

A REVIEW OF THE LEAFHOPPERS OF THE GENUS GYPONA NORTH OF MEXICO.

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The genus *Gypona* represents a group of leafhoppers that is more or less well known to all collectors of insects and especially to those who frequently have occasion to "sweep" or "beat" trees, bushes, cultivated plants and crops, and weeds. They often occur in considerable numbers in limited areas, assuming the proportions of a concentrated outbreak, and hence their economic importance is brought to attention.

The common large green species occur in most all collections of Homoptera, but in the majority of instances have been wrongly identified. The species are, however, quite easy to separate, and with the following key and short treatises upon the species the general entomologist should experience no difficulty in making correct determinations. It must, however, be said that the key is purely artificial and should be taken as a guide to, rather than positive means of, identification.

Eight species are herein described as new, making a total of 33 that are known to occur in North America north of Mexico. A much larger number of species are distributed throughout Central and South America. The genus is also represented in the Palaearctic, Ethiopian, Oriental, and Australian regions.

The genus was described by Germar in 1821. Since that time Stål in 1858 and J. Spånberg in his excellent treatises of the genus in 1878 and 1881 have added the most to our knowledge of the group.

The author has deemed it wise to omit a full description of each species, since the majority of species were described in available publications and in most cases in good detail. It is believed that a comparison of species will be of greater value, for identification purposes, than lengthy, minute descriptions which primarily "fill up space" and in this particular group of insects might tend towards confusion.

During the course of study of this group I have been greatly aided by the generous loan of specimens from Prof. Herbert Osborn, Messrs. H. G. Barber, W. L. McAtee, and Chris. E. Olsen. In the main, however, the paper is based upon specimens in the collection of the United States National Museum.

Genus GYPONA Germar.

Gypona GERMAR, Mag. d. Ent., vol. 4, p. 73, 1821.

KEY TO THE SPECIES.

1. Ocelli midway between median line of vertex and eyes.....2.
- Ocelli nearer median line of vertex than eyes.....17.
2. Base of clavus black or dark brown.....3.
- Base of clavus not darkened.....10.
3. Pronotum marked with one or two distinct spots near lateral borders.....4.
- Pronotum unmarked laterally.....6.
4. Elytra immaculate.....27. *bipunctulata* Woodworth.
- Elytra with irregular, short, dark lines.....5.
5. Species large. Elytra heavily marked. Pronotum spotted.....30. *aquila*, new species.
- Species smaller. Elytra much lighter in color, pronotum light.
26. *puncticollis* Spångberg.
6. Elytra with numerous irregular, short dark lines.....28. *modesta* Spångberg.
- Elytra without such markings.....7.
7. Species very small and decidedly green or yellowish, not brown.
15. *occlusa*, new species.
- Species much larger and brownish in color.....8.
8. Ocelli comparatively small, elytra without black dots, but with red flakes.
22. *scarlatina* Fitch.
- Ocelli comparatively large, elytra with numerous small black dots.....9.
9. Veins of elytra prominently bordered with black or dark brown dots. Species comparatively small.....24. *curiata*, new species.
- Veins of elytra only very indistinctly bordered with slight punctations. Species comparatively large.....20. *sanguinolenta* Spångberg.
10. A broad dark stripe running backward from the eye and just below lateral margins of pronotum.....11.
- Without such a stripe.....13.
11. Inner margin of elytra more or less darkened, elytra two shaded.....12.
- Elytra of one shade, lighter colored, slightly smaller in size.....13. *citrina* Spångberg.
12. Ocelli comparatively small. Species comparatively narrow.
17. *limbatipennis* Spångberg.
- Ocelli comparatively large. Species comparatively broad.
16. *pectoralis* Spångberg.
13. Species small. Female less than 10 mm. long.....14.
- Species larger. Female more than 10 mm. long.....15.
14. Last ventral segment of female regularly and deeply trisinate. Species brown or reddish brown. Often flaked with red.....21. *irrorella* Spångberg.
- Female segment not deeply trisinate. Species green or yellowish, slightly golden, but not brown or reddish. Not flaked with red.
14. *cacozela*, new species.
15. Female segment only feebly sinuate, if at all; slightly produced or trisinate.
12. *meditabunda* Spångberg.
- Female segment distinctly sinuate, slightly larger species.....16.

