

## CICADAS BELONGING TO THE GENUS DICEROPROCTA WITH DESCRIPTIONS OF NEW SPECIES

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When W. L. Distant published his catalogue of the cicadas in 1906, and again in his account of the family Cicadidæ in "Genera Insectorum" in 1912, he listed many of the North American species having the song apparatus completely covered when viewed from above, under the two genera *Cicada* Linnæus, 1758, and *Rihana* Distant, 1904. His type for *Rihana* was *ochracea* Walker of Asia, a species with the front of the head prominent and with long opercula (see "Monograph of Oriental Cicadidæ," p. 96 and Plate XII). His type for *Cicada* was *plebeja* Scopoli of Europe, but as pointed out by Mr. Edward P. Van Duzee in the "Bulletin of the Buffalo Society of Natural Sciences," June, 1912, and in the "Canadian Entomologist" for November, 1914, the genus as restricted by Distant does not include any of the original Linnean species.

*Rihana ochracea* Walker, of China and Formosa, can stand as the type of the genus *Rihana*, but as far as our North American species are concerned, Mr. Van Duzee very properly sought some other name and selected *Tibicen* Latreille, with *plebeja* Scopoli as type. In his "Catalogue of the Hemiptera of America North of Mexico, he placed all of our species under this generic name, as the characters given by Distant for separating *Rihana* from *Cicada* based on the relative length and width of the head, etc., could not be followed. The species *robusta*, *montezuma*, *hilaris* and *dorsata*, for instance, listed on page 40 of Mr. Distant's catalogue, should have been placed in his genus *Rihana* to be near their relatives; *dorsata* with a narrow head should not be far separated from *Tibicen marginalis* in which the head is broader.

Mr. Van Duzee in his catalogue page 489 gives *Diceroprocta* Stål as a subgenus. This was described in "Ofversigt of Kongl. Vetenskaps-Akademiens Förhandlingar," xxvii, p. 714, 1870.

The characters are last dorsal segment of males sinuate behind and produced on both sides into an acute lobe; sixth ventral segment of females sinuangular at middle of apex and on each side very obtusely rounded sinuate. Mexican species, for instance, *C. alacris* Stål.

Distant states in "Biologia Centrali Americana," p. 9, that he had examined Stål's type of *alacris* (1864) and found it to be a synonym of *transversa* Walker (1858) from Mexico. In addition to the characters given above, this insect has the uncus wish-bone shaped instead of simple as in *Tibicen plebeja*, and the first cross vein of the fore wing does not, as a rule, start as far back or near to the base of the wing from radius 3 as it does in *Tibicen*. The tympana are completely covered as in *Tibicen*.

Mr. Distant in the opinion of the writer was correct when he tried to separate many of our North American Cicadas lately placed as a whole under *Tibicen* into two genera, only it could not be done on the characters given by him; relative width of the head, etc.

In addition to *transversa* of Mexico the type of *Diceroprocta*, the following table includes all of the species belonging to the genus so far described from the United States, also *diguetti* from Lower California, *bonhottei* from the Bahamas and the new species closely allied to *vitripennis* from Vera Cruz, Mexico. A number of other species of *Diceroprocta* are to be found in Mexico and Central America, but these are left for future consideration when more material is available.

On a subsequent page it is noted that Uhler long ago was inclined to use the generic name *Diceroprocta*, and labeled a specimen in his collection "*Cicada (Diceroprocta) viridifascia* Walker."

In the species of *Diceroprocta* known to the writer the song is continuous like that of some of the species of *Neoconocephalus* among the long-horned grasshoppers for which it may be mistaken, whereas in the *Tibicen* of the eastern United States, and no doubt in the western species as well, the song is of much shorter duration, lasting usually not over a minute.

*Diceroprocta* Stål.

