Contribution Number 89

REPORT UPON SCALE INSECTS COLLECTED IN CHINA (HOMOPTERA; COCCOIDEA). Part V.

Figures 32-42

By

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This section will be devoted entirely to a treatment of some of the mealybugs (Family Pseudococcidae) taken in the general area of Canton. It will by no means consider all of the species which may eventually be found in my China material, for the collections contain perhaps 1,500 lots, most of which have still to be prepared for even preliminary examination and segregation to families, a task that will not be completed for some years to come.

Pseudococcus citriculus (Green)

Figure 32

1922. *Pseudococcus citriculus* Green, Coccidae of Ceylon 5:377; plate CLIV.

1948. *Pseudococcus citriculus* Green, Zimmerman, Insects of Hawaii 5:210; figures 117½, 118, 119.

HOSTS AND DISTRIBUTION. Described from *Citrus aurantia* at Kandy, Ceylon. Later recorded by Zimmerman from hosts of this genus in Honolulu. Specimens are at hand which seem to be this species from *Citrus grandis* (pummelo) at Wai-chung, near Canton, and Fa Tei, Canton; *Gardenia* at Lingnan, Canton; *Citrus* at Lo-kong-tung, about 25 miles east or northeast of Canton; on undetermined host, and on *Selaginella* sp. at Yeung-kong, on the coast west of Macao.

HABIT. Apparently occurring chiefly on the leaves and stems. A species with quite long marginal tassels.

MORPHOLOGICAL CHARACTERS. Length about 2.00 mm. A typical species of *Pseudococcus* with 17 pairs of cerarii and with oral rim ducts. Anal lobe cerarii consisting of two conical setae and several slender setae, these surrounded by a quite closely set area of pores, the whole borne within a slightly sclerotized area. Penultimate cerarii likewise borne within a smaller sclerotized area. All cerarii anterior to the anal lobe pair with two conical setae, except those on the head and thorax at times with three, all with slender auxiliary setae and surrounded by a group of pores. Dorsum beset with setae of variable lengths, many quite long and slender, as long as the interantennal setae of the ventral side of the head. Dorsal oral rim ducts set in the pattern which is characteristic of the genus, variable in number, but rather few. Tubular ducts otherwise missing on the dorsum; trilocular pores abundant.

On the ventral side, multilocular pores apparently confined for the most part to the median region of the abdomen, extending forward to the fourth abdominal segment, mingled with a rather sparce scattering of tubular ducts. Tubular ducts present in small numbers especially in the lateral regions of the abdomen. Along the lateral margins of the thoracic region is a submarginal row of ducts of the oral rim type. Circulus present.

NOTES. The China specimens all agree quite closely with those from Hawaii which previously have been illustrated. This identification depends upon one made by Harold Morrison.

This species is quite similar to *Pseudococcus comstocki* (Kuwana) from which it differs most constantly in the presence of long, slender, dorsal setae, those of *comstocki* being very short. It seems to differ constantly also in having a smaller number of dorsal, oral rim ducts. However, the possibility needs to be considered that it is actually a synonym of *comstocki*, of which it may simply be a variant.

The accompanying illustration is based upon specimens from *Citrus* at Lo-kong-tung, near Canton.

Dysmicoccus dengwuensis new species

Figure 33

HOST AND DISTRIBUTION. From a small, undetermined grass at Deng-wu-shan on the West River 50 or 75 miles west of Canton.

HABIT. No notes.

MORPHOLOGICAL CHARACTERS. Length, on slide, about 3.00 mm. Body elongate. Cerarii present in at least twelve pairs, extending from the posterior end to the prothorax, occasionally one or two pairs more or less distinctly indicated on the head and prothorax. Anal lobe cerarius consisting of two quite large, conical setae and several slender setae surrounded by numerous pores, the whole set within a large, sclerotized area. Penultimate cerarii with a pair of slightly smaller conical setae, several slender setae and a small group of pores. Conical setae of the remaining cerarii slightly smaller, accompanied for the most part by small, slender, auxiliary setae and a small group of pores. Dorsum beset with trilocular pores and with a relatively small number of oral collar tubular ducts, the latter including some which are quite small.

On the ventral side the median portion of the abdominal segments, forward to the segment behind the circulus, bearing numerous, multilocular pores. Tubular ducts with an oral collar abundant in the lateral regions of the abdominal segments, less so in the median region and occurring rather sparsely on the thorax and head. Derm beset with trilocular pores as on the dorsum. Circulus present, rather small but distinctly extending across the intersegmental suture of the fourth and fifth abdominal segments. Legs quite large. Antennae 8-segmented.

NOTES. This species differs from *Dysmicoccus timberlakei* (Cockerell) and *Dysmicoccus modocensis*, which occur in the United States only in the number of cerrarii. It equally resembles such species as *Trionymus americanus* (Cockerell) and *Trionymus dolus* Ferris except that in these species the circulus is small and circular and does not cross the intersegmental line between

the fourth and fifth abdominal segments. It is upon this character that the separation of these species into two genera is made, yet species are so similar that this separation seems absurd. Only the discovery of more species and further study will indicate what the proper generic assignment of them all may be.

Genus PLANOCOCCUS Ferris

Planococcus citri (Risso)
Figure 34

1950. *Planococcus citri* (Risso), Ferris, Atlas of the Scale Insects of North America 5:165.

HOSTS AND DISTRIBUTION. What seems to be this species, the specimens agreeing closely with the illustration given by Ferris, is present in the material from China from citrus and guava near Canton and from undetermined hosts at Yeung Kong on the coast west of Macao. Specimens which differ from these sufficiently to raise doubt as to the correctness of referring them to *citri* are to hand from undetermined host at Lingnan, Canton, and from an undetermined host at the temple of Fei-ha on the North River, perhaps fifty miles above Canton, and are here discussed.

NOTES. The accompanying illustration is based upon specimens from Fei-ha. It may be noted from the illustration that while they are very close to *citri* in most respects they differ quite conspicuously in regard to the vestiture of setae. The dorsal setae, especially, vary greatly in size, some of them being quite small but many being conspicuously large and somewhat swollen at the base and those on the ventral side, in the marginal areas, being especially long, slender, and numerous. There are no tubular ducts whatever on the dorsum, and on the venter these seem to be confined almost entirely to submarginal groups. Compared directly with *citri* from China the legs are noticeable stouter. The question arises as to whether this is an extreme variant of *citri* or is a distinct species. The writer has considered quite carefully this question, but while he considers that in all probability it represents a distinct species the decision has been against naming it as new at the present time.

The arguments for this course of action are as follows. In the first place, if it be different from *citri* there is every probability that it has already been named and that this will be revealed when the *citri* group has been given the degree of study which it deserves. The second consideration is that there has not been an exhaustive study of the range of variation in *citri*, such as it should have, and no positive key character for its separation can be given. The decision has been to refer this to *citri*, to illustrate it as carefully as may be and to leave the decision as to its status to whomever may be able to make the needed studies.

Planococcus lingnani new species
Figure 35

TYPE HOST AND LOCALITY. From an undetermined grass on Lingnan University Campus, Canton, China.

MORPHOLOGICAL CHARACTERS. Length (on slide) about 2.50 mm. A moderately stout form. Cerarii present in 18 pairs; anal lobe pair with three or four conical setae of somewhat varying size, the others with one or two such setae, rarely with three, without definite auxiliary setae, (and without any noticeable concentration of pores). Anal lobes somewhat diffusely sclerotized and without a ventral, sclerotized bar extending inward from the base of the anal lobe setae. Dorsum with only trilocular pores and beset with setae of varying lengths, a portion of these being unusually long and conspicuous. On the ventral side there are scarcely more than a dozen quinquelocular pores, these immediately about the vulva. Tubular ducts apparently present only in little submarginal clusters of scarcely more than six ducts on segments 6-8. Otherwise the venter is quite uniformly beset with trilocular pores. Circulus lacking. Antennae 6-7-segmented, rather short.

NOTES. An examination of all the descriptions of species from eastern Asia has not revealed anything to which this species can be referred. Its generic position is dubious, since it lacks the sclerotized bar on the ventral side of the anal lobes which is characteristic of *Planococcus*, appearing in a series of species that can definitely be referred to that genus. It may, however, be referred here for the present. The presence of three or four conical setae in the anal lobe cerarii, the absence of a circulus (and the almost complete absence of tubular ducts), and the 6-7-segmented antennae are quite distinctive.