16. Female segment with sinuations shallow.....23. *grisea* Spångberg.
 Female segment with sinuations very deep.....7. *dictitoria*, new species.
17. Ocelli nearer anterior than posterior margin of vertex.....18.
 Ocelli equidistant from anterior and posterior margins of vertex or nearer
 posterior.....19.
18. Margin of vertex bluntly rounded, species large.....29. *marginifrons* Fowler.
 Margin of vertex thin, foliaceous, species small.....33. *dracontea*, new species.
19. Elytra reticulate.....20.
 Elytra not reticulate.....24.
20. Anterior margin of vertex black. Two prominent black dots on pronotum.
 5. *ramosa* Kirkaldy.
 Anterior margin of vertex concolorous with rest of head. No black dots on
 pronotum.....21.
21. Female segment with a deep square notch at the middle of posterior margin.
 1. *rugosa* Spångberg.
 Female segment without a square notch at middle of posterior margin.....22.
22. Female segment trisinuate, middle one small, lateral ones larger.
 3. *pruinosa* Spångberg.
 Female segment simple, posterior margin concave.....23.
23. Female segment with a nearly truncate posterior margin, only slightly concave.
 Species small.....4. *geminata* Osborn.
 Female segment with posterior margin noticeably concave. Species larger.
 2. *octo-lineata* Say.
24. Vertex extremely long, nearly as long as pronotum.....25.
 Vertex only a little over half the length of the pronotum.....27.
25. Species small, narrow, decidedly green. Vertex acutely pointed.
 6. *tenella* Spångberg.
 Species broader, brown or grayish. Vertex rounded, if pointed not acutely so..26.
26. Species small, short, less than 10 mm. long.....32. *cinerea* Uhler.
 Species longer, larger, normally 10 mm. long.....31. *fraterna* Spångberg.
27. Species dark colored, head and pronotum black or partly so.....28.
 Species greenish, yellowish, or brown, not black.....29.
28. Species stout, broad. Abdomen above solidly black....19. *melanota* Spångberg.
 Species more slender. Abdomen above transversely banded with black.
 18. *verticalis* Stål.
29. Base of clavus unmarked with black or dark brown.....30.
 Base of clavus black or dark brown.....31.
30. Female segment nearly truncate, small tooth at middle.....11. *unicolor* Stål.
 Female segment deeply and evenly sinuate as in *octo-lineata*.
 8. *angulata* Spångberg.
31. Pronotum with a small black dot on either side. Female segment truncate or
 nearly so, without deep sinuations.....32.
 Pronotum unmarked. Female segment with deep sinuations.
 25. *negotiosa*, new species.
32. Species comparatively broad, large.....10. *bimaculata* Spångberg.
 Species long and comparatively slender.....9. *nixabunda*, new species.

1. GYPONA RUGOSA Spångberg.

Gypona rugosa SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 6, 1878.

This species has the general appearance of *octo-lineata* Say, but from which it may easily be distinguished by the square deep notch in the last female segment. The roughened or rugose surface of the vertex, pronotum, and elytra is quite characteristic of this species.

Specimens have been examined from New York south to Florida and west to Colorado and Arizona.

2. GYPONA OCTO-LINEATA Say.

Tettigonia octo-lineata SAY, Compl. Writ., vol. 2, p. 257, 1824.

Gypona striata BURMEISTER, Gen. Ins., vol. 1, Rhynchota, No. 9, 1838.

Gypona cana BURMEISTER, Gen. Ins., vol. 1, Rhynchota, No. 10, 1838.

Gypona flavilineata FITCH, Homop. New York, State Cab., p. 57, 1851.

Gypona quebecensis PROVANCHER, Nat. Canada, vol. 4, p. 352, 1872.