- A. Opercula triangular; about one half the length of the abdomen.  
 B. Fore wings entirely clear, or the first and second cross veins very slightly clouded.  
 C. Inland species, expanding about 85 mm. or less. For figures see this Journal, March, 1921, and March, 1925.
- Opecula with the outer edges nearly parallel to each other; 8th segment and middle base of tergum pruinose. Collar and costal margin of fore wing usually bright orange in color.
- Texas, New Mexico ..... *cinctifera* Uhler  
 Opercula with outer edges converging; without central pruinose spot at the base of the tergum.  
 Hind margin of pronotum or collar yellowish, or straw-colored; eyes reddish and membranes at base of both pair of wings pale; often straw-colored. Pubescence at base of abdomen golden.
- Arizona, California, Utah ..... *apache* Davis  
 Hind margin of pronotum or collar with anterior portion blackish and posterior portion pale. Eighth segment pruinose, and pubescence at base of abdomen, silvery. Eyes darker than in *apache* (not reddish in dried specimens), and membranes at base of all wings darker gray. Usually smaller than *apache* and with opercula more extended at tips.
- Arizona, Mexico ..... *semicincta* Davis
- CC. Coast species; expands more than 85 mm. Tergum of male pruinose centrally at base, and at the sides in both sexes.  
 Lower California, Mexico ..... *diguetti* Distant
- BB. Fore wings with the first and second, and in some species the remaining cross veins as well, clouded.
- Coast species.
- Opercula reaching the second abdominal segment and rounded at the tips. Dorsal spine at tip of abdomen in female straight, not bent upward. Expands 100 mm. or less.
- Florida and Cuba ..... *biconica* Walker  
 Dorsal spine at tip of abdomen in female with an upward bend otherwise closely resembling *biconica*. (See figure.)
- Bahama Islands ..... *bonhottei* Distant  
 Opercula reaching the fourth abdominal segment and more pointed at the tips. Expands 80 mm. (See figure.)
- Mexico ..... *transversa* Walker  
 Opercula reaching the fifth segment. Head narrower than in *transversa* and fore wings with the first four of the cross veins clouded. (See figure.)
- Texas ..... *marevagans* Davis

## Inland species.

All of the cross veins clouded and sometimes the outer marginal areas as well. Expands 63 mm. (See figure.)

Arizona ..... (*castanea* Davis) *swalei* Distant

## AA. Opercula short; rounded at the extremities.

B. Fore wings with the first and second cross veins clouded. Basal cell in all of the species clear or nearly so.

Chestnut brown with a prominent front. Tympanal coverings not bulging from sides of the abdomen. Expands 70 mm.

Arizona and Lower California Mexico ..... *knighti* Davis

Resembles the last but is smaller; front not as prominent and has bulging tympanal coverings at sides of abdomen. Expands 52 mm.

Arizona ..... *arizona* Davis

Small, with prominent eyes and rounded front; collar green or yellowish green; all of the veins about the marginal cells clouded in some specimens. Expands 57 mm.

Louisiana, Texas, Mexico ..... *delicata* Osborn

An inconspicuous dull colored species and the only small cicada of the genus having the 1st and 2nd cross veins clouded to be found in the south eastern U. S. Expands 65 mm.

Georgia, Florida, Alabama, Mississippi.

(*sordidata* Uhler) *olympusa* Walker

Resembles *olympusa* but is more robust and has a larger head. Can be most readily separated by the absence of the notch on the inner side of the uncus when viewed in profile. A few individuals collected in September have the 1st and 2nd cross veins in fore wings unclouded. Expands 65 mm.

Texas, New Mex., Mexico ..... *texana* Davis

BB. Fore wings clear, the first and second cross veins unclouded. (An occasional *texana* may be included.)

C. Opercula short and broadly rounded at the extremity. Yellowish with blackish markings; costal margin of fore wings yellowish to end of radial cell; collar yellowish. Front of head more prominent than in *vitripennis*. Expands 60-70 mm.

Texas, Oklahoma, Arizona, New Mex., Kansas.

*eugraphica* Davis

Wings proportionately narrower than in *eugraphica*; markings greenish in color, collar greenish. Transverse black stripe on head usually reaching from eye to eye. Mesonotal  $\times$  greenish, not spotted; basal cell of fore wings clear. Expands 70 mm.

Michigan southward; general region of the Mississippi.

*vitripennis* Say

Head much larger than in *vitripennis* and colors usually more

contrasting. Transverse black stripe on head between the eyes not reaching the eyes. Expands 70 mm.

Texas, Louisiana ..... *vitripennis* var. *bequaerti* Davis  
Resembles *vitripennis* but the claws of the uncus are short. (See figure.) Mesonotal  $\times$  green; basal area of abdomen between the tympana silvery with a bright white spot each side. Expands 70 mm. (See figure.)

Vera Cruz, Mexico ..... *albomaculata* Davis  
Blackish brown in color with the front of the head and eyes very prominent; costal margin of fore wings very dark in color; orange at the extreme base of both pair of wings and basal cell more clear and collar more brown than in *viridifascia*. Expands 75 mm. (See figure.)

Texas ..... *bibbyi* Davis  
Chocolate colored with the hind margin of the collar and fore margin of the wings to end of radial cell orange; oblong spot in upper part of basal cell; mesonotal  $\times$  spotted at top tergum blackish. Expands 70 mm.

Along the coast from Virginia to Gulf of Mexico.

(*reperta* Uhler) *viridifascia* Walker

## CC. Opercula longer and more lobate.

A pale and greenish colored species; head and pronotum almost entirely green; a broken band of black spots between the eyes; opercula green; under side of abdomen straw colored. Expands about 60 mm.

Oklahoma, Texas, Mexico. (*pallida* Distant) *azteca* Kirkaldy

i. *Diceroprocta cinctifera* Uhler.