Genus TRIONYMUS Berg

1950. *Trionymus* Berg, Ferris, Atlas of the Scale Insects of North America 5:251.

The status of this genus has been discussed by Ferris. It presents two difficulties. First: certain of the included species very closely resemble certain species referred to *Dysmicoccus*, being generically separable only by the fact that in those referred to *Trionymus* the circulus is very small, circular, and does not extend across the intersegmental suture between abdominal segments four and five. Second: some of the species referred to *Trionymus* do not possess the circulus at all and these species are referable here only on the basis of their close general resemblance to it. Then there is some difficulty in separating *Trionymus* from *Tridiscus*. The latter genus typically is identifiable by the presence of two or more circuli and by having the cerarii of the anal lobes with two slender setae instead of the two conical setae characteristic of the former. Thus the species herein recorded as *Trionymus orientalis* might be referred rather to *Tridiscus*.

There must be dozens of these species still to be described and any arrangement at present adopted must be regarded as provisional and tentative. When a goodly representation of species is at hand some of the difficulties may fade away.

Trionymus cantonensis new species
Figure 36

HOST AND DISTRIBUTION. From an undetermined grass at Lingnan University, Canton, China.

HABIT. No notes.

MORPHOLOGICAL CHARACTERS. Length of fully grown specimen (on slide) about 2.75 mm. An elongate, narrow form. Cerarii present only on the anal lobes, these consisting each of a pair of elongate setae, with no surrounding concentration of pores. Dorsum beset with trilocular pores and with a few multilocular pores, the latter occurring on the last two or three abdominal segments, also in a submarginal series and in a submarginal cluster on the head. Tubular ducts of the oral rim type few, confined mostly to the abdominal region, very small, their diameter no greater, or even slightly less than that of a trilocular pore. Anal ring rather small but presenting no especially distinctive characters.

Ventral side with numerous multilocular pores in the lateral regions from the last segment of the abdomen forward to the head and in the median region of the abdominal segments forward to the fifth segment. Tubular ducts with a very slight oral collar present especially in the lateral regions of the abdomen, these with a diameter slightly smaller than the diameter of a trilocular pore. Circulus present, small and circular. One specimen has been seen in which there were two circuli. Legs relatively quite small, the posterior coxa with numerous small pores, but not enlarged. Antennae 8-segmented, but also in the presence of the oral rim tubular ducts.

Trionymus orientalis (Maskell)
Figure 37

1897. *Dactylopius graminis* variety *orientalis* Maskell, Transactions of the New Zealand Institute 30:245.
1903. *Pseudococcus graminis* variety *orientalis* (Maskell), Fernald, Catalogue of the Coccidae, page 102.

HOST AND DISTRIBUTION. Described by Maskell from "stems of grass", Hongkong. The material at hand which bears the number indicated by Maskell (Koebele 1501) is labelled as from Kowloon, which is across the harbor from Hongkong. The species has not yet been encountered in the Chinese collections made by the writer.

HABIT. Described by Maskell as "enclosed in sacs of white felted cotton, which are massed together on the plant, the proper form of each being irregularly elliptical. Insect dark-purple or dark brown, subglobular or slightly elliptical."

MORPHOLOGICAL CHARACTERS. Length of available specimens attaining slightly over 2.00 mm. Form somewhat variable, varying from rather broadly oval to elongated oval. Antennae variable, one of the two remaining in the available material being 6-segmented and the other 7-segmented. Cerarii confined to the anal lobes, then represented by pairs of small, slender, elongated setae. Anal ring of entirely normal form and composition, set at about its own diameter from the apex of the body. A single small circulus present on segment four. Two pairs of dorsal ostioles present, these rather small and obscure. Dorsum rather sparsely beset with trilocular pores, with a very few multilocular pores scattered from the head region to the terminal abdominal segment, apparently with no tubular ducts except a few which are very small and occur along the extreme margins on the terminal abdominal segments. Dorsal body setae few and all very small. On the ventral side multilocular pores are present in numbers from the terminal segment anteriorly to the sixth segment, with occasionally an isolated pore anterior to these, but with none in the head and thoracic regions. Tubular ducts very small, the diameter of the orifice being less than the diameter of a trilocular pore, these ducts confined almost exclusively to the area from segment seven to the end of the body. Tarsal claw without a tooth.

NOTES. The generic position of this species is in some doubt. It is so very similar to the North American species which has been considered by the author in Volume 6 of his "Atlas of the Scale Insects of North America" as *Tridiscus sporoboli* Cockerell that these two species must be placed in the same genus, whatever that genus may be. The general form of the body, and the presence of a single, circular circulus, borne within the limits of segment four of the abdomen, argue for assignment of both these species to *Trionymus*, but the fact that the setae of the anal lobe cerarius are elongated and slender argues for its assignment to *Tridiscus*, a genus which in its most distinctive species is clearly separable from *Trionymus*. The writer is prepared to hazard the surmise that when more of these grass-infesting species are known a new genus will be named for such forms as *sporoboli* and *orientalis*.

This species differs from *sporoboli*, in spite of the wide geographical separation, only in small details. It seems to lack dorsal tubular ducts entirely, while in *sporoboli* such dorsal tubular ducts are quite abundant. Also in *orientalis* the paired setae of the anal lobe cerarii are clearly distinguishable, while in *sporoboli* they are not clearly differentiated and in fact such cerarii cannot be clearly recognized.

Genus NIPAECOCCUS Sulc

Nipaecoccus vastator (Maskell)
Figure 38

1948. *Nipaecoccus vastator* (Maskell). Zimmerman, Insects of Hawaii 5:245; figure 136.

HOSTS AND DISTRIBUTION. Originally described from Hawaii, where it infests various hosts and has in the past been of some economic importance, especially on *Citrus*. Recorded by Ferris from Taipeh, Taiwan (Formosa) from *Citrus* under the synonymous name *Pseudococcus perniciosus* Newstead and Wilcocks. Specimens are at hand from *Citrus* at Lo-kong-tung, about 25 miles east or northeast of Canton and from an undetermined host at Lingnan University, Canton, China, G. F. Ferris collector.

NOTES. This species has been redescribed and illustrated by the writer in Zimmerman's "Insects of Hawaii" and notes on habits and synonymy have been there presented by Zimmerman. It has in the past been confused with *Nipaecoccus filamentosus* (Cockerell) from which it is clearly distinct, being immediately distinguishable by reason of the presence of the circulus and the restriction of the multilocular pores to the ventral side of the abdomen.

It is here illustrated once more on the basis of specimens from Lo-kong-tung.

It may be noted here that at least a part of

the material upon which Morrison's records of this species under the name *Pseudococcus filamentosus* (Cockerell) from the Philippine Islands were based were erroneously determined. Dr. Morrison has very kindly sent to me about 15 slide preparations from those islands. Among these I noted three specimens which are clearly *vastator*, but the specimens were too inadequate to permit conclusions concerning any of the others.

Genus PSEUDANTONINA Green

1922. *Pseudantonina* Green, The Coccidae of Ceylon, Part V:363.
1953. *Pseudantonina* Green, Ferris, Atlas of the Scale Insects of North America 6:411.

GENERIC TYPE. *Pseudantonina bambusae* Green.

COMPOSITION OF THE GENUS. Three North American species are referred to this genus, in addition to the generic type from Ceylon.

NOTES. The genus is immediately recognizable by the fact that the posterior coxae are much enlarged and form a large, flat plate which is thickly beset with pores.

Pseudantonina lingnani new species
Figure 39

HOST AND DISTRIBUTION. From an undetermined grass on the campus of Lingnan University, near Canton, China.

HABIT. No record.

MORPHOLOGICAL CHARACTERS. Length (on slide) about 3.25 mm. Form elongate-oval. Without cerarii on the anal lobes, these cerarii indicated by only a pair of setae which are unusually large and long, being at least twice as long as the greatest diameter of the anal ring. Dorsal setae quite small and sparse except on the terminal 3-4 abdominal segments where they become numerous and long and slender. Multilocular pores scattered over the entire dorsum. Trilocular pores replaced by pores which consist merely of a small, sclerotized ring, these abundant on the posterior portion of the abdomen and in the lateral region. Anal ring quite large and broadly sclerotic, its setae about three times as long as its greatest diameter. Posterior dorsal ostioles very small but quite distinct, the anterior pair not evident in the material at hand.

On the ventral side the distribution of pores is much as on the dorsum. There are no tubular ducts of any kind. Legs all quite small, the posterior coxae being about three times as broad as the others and quite short, with the greater part of their surface membranous and beset with pores. Antennae 7-segmented, relatively short. Circulus lacking.