Gypona flavilineata SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 8, 1878.

Gypona scrupulosa SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 9, 1878.

Gypona olivacea SPÅNGBERG, Ent. Tidskr. Stockholm, p. 24, 1881.

Gypona octo-lineata UHLER, Standard Natural History, vol. 2, p. 247, 1884.

This is the most common and widespread member of the genus in the United States. Great variation is exhibited in the general size and color of individuals and also in the reticulations of the elytra. The fact that the species has at various times been described under several different names is due to these mentioned variances. Biologic observations will prove the writer's opinion that the several so-called forms have no basis for specific value, and that the above names are correctly placed in synonymy. Spångberg laid too much stress upon the character of the reticulations of the elytra in separating and grouping species. While the majority of specimens of *octo-lineata* Say examined have reticulations on the clavus as well as corium, every gradation to the other extreme of no reticulations on any portion of the elytra have been seen. Again some specimens are brilliantly colored with red, while others are solidly green, and even some nearly white. However, the form and shape of the female genitalia is identical in each so-called form.

The species has been recorded from every section of the United States and from southern Canada.

3. GYPONA PRUINOSA Spångberg.

Gypona pruinosa SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 9, 1878.

This species resembles *octo-lineata* Say in general appearance. The female segment rather than being simply and deeply sinuate is distinctly and shallowly trisinate. As far as available records show it is restricted to "east of the Rocky Mountains."

4. GYPONA GEMINATA Osborn.

Gypona geminata OSBORN, 20th Rept. State Ent., New York, p. 513, 1905.

The shorter vertex and nearly truncate female segment will serve to separate this species from *octo-lineata* Say, its nearest relative. It is somewhat smaller and lacks the amount of reticulations that is common to the majority of specimens of *octo-lineata* Say. The re-

ticulations of the wings of *geminata* Osborn are confined to the apical portion. It is a bright green species, becoming yellow in dried specimens.

The only two specimens that I have examined are paratypes from Professor Osborn's collection. They were captured from pine at Cold Springs Harbor, New York, 1904.

5. GYPONA RAMOSA Kirkaldy.

Gypona ramosa KIRKALDY, Hawaiian Sugar Planter's Assoc., Bull. No. 4, p. 60, 1907.

This southwestern species is conspicuous among other members of the genus because of its very thin or foliaceous anterior margin of the vertex, which is tinged with black. It is bright yellow or yellowish green, but sometimes nearly white. The elytra is heavily reticulate, having nearly a rugose appearance. There are two black dots near the anterior margin of the pronotum, one behind each eye. Specimens are entirely light beneath.

The only records of this species in the United States come from southeastern Arizona.

6. GYPONA TENELLA Spångberg.

Gypona tenella SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 34, 1878.

The long, produced, and rather acutely pointed vertex separates this from all the other green species. Otherwise in general appearance it resembles *angulata* Spångberg. It is one of the smallest members of the genus, the female measuring less than 8 mm. long.

The only specimens examined are from Texas, however it is also known to occur in Florida.

7. GYPONA DICTITORIA, new species.

Vertex short, less than one-half the length of pronotum; anterior margin comparatively thin and slightly produced at the middle. Vertex depressed behind apex. Ocelli very large and clear, placed midway between median line of vertex and eyes. A small dark spot behind each ocellus on posterior border of vertex. Pronotum not much wider than head, striations transverse. Elytra opaque with base of clavus unmarked, with appendix. Female segment produced at the middle with very deep sinuations on each side. Size, female 10.5–11 mm. long. Very robust.

Color, a decidedly green species, sometimes with inner margins of elytra mottled with brown, more often without any dark markings.

Type.—Female, Reddington, Arizona, collected by Dr. W. Barnes. (Collection of U. S. National Museum.) Cat. No. 21882.

Paratypes.—1 female and 1 male, Arizona. (Collection U. S. National Museum, P. R. Uhler.) 1 female, Huachuca Mountains, Arizona, collected by H. G. Barber. (Collection of H. G. Barber.) 1 female, Graham Mountains, Arizona, June 25, 1914, collected by E. G. Holt. (Collection of W. L. McAtee.)