This species is figured and considered at some length in this JOURNAL for March, 1921, pages 2 and 3. The specimens there mentioned came from New Mexico and southwestern Texas; the northern California record being doubtful. It is again referred to in this JOURNAL for March, 1925, and a table given for the separation of it, *apache* and *semicincta*. On Plate 4, figure 25, Genera Insectorum, 1912, there is a figure of a cicada said to be *cinctifera*, but the fore wing is much too broad in proportion to its length, as will be noted by comparing it with the figures published in this JOURNAL for 1921.

A considerable number of specimens have been examined from Las Cruces and Mesilla both in Dona Ana Co., New Mexico, and from the following counties in Texas: El Paso, Presidio, Pecos, Brewster and Val Verde. The dates of collection have been from May to August, both included.

## 2. *Diceroprocta apache* Davis.

Described and figured in this JOURNAL for March, 1921, pp. 3-5, from Arizona specimens. It is there recorded that some of the specimens from the arid regions of California and Utah "range all the way from a light brown with darker marks, particularly on the head and mesonotum, to very pale almost unicolorous individuals." Reference is also made to figure 13, Plate 28, in Howard's Insect Book, where a female is figured under the name of *Cicada vitripennis*. This individual has since been examined in the United States National Museum collection and it bears a label, San Diego Co., California.

This species has been collected in June, July and August.

## 3. *Diceroprocta semicincta* Davis.

Described and figured in this JOURNAL for March, 1925, from over two hundred specimens collected principally by O. C. Poling during several years in the Boboquivari Mountains, Arizona. Numerous other specimens from Arizona are also mentioned; collected in June and July. It also occurs in Mexico.

## 4. *Diceroprocta digueti* Distant

Described in the "Ann. Mag. Natural History" (7) XVII, p. 156, 1906, from Lower California, where it appears to be, in places, quite common. Three specimens received for examination from Mr. E. P. Van Duzee are labeled Cape San Lucas, Lower Calif., Aug. 4, 1919 (J. Slevin Coll.) Apparently it also occurs on the adjacent mainland, for in the collection of the American Museum of Natural History there are two males and one female labeled "Envir de Guadalajara Estat de Jalisco, 1901 (M. Diguet)." Mexico.

## 5. *Diceroprocta biconica* Walker

Described in the "List of the Specimens of Homopterous Insects in the Collection of the British Museum," Part I, London, 1850, from the island of Cuba, and figured, rather poorly in "Genera Insectorum," Plate 4, Fig. 24, 1912. A specimen from Florida was figured in this JOURNAL for 1918, Plate VIII, Fig.

3. This appears to be a rather plentiful species in Cuba and the Isle of Pines, while from Florida the following specimens have been examined: Big Pine Key, July 1915, male, Davis collection; Key West, female, collection Brooklyn Museum; Key West, female, U. S. Nat. Museum; Key West, female, Acad. Nat. Sciences; Phil.; Long Key, Monroe Co., July 13, 1912, male (Rehn and Hebard), Acad. Nat. Sciences, Philadelphia.

## 6. *Diceroprocta bonhotei* Distant. Pl. XVII, Fig. 1.

Described in the "Entomologists' Monthly Magazine" (2) Vol. XII, p. 71, 1901, from five specimens from Nassau, Bahama Islands. Mr. C. E. Olsen of the American Museum of Natural History collected thirty-eight specimens on several of the Bahama Islands in June and July, 1924. Mr. George P. Engelhardt has also taken many, and seven males and fourteen females have been examined from Mangrove Cay, Andros Island, Aug. 4, 1904 (Allen, Barbour and Bryant) Museum Comparative Zoology, Mass.

In all of the eight females in the writer's collection the spine at the end of the abdomen has an upward turn instead of extending straight out, as in *biconica*. With the exception of this structural difference *bonhotei* and *biconica* closely resemble each other. Some of the specimens of *biconica* in the writer's collection have the last four of five segments of the abdomen pruinose above, and the area at the base of the abdomen, between the tympanal coverings, is often pruinose. This pruinose spot is present in all of the thirteen males and in some of the female *bonhotei* in the collection, but in this species the pruinosity on the last segment of the abdomen is often reduced to two spots and is not as extensive as in some *biconica*.

The specimen figured is one of the males in the collection of the British Museum, and the photograph was kindly sent to me by Mr. W. E. China.

