Three New Species of *Coccidae (Hemiptera-Homoptera)* Including Three New Genera and One New Sub-Family from Brazil [1]).

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(With 4 Text-Figures.)

Sub-family *Eriococcinae.*

Pseudotectococcus n. gen.

Insects that produce and live in galls on plants. The antennae of the adult female are rudimentary, apparently composed of three joints. The legs are small, but are normal in form.

Near to the genus *Tectococcus* Hempel, from which it differs by the rudimentary antennae and by the presence of eight long hairs on the anal ring. It differs from the genus *Cissococcus* Ckll. by the presence of normal legs. Type species *Pseudotectococcus anonae* n. sp.

Pseudotectococcus anonae n. sp.

This species produces galls on the upper surface of the leaves of a cultivated species of *Anona.* The galls are about three mm. high and have a diameter of 1,5 mm. at the base; those of the female have a conical form while those of the male are more or less cylindrical; both forms of galls have an irregular opening (circular, oval or elliptical) on the lower surface of the leaf.

The body of the adult female is about 2 mm. long, fusiform, with the derm very fine and delicate. The antennae are apparently composed of three joints, and are about 84 microns long. The first joint is 8 [2]) long and 42 wide; the second 17 long and 25 wide; and the third is 59 long and 17 wide. The last joint has several long, thick hairs on the sides and the distal extremity. The legs are small but normal in form. The joints of the first pair of legs measure as follows: coxa, 34; femur and trochanter, 93; tibia, 50; tarsus, 42; claw, 22. The two tarsal digitules are as long as the tarsus; those of the claws are shorter and but slightly expanded, even at the distal extremity. The derm of the body is very fine and transparent. The posterior extremity of the body ends in two large abdominal lobes, each of which has one long terminal hair and about four lateral spines. On the dorsal side of the

[1]) Translated by the author from the original paper in „Revista de Entomologia", 4, 139/147, Rio de Janeiro 1934; supervised and communicated by E. E. Green, Camberley, Surrey, England.

[2]) All measurements of joints of antennae and legs, hairs, spines, glands etc., are in micro-millimeters.

abdomen there are about eight transverse rows of numerous short thick spines. Spines are also present on the cephalic region, but these are slightly smaller than those on the abdomen. The derm also has numerous small tubercles and circular, multilocular glands. The anal-ring hairs are long and apparently eight in number. The females and the eggs, when crushed, give off a deep purple color.

The eggs are very numerous within the galls. They are small, elliptical in form, with both poles rounded, and measure 220 microns by 90 microns.

The newly hatched larva is small, with the body flattened and wide, and is 212 microns long and 127 microns wide, being widest across the abdomen. The abdomen terminates in two large lobes each of which has, on the inner margin, a large terminal hair, and on the outer margin, a large spine. The terminal hairs are tuberculate at the base. Around the margin of the body there is a single row of simple truncate spines. Large anal-ring hairs are present.

Hab. Viçosa, State of Minae Geraes, Brazil, on leaves of cultivated *Anona* sp., where it was found on September 30, 1933, by Prof. Edson J. Hambleton.

Sub-family *Diaspidinae (Parlatoriini?).*

Neoparlaspis n. gen.

The scale of the female composed entirely of the exuviæ of the second nymphal female, nearly circular in form, with the posterior margin slightly pointed. The first larval exuvia projects beyond the anterior margin of the scale, while the antennae are folded back on the submarginal area. The adult female is entirely enclosed in the scale of the second female nymph. The pygidium of the second nymphal stage has cylindrical glands, but these are wanting in the pygidium of the adult female. The scale of the male is delicate, elongate, with the dorsum slightly rounded, not keeled, the lateral sides nearly parallel, and the larval exuviæ fixed on the anterior extremity. Type species *Neoparlaspis myrciariae* n. sp.

