

BULLETIN
OF THE
BROOKLYN ENTOMOLOGICAL SOCIETY

VOL. LI

JUNE, 1956

No. 3

**SIX NEW SPECIES OF THYANTA STAL.
(HETEROPTERA, PENTATOMIDAE).**

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In the course of a comprehensive study of the genus *Thyanta* the following new species have come to light. These all (except *T. cornuta*) appear to have either direct or indirect relationship with *Thyanta maculata* (Fabricius) as is evidenced by the structure of their respective male genitalia, the heads of the parameres of which are shown in the accompanying figures. Most of the specimens have been residual in the collections of the American Museum of Natural History but some became available through loans of material made by numerous entomologists, to all of whom thanks are due for their generous cooperation.

In the descriptions the various ratios given are dimensions measured through a binocular microscope using a $\times 4$ objective and a $\times 9$ ocular fitted with a micrometer scale divided into one hundred linear units; they are not in terms of millimeters except as mentioned in connection with the holotypes and allotypes.

***Thyanta humeralis* n. sp.**

In form, size and nitidous appearance like *Thyanta maculata* (Fabricius) but differing in color markings and puncturation. Color olivaceous with reddish and concolorous punctures which are arranged in three distinctly graded bands across the pronotum, each occupying about one third the area of that structure. The anterior band is made of finer, denser and shallow punctures, the intermediate band of larger, deeper and more widely spaced ones, while on the posterior band the punctures are still more widely

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spaced but much more shallow. The intermediate band has a tendency to become somewhat more darkly colored than the others.

Head evenly and finely punctured, about three quarters as long as wide through the eyes (72×90), the margins before the eyes weakly sinuate with the edges sometimes black; ocelli moderate in size and well removed from the eyes, farther from them than the diameter of an ocellus; antennal ratios: 15/30/48/52/52 i.e. segments II to IV gradually increasing in length with segments IV and V subequal; segments I and II and the bases of the others pale, the apical portions of III, IV and V fuscous.

Pronotum at least three times as wide across the humeri as long medianly (240×80); the humeri produced and prominent, acutely angled but not spinose; the antero-lateral margins weakly sinuate at the middle, thickish but not calloused, the edges thinning toward the humeri and there becoming black; pronotal puncturation as previously described.

Scutellum equilateral (144×140) the frenum ending at a point about two thirds the distance from the base; the apex narrowly rounded but not acute; punctures widely spaced and even at the base where there is some evidence of rugosity. Hemelytra evenly and coarsely punctate, the membrane hyaline with a few light brown dots or obsolescent ones.

Connexivum only narrowly exposed; apical angles of the abdominal segments black. Ventral abdominal disc weakly and evenly punctate laterally, medianly impunctate; no evidence of post-spiracular black points. Legs concolorous throughout with long setose hairs on the tibiae and femora each longer than the diameter of the tibia.

Male genital cup with a prominent chin-like protuberance below the apical margin and bearing impressed areas below the apical lateral angles which are bluntly rounded and not at all prominent; apical margin of the cup widely U-shaped and the apical aspect of the paramere concave and transversely narrowly ovate (Figure 2).

Described from nine male and ten female specimens.

Holotype: Male: 9 mm. long; 5.75 mm. across humeri. Miranda, Matto Grosso, Brazil. October 1939. Deposited in the American Museum of Natural History.

Allotype: Female: 9.5 mm. long; 6 mm. across humeri. Miranda, Matto Grosso, Brazil. October 1939. Deposited in the American Museum of Natural History.

Paratypes: BRAZIL: Parana, Iguassu, December 1941, two females; Matto Grosso, Bodoquena, November 1941, four males and

two females; Salobra, October 18-29 1938, one female, all the above in the collection of the Instituto Oswaldo Cruz, Rio de Janeiro, Brazil. Alagohinas, January 3, 1903, one female in the collection of the Museum of Natural History, Vienna, Austria. Santa Catarina, Nova Teutonia, two females, September 22, 1948 and December 24, 1950 in the collection of Mr. John C. Lutz, Philadelphia, Pennsylvania. Sao Paulo, one male, March 1939 in the collection of the United States National Museum, Washington, D. C. PARAGUAY: Villarrica, September 1934, one male in the collection of the United States National Museum. Horqueta, March 24, 1934, one male in the collection of Mr. John C. Lutz. ARGENTINA: February 4, 1942, one male in the collection of the United States National Museum.