8. *GYPONA ANGULATA* Spångberg.

Gypona angulata SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5. No. 3, p. 32, 1878.

Gypona dorsalis SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5. No. 3, p. 30, 1878. (?)

A western species which is quite distinct from all other members of the genus, although resembling *octo-lineata* Say in general appearance. However, the anterior margin of the vertex is much thicker and more broadly rounding than in *octo-lineata* Say and the elytra is never reticulate. The female segment is much the same in both species. It is a bright yellow to green species, sometimes nearly white. Dried specimens appear yellow.

Its distribution includes the Rocky Mountain States westward to the Pacific and north into Canada.

9. *GYPONA NIXABUNDA*, new species.

Vertex nearly one-half as long as width between the eyes, anterior margin thin, prominently depressed beneath. Striations on vertex oblique, transverse on pronotum. Ocelli comparatively small and nearer the median line of vertex than eyes and midway between anterior and posterior borders. A black spot on the pronotum behind each eye. Scutellum about equal to pronotum in length. Base of clavus black. Female segment with two small lobes at the middle and shallowly sinuate on either side. Size, female, 10 mm. long.

Color, female, entirely green or yellowish green, with only other color markings being the spots on pronotum and base of clavus darkened. Female same as male with dorsal side of abdomen more or less darkened in bands and apex of elytra smoky. Elytra transparent in both sexes in dried specimens. Veins of the hind wings of the male black.

Type.—Female, Denver, Colorado, August 13, 1915, collected by C. E. Jackson. (Collection of U. S. National Museum.) Cat. No. 21874.

Allotype.—Male, Huachuca Mountains, Arizona, collected by H. G. Barber. (Collection of H. G. Barber.)

Paratypes.—1 female, Williams, Arizona, and 1 male, Las Vegas, Hot Springs, New Mexico, collected by Messrs. Barber and Schwartz. (Collection of U. S. National Museum.)

10. *GYPONA BIMACULATA* Spångberg.

Gypona bimaculata SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 23, 1878.

This is a comparatively large and very broad green hopper, with a rather long vertex, with its anterior margin thin. There is a prominent black spot on the pronotum behind each eye. The elytra is transparent. With *unicolor* Stål they form a distinctive group within the genus. The comparisons of the two species will be noted under *unicolor* Stål.

Specimens have been examined and identified from New York, Pennsylvania, Maryland, Michigan, Iowa, Colorado, and New Mexico.

11. *GYPONA UNICOLOR* Stål.

Gypona unicolor STÅL, Stettin. Ent. Zeit., vol. 25, p. 84, 1864.

This species closely resembles *bimaculata* Spångberg, but having a longer vertex, which is slightly more acutely pointed, and lacking the black spots on the pronotum. Also the base of the clavus is unmarked. The average of a long series of specimens will show it to be a somewhat narrower form than *bimaculata* Spångberg. The female segment is also more nearly truncate in *unicolor* Stål.

This is a western species and more especially southwestern.

12. *GYPONA MEDITABUNDA* Spångberg.

Gypona meditabunda SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 39, 1878.

This is an easily recognized species. In color it varies from a decided green to reddish brown. Normally the posterior two-thirds of the pronotum is rosaceous and often times the basal half of the elytra is so colored. The dorsal aspect is immaculate and shiny. The female segment is only slightly trisinate. An eastern species extending as far west as the central Mississippi Valley.

13. *GYPONA CITRINA* Spångberg.

Gypona citrina SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 45, 1878.

Gypona pauperata SPÅNGBERG, Ent. Tidskr., p. 33, 1881.

This species greatly resembles *pectoralis* Spångberg. It is somewhat smaller, with less variation in color, the females being of one general color as viewed from above. Elytra entirely opaque. A lighter species. The spots on the elytra of the females are indistinct, but very prominent on the males. The wings are less smoky than in *pectoralis* Spångberg.