## 7. *Diceroprocta transversa* Walker. Pl. XVII, Figs. 2 and 3.

This species was described from Vera Cruz, Mexico, by Francis Walker in "Insecta Saundersiana," 1858, and was later

figured by Mr. Distant, in "Biologia Centrali-Americana," Homoptera, plate 2, figure 1. Through the courtesy of Mr. W. E. China, I am enabled to present figures from the type in the British Museum. These figures closely resembles the one in Biologia. In the collection of Cornell University there are three males labeled Vera Cruz (Crawford), that agree with the original description, with Distant's figure, and with the figure herewith presented. A comparison of these specimens with the type of *marevagans* described in this paper, shows that in *transversa* the front is more prominent; eyes more conspicuous, and the opercula slightly shorter, reaching but to the fourth segment, while in *marevagans* they reach the fifth.

Mr. China states that the dorsal spine at apex of pygofer in the female, is straight. Mr. Distant considered *alacris* Stål a synonym of *transversa* Walker, as we have mentioned.

8. *Diceroprocta marevagans* new species. Pl. XVII, Figs. 4 and 5.

Type male, Galveston, Texas, August 22, 1918, (E. C. Wurzlöw). Davis collection.

Resembles *D. transversa* Walker, of Mexico.

Head across eyes broader than the anterior width of the pronotum, but little produced, and rounded; medium sulcus of the front shallow; transverse rugae shallow, black in the groves. Many white hairs on the sides of the face. The opercula slightly separated at the base, triangular in shape and reach the fifth segment. The outer sides are not quite parallel to each other, as shown in the illustration. The last ventral segment truncate at the extremity with a slight sinuation in the middle. Uncus wish-bone shaped, as shown in the illustration, and the last segment with the extremity prolonged upward into two upturned horns. Abdomen slightly broader across the middle than at the base.

General color chestnut brown; head black with pale spots at the front above the antennae and one each side posteriorly near the eyes. Pronotum chestnut colored, variegated with black, and the collar pale straw-colored, with a small fuscus spot at each extremity near the base of the fore wings. Mesonotum with four obconical spots extending backward from the front margin, the out pair about twice as long as the inner pair. The elevated  $\times$  pale, with the darker stripe across each of the fore limbs connected with an anchor shaped spot immediately before the  $\times$ . Upper side of the abdomen of an almost uniform dark or chestnut brown slightly paler on the sides of the third and fourth segments. Under side of the body including the opercula pale; almost black about the eyes; abdomen castaneous with a slightly darker stripe centrally. Fore wings with the basal area almost

clear, slightly yellowish at the base and along the front margin; veins yellow except about the marginal areas where they are dark brown. First four cross veins infuscated. Basal membranes of both pair of wings pale gray.

MEASUREMENTS IN MILLIMETERS

	Male Type
Length of body.....	29
Width of head across eyes.....	10
Expanse of fore wings.....	78
Greatest width of fore wing.....	12
Width of operculum at base.....	6
Greatest length of operculum.....	8.5



DICEROPROCTA MAREVAGANS TYPE

Mr. Wurzlöw wrote that he heard the type here described singing, and found it on a fence over a clump of *Amaranthus*. He also heard several others in the gardens about the houses.

In addition to the type a male from Padre Island, Texas, August 23, 1915, in the collection of the University of Michigan, has been examined through the courtesy of Prof. F. M. Gaige. This specimen was figured in this JOURNAL, March, 1921, Plate 2, Fig. 1, under the name of *Tibicen transversa* Walker, but as has been shown on a previous page the true *transversa* is a different insect. With further collecting *marevagans* may prove to be a northern race of *transversa*.

9. *Diceroprocta swalei* Distant. Pl. XVIII, Fig. 1.

*Rihana swalei* Distant (1904).

*Tibicen castanea* Davis (1916).

When *castanea* was described and figured in this JOURNAL for March, 1916, it was stated (p. 51) that it resembled *swalei*

described by Distant without locality, but supposed by him to have come from Central America. The figure in *Ann. Mag. Nat. Hist.* (7), XIV, p. 427 (1904) shows a more robust bodied insect with more prominent eyes than the specimens of *castanea* from Arizona. However, Mr. W. E. China, who has kindly compared specimens from Arizona with the type, writes me that he believes them to be the same. It is possible that Distant's type actually came from Arizona, and not Central America, as he supposed.

All of the specimens so far examined by the writer have come from Arizona, where it sometimes occurs in considerable numbers. In June, 1924, Mr. O. C. Poling collected 52 males and 37 females in the Boboquivari Mountains, Pima County, which he found resting on Ocotillo and Mesquite stems. The last ventral segment of the female is broadly notched with a second notch within.

In this paper a figure is given of the suffused variety mentioned in the original description (1916) from Santa Rita Mountains, Arizona. It is in the collection of the Brooklyn Museum.

#### 10. *Diceroprocta knighti* Davis.

Described and figured in this *JOURNAL*, December, 1917, from male specimens taken by Dr. Harry H. Knight in the Santa Catalina Mts., Arizona. In July, 1921, Mr. Edward P. Van Duzee collected eight specimens, including two females, while on a trip along the shore of the Gulf of California. They were taken at San Pedro Bay and San Carlos Bay, Sonora, and were not uncommon. The last ventral segment of the female is singly notched and on each side of the notch the margin of the segment is produced into points.