NOTES. It is possible that some of the pores are actually trilocular, but the strong sclerotization of the walls obscures this. Also some of the pores have the appearance of giving rise to an extremely minute duct with a sclerotized inner extremity, but it is beyond the ordinary powers of the microscope to determine this.

Genus CENTROCOCCUS Borchsenius

1936. *Echinococcus* Balachowsky, Bulletin de la Societe entomologique de France, page 157; figure. (Preoccupied.)
1949. *Centrococcus* Borchsenius, Fauna of the USSR. Homoptera, Coccidae, Pseudococcidae. Biological Institute of the Academy of Sciences of the U.S.S.R., New Series, Number 38:303.

GENERIC TYPE. *Echinococcus echinatus* Balachowsky.

INCLUDED SPECIES. In addition to the generic type, Borchsenius, has referred three species from within the Russian area to this genus. The type is from Morocco.

MORPHOLOGICAL CHARACTERS. Pseudococcidae with a tooth on the claw and with 9-segmented antennae. Cerarii present in 18 pairs, these with several acutely conical setae which are borne upon quite strongly sclerotic and elevated, rounded prominences. Dorsum beset with a variable number of such prominences, each bearing from 3-4 such setae. Circulus apparently lacking. Dorsum without tubular ducts. Venter with multilocular pores, with quinquelocular pores at least in the thoracic and head regions, and with tubular ducts.

Centrococcus insolitus (Green)
Figure 40

1908. *Phenacoccus insolitus* Green, Memoires of the Department of Agriculture of India 2:2:25.
1922. *Phenacoccus insolitus* Green, The Coccidae of Ceylon 5:390; Plate CLXL.

HOSTS AND DISTRIBUTION. Described from India from *Sida cordifolia* and later recorded from Ceylon from *Cajanus*, *Cyclea*, and *Solanum*. Specimens are at hand from an undetermined host on the campus of Lingnan University at Canton, China.

HABIT. Said by Green to be beset with numerous, glassy filaments; secreting a long slender ovisac.

MORPHOLOGICAL CHARACTERS. Length (on slide) about 2.00 mm. With 18 pairs of cerarii, each of which may have as many as 10 conical setae but no accompanying pores upon the supporting prominence. Dorsum with a median series of prominences and with a submedian series on each side extending the full length of the body, the thoracic area with a variable number of prominences between the median and submedian but these lacking on the abdomen. Dorsum beset with trilocular pores, but with no tubular ducts. Ventral side with multilocular pores in both median and lateral areas of the abdomen as far forward as the second segment; thoracic area with small quinquelocular pores. Venter with two sizes of tubular ducts, those of the median region of both thorax and abdomen slender, those of the lateral region rather short and stout and occurring only on the abdomen.

NOTES. Specimens from *Solanum* in Ceylon, identified by Green, are at hand and have been used as the basis for the accompanying figures. The specimens from China seem definitely to be the same.

RASTROCOCCUS new genus

GENERIC TYPE. *Phenacoccus iceryoides* Green.

INCLUDED SPECIES. In addition to the generic type, three other species are here included, these being *Phenacoccus mangiferae* Green, *Phenacoccus ornatus* Green, and *Phenacoccus spinosus* Robinson.

MORPHOLOGICAL CHARACTERS. As based upon the type species. Pseudococcidae of the *Phenacoccus* group; that is, with 9-segmented antennae, with a tooth on the tarsal claw, and with 18 pairs of cerarii. Cerarii consisting of numerous truncate setae and trilocular pores, these arranged within the confines of a distinctly differentiated plate of some degree of sclerotization. Antennae 9-segmented. Circulus present.

NOTES. The description given above applies only to the type species of the genus. The other three species referred at present to the genus present some peculiar problems which would seem to call either for the naming of three new genera or their inclusion in a single genus which is definable with difficulty.

The problems are these:

1. All the species present certain characteristics which seem to suggest that they are related, this being shown by the nature of the cerarii and by the 9-segmented antennae.

2. The presence or absence of a tooth on the claw is at present regarded as of itself defining the *Phenacoccus* group. However, two of the included species definitely do not have a tooth on the claw, although they have 9-segmented antennae. This is the first recorded instance of the failure of this character.

3. The apically truncate cerarian setae are very distinctive of the type species and of two others in the genus, but these setae in the fourth species are apically acute.

4. The number of pairs of cerarii in the type species is 18, which coordinates with the 9-segmented antennae, but in the other species is from 13-34.

Considering the at present limited knowledge of the group the writer is disposed to adopt the expedient of referring all these species to one genus, while recognizing that with the discovery of more forms this position may become untenable. They can scarcely be referred to *Puto*, which has been done by one author in the instance of *spinosus*, for *Puto* is a very homogeneous group of about 20 species which seems to be genuinely natural and should not be disturbed by the inclusion of such elements.

Rastrococcus iceryoides (Green)

HOSTS AND DISTRIBUTION. Type from mango, *Boswellia*, and *Capparis* at various localities in India and from *Tephrosia*, *Oodina*, *Calicarpa*, *Murraya* and *Wedlandia* from Ceylon. Specimens are at hand from *Mallotus* sp., Hongkong.

HABIT. Described as secreting a large, highly convex but comparatively short white ovisac, the insect resting upon the anterior part of this and tilted into an upright position.

MORPHOLOGICAL CHARACTERS. Length about 2.50 mm. With 17 pairs of cerarii, each consisting of 20 or more apically truncate setae, these surrounded by numerous pores, the whole borne in a quite definitely delimited surrounding area. All the dorsal pores apparently of the quinquelocular type rather than trilocular. Dorsal setae small, lanceolate.

On the ventral side these pores form a distinct submarginal zone, but are scattered over the thoracic area. Multilocular pores abundant on the abdomen and occurring in small numbers in the marginal area of the thorax. Tubular ducts of a simple type numerous in the thoracic area, less so in the midregion of the abdomen. Legs moderately long, the tarsal claw with a well-developed tooth. Circulus narrowly oval.

NOTES. Specimens are at hand from Ceylon, determined by E. E. Green, and the accompanying figures are based upon them.

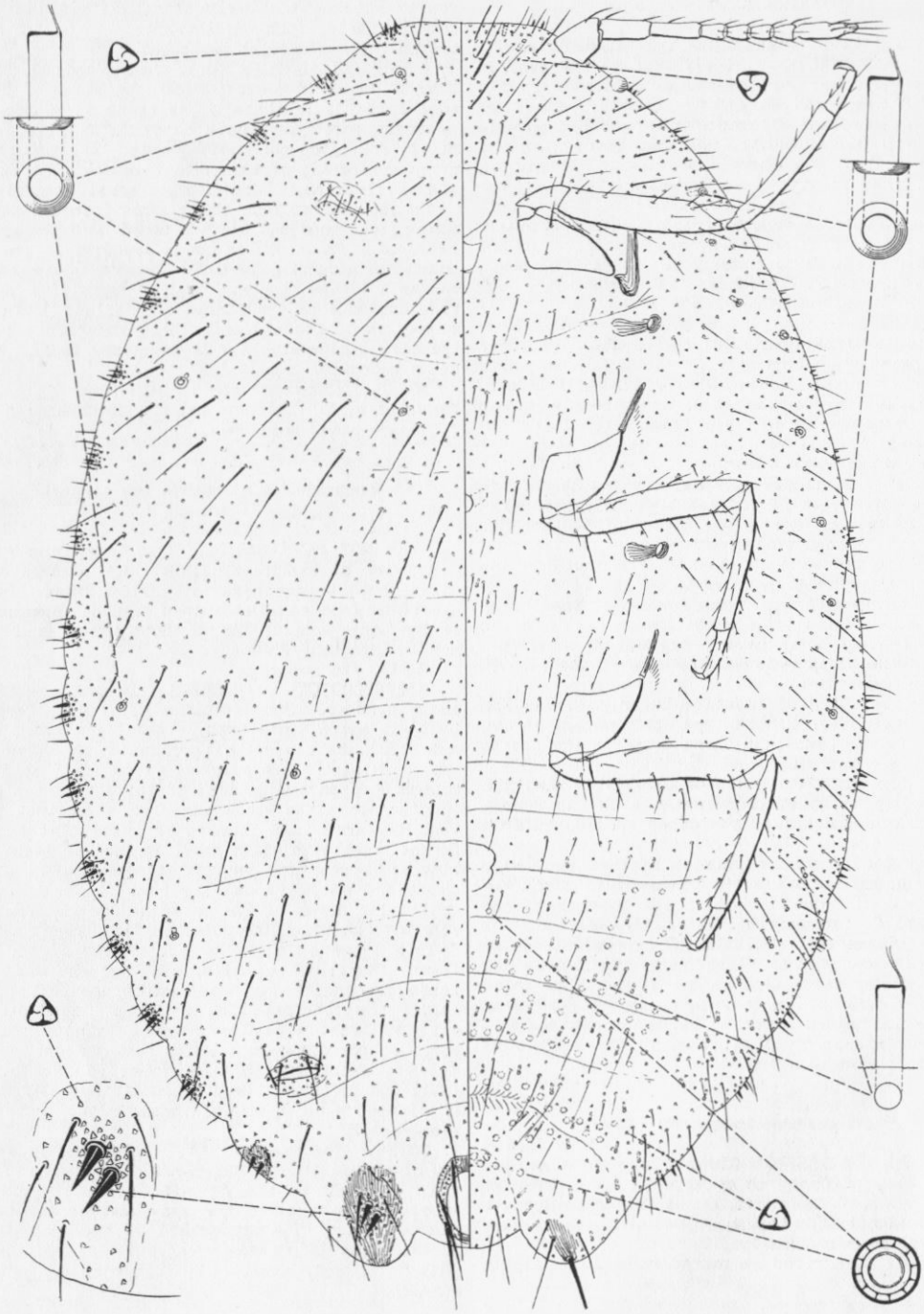
Rastrococcus chinensis new species
Figure 42

