations; anterior border of vertex with alternating ivory and black spots, frontal arcs slender, irregular, merging on middle. Length, 6 mm.

Kansas.

Sub genus IOWANUS Ball.***Phlepsius spatulatus* VanD. (Pl. XXXIII, Fig. 1).**

Head narrower than prothorax; body long, slender, vertex one-half longer on middle than next eye, rounding to front, front slightly convex in profile; elytral reticulation rather coarse, less distinct than in *majestus*; elytra long, narrow. ♀ segment longer than penultimate, slightly produced on middle, with slight median notch. ♂ valve short, roundly angular behind; plates narrow, tapering nearly uniformly to acute tips. Ashy brown; vertex with mottled transverse band between eyes, in front of which are two triangular mottled spots.

Frontal arcs irregular, meeting on middle. Length, ♂, 6.5-7 mm.; ♀, 7 mm.

Colorado, California, Kansas, Texas, Mexico, along the border, to Central Mexico. Two specimens (Osborn collection) from the Canal Zone.

Phlebsius spatulatus, var. *personatus* Baker.

This form differs from the typical *spatulatus* in being light colored, pale gray or whitish, with faint dots and irrorations with a fairly distinct fuscous band between the eyes and a distinct black dot on the base of the last ventral segment of the female. The genitalia seem to agree entirely with *spatulatus* and the color differences too variable to warrant the separation as a distinct species.

Phlebsius sabinus, Sanders & DeLong.

Penna. Dept. Ag., Vol. III, p. 15, 1920.

Similar to *spatulatus*, but darker; head narrower than pronotum, distinctly produced, bluntly angled; vertex one-half longer at middle than next the eye. Pronotum strongly arched; elytra long, narrow. ♀ last ventral segment two and one-half times length of preceding, margin truncate with median broad bifid tooth, nearly one-third length of segment. Vertex white toward apex, with broad, irregular black band between eyes, brown posteriorly, and two black triangular spots toward apex. Pronotum pale, variously mottled and splashed with brown, numerous tiny punctures most abundant posteriorly. Lateral margins bordered with white. Scutellum brown mottled anteriorly and pale posteriorly. Elytra milky white, irregularly inscribed and mottled with dark brown pigment. Face pale buff, with nine or ten pairs of irregular brownish arcs, a broad median pale line and with black band at base of clypeus. Margin of frons near antennæ, irregular spot and broad line below eyes extending across pronotum below margin black. Venter pale beneath, except first abdominal segment and sometimes a broad median band, black.

Arizona.

Phlebsius denticulus n. sp. (Pl. XXIV, Fig. 4).

Similar to *ovatus*, but smaller; head more distinctly angulate and genitalia different.

Head narrower than pronotum; vertex distinctly angulate, nearly twice as long at middle as next the eye, rounded to front; front broad at base, narrowing nearly uniformly to clypeus; clypeus about twice as long as broad, expanded at tip; loræ large; cheeks expanded at sides, margins distinctly sinuate. Pronotum about half longer than vertex; lateral carina about one-half the length of the eye, hind border slightly concave; elytra broad, slightly flaring at tip. ♀ last ventral segment with a pair of rather strong teeth divided by a median notch, lateral angles produced into blunt teeth. ♂ similar to *superbus*; valve small,

angled behind; plates short, broad, bluntly rounded behind, about one-half as long as pygofer, not as nearly semicircular as in *superbus*. Dull gray, tinged with brown; vertex and pronotum faintly irrorate with fuscous; scutellum with a central dark line; elytra gray, sub-hyaline, with fuscous ramose lines more or less distinct; costal border with a series of dark spots more pronounced at tip; front brownish or light fuscous, with pale arcs and dots; clypeus pale, with a median darker stripe; loræ with dark spots on the disk; abdomen above blackish, below dark gray; legs light brownish with fuscous annulations and dots. Length, ♀, 4.25–4.75 mm.; ♂, 4–4.5 mm.

Described from a series of eleven specimens, four females and seven males, Los Banos, California, May 23, 1918, collected by E. P. Van Duzee.

This species has considerable appearance of a minute and light colored *superbus*, but has a longer vertex and the female segment is decidedly different, while the male plates are similar to that species.

Phlepsius neomexicanus Baker. (Pl. XXXIII, Fig. 2).

Head distinctly narrower than pronotum; vertex about one-third longer on middle than at eye; edge subacute, front slightly convex in profile, front broader than in *spatulatus*; elytral reticulations coarse. ♂ valve narrow, short, distinctly obtusely angulate; plates broad at base, narrowing behind center, extending into acute tips reaching half way to extremity of large, remarkably elongated, pygofers. Ash gray, fuscous irrorations, vertex light gray with faint, central, broken line, anterior margin with faint irregular brownish marks and circular dots, fairly dark crescentic spots on anterior border of pronotum, frontal arcs indicated by light maculations on brownish base. Length, 6 mm.

New Mexico.

Phlepsius incurvatus n. sp. (Pl. XXXIII, Fig. 3).