#### 11. *Diceroprocta arizona* Davis.

Described and figured in this *JOURNAL*, March, 1916, from males collected in June in the Santa Rita Mts., Arizona. Later a female collected by Prof. F. H. Snow at the same place and time was examined, and the notch in the last ventral segment was found to be shallow, broadly open and with its sides slightly

sinuate. This appears to be an uncommon species, unless the collector is fortunate enough to come upon it during a brood year.

#### 12. *Diceroprocta delicata* Osborn.

Described in the "*Ohio Naturalist*," Vol. VI, p. 498, April, 1906, and figured in this *JOURNAL*, March, 1916, from one of the Louisiana specimens kindly furnished by Prof. Herbert Osborn. A number of individuals have been seen from numerous localities in central and southern Texas. In the U. S. Nat. Museum there are two specimens labeled "Mex." In this species the apical fourth of each fore wing is more smoky than usual.

#### 13. *Diceroprocta olympusa* Walker.

*Fidicina olympusa* Walker (1850).

*Cicada milvus* Walker (1858)

*Cicada sordidata* Uhler (1892)

Figured, and the descriptions under the above names reviewed in this *JOURNAL* for March, 1916, and March, 1923. It is quite common in Florida, especially along the coast; extends northward into Georgia, and westward to Mississippi. In Florida it has been collected from April to October, and a male in the University of Michigan, collected at Gainesville by Prof. T. H. Hubbell, is labeled December 18, 1923. Mr. H. P. Loding and Mr. Thomas S. Van Aller have collected some examples in June and July at Irvington, Alabama, in which the upper surface of the head and thorax is almost black. A remarkable and beautifully colored male is in the collection of the Museum of Comparative Zoology at Cambridge, Mass. It is very dark in color with the anterior half of the collar black, posterior half green; hour-glass shaped mark in center of pronotum black, green each side, upper surface of abdomen black with dorsal row of silvery hairs.

#### 14. *Diceroprocta texana* Davis.

Described and figured in this *JOURNAL*, March, 1916, from Cameron County, Texas, and in the *JOURNAL* for March, 1921,

recorded from other localities in Texas, chiefly near the Rio Grande. Mr. Raymond H. Beamer, of the Univ. of Kansas, has since sent to me for examination twenty specimens collected in Chaves County, New Mex., July 8, 1927, that are somewhat lighter in color than any seen from Texas.

On July 14, 1928, Mr. F. F. Bibby and Mr. J. F. Cooper collected 85 males and 8 females in Winkler Co., Texas, and reported them numerous on various shrubs and easily collected. They had evidently but recently emerged. On September 11, Mr. Bibby and Mr. Cooper collected 9 additional males at the same locality that are like those collected in July, except that the clouded condition of the first and second cross veins in the front wings no longer prevails as it does in nearly every one of the 93 collected in July, and in all others seen from any other locality in Texas, New Mexico or Mexico. They reported those found in September easily taken by placing a small cyanide bottle over each one as it sat on a bush.

On July 27, 1928, Mr. Bibby and Mr. Cooper collected 8 males and one female in Val Verde Co., Texas, that are more robust and more brightly colored than those found in Winkler County, and they reported that they were shy and much more difficult to capture. The uncus, however, is of the same shape and they may be considered to be *texana*.

In the writer's collection there are two males labeled "Mexico" that also appear to be *texana*, and recently Dr. Alfons Dampf kindly sent for examination a male from Cuernavaca, Mexico, that is evidently of the same species.

#### 15. *Diceroprocta eugraphica* Davis.

Described and figured in this JOURNAL, March, 1916, from New Mexico. It is also known from Kansas, Oklahoma, Texas and Arizona; is usually found in dry situations and is sometimes quite common.

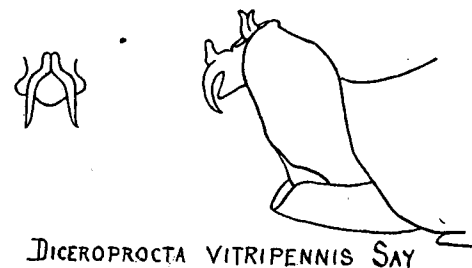
There was probably a brood of this species appearing in Barber County, Kansas, in 1916, for from the 19th to 21st of July in that year Mr. Raymond H. Beamer collected 80 males and 11 females. In 1927 he sent for examination 41 specimens col-

lected during July in Culberson, El Paso, Jeff Davis, Presidio and Pecos counties, Texas, and Chaves and Eddy counties, New Mexico. They were all quite alike except that the specimens from Ft. Stockton, Tex., averaged somewhat larger than those from the other localities. The dates of capture from various localities extend from May to September.