Originally it was thought that this species was an example of *Thyanta testacea* (Dallas) but comparison with the type in the British Museum has proved that it is not at all like that form. Mr. W. E. China was kind enough to send me sketches showing wherein the two species differ suggesting that one described above is new. There is some similarity to *Thyanta maculata* (Fabricius) but the absence of the striking dark squarish pronotal blotches so characteristic of that species are missing. In *humeralis* the puncturation is different, the pilosity of the legs much greater, the antero-lateral margins of the pronotum more distinctly sinuate at the middle and the humeri much more robust and pronounced. The parameres of the two, however, are somewhat alike, those of *maculata* (Fig. 1) being perhaps slightly narrower in diameter apically and not quite so robust.

***Thyanta planifrons* n. sp.**

Obovate, about the size of *T. maculata* (Fabricius), somewhat glossy and in color ranging from light green to olivaceous (four females in the type series are testaceous) with no contrasting red or dark markings except as noted below. Rather densely and irregularly punctured, particularly on the head, pronotum and scutellum.

Head three quarters as long as wide through the eyes (70 x 90); surface definitely depressed and very flat between the ocelli and weakly impressed between and before the eyes; antecular margins sinuate and gradually converging to a moderately rounded apex; ocelli exceptionally large and slightly elliptical in form, each ocellus closer to the inner margin of the eye than the diameter of the ocellus; antennal ratios: 15/40/45/50/43 i.e. segment IV the

longest and one fourth longer than segment II; segments I, II and the base of III pale, usually yellowish green, the remainder darkening to brownish-green or reddish apically.

Pronotum less than three times as wide across the humeri as long medianly (225×85); punctures confused on the anterior half; posterior half finely transverse rugose; antero-lateral margins essentially straight and weakly impressed inside the margins; humeri bluntly rounded and not at all produced.

Scutellum slightly longer than wide across the base (140×132); surface definitely convex especially on the anterior half and vaguely rugose transversely; the frenum ends at a point about three quarters the distance from the base so that the tongue is relatively short, its margins converging to a moderately rounded apex. Hemelytral punctures coarser, deeper, more widely and more evenly spaced than those on other parts of the body, those on the embolium perhaps slightly denser.

Connexivum very narrowly exposed and concolorous; apical abdominal angles not produced but terminating in very minute (sometimes invisible) black tips.

Entire venter dull yellowish-green, the legs strongly setose and darkening distally, the tarsi darkest; abdomen finely and evenly punctured laterally with a narrow median impunctate area; no rows of post-spiracular black points present. Thoracic pleura coarsely and deeply punctured; rostrum darker green, its last segment, for the most part, fuscous to piceous.

Male genital segment widely open above, the orifice elliptical in outline and the contents readily visible; apical margin of the segment widely and very shallowly U-shaped, subtended by a moderate chin-like protuberance on the disc above which the wall is somewhat impressed; lateral angle narrowly rounded but not acute and not much produced; apical aspect of the paramere broadly oval and concave (spoon-shaped) and terminating dorsally in an acute, almost acuminate short spur (Fig. 3).

Described from six male and eight female specimens.

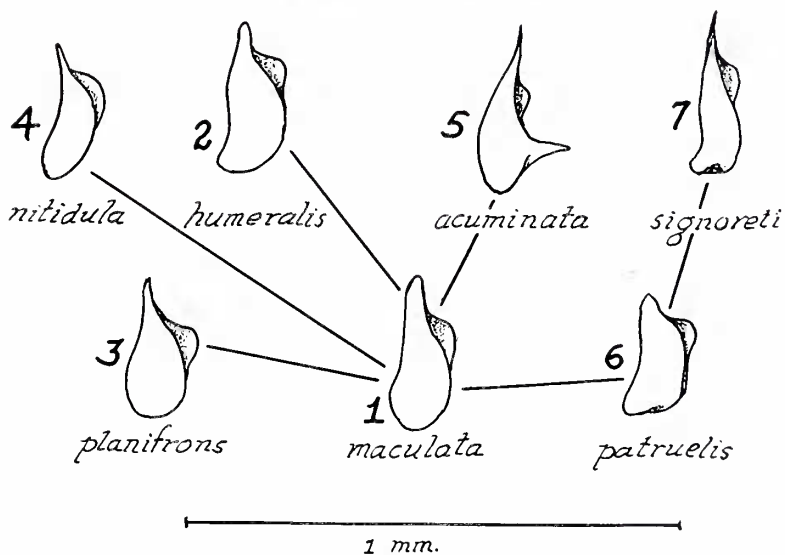
Holotype: Male: 8.75 mm. long; 5 mm. across humeri. 10 miles west of Alamos, Sonora, Mexico. July 21, 1954 (Cazier, Gertsch and Bradt). Deposited in the American Museum of Natural History.