TYPE HOST AND LOCALITY. Type from an undetermined host at Lo-kong-tung, a village perhaps 20-25 miles north or northeast of Canton, China. Other specimens from an undetermined host at Yeung-kong, on the coast west of Macao. Both these localities are in Kwangtung Province.

HABIT. No notes.

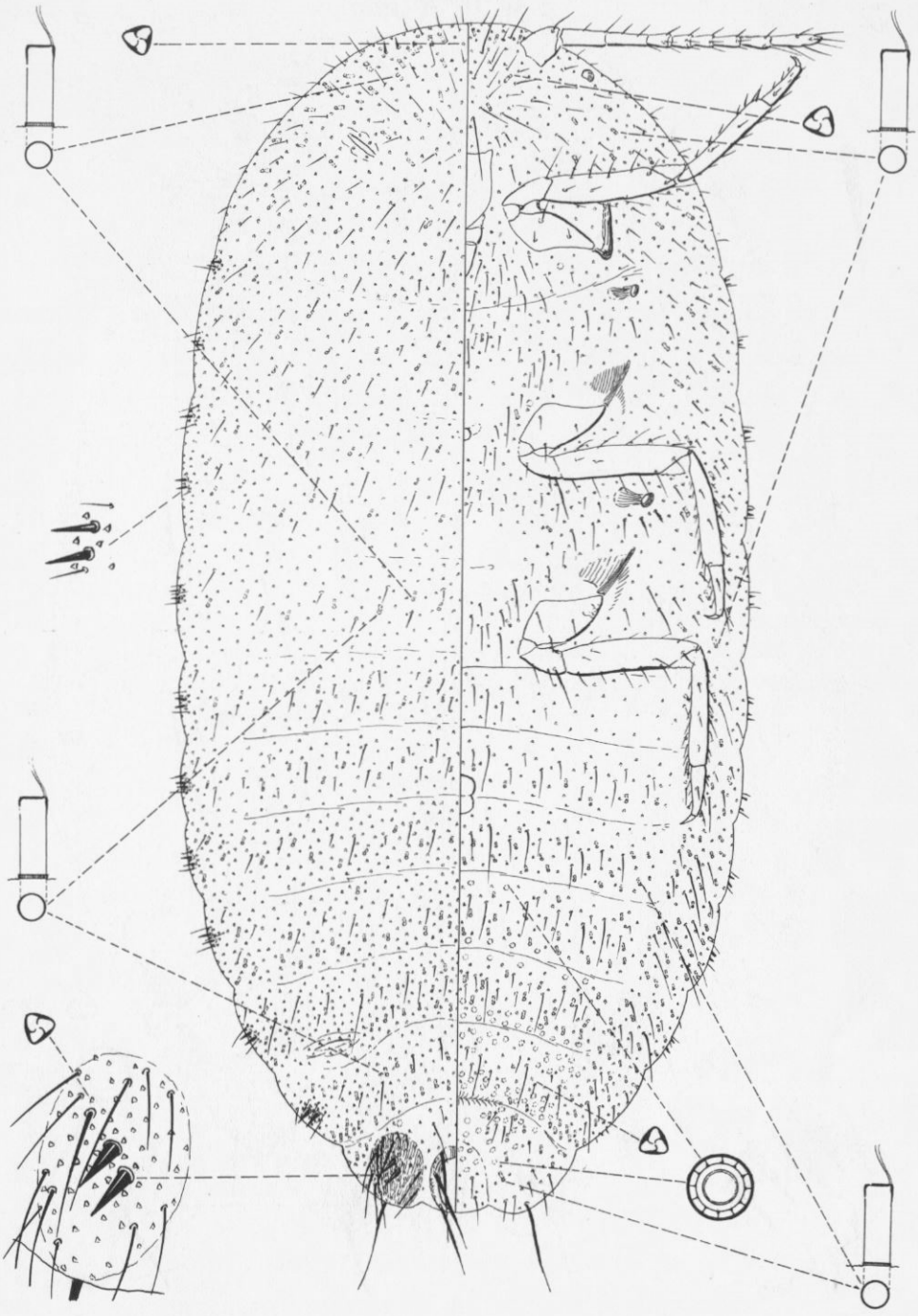
MORPHOLOGICAL CHARACTERS. Length, on slide, about 1.80 mm. Body somewhat piriform. Cerarii in 15-16 pairs, the eighth pair being divided into two which are close together and at any time may appear as one. Each pair with from 10-15 apically truncate setae and an area of quite numerous trilocular pores, the whole borne in a somewhat rectangular area that is more or less sclerotized. Dorsum beset with quite small lanceolate setae and with trilocular (or perhaps quinquelocular) pores which are slightly smaller than the definitely trilocular pores of the cerarian areas. Ventral side with multilocular pores as far forward as the fourth segment in the median region of the abdomen. Marginal region of each segment with 3-5 large quinquilocular pores which are definitely larger than the mutilocular pores. Head region with at least a few very small quinquelocular pores. Apparently no tubular duct present. Circulus present in the usual position, but quite small and circular. Legs unusually long, definitely without a tooth on the tarsal claw. Antennae 9-segmented.

NOTES. The presence of 9-segmented antennae and of the quinquelocular pores definitely relates this species to the *Phenacoccus* series; the absence of a tooth on the claw, however, contraindicates this. The assignment of the species to *Rastrococcus* is perhaps wrong, but the solution of this difficulty awaits the discovery of further species.