#### 16. *Diceroprocta vitripennis* Say.

*Cicada erratica* Osborn.

This species was described in 1830 and Say states that it was presented to him by Mr. Nuttall "from the Arkansas." It is figured in this JOURNAL for March, 1916. It appears to be confined to the central part of the United States and specimens have been examined from Michigan, Indiana, Illinois, Nebraska, Kansas, Missouri, Oklahoma, Arkansas, Texas, Louisiana, Mississippi and Alabama. The dates of capture are from June to September. Miss Louise Knobel collected a great many in her Light-Trap at Hope, Arkansas, in 1923, 1924 and 1925, in the latter year 43 females and 18 males were taken in the trap from June 4th to 18th and sent to the writer. The three males and one female from Berrien Co., Michigan, June 24, 1919, were collected by Prof. Theodore H. Hubbell, who found them common on poplars growing among the dunes near the lake. In the southern part of its range *vitripennis* is often found in corn fields and is destructive to cotton. Both Prof. R. W. Harned and R. W. Lohdell have sent me specimens from Mississippi found emerging from land that had been under water, so the young insects are evidently able to live in very wet soil.



DICEROPROCTA VITRIPENNIS SAY

17. *Diceroprocta vitripennis* var. *bequaerti* Davis.

Described and figured in this JOURNAL for December, 1917, under the name of *Tibicen viridifascia* Walker, var. *bequaerti*, but in the JOURNAL for March, 1921, it is suggested that it was more likely a variety of *vitripennis* Say. It may be owing to its broader head and differences in marking, a distinct species. The type and four paratypes came from Richmond, Texas, and other specimens have been collected at Wharton, near the coast in Texas. It also occurs in Louisiana.

In the U. S. National Museum there is a female specimen of *bequaerti* from Columbus, Texas. It bears a label stating that it was figured in the "Insect Book, Pl. 28, Fig. 15."

18. *Diceroprocta albomaculata* new species. Plate XVIII, Figs. 2 and 3.

Type male form Vera Cruz, Mexico. Collection United States National Museum.

Resembles *D. vitripennis* but the claws of the wish-bone shaped uncus are much shorter than in either *vitripennis* the species of the region of the Mississippi, or *D. viridifascia* the coastal species of the north. The basal area in the fore wings is clear as in *vitripennis*; in *viridifascia* the same area contains a dark oblong spot along the front margin. Basal area of abdomen between tympana silvery, with a conspicuous white spot each side.

Head broad with the front not as prominent as in *vitripennis* or as broadly rounded as in variety *bequaerti*. Body short and robust as in *viridifascia*. Opercula short, rounded at the extremities, and extending to the first abdominal segment; slightly separated on inner margin. Last ventral segment with the tip rounded and slightly sinuate centrally. Uncus as figured, with the claws short and pale colored, instead of being dark brown or almost black as in *vitripennis*, and when viewed from behind more parallel than in that species.

General color of the head and mesonotum greenish variegated with much black or dark brown, and of the dorsum of the abdomen chocolate brown. Head black, pale above each antenna, and with an oblong greenish spot each side between the front and the eyes, and one each side posteriorly between the ocelli and the eyes. Pronotum greenish with a central oblong dark spot and the grooves blackened; collar green. Mesonotum greenish with four obconical marks, the inner pair short and dark colored; the outer pair longer and much dissected with greenish. Two dark spots each side near the wings; elevated  $\times$  pale with an irregular dark spot centrally between it and the central pair of obconical spots. Abdomen chocolate brown somewhat lighter each side on the tympana, and with the basal area between the tympana silvery with a brighter spot each side. The whole of the upper

surface of the abdomen is beautifully covered with silvery and bronzed pubescence, the silvery predominating on the sides. Beneath pale greenish and pruinose; tip of rostrum brown; tarsi and claws darkened; opercula pale; first abdominal segment brownish; succeeding segments very pale brown, somewhat darkened at the sides. Fore wings clear; costal margin to end of radial cell green, brownish beyond; membranes at base of wings smoky and of the same color as in *vitripennis*.

## MEASUREMENTS IN MILLIMETERS

	Male Type
Length of body.....	21
Width of head across eyes.....	10
Expanse of fore wings.....	70
Greatest width of fore wing.....	10
Width of opercula at base.....	5
Greatest length of opercula.....	5



DICEROPROCTA ALBOMACULATA TYPE

In addition to the type there is a paratype from the same locality that agrees with it in size, structure and markings.