This is strictly a southern species. Specimens in the collection of the United States National Museum are from Florida and Texas.

14. GYPONA CACOZELA, new species.

The vertex of this species is not produced, but is nearly as long as one-half the length of the pronotum, with anterior margin thick and broadly rounding. Ocelli comparatively large and situated midway between median line of vertex and eyes and somewhat nearer the anterior than posterior border. Striations of pronotum prominent. Elytra with base of clavus darkened and with four small black spots more or less prominent. Elytra opaque, inner margin beyond clavus clouded with brown. Hind wings light colored but opaque. Female segment produced at the middle and with a small notch. Size, female, 9 mm. long.

Color, yellow or yellowish brown or orange, much the same as *citrina* Spångberg. Vertex and scutellum distinctly yellow to yellowish green. Pronotum, especially posterior half, orange or light brown. Entirely light beneath.

Type.—Female, *allotype*, male, *paratypes*, 2 females, Los Borregos, Brownsville, Texas, collected by H. S. Barber. (Collection of U. S. National Museum); 2 males, Brownsville, Texas, collected by C. H. T. Townsend. (Collection of U. S. National Museum). Cat. No. 21883.

This species closely resembles *citrina* Spångberg.

15. GYPONA OCCLUSA, new species.

The vertex is broadly rounding, not produced, about one-half the length of pronotum and nearly as broad. Ocelli comparatively large and situated midway between the median line of the vertex and the eyes. Pronotum prominently striated and marked with a small black spot near anterior border behind each ocellus. Elytra with base of clavus darkened and with a broad appendix. Female segment slightly produced at the middle and prominently sinuate on each side. Size, female, 7 mm. long. About the smallest species in the United States. Comparatively narrow for its length.

Color, yellow and orange when dried, much the same general appearance as *citrina* Spångberg in color. Probably yellowish green when alive. Elytra shiny and not as opaque as in *citrina* Spångberg or *cacozela* Gibson.

Type.—Female, *allotype*, male, and one paratype male, from Los Borregos, Brownsville, Texas, collected by H. S. Barber. (Collection of U. S. National Museum.) Cat. No. 21884.

16. GYPONA PECTORALIS Spångberg.

Gypona pectoralis SPÅNBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 46, 1878.

Gypona albimarginata WOODWORTH, Illinois. Lab. Nat. Hist., vol. 3, p. 31, 1896.

Gypona hullensis PROVANCHER, Les Hem., 1889.

Gypona woodworthi VAN DUZEE, Canadian Ent., vol. 46, No. 2, p. 389, 1914.

Gypona bimaculata WOODWORTH, Illinois Lab. Nat. Hist., vol. 3, p. 32, 1896.

The identity of this species in the past has been much confused, owing probably to its variation in size and color. It has the general form and shape of *meditabunda* Spångberg, but is somewhat smaller and has a distinct coloration. The wings are smoky and dark, which show through the semitransparent inner border of the elytra, making a contrast to the costal border, which is bright yellow, orange, or rosaceous. There are four small black spots on the elytra which are always more or less distinct.

The species is rather common throughout the eastern half of the United States. Records are at hand showing its occurrence from Minnesota and Nebraska southward to the Gulf and eastward to the Atlantic.

17. GYPONA LIMBATIPENNIS Spångberg.

Gypona limbatipennis SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 47, 1878.

This species belongs to the *pectoralis* Spångberg group, but differing from that species in the more reflexed anterior margin of the vertex, comparatively smaller ocelli, and darker coloration of the elytra. The specimens examined are comparatively narrow for their length. The costal border of elytra is yellowish, the remainder being dark brown to nearly black. The vertex is considerably depressed behind the anterior margin giving the margin the appearance of being reflexed.

The only records of its occurrence are from Illinois and New York. It is a rather rare species. Fitch gave the manuscript name of *fraxini* for this species.

18. GYPONA VERTICALIS Stål.

Gypona verticalis STÅL, Stettin. Ent. Zeit., vol. 25, p. 84, 1864.