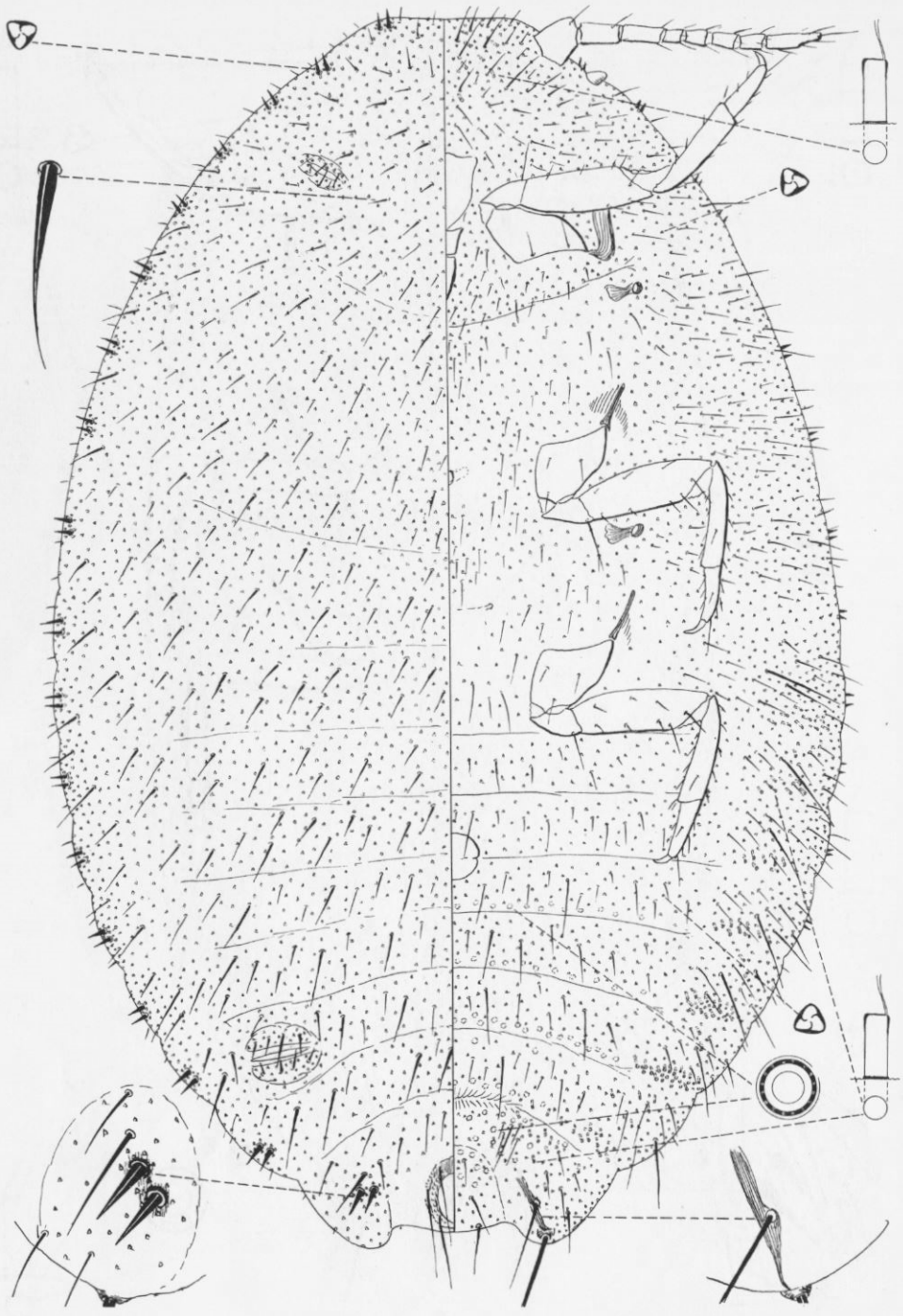
Pseudococcus citriculus Green

Figure 32



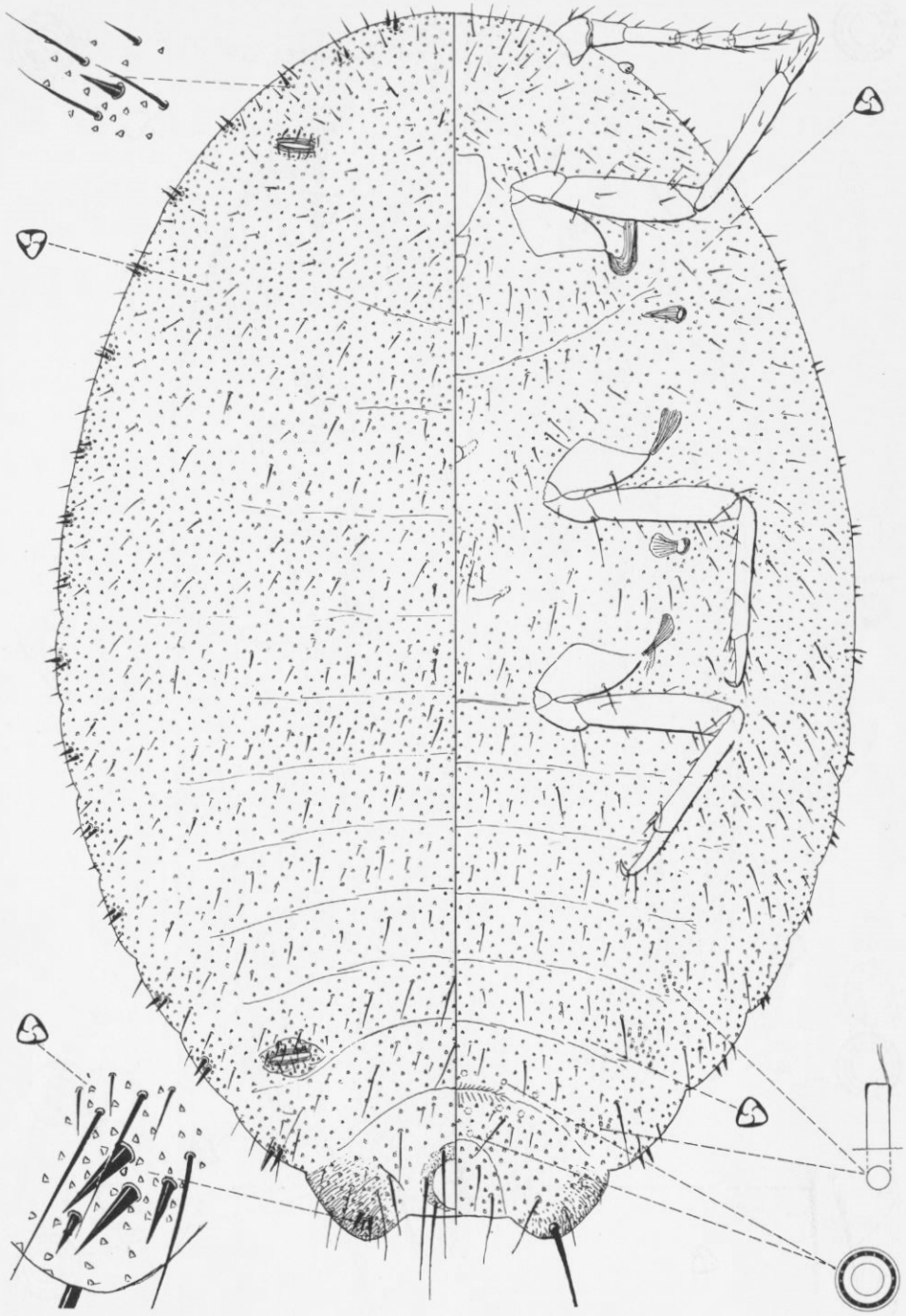
Dysmicoccus dengwuensis,new species

Figure 33



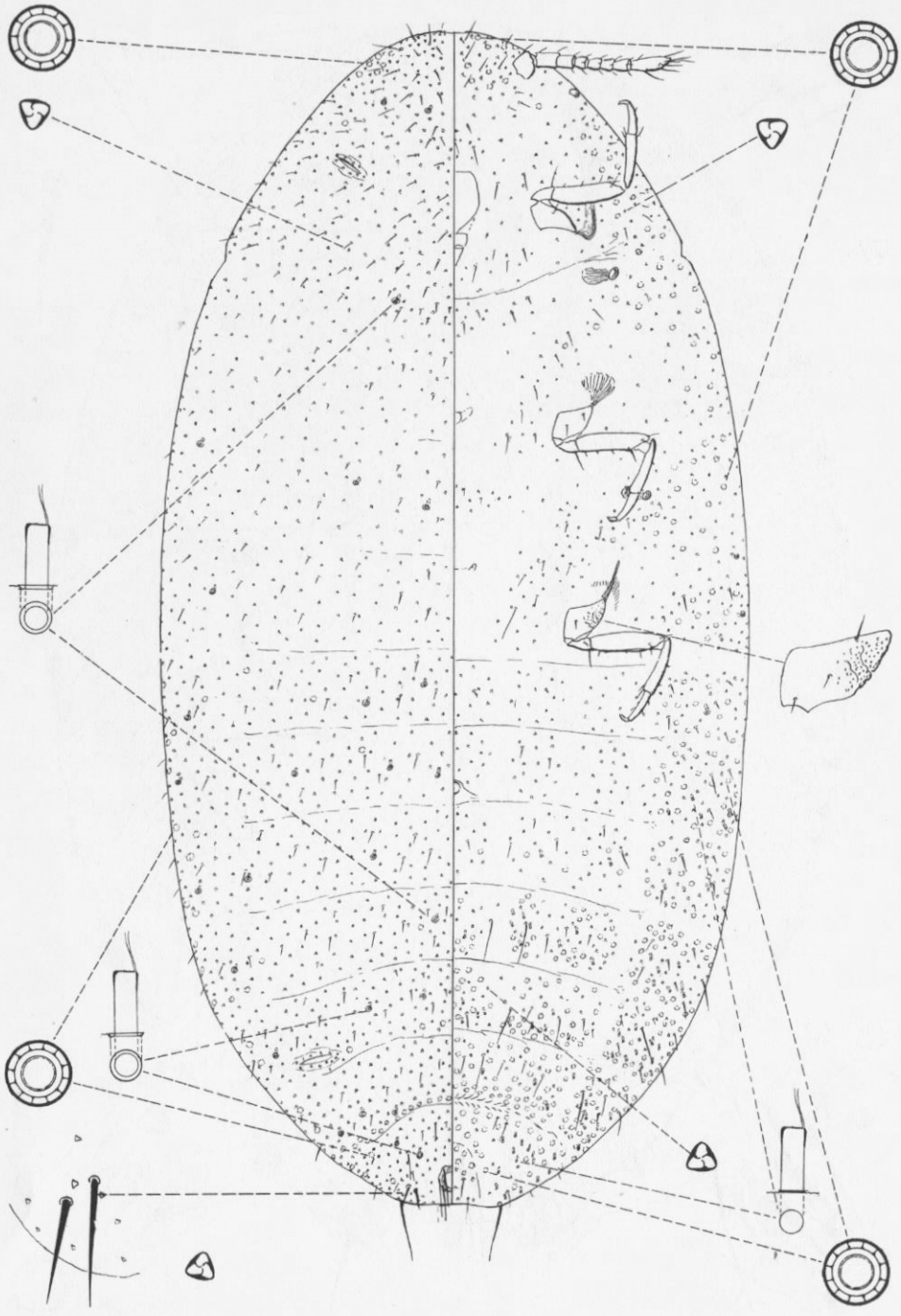
Planococcus citri (Risso)