In "Biologia Centrali-Americana," Homoptera (1881), Plate 2, Fig. 6, there is figured a cicada resembling the present species, but much larger, under the name of *Cicada nigriventris* Walker. Later in his catalogue of Cicadidæ, 1906, p. 36, Mr. Distant refers the figure to "variety *Cicada nigriventris* Distant," which he places under *Rihana vitripennis* Say. *Cicada nigriventris* Walker was described in 1858 and is a distinct species, so the name used by Distant was preoccupied. Possibly he did not intend to designate a new variety of *vitripennis*.

19. *Diceroprocta bibbyi* new species. Pl. XVIII, Figs. 4 and 5.

Type male and allotype female from near Langtry, Val Verde County, Texas, July 27, 1928 (F. F. Bibby). Davis collection.

About the size of *D. vitripennis*, but more shining and blackish-brown in color and the front more prominent. Head across eyes broader than the

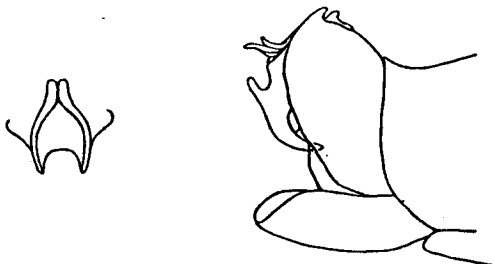


anterior width of the pronotum and the front more prominent than in most species of the genus. Median sulcus of the front shallow; transverse rugae black; plainly marked and tomentose in the grooves. Many white hairs on the sides of the face. The opercula slightly overlap (or almost touch in some of the paratypes) at the base; about as long as broad, rounded at the extremities which reach the second segment. The last ventral segment is truncated with a sinuation in the middle. Uncus wish-bone shaped as shown in the illustration, and the last segment with the extremity prolonged upward into two short horns. Abdomen in the male nearly as broad across the middle as at the base. Last ventral segment of the allotype with the notch single; the edges of the segment on either side of the notch but slightly sinuate.

General color a chocolate brown, head black with a narrow, oblong, orange spot on the front, a small one over each antenna, one each side between the front and the eyes, and one each side posteriorly between the ocelli and the eyes. Pronotum brown and black with a pale line centrally; collar orange-yellow with the anterior portion irregularly blackened. Mesonotum almost black with the obconical spots reduced to two orange J-like marks; the elevated  $\times$  pale; black centrally (or wholly black in one of the paratypes); hind margin pale and a pale spot each side near the base of the fore wings. Abdomen of a uniform dark brown, the sides silvery with flattened scale-like vestiture; a conspicuous tomentose spot each side on next to the last segment. Under side of the body including the opercula tomentose, the legs striped with brown; the posterior margin of each abdominal segment

## MEASUREMENT IN MILLIMETERS

	Male Type	Female Allotype
Length of body .....	26	25
Width of head across eyes.....	10.5	11
Expanse of fore wings.....	75	77
Greatest width of fore wing.....	11.5	12
Width of operculum at base.....	6	
Greatest length of operculum.....	5	



DICEROPROCTA BIBBYI TYPE

and the sides of the valve pale. Fore wings with the basal area clear, very slightly clouded along the front margin; outer veins black, inner, paler; first and second cross veins not clouded. Orange at the extreme base of both pair of wings; basal membranes pale, those of the hind wings almost white.

In addition to the type and allotype Mr. F. F. Bibby has sent me 13 males and two females, all collected near Langtry, Val Verde Co., Texas, near the end of July, 1928. Mr. Bibby states that it was common on *Covillea tridentata*, *Prosopis chilensis* and other shrubs, and was easily collected.

20. *Diceroprocta viridifascia* Walker.

*Cicada viridifascia* Walker (1850).

*Cicada reperta* Uhler (1892).

Figured in this JOURNAL, March, 1916, Pl. 6, Fig. 1. The synonymy given above was suggested in this JOURNAL for March, 1916, and December, 1917, and in 1920 confirmed by Mr. W. L. Distant, who compared North Carolina specimens with Walker's types in the British Museum.

In the United States National Museum there is a male from Florida (Pergande) P. R. Uhler collection, labeled "*Cicada (Diceroprocta) viridifascia* Walker," and on another label is the statement that it was determined by Uhler. From this it would appear that Uhler at one time thought that the coast species had been described by Walker. This was probably after 1892, for in the original description of *reperta* in the "Trans. Maryland Acad. Sciences," the name *viridifascia* is not referred to and was probably overlooked. In the "Bulletin, Buffalo Society of Natural Sciences," IX, p. 184, 1909, Mr. E. P. Van Duzee identified *viridifascia* Walker as occurring in Florida, from whence came most of Uhler's specimens.

The species occurs from Virginia along the coast to the Gulf of Mexico, and has been collected from May to September.

21. *Diceroprocta azteca* Kirkaldy.