Gypona mexicana SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 18, 1878.

This species is similar to *melanota* Spångberg in general color. Comparatively more narrow and a smaller species. The elytra are smoky and dark, but have a light spot on costal margin near apex.

The specimens I have examined were all from New Mexico. It is known to occur in Mexico and Central America.

19. GYPONA MELANOTA Spångberg.

Gypona melanota SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 19, 1878.

Gypona nigra WOODWORTH, Illinois Lab. Nat. Hist., vol. 3, p. 31, 1896.

This is one of the darkest colored species in the genus. Specimens as viewed from above often appear jet black. The vertex, pronotum except lateral borders, and scutellum are normally black but often

times are faded to a yellow. The elytra are entirely smoky and usually dark.

It is an eastern species and occurs as far west as Colorado.

20. *GYPONA SANGUINOLENTA* Spångberg.

Gypona sanguinolenta SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 63, 1878.

This is the darkest colored of the species that form the *sanguinolenta* Spångberg, *scarlatina* Fitch, *irrorella* Spångberg, *grisea* Spångberg group. The four small dark spots on the elytra are always distinct. The cells of the elytra are interspersed with black dots, and there are normally two dark spots on the pronotum behind the ocelli. The ocelli are comparatively large. The head and vertex may be flaked with red.

Specimens are at hand from Massachusetts to Florida and west to the Mississippi Valley.

21. *GYPONA IRRORELLA* Spångberg.

Gypona irrorella SPÅNBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 60, 1878.

This species has a striking resemblance to *scarlatina* Fitch, but may be distinguished from it by the fact that the base of the clavus is not darkened, also the vertex is less produced in *irrerolla* Spångberg. The species must also be considered closely allied to *grisea* Spångberg, from which it differs in being much smaller and having comparatively smaller ocelli. *Irrorella* Spångberg is normally flaked with red as in *scarlatina* Fitch and *sanguinolenta* Spångberg, but is lighter in general appearance.

It is primarily a southern species, but is known to occur throughout the Central States. It appears to be less common than any of the above-mentioned species.

22. *GYPONA SCARLATINA* Fitch.

Gypona scarlatina FITCH, Homop. New York State Cab., p. 57, 1851.

The comparatively small ocelli, and somewhat produced vertex will distinguish this from other closely related species. The vertex, pronotum, and elytra may be flaked with red but the elytra lack the black dots as in *sanguinolenta* Spångberg. Fresh specimens are of a decided brown color with the head appearing somewhat rosaceous or light reddish brown.

It is a northern species and must be kept as a distinct species until large numbers can be examined when it may prove to be merely a northern form of *sanguinolenta* Spångberg. Fitch's type has been examined.

23. *GYPONA GRISEA* Spångberg.

Gypona grisea SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 64, 1878.

The identity of this species should not be at all confused, being very distinct from all other species. It is one of the largest species in the genus, measuring about 12 mm. long and is comparatively broad. The two dried specimens examined would indicate that live individuals have a decided brown appearance. The entire dorsal surface is finely flaked with red. The vertex is broadly rounding and but little produced. Veins of the elytra are margined with minute punctures.

The only available records of capture are from Georgia and North Carolina.

24. *GYPONA CURIATA*, new species.

The vertex is short, only slightly produced, anterior margin rather thick and rounding, striations transverse. Ocelli comparatively large and placed midway between median line of vertex and eyes. Pronotum not quite three times as long as vertex, with transverse striations and numerous minute dark colored punctures on posterior two-thirds. Scutellum with striations but lacking punctations. Elytra semi-transparent, with base of clavus black, veins sometimes with faint irregular markings in cells, veins prominently bordered with minute punctations. Female segment, nearly truncate, only shallowly sinuate if at all. Size, female, 8.5 mm. long.

Color, dried specimens are a light brown, live specimens would probably be yellowish brown, certainly a brownish species.

Type.—Female, *allotype*, male, Arizona. (Collection of U. S. National Museum, P. R. Uhler.) Cat. No. 21885.