Figure 34



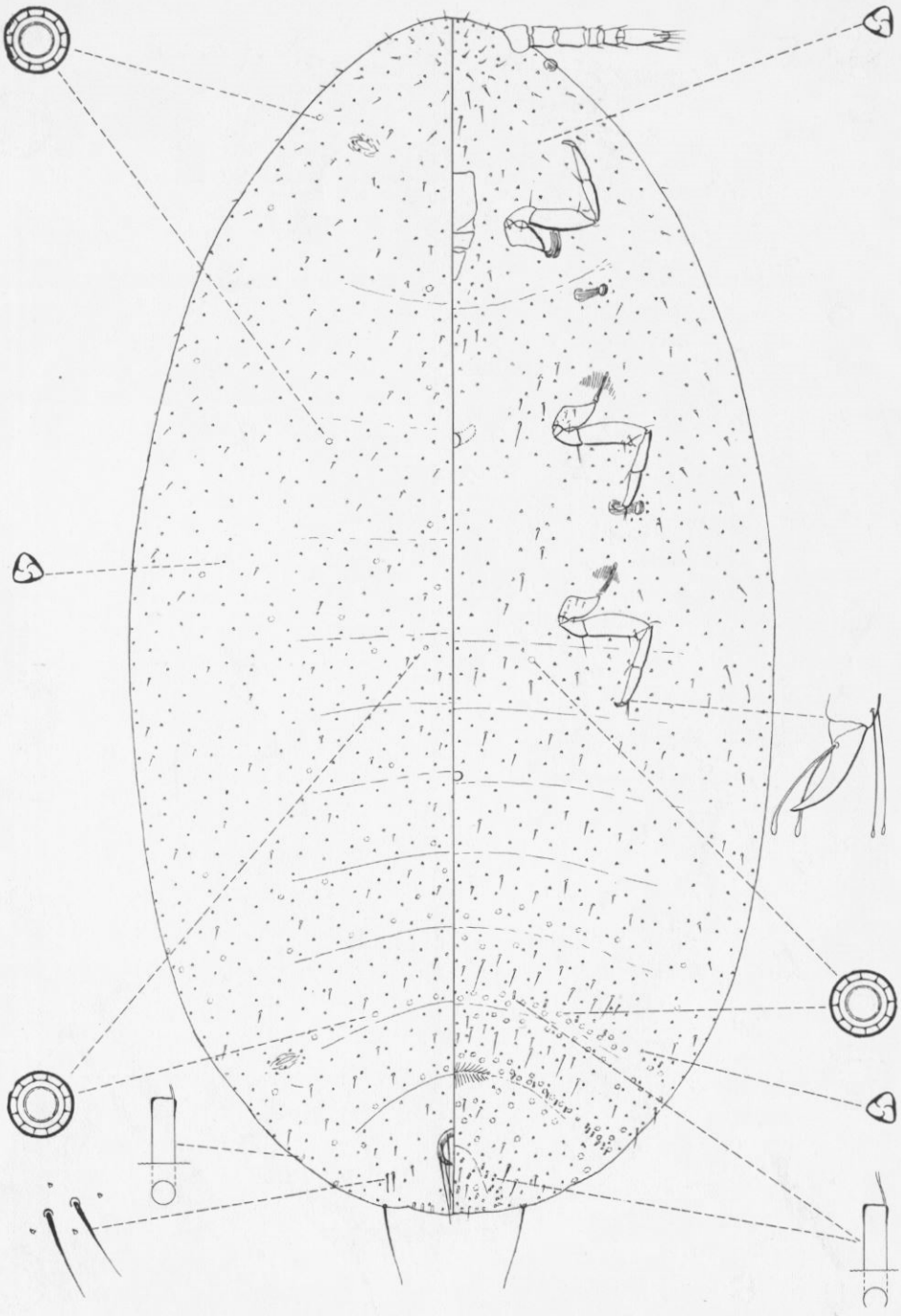
Planococcus lingnani, new species

Figure 35



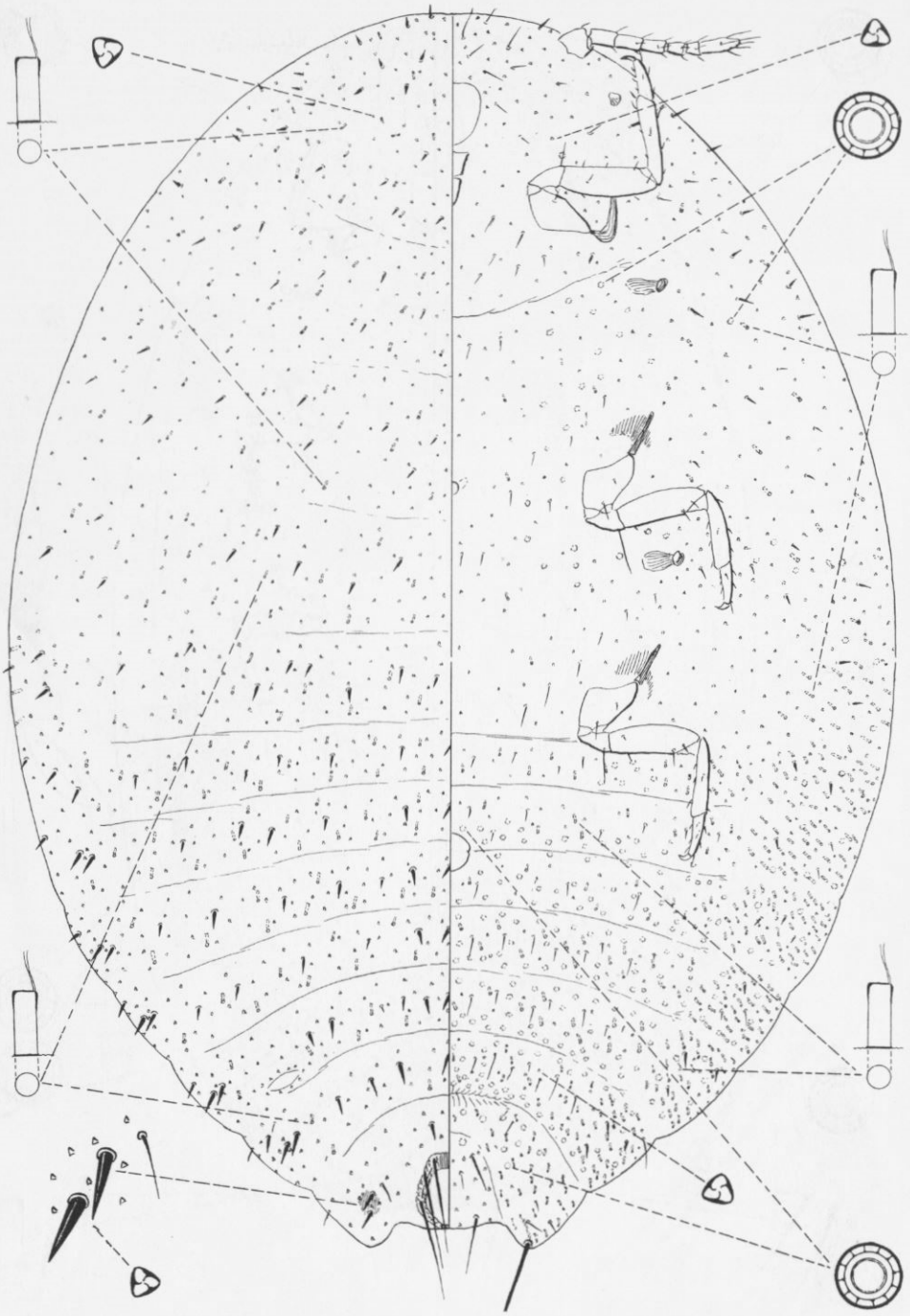
Trionymus cantonensis,new species