Head narrower than pronotum, distinctly angulate, subconic; vertex a little wider than length at middle, nearly twice as long at middle as next the eye, rounded to front, more acute at apex; front rather narrow, tapering to clypeus; clypeus scarcely widening toward tip; loræ large, elongate, nearly reaching tip of clypeus; cheeks narrow, distinctly narrowed below. Pronotum strongly arched in front, two-thirds longer than vertex, hind border concave. ♀ segment deeply incurved at middle, only about half as long as preceding segment. ♂ valve small, triangular; plates broad at base, sinuate; tips narrow, acute, reaching two-thirds length of the pygofer; pygofer large, not as long as in *neomexicanus*. Light gray, more or less irrorate with fuscous; vertex, pronotum and scutellum pale; front dusky, mottled; clypeus mottled with pale fuscous; elytra whitish, sub-hyaline, distinctly inscribed with fuscous and black lines; the claval veins at tips, and costal cross-veins conspicuous. Length, ♀, 5.75 mm.; ♂, 5.5 mm.

Two specimens, male and female, Sabino Canyon, Catalina Mountains, Arizona, 518, E. P. Van Duzee collection; one specimen, female, Imperial County, California, R. Hopping, Collector, E. P. Van Duzee collection.

Phlebsius cinerosus n. sp. (Pl. XXXIII, Fig. 4).

This species is apparently most closely related to *spatulatus* and *neomexicanus*, but may be distinguished by its smaller size, its pale color, absence of color markings and different genitalia. Vertex narrower than in *spatulatus*; angulate, half longer at middle than next the eye, genæ distinctly sinuate below the eyes. ♂ valve obtusely triangular; plates long, broadest on the base, narrowing on the basal region, tips together broadly rounded. Pygofers somewhat exceeding the plates laterally. ♀ segment nearly three times the length of the preceding; moderately narrowed posteriorly, the posterior margin almost truncate with a triangular notch in the middle. Faded yellowish, approaching *cinereus*. Vertex with a few, rather obsolete deep yellow markings. Eyes fuscous. A number of arcs on the front, the genæ below the eyes, and spot on the lora and clypeus, fuscous. Pronotum and scutellum practically without markings, and the reticulations of the elytra all but obsolete. Length, 6 mm.

Described from one female (type) and one male (allotype) from Springer, N. M., collected by C. N. Ainslie. Types in National Museum.

Phlebsius delicatus n. sp. (Pl. XXXIII, Fig. 5).

Very light gray, faintly marked with delicate ramose veins. Head a little narrower than pronotum; vertex broad, about one-third longer at middle than next the eye, obtusely angulate, rounded to front; front broad, roundly narrowed to clypeus; clypeus twice as long as width at base, distinctly widened toward the tip; loræ large, almost touching margin of cheek; cheek margin distinctly sinuate. Pronotum twice as long as vertex, lateral margin one-half as long as eye, distinctly carinate; hind border slightly concave; elytra moderately broad, slightly flaring toward the tip. ♀ segment short, concave; lateral angles prominent similar in form to *superbus*. Light gray or whitish; vertex and pronotum faintly irrorate with darker gray; elytra milky white, delicately inscribed with ramose lines, a larger dark dot at ends of claval veins, and a series of dots on costal border. Beneath and legs pale gray or whitish, the fore femora and all tibiæ externally dotted with black. Length, 5 mm.

Described from one specimen, female, (type), collected by E. P. Van Duzee at Palm Springs, California, May 21, 1917.

***Phlepsius elongatus* Ball.**

Ann. Ent. Soc. Am., Vol. XI, p. 382, (1918).

"Resembling *majestus*, but narrower with a longer, flatter vertex and a long acuminate female segment. Vertex transversely depressed, nearly flat on anterior half, acutely angled with the long narrow front, one-third longer on middle than against eye, half wider than long. Pronotum much wider than vertex, the outer angles prominent. Elytra very long and narrow. ♀ segment continuing full width as long as the penultimate, then tapering into a long, slender point extending almost to apex of pygofer. Vertex pale testaceous; the anterior third black except for a narrow light margin and a median line; a spot against either eye near the base and an irregular band on middle brownish or fuscous. Front pale, with fuscous arcs, the upper pair very distinct and margining the vertex, below they coalesce into an irregular spot on the disc. Pronotum pale, irregularly mottled with brown, three fairly definite fuscous spots on the anterior sub-margin behind each eye. Scutellum fulvous, with six light points. Elytra pale, fulvous, uniformly inscribed with testaceous. Length, ♀, 10 mm."

Described from a single female from Mexico.

***Phlepsius handlirschi* Ball.**

Ann. Ent. Soc. Am., Vol. XI, p. 383, (1918). Fig. 3b, c and d.