Paratypes.—1 female, same as type. 2 males, Arizona, collected by Morrison. (Collection of U. S. National Museum.) 5 females and a male, Huachuca Mountains, Arizona, collected by H. G. Barber. (Collection of H. G. Barber.)

25. *GYPONA NEGOTIOSA*, new species.

The vertex of this species is nearly one-half as long as width between the eyes, anterior margin thin, prominently depressed beneath margin and also behind margin on vertex. Vertex somewhat produced and angulate. Ocelli comparatively small and nearer the median line of vertex than eyes and midway between anterior and posterior borders. A black spot on posterior border of vertex just outside each ocellus. Four dark spots on anterior border of pronotum, one behind each spot of vertex and one in each anterior lateral angle. Base of clavus darkened. Female segment bisinuate with a small notch at middle of central lobe. Elytra with the four prominent spots as in *pectoralis* Spångberg and also with numerous smaller

spots in each cell of the elytra. Size, female, 9 mm. long; male shorter.

Color, the dried specimens from which the description is made are yellowish and grayish brown, indicating that in live specimens the prevailing color would be brown. The males are darker, being more heavily dotted with black punctations along veins of elytra, and also on vertex and pronotum.

The species more nearly resembles *sanguinolenta* Spångberg than any other member of the genus although it is distinctly different even from it.

Type.—Female, Hillsborough County, Florida. (Collection of U. S. National Museum.) Cat. No. 21886.

Allotype.—Male, Raleigh, North Carolina. Collected by Z. P. Metcalf, July, 1909. (Collection of U. S. National Museum.)

Paratypes.—1 female, Plummer's Island, Maryland. Collected by H. S. Barber. (Collection of Herbert Osborn.) One male, Glencarlyn to mouth Four Mile Run, Virginia, June 17, 1914. Collected by W. L. McAtee. (Collection of W. L. McAtee.) One male, Raleigh, North Carolina, June, 1909, collected by Z. P. Metcalf. (Collection of U. S. National Museum.)

26. GYPONA PUNCTICOLLIS Spångberg.

Gypona puncticollis SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 54, 1878.

Gypona quadri-notata SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 56, 1878.

Gypona albosignata UHLER, Colorado Exp. Sta., Bull. No. 31, 1895.

The characters as given in the key are sufficient to readily distinguish this species. It somewhat resembles *modesta* Spångberg but is much more slender or narrow in form and with not so many darkened veins or irregular dark lines on the elytra. The vertex is short and broadly rounding. The four small black spots along the anterior margin of the pronotum and the blackened apex of the clavus are also characteristic for identification.

A cotype of Uhler's *albosignata* is in the collection of the United States National Museum.

The species is known to occur from Massachusetts westward to Kansas and south into Central America and the West Indies.

27. GYPONA BIPUNCTULATA Woodworth.

Gypona bipunctulata WOODWORTH, Illinois Lab. Nat. Hist. Bull., No. 3, p. 30, 1887.

This species resembles *marginifrons* Fowler in the short and has a broadly rounding anterior margin of the vertex. The ocelli are comparatively large and placed as in *marginifrons*. *Bipunctulata* Woodworth is, however, somewhat smaller and lacks the distinctive dark bordering of the veins of the elytra and the irregular dark markings on the anterior border of the pronotum. There are two

dark spots near the anterio-lateral angles of the pronotum which may be considered diagnostic characters.

Uhler's manuscript name *intertexta* applies to this species.

Normally it appears to be a southeastern species; however, it has been recorded from other parts of the country east of the Rocky Mountains.

28. *GYPONA MODESTA* Spångberg.

Gypona modesta SPÅNGBERG, Ent. Tidskr., vol. 4, p. 107, 1883.

The prominent dark veins of the elytra, with numerous dark irregular lines, together with the more or less pointed vertex, serve as distinguishing characters for this species. It is a relatively large and decidedly brown species, however; in dried specimens the elytra sometimes fade to a dirty yellow. The female segment is nearly truncate, being slightly produced at the middle. Fitch has given the manuscript name of *columba* for this species.