Allotype: Female: 10.75 mm. long; 6 mm. wide across humeri. 10 miles west of Alamos, Sonora, Mexico. July 21, 1954 (Cazier, Gertsch, Bradt). Deposited in the American Museum of Natural History.

Paratypes: MEXICO: Sonora, Alamos, July 21, 1954 (Cazier,

Gertsch, Bradt), one male and two females; Kino Bay, July 14, 1952 (C. and P. Vaurie) two females; Tiburon Island, July 13, 1952 (C. and P. Vaurie), one male and one female; La Choya, June 12, 1952 (Cazier, Gertsch and Schrammel), one male; Minas Nuevas, August 7, 1952 (C. and P. Vaurie) one male; Baja California, San Felipe, June 15, 1952 (Cazier, Gertsch and Schrammel) one male and one female.

On the basis of the build of the male genital segment there is evidence to believe that this form shows relationship to the South American species like *maculata* and *patruelis* rather than to the



Figs. 1-7. Parameres of *Thyanta* species as indicated.

more northern complex of *custator*, *pallido-virens* and *calccata*. In the former the orifice of the male segment is more or less elliptical in outline, widely open, the contents visible and the apical margin is widely and shallowly U-shaped subtended by a chin-like protuberance on the posterior surface of the cup. In the latter the orifice of the segment is more or less rhomboidal in outline, only narrowly open so that the contents are difficult to see, the apical margin is less U-shaped and is not subtended by a chin-like protuberance on the disc of the cup. The species described here as *planifrons* has all the attributes mentioned first above. Moreover the apical aspect of the paramere is somewhat like that found in *maculata* and totally different from that in *custator* or any of its relatives.

Thyanta nitidula n. sp.

Broadly ovate, glossy, intermediate in size (7 mm. to 8 mm.). Body only half again as long as wide across the humeri; drab green to olivaceous; dorsal surface quite glossy and not at all rugose, rather coarsely punctured except as noted below.

Head slightly shorter than wide through the eyes (60×70), the antecular margins definitely sinuate; disc coarsely and evenly punctate; apex moderately rounded, not acute; eyes paler than body color; ocelli quite small and each almost twice as far from the adjacent eye as the diameter of the ocellus. Antennal ratios: 15/30/40/40/42 i.e. segment III one third longer than segment II and subequal to IV and V; segments I, II and base of II greenish the remainder fulvous or fulvous red, slightly paler at the bases.

Pronotum at least three times as wide across the humeri as long medianly (200×65); humeri acutely angulated and prominent but not produced spinosely; antero-lateral margins weakly sinuate in their middle the edges becoming fuscous to piceous toward the humeri; a vague impressed area just inside each margin; punctures evenly and widely spaced and no evidence of transverse rugosity; punctures in the region of the collar finer and slightly confused.

Scutellum slightly longer than wide at the base (120×110); punctures widely and evenly spaced, rather shallow and no evidence of rugosity or confusion; the frenum ends two thirds the distance from the base. Hemelytral punctures very widely spaced with smooth glossy areas between them, slightly denser on the embolium; membrane hyaline with tan maculations clustered centrally.

Connexivum very narrowly exposed, the apical abdominal angles distinctly acute and fuscous to piceous in color, sometimes minutely so. Abdominal venter punctured obscurely laterally and not at all medianly leaving most of the disc glossy; no rows of post-spiracular black points present. Femora and tibiae green to pale yellow, tarsi testaceous to fulvous; pilose hairs on the tibiae conspicuous and long and numerous.