Figure 36



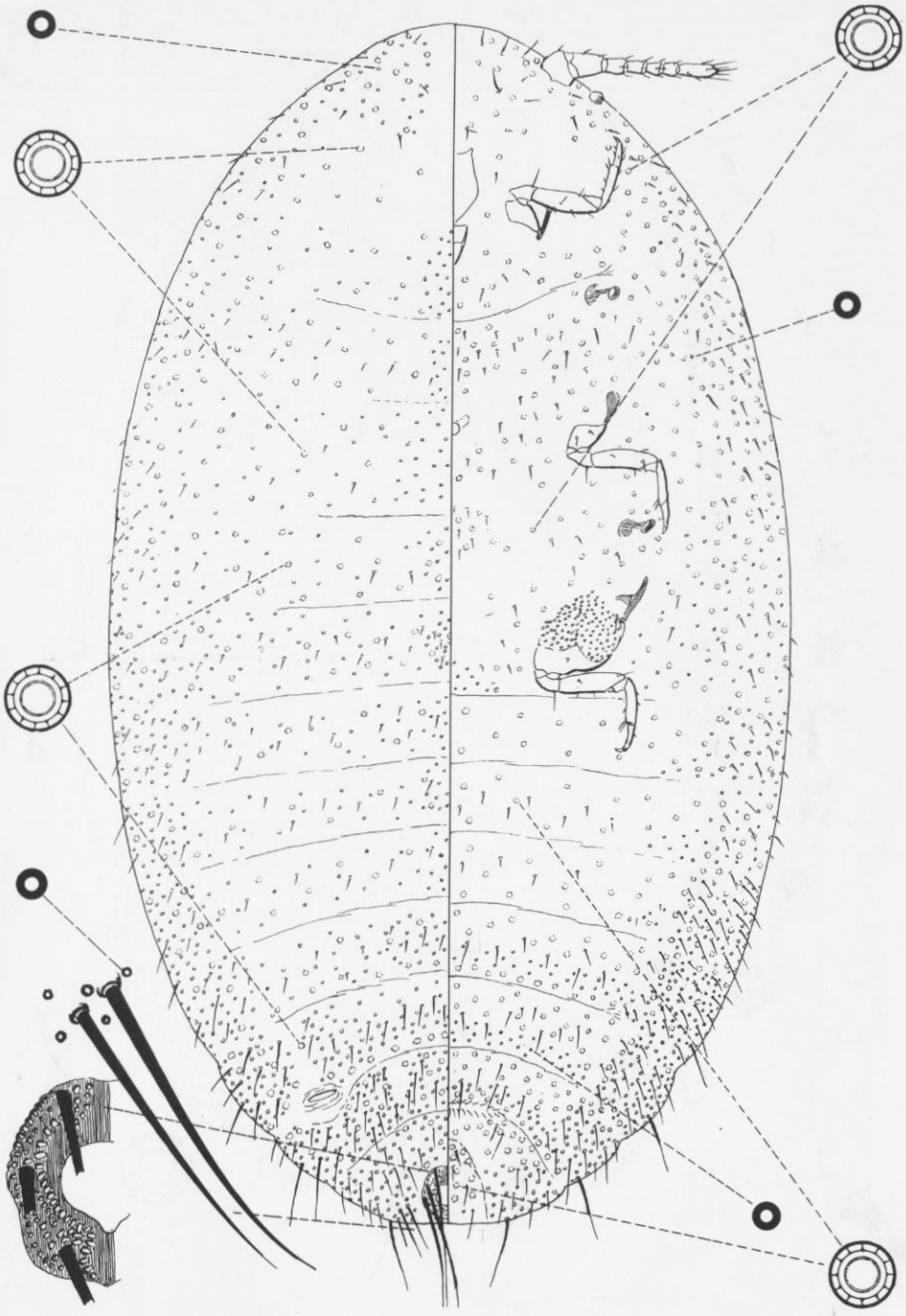
Trionymus orientalis (Maskell)

Figure 37



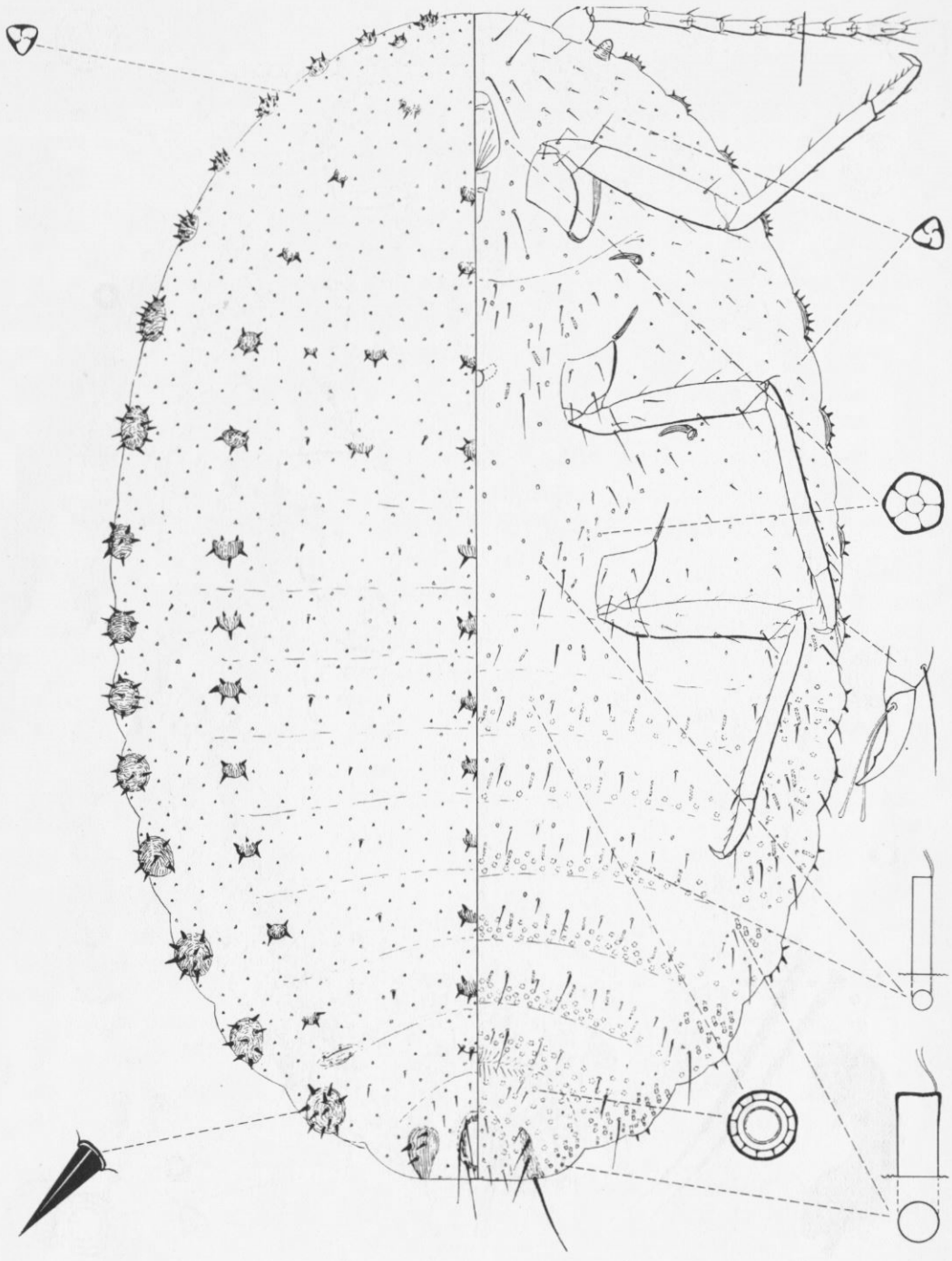
Nipaecoccus vastatator (Maskell)