Records indicate the distribution of the species to be from Massachusetts west to the Rocky Mountains.

29. *GYPONA MARGINIFRONS* Fowler.

Gypona marginifrons FOWLER, Biol. Cent. Amer., p. 302, 1909.

This is the most easily recognized of all species. The short, broadly rounding vertex, with ocelli placed nearer the anterior than posterior border, constitute the most prominent characteristics. The anterior margin of the pronotum is marked with irregular dark lines. It is a rather large brownish species. Veins of elytra distinctly dark brown.

Specimens at hand are from Arizona and New Mexico.

30. *GYPONA AQUILA*, new species.

The vertex is short, not produced, broadly rounded, anterior margin thick. Minute transverse striations on vertex. Ocelli comparatively large and placed equidistant from median line and eyes, and slightly nearer the anterior margin of vertex. Median line darkened. Two dark spots on posterior border of vertex behind eyes. Width of pronotum much greater than width of head and more than three times as long. Several small dark spots and one or two irregular lines near anterior border of pronotum. Transverse striations and numerous tiny dark punctations prominent. Scutellum large. Elytra with base of clavus black and with veins lined with minute punctations. Elytra semitransparent, with numerous irregular dark lines in cells. A prominent small, white, opaque, longitudinal area along middle of the inner margin of clavus. Female segment produced at the middle with a small notch and sinuate on each side. Size, female, 10.5 mm. long.

Color, general appearance dark grayish brown, due to the many dark markings on pronotum and elytra. Ground color of head, pronotum, and scutellum yellow in dried specimens. Hind wings dark and smoky. Entirely light beneath.

Type.—Female; *allotype*, male; *paratypes*, 2 females; all from Huachuca Mountains, Arizona, collected by H. G. Barber. (Allotype in collection of H. G. Barber.) Cat. No. 21917. (Type and paratypes in collection U. S. National Museum.)

This species is very distinct from all others of the genus, but most nearly resembles *modesta* Spångberg.

31. GYPONA FRATERNA Spångberg.

Gypona fraterna SPÅNGBERG, K. Svenska Vet. Akad. Handl., vol. 5, No. 3, p. 72, 1878.

This species, with *cinerea* Uhler, are characterized by the extremely long vertex, which nearly equals the length of the pronotum. Viewed from above they have the general appearance of the Cercopid genus *Philaenus*.

Fraterna Spångberg is the more common of the two species occurring throughout the entire United States, while *cinerea* Uhler is most abundant in the extreme Southwest. *Fraterna* Spångberg is comparatively large and varies in color from light yellowish gray to dark brown.

32. GYPONA CINEREA Uhler.

Gypona cinerea UHLER, Bull. U. S. Geol. Surv., vol. 3, p. 460, 1877.

Besides the comparisons as noted under *fraterna* Spångberg, it may be said that the abdomen of *cinerea* Uhler is usually darker and the male plates are comparatively narrower. The female segment is deeply bisinuate.

33. GYPONA DRACONTEA, new species.

The vertex is about one-half as long as pronotum and generally concave, not produced, anterior margin thin. Ocelli comparatively small and placed midway between median line of vertex and eyes. Pronotum not much wider than head. Elytra reticulate toward apex, apical area rugose or wavy. Female segment notched at the middle with a blunt tooth. Size, females 6.5 mm. long. Short and robust, having the general appearance of an *Xerophloea*.

Color, the upper surface finely punctate with red. Ground color yellowish. The red punctures sometimes become brown. Elytra tinged with red and mottled more or less with brown. Veins of the elytra spotted. Elytra opaque to apical area, which is transparent. A light spot at center of claval suture.

Type.—Female; *allotype*, male; *paratype*, 1 female; Huachuca Mountains, Arizona. (Collection of U. S. National Museum.) Cat. No. 21887.

Paratype.—1 female, Nogales, Arizona, Koebele. (Collection of Herbert Osborn.)

The most highly colored and distinctive species in the genus occurring in the United States.