This is a genus with a combination of characters that do not allow of its exact inclusion in any of the tribes that compose the sub-family *Diaspidinae*, but it seems to be nearest to the tribe *Parlatoriini*, as the male scale is similar to that of the members of the genus *Parlatoria*, while that of the adult female is like that of the members of the genus *Aonidia*, however with the larval exuviæ extending beyond the anterior margin and the larval antennae folded back upon the exuviæ. The pygidium of the adult female compares with that of some species of the genus *Aonidia*, but the pygidium of the second nymphal stage has cylindrical glands.

Neoparlaspis myrciariae n. sp.

The adult female scale is composed of that of second nymph, which completely encloses the insect. The form of the scale is sub-circular, with the posterior extremity slightly pointed, and slightly longer than wide. The dorsal surface is flat. The first larval exuvia is fixed to the anterior extremity where it extends beyond the margin, and has the antennae folded back upon the sub-marginal area. The scale is yellow in color. The ventral scale is thin, white in color and, with the dorsal scale, forms the puparium that encloses the adult female. The longitudinal diameter of the scale is about 0,974 mm. and the transverse diameter about 0,852 mm.

The adult female is smaller than the second nymphal form, as it is completely included in the exuviæ that form the scale. The body is white or colorless and is located in the anterior part of the scale, after the eggs are laid. The body of the adult female is hemispherical in form with the pygidium extending beyond the posterior margin in the middle line of the abdomen. The pygidium is small, triangular in form, with two pairs of lobes and the margin beyond the lobes indented to form 7 or 8 large teeth with dentate edge. The lobes of the first pair are simple, large, widely separated, triangular in form with the free margins dentate. The lobes of the second pair are composed of two lobules each, of which the median is larger than the other. The median margin of each lobule is entire and the lateral margin dentate. Between the lobes of the median pair there is a wide plate with the base entire and the distal extremity bifid. There is a plate between the first and second pair of lobes and one more on each side of the lateral margin beyond the second pair of lobes. All of these plates are much longer than the lobes and have the distal extremity pointed. The plates between the first and second pair of lobes sometimes have a small branch on the exterior margin near the distal extremity, but the interior branch is the longest. On the dentate margin beyond the long plates there are, on each side, two simple shorter plates. On the dorsum of the pygidium there are also five pairs of hairs. There are four groups of circumgenital glands, the anterior-lateral groups are composed of from 6 to 11 glands and the posterior-laterals of from 7 to 10 glands. In the specimens examined there were most frequently found groups with 8 glands. In some specimens a circular gland was found near the first pair of spiracles. The antennae are present as small tubercles that project beyond the anterior margin of the body. Each antenna has a terminal brush of three or four thick hairs. The distance between the antennae measures about 38 microns. The anal opening is circular in form and is situated just behind the genital opening, between the posterior groups of circum-

genital glands, and greatly removed from the posterior margin of the pygidium. The posterior extremity of the intestine is slightly chitinized.

The female of the second nymphal stage has the pygidium wide and short with a notch in the middle of the margin. There are apparently three pairs of lobes; the median pair is simple, while the second and third pairs are composed of three lobules each, those of the second pair being slightly larger than those of the third pair. The lobes of the median pair are placed in the marginal notch and have the free margin dentate. Between the lobes of the median pair there are two simple plates that are united at the base. Between the first and the second pair of lobes and between this and the third pair, there is a simple plate; and on the lateral margin beyond the third pair of lobes, there are two simple plates. There are four pairs of marginal hairs, the first pair being placed between the lobes of the median pair. On the margin of the pygidium beyond the third pair of lobes there are about five wide teeth with finely serrate margin. There are, on each side, four cylindrical or tubular glands. These are wide and short; three are marginal and one submarginal. Circum-genital glands are wanting. The anal opening is about midway between the genital opening and the posterior margin od the body.

The egg is oval in form and of a white color.

The larva is widely oval in form, is light yellow in color and is 0,400 mm. long and 0,208 mm. wide. The antennae are composed of five joints. On the posterior part of the body there are four pairs of simple plates, the two largest pairs of which are terminal, and the smaller ones lateral. In the larval skin the antennae do not project beyond the anterior border, but are folded back on the sub-marginal area. (These characters were observed from the larval exuviæ).