Male genital segment widely open above, exposing its contents; the apical margin very broadly and very shallowly U-shaped, subtended by a moderate blunt chin-like protuberance on the surface of the cup; lateral angles not prominent, narrowly rounded but not acute; the apical aspect of the paramere resembles that of *maculata* but on a smaller scale and is less concave but more lunate in its curvature (Fig. 4). The basal valves of the female genitalia

are widely separated from one another so that their inner margins are not at all contiguous.

Described from twelve male and three female specimens.

Holotype: Male: 7.5 mm. long; 5.0 mm. across the humeri. Rio Grande do Sul, Brazil. No date. Deposited in the American Museum of Natural History.

Allotype: Female: 7.8 mm. long; 5.2 mm. wide across the humeri. Nordeste, Brazil, 1933. Deposited in the American Museum of Natural History.

Paratypes: BRAZIL: Rio Grande do Sul, no date, one male and one female in the Museum of Natural History, Vienna, Austria (Signoret collection). Matto Grosso, Bodoquena, no dates, six male, one in the collection of the American Museum of Natural History and five in the collection of Professor A. Costa-Lima. Salobra, one male in the collection of Professor A. Costa-Lima. Nordeste 1933, three males and one female in the collection of Professor A. Costa-Lima.

Intermediate in size, between the smaller *Thyanta humilis* Bergroth and the larger *T. maculata* (Fabricius) but differing from both by lack of specific color banding and maculation on the thorax and the much more glossy appearance. The heads of the parameres resemble those of *maculata* but are narrower and less concave.

***Thyanta acuminata* n. sp.**

Small in size (6 mm. or less long) and similar in appearance to *T. humilis* Bergroth, but much more depressed. Drab reddish-green to olivaceous and somewhat glossy.

Head a little shorter than wide through the eyes (55×70), densely and evenly punctate, the antecular margins definitely sinuate and converging to a narrowly rounded apex; ocelli proportionately large and as close to the inner edge of the eye as the diameter of an ocellus; antennal ratios: 15/31 31/40/40 i.e. segments II and III subequal, IV and V subequal, each of the latter about one third longer than each of the former; the basal three segments concolorous pale olivaceous the terminal one darker, usually brown.

Pronotum no more than three times as wide across the humeri as long medianly (150×50); antero-lateral margin straight, humeri blunt to rectangular, not prominent, hardly extending beyond the line of the elytral bases; disc evenly, clearly but moderately punctate, neither large punctures nor small ones present, a slight congestion in the vicinity of the collar; no color banding between the humeri, sometimes a slight darkening of the ground color.

Scutellum as long as wide across the base (90×90), the frenum ending at a point three quarters the distance from the base so that the tongue is rather short with its margins converging rapidly to a narrowly arcuate but not acute apex; punctures on the disc larger, more shallow and confused than those on pronotum. Hemelytra punctured like the pronotum, the lateral punctures more congested; membrane vitreous without a trace of brownish dots or dashes.

Connexivum barely exposed, its margins concolorous, apical angles of the abdominal segments rectangular, neither produced nor dark colored; ventral abdominal surface sparsely and shallowly punctate laterally the median area impunctate; no row of post-spiracular black-points evident; basal portions of the legs concolorous with the body, the terminal portions of the tibiae and all the tarsi much darker, usually brown; tibiae with a recognizable but sparse setose pile.

Apical margin of the male genital cup very shallowly and widely U-shaped, so wide and shallow as to be almost straight; lateral angles of the segment not at all prominent but bluntly rounded; apical aspect of the paramere distinctly concave (spoon-shaped) with a lateral projecting acuminate tooth near the lower end and an acuminate, tapering dorsal tip (Fig. 5).

Described from thirteen male and four female specimens.

Holotype: Male: 6 mm. long; 4 mm. across the humeri. Rosario de la Frontera, Republica Argentina, June 1916. Deposited in the American Museum of Natural History.

Allotype: Female: 6.5 mm. long; 4.25 mm. across the humeri. Chaco Republica Argentina, May 25, 1945. Deposited in the American Museum of Natural History.