Form and general appearance of *majestus* Osborn and Ball. Slightly smaller and with a narrower vertex. General color, fulvous brown. Vertex pale yellow with a broad band and two sub-apical spots black. Vertex and face as in *hebraeus*. Elytra slightly broader and less flaring, second and third apical cells long and curved. ♀ segment short, transverse; posterior margin nearly straight, the median third produced on each side of a narrow median notch extending over half way to the base; angles next this notch acute. ♂ valve semicircular, plates long, acutely triangular; the extreme tips rounding, three times as long as the valve. Vertex pale yellow, a transverse band behind the ocelli widening on the disc and interrupted in the middle, and a pair of spots in front of this, black; this band incloses a yellow dot against each eye. Face pale sordid yellow. Short brown arcs on front and a dark ocellate spot on clypeus. Pronotum pale, coarsely irrorate with fulvous brown, the anterior sub-margin with coarse ocellate dark spots. Elytra pale, rather sparsely inscribed with fulvous; three dark spots along the suture. Length, 9-10 mm. (Adapted from Ball.)

Described from Mexico.

***Phlepsius hebraeus* Ball.**

Ann. Ent. Soc. Am., Vol. XI, p. 383, (1918).

Resembling *handlirschi* in general form and appearance, slightly smaller; color and marking similar but slightly paler. Vertex transversely convex, one-fourth longer on middle than against eye, twice

wider than long, the anterior margin bluntly rounding to front; front long and narrow, the margin straight to just before the apex. Pronotum broad, the outer angle sharp. Elytra long and narrow; the anteapical cells parallel margined, a number of extra cells on the costa opposite the anteapicals. ♀ segment moderately long, posterior margin slightly concave with a small semi-circular median notch. Vertex and face marked as in *handlirschi* and *majestus*. Pronotum pale, irrorate with brown and with a few black spots along the anterior sub-margin. Elytra as in *handlirschi*, but lacking the rufous cast and usually with a few definite light spots in the apical cells. Length, 8.5–9 mm. (Ball.)

Described from Mexico.

Phlebsius majestus O. & B. (Pl. XXII, Fig. 4).

This is the largest species of the genus, and may be easily distinguished from the other forms by its size and rich tawny color. Vertex twice as long, scarcely impressed on the disc; front long and narrow, apical suture obsolete. Elytra long and narrow. ♀, ultimate ventral segment scarcely twice the length of the penultimate; the posterior margin shallowly sinuate on each side of a median cleft; the lateral angles prominent, broadly rounding. ♂, valve narrower than the ultimate segment, the apex truncate; plates rather long, triangular, the tips together, broadly rounding; the lateral margins thickly set with thin spines; pygofers exceeding the plates laterally, clothed with spines. Vertex pale with a conspicuous irregular, transverse fuscous band on the middle. Face pale, with the sutures and a number of arcs on the front fuscous; genæ with obscure fulvous blotches. The fulvous markings on the pronotum and scutellum and the prominent fulvous reticulations on the elytra, give the insect a rich fulvous or tawny color. Length, ♀, 9.5–10 mm.; ♂, 9–9.5 mm.

Iowa, Ohio, New Jersey, North Carolina, Texas. On grass in open woods.

EXPLANATION OF PLATES.

PLATE XXII.

- Fig. 1. *Phlepsius carolinus*. *a*, dorsal view; *b*, profile; *c*, face; *d*, ♀; *e*, elytron.
Fig. 2. *Phlepsius distinctus*. *a*, dorsal view; *b*, profile; *c*, face; *d*, ♀; *e*, elytron.
Fig. 3. *Phlepsius slossoni*. *a*, dorsal view; *b*, profile; *c*, face; *d*, ♀; *e*, elytron.
Fig. 4. *Phlepsius majestus*. *a*, dorsal view; *b*, profile; *c*, face; *d*, ♀; *e*, elytron; *f*, ♂.

PLATE XXIII.

- Fig. 1. *Phlepsius maculosus*. *a*, profile; *b*, face; *c*, ♀; *d*, elytron.
Fig. 2. *Phlepsius excultus*. *a*, face; *b*, ♀; *c*, elytron.
Fig. 3. *Phlepsius micronotatus*. *a*, profile; *b*, face; *c*, ♀; *d*, ♂; *e*, elytron.
Fig. 4. *Phlepsius nebulosus*. *a*, profile; *b*, face; *c*, ♀; *d*, ♂; *e*, elytron.

PLATE XXIV.

- Fig. 1. *Phlepsius lobatus*. *a*, profile; *b*, face; *c*, ♀; *d*, elytron.
Fig. 2. *Phlepsius areolatus*. *a*, profile; *b*, face; *c*, ♀; *d*, elytron.
Fig. 3. *Phlepsius eburneolus*. *a*, profile; *b*, face; *c*, ♀; *d*, elytron.
Fig. 4. *Phlepsius denticulus*. *a*, profile; *b*, face; *c*, ♀; *d*, elytron.

PLATES XXV TO XXXIII.

In these plates cited in text, the name of each species is entered under the figures which show: *a*, dorsal view of head and pronotum; *b*, profile; *c*, ♀; *d*, ♂ genitalia. A detailed explanation is therefore unnecessary.