The male scale is elongate in form with nearly paralel sides, of a more delicate structure than that of the female, and is about 1,050 mm. long and 0,345 mm. wide. The adult male is not known.

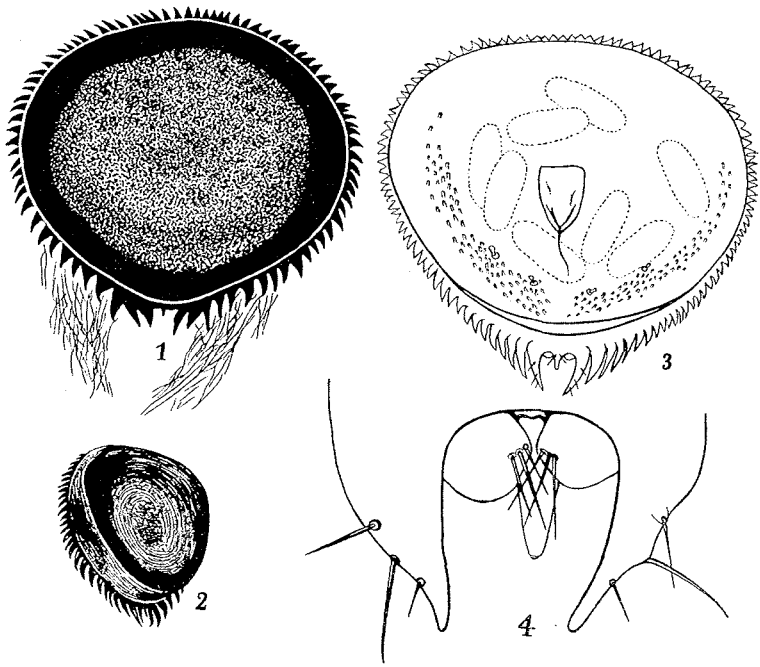
Hab. S. Paulo, City, on both sides of leaves of 'cambucá', *Myrciaria glomerata*, where it was collected on April 18. 1932, by Mr. José Pinto da Fonseca.

Canceraspidinae n. subfam.

In the adult female all of the abdominal segments are fused and inflexible, without definite pygidium, lobes or plates. Antennae, legs and eyes are wanting. On the dorsal surface there are no apparent glands, and on the ventral surface only the stigmatic glands are present. The body is flat, approximately circular, oval or triangular in form, with the dorsum hard and without larval exuviae. The ventral derm is thin.

Anal ring and anal plates were not observed. The rostrum is small and delicate and composed of one segment. Two pairs of thoracic spiracles are present, but there are no abdominal spiracles. Around the body, on the ventral border, there is a simple marginal row of wide, sharp, triangular processes, variable in number, from about 80 to more than 100. These processes are shortest on the anterior margin and gradually increase in size to the posterior extremity, where they are largest.

The embryonic larva is very small, and has six-jointed antennae, of the characteristic form found in the members of the sub-family *Diaspidinae*. The abdomen is composed of seven distinct segments. The caudal end of abdomen not longitudinally cleft nor depressed, nor with anal plates or lobes, but with four long terminal hairs. Type genus *Canceraspis* n. gen.



Cancetaspis brasiliensis n. g. n. sp., adult female. Fig. 1: dorsal view, Fig 2: lateral view, Fig. 3: ventral view, Fig. 4: posterior extremity (H. Lepage del.).

Canceraspis n. gen.

The adult female has the body flat, chitinized, of a form approximately circular, oval or triangular. No vestiges of eyes, antennae or legs are present. There are no apparent glands on the dorsum, but

stigmatic glands are present on the ventral surface. The abdominal and thoracic segments are all fused. There is no pygidium with lobes and plates, neither anal ring and hairs. There are no larval exuviae on the dorsum. On the ventral border there is a simple marginal fringe of broad, pointed, triangular processes of varying size, those on the anterior margin being the smallest and shortest, and gradually increasing in size to the middle of the posterior margin. These processes vary in number of from about 80 to 100 and more.