Paratypes: ARGENTINE: Chaco, May 25, 1945, two males and one female deposited in the American Museum of Natural History; three males and one female in the United States National Museum; Ruiz de los Llanos, May 7, 1920 (Goldbach) one male in the P. Wygodzinsky collection; Tucuman, February 26, 1946 (P. A. Perry) four males and one female in the Cornell University collection. URUGUAY: Montevideo, no date, one male deposited in the United States National Museum. PARAGUAY: Villarica, June 1934, one male in the United States National Museum.

Although there is a superficial similarity between this species and *Thyanta humilis* Bergroth I believe that there is closer relationship to *Thyanta maculata* (Fabricius) from which species *humilis* is likewise descended. Both *humilis* and *acuminata* are in

reality small editions of the large *maculata* but differ in color markings and puncturation and in structure of the male parameres. In *acuminata* the second and third antennal segments are about equal while those of both *maculata* and *humilis* show segment II usually considerably shorter than III. The unique structure of the head of the paramere in *acuminata*, with its lateral sharp tooth and tapering dorsal tip has suggested the application of this characteristic to the specific name.

***Thyanta signoreti* n. sp.**

Obovate, glossy, intermediate in size (7 mm. to 8 mm. long), uniformly clear olivaceous yellow except on the posterior half of the pronotum which tends to become dull green. Dorsal surface coarsely and uniformly punctured throughout; totally devoid of reddish or darker markings, only the terminal segment of the rostrum being piceous.

Head one eighth shorter than wide through the eyes (70×80); ocelli small and farther from the inner margin of the eye than the diameter of an ocellus; antecular margins only weakly sinuate, then more parallel terminating a moderately rounded apex; antennal ratios: 15/35/45/50/50, i.e. segment II about four fifths the length of III; segments IV and V subequal, all segments concolorous with no paler or darker markings at the joints.

Pronotum less than three times as wide as long medianly (187×68), antero-lateral margins perfectly straight, humeri subrectangular and only weakly produced beyond the margins of the hemelytra; disc coarsely punctate with vague rugose lines between the punctures, particularly in the central area.

Scutellum slightly longer than wide across the base (125×115); coarsely punctate and vaguely transverse rugose; the frenum ends at a point about two thirds the distance from the base so that there is a relatively long tongue which has a narrowly rounded but not acute apex. Hemelytra evenly and coarsely punctate throughout; membrane hyaline without brown dots or dashes.

Connexivum hardly exposed, the apical abdominal angles rectangular, not at all prominent and not darkly colored; abdominal venter somewhat glossy with the punctures very fine and vague; punctures on the thoracic pleura few and shallow; legs concolorous dull straw colored, only the tarsal claws black; femora and tibiae moderately pubescent.

Apical margin of the male genital segment weakly trisinate; ventral surface of the cup only weakly produced into a chin-like

protuberance; heads of parameres narrowly subtriangular with a dorsal sharp, almost acuminate, tip but with a slightly concave surface (Fig. 7).

Described from four specimens, one male and three female.

Holotype: Male: 7.8 mm. long; 5.0 mm. wide across the humeri. Colombia, South America. Signoret collection. Deposited in the Museum of Natural History, Vienna, Austria.

Allotype: Female: 8.5 mm. long; 5.5 mm. wide across humeri. Colombia, South America. Signoret collection. Deposited in the Museum of Natural History, Vienna, Austria.

Paratypes: Two females with the same data as above. One deposited in the Museum of Natural History, Vienna, Austria, the other in the American Museum of Natural History.

These four specimens were found in a shipment of *Thyanta* from the Museum of Natural History of Vienna and sent here for study by Dr. Max Baier. They belong to the Signoret collection; unfortunately the three female specimens are not in good condition but the male is almost perfect. They merit a specific name; indeed, Signoret himself recognized their distinctiveness for each specimen bears a label in his handwriting "*lucida*" suggesting that the prime feature of them is their concolorous clear aspect. However, Signoret never undertook to publish a work including descriptions of these four. It is now my privilege to name them after this eminent hemipterist.

Unfortunately only the locality "Colombien" is given on the labels and no collecting dates occur.