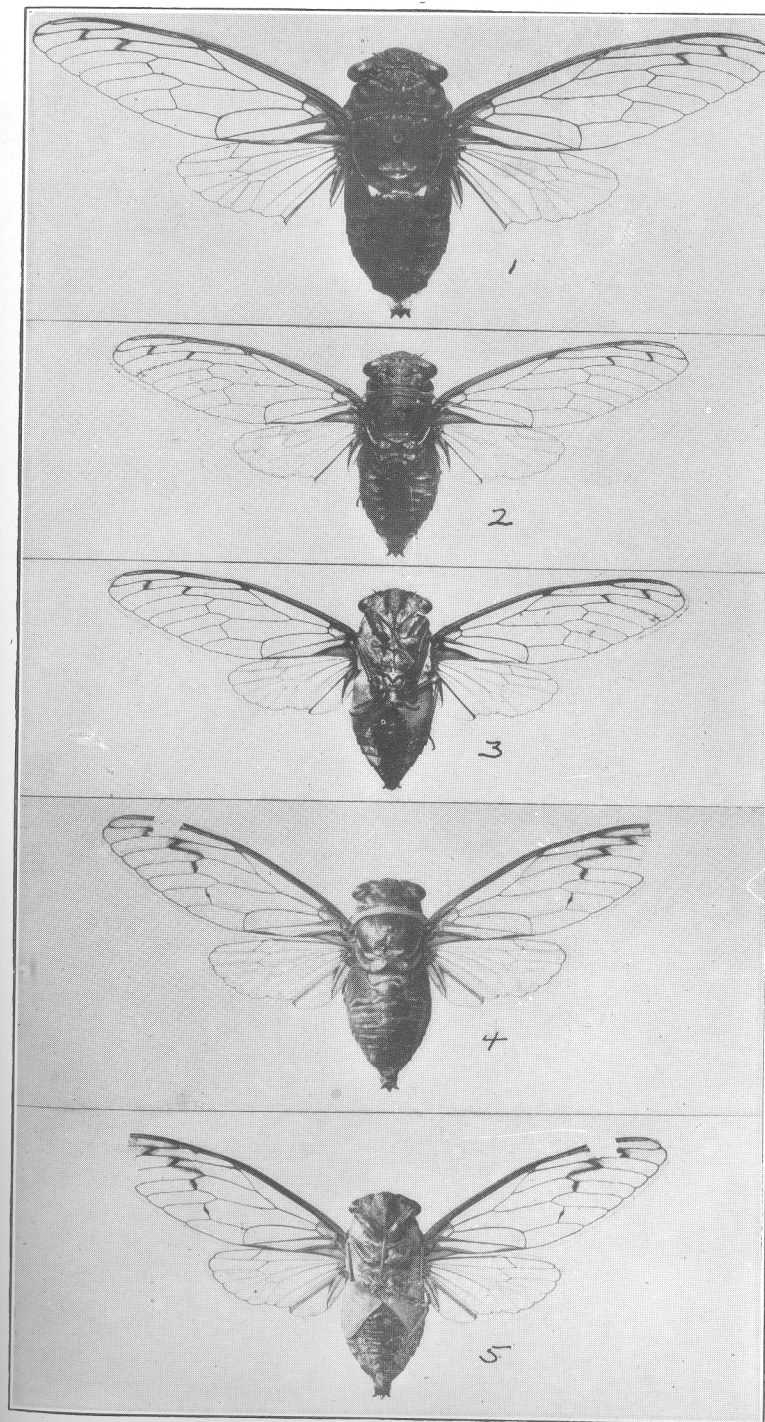
*Cicada pallida* Distant (1881).

*Cicada pallida* is described and figured in "Biol. Centr.-Amer.," Rhynch. Hom., 1881, and in this JOURNAL for Decem-

ber, 1917. The name given by Distant being preoccupied, Kirkaldy proposed *azteca* in 1909. Specimens from the United States have been compared with the type in the British Museum. At times *azteca* is a common insect in parts of Oklahoma and eastern Texas, and has been collected from June to August.

## PLATE XVII

- Figure 1. *Diceroprocta bonhottei* Distant.  
 Figure 2. *Diceroprocta transversa* Walker, from Type in British Museum.  
 Figure 3. *Diceroprocta transversa* Walker, under side of Type in British Museum.  
 Figure 4. *Diceroprocta marevagans* Davis. Type.  
 Figure 5. *Diceroprocta marevagans* Davis. Type, under side.



## PLATE XVIII

- Figure 1. *Diceroprocta swalei* Distant, var. *castanea* Davis.  
 Figure 2. *Diceroprocta albomaculata* Davis. Type.  
 Figure 3. *Diceroprocta albomaculata* Davis. Type, under side enlarged.  
 Figure 4. *Diceroprocta bibbyi* Davis. Type.  
 Figure 5. *Diceroprocta bibbyi* Davis. Allotype.