The embryonic larva is small, elliptical in form, and has the abdomen composed of seven distinct segments. The antennae are composed of six segments or joints and have the form that is characteristic of the sub-family *Diaspidinae*. The last segment of the abdomen is not cleft longitudinally and has neither plates nor anal lobes, but bears four large terminal hairs. Type species *Canceraspis brasiliensis* n. sp.

Canceraspis brasiliensis n. sp.

The body of the adult female is flat, chitinized, black in color, and approximately circular, oval or triangular in form; with a transverse diameter of from 1,340 mm to 1,665 mm.; and a longitudinal diameter of from 1,260 mm. to 1,360 mm.; and a height of about 0,250 mm. The sides are perpendicular. The body bears, on the ventral border a simple marginal fringe formed of a variable number of triangular processes, the smallest of which are placed on the anterior margin, from where they increase in size progressively to the middle of the posterior margin. These processes vary in number of from about 80 to 100 and more. The smallest, on the anterior margin are about 42 microns long, and the longest, on the posterior margin, are about 127 microns long. The processes are chitinous prolongations of the ventral margin, those on the anterior margin being directed towards the front, while those on the sides are inclined backward, and those on the posterior margin are extended directly backwards. All of the processes are pointed and have the points amber or honey-colored The middle pair of processes on the posterior margin are sinuous and lyrate, with a straight process in the middle directed backward, which is about 84 microns long and has a long hair at the base on each side. At the base of the lyre there are two wide, short plates, the posterior margin of which is semicircular. Each of these plates has three long hairs on the inner margin, and three longitudinal furrows of the upper surface. Each of the processes that form the lyre has, on the external margin and nearly equidistant, one from the other, three long hairs that spring from a slightly tubercular base. None of the other processes have hairs, spines or other characteristics.

The dorsum is hard and smooth, even after boiling in a solution of Koh. There are no larval exuviae on the dorsum. The ventral derm is thin and transparent. There are two pairs of thoracic spiracles which are located very near the posterior margin of the abdomen. Around each spiracle and behind it there are about 30 small cylindrical glands, which produce two converging bands of white secretion on the leaf behind the insect. No other glands were observed. The rostrum is delicate and is placed about in the centre of the body, and in some specimens it is slightly posterior of the centre.

The embryonic larva has the body fusiform, from 0,356 mm. to 0,424 mm. long and 0,135 mm. to 0,170 mm. wide. The antennae are small, apparently of six joints, of which the last is the longest. The antennae are about 46 microns long and have the characteristic form of those found in the members of the sub-family *Diaspidinae*. The posterior extremity of the body is not cleft longitudinally, neither are anal lobes present, but it bears four large terminal hairs between which there are two short hairs that have the distal extremity truncate, flattened and widely dilated, and bent posteriorly to form a rectangle. On the dorsum there are four simple, longitudinal rows, extending from the posterior to the anterior extremity of the body, of these same short hairs with the distal extremity expanded and bent posteriorly to form a rectangle.

Hab. S. Paulo, City. On the leaves of an indigenous palm in the Luz garden. It produces characteristic yellow spots on the leaves of the host plant, and up to the present, has only been found on this species of palm. Collected by Mr. José Pinto da Fonseca, Mr. H. Lepage and by the author.

Canceraspis brasiliensis seems to be a highly specialized form; and it was necessary to erect a new sub-family in order to classify it. By the aspect and form of the larval antenna it seems to be related to the sub-family *Diaspidinae*, but because of the lack of larval exuviae and pygidium, it cannot be placed in that sub-family.

Preoccupied name.

In Vol. II, fasc. 3, May 10, 1932, of the „Revista de Entomologia", on pages 332 and 333, I described a new species of *Aclerda* on sugar-cane as *Aclerda sacchari*. A letter from Miss Grace E. Glance, Washington, D. C., informs me that this name is preoccupied, and so I propose the name ***campinensis*** in substitution; the species from Campinas, Brazil, being designated as ***Aclerda campinensis*** Hempel.