This species is apparently related to either *maculata* or *patruelis* Stål, but *patruelis* is probably related to *maculata* in turn. It differs from either in several distinctive ways, particularly in the absence of bright red color markings on the head, pronotum, elytra and scutellum; also by the absence of black apical angles of the abdominal segments. There is greater obscurity and vagueness to the abdominal puncturation and the humeri are less pronounced. The weakly trisinate apical margin of the male genital segment is distinctive and the heads of the parameres are dissimilar to either of the probable related species.

***Thyanta cornuta* n. sp.**

Body subtriangular in outline, almost as wide across the humeri as long; intermediate in size (7 mm. to 8 mm. long); olivaceous in color, almost uniformly so and not at all glossy; rather evenly and coarsely punctured with the interpunctural areas forming a vague reticulum.

Head slightly shorter than the width through the eyes (60×65); antecular margins weakly sinuate and converging to a very narrowly rounded apex, at which point the tylus is slightly longer than the juga; ocelli small and farther from the inner margins of the eyes than the diameter of an ocellus; antennal ratios $17/35/36/35/36$ i.e. the terminal four segments all subequal; segments I, II and the basal half of III olivaceous, the remainder becoming rufescent.

Pronotum more than three times as wide across the humeri as long medianly (245×75); humeri greatly produced outward and upward into projecting horn-like extensions with acuminate apices that gradually become fuscous; antero-lateral margins straight, thickish and vaguely vertically rugose.

Scutellum quite evenly and coarsely but shallowly punctured, very slightly longer than wide (140×135); the frenum ends just beyond the middle and the margins of the tongue converge to a narrowly rounded apex. Hemelytral punctures deep and wide-spaced, those laterally becoming more dense; membrane hyaline with a few faint brown dots scattered centrally.

Connexivum widely exposed, concolorous, perhaps a little paler than the elytra and scutellum; apical abdominal angles rectangular, weakly produced and not colored fuscous or piceous. Ventral abdominal surface irregularly punctured, punctures becoming finer and more congested laterally; the median disc for the most part impunctate; a longitudinal row of moderately sized post-spiracular black points present on each side; all thoracic pleura very distinctly and coarsely punctate; legs concolorous except the tarsi which become rufescent like the terminal segments of the antennae.

Described from three specimens, two female and one male.

Holotype: Female: 8.5 mm. long; 7.2 mm. wide across the humeri. Chapada, Matto Grosso, Brazil. A.M.N.H. accession number 23739. Deposited in the American Museum of Natural History.

Allotype: Male: 6.8 mm. long; 6 mm. wide across the humeri. Chapada, Matto Grosso, Brazil. A.M.N.H. accession number 23739. Deposited in the American Museum of Natural History.

Paratype: One female, same data as above.

This species is being described from material collected by the late Dr. Herbert H. Smith, naturalist and explorer, who travelled extensively in Brazil during the period 1870-1880. Since no dates are assigned to these specimens it must be assumed that they were captured sometime during the above mentioned decade. Unfortu-

nately the male specimen lacks the terminal abdominal segment; therefore the form of the genital cup and the nature of the parameres cannot be described at this time. In general the species superficially resembles *Thyanta acuta* Ruckes recently described from Paraguay, but differs markedly in color and color pattern, in having coarser puncturation, in size and of course in the presence of short, stout and more prominent horn-like humeri.

COLLECTIONS OF A BIRD TICK, *IXODES BRUNNEUS* KOCH FROM GEORGIA.

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The following collections of *Ixodes brunneus* Koch were made by the junior author from Rome, Floyd County, Georgia: 1 tick from a Song Sparrow, XI-15-54; 2 ticks from two Cardinals, X-17-54, XI-29-54; 1 tick from a Fox Sparrow, XI-27-54; and 1 tick from a White-throated Sparrow, XI-28-54. All ticks were females.

I. brunneus has been reported from Fulton County by Cooley and Kohls (1945) and from three other localities in Georgia by Bishopp and Trembley (1945). This is the first report of this species from Floyd County; however, since the species has a rather wide distribution this locality record is, according to Kohls (*in litt.*), "not surprising."

Although *I. brunneus* has been taken from a number of birds, it has not previously been reported from a Cardinal.

The authors wish to thank Dr. Glen M. Kohls, Rocky Mountain Laboratory, for identifying the specimens.

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