Figure 38



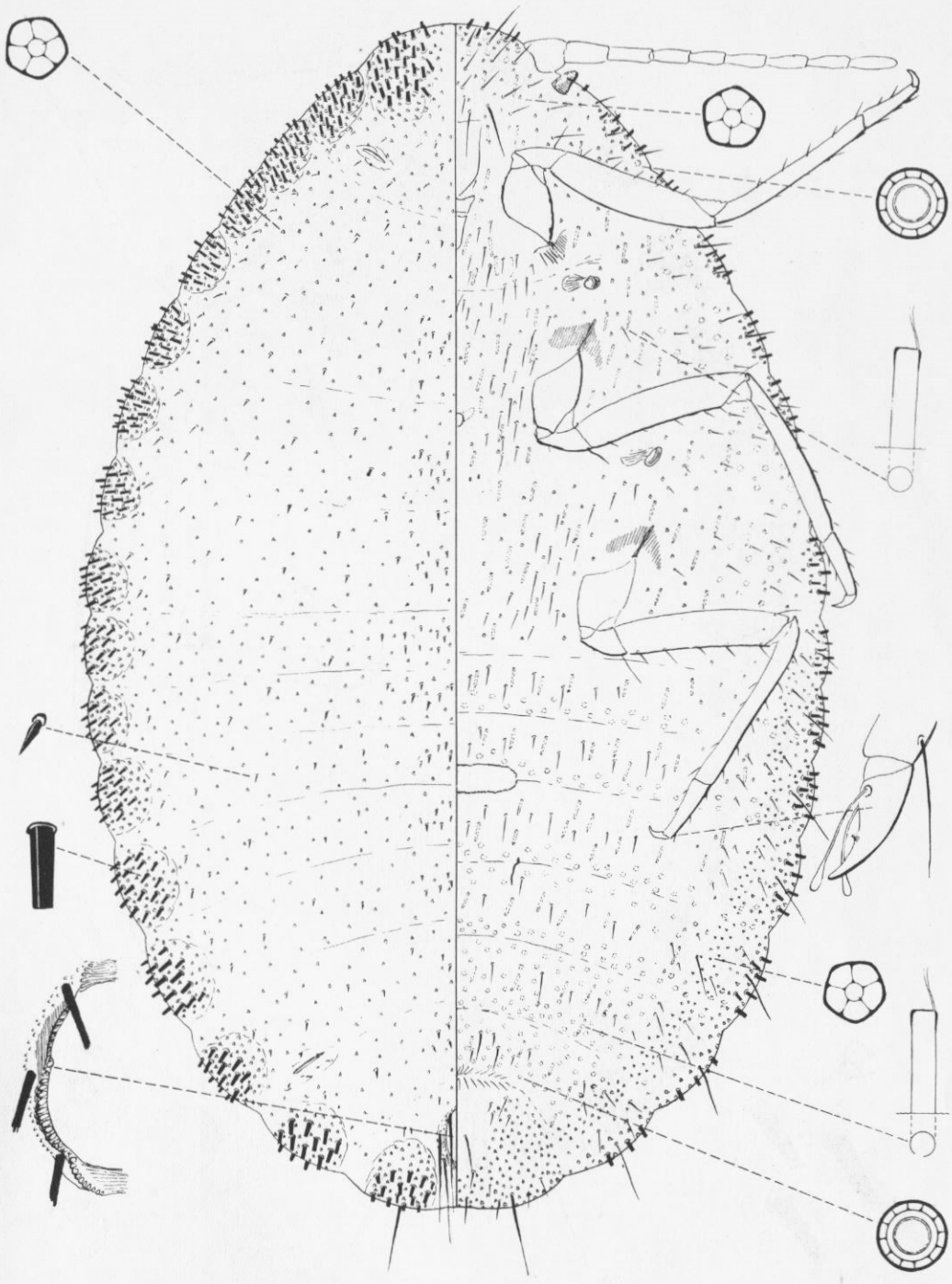
Pseudantonina lingnani,new species

Figure 39



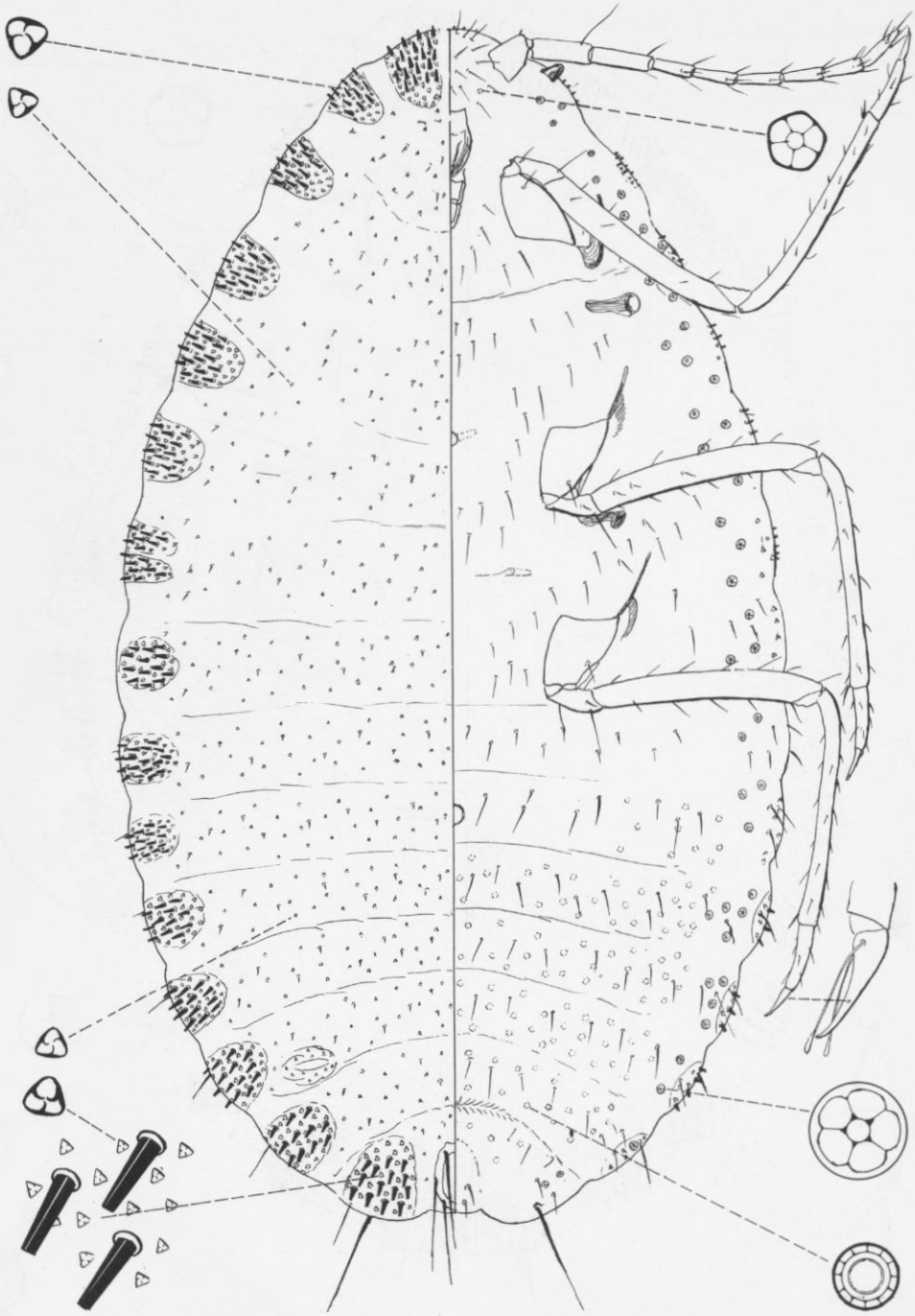
Centrococcus insolitus (Green)

Figure 40



Rastrococcus iceryoides (Green)

Figure 41



Rastrococcus chinensis, new species

Figure 42