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Some new Pseudococcinae of the fauna of USSR (Hemiptera, Coccoidea)

(With 12 figs.)

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Описание новых кокцид подсемейства Pseudococcinae фауны СССР (Hemiptera, Coccoidea)

(С 12 рис.)

In the study of numerous specimens of a species of the subfamily *Pseudococcinae* one can observe noticeable variations in the number of antennal joints, as well as in other principal features. For instance, the number of antennal joints in *Trionymus phenacoccoides* Kir. is 9 or 8, that of cerarii in *Pseudococcus (Trionymus) achilleae* Kir. is 2 or 3, in *P. mendosus* Kir. 5 or 7. That the number of cerarii cannot be put in the basis for classification is clearly visible from the fact that in the genus *Phenacoccus* containing species with 18 pairs of cerarii there may occur forms with 8 pairs (*Ph. interruptus* Green) or even entirely without them (*Ph. inermis* Hall).

The same may be suggested according to Vavilov's law of homologous series¹ for the genus *Pseudococcus* and others. Thus, species of the latter genus having less than 5 cerarii and referred, only on this ground, to the genus *Trionymus* should be considered as wrongly identified.

The main morphological features fixed for discerning the genera *Ripersia* and *Trionymus* are insufficient for the correct distinction of these genera, being generally highly variable and even individual. More important characters for the distinction of the above mentioned genera of *Pseudococcinae* are as follows.

I. Genus *Trionymus*: 1) antennae 7- or 8-jointed (mostly 8), 2) cerarii no more than 5 (4 after Ferris), 3) lateral sides of body parallel, its length surpassing the breadth about three times.

II. Genus *Ripersia*: 1) antennae 5- to 7-jointed, frequently 6-jointed, 2) only 1 or 2 pairs of cerarii present, 3) spines on cerarii never conical, but setiform (Ferris, Mac Gillivray).

¹ Вавилов, Ч. И. Закон гомологических рядов в наследственной изменчивости. Труды III Всеросс. Съезда Селекц. Семенов., Саратов, 1920, стр. 41—56.

In descriptions of new species in the last years authors may be indicated who often do not follow the base of this generic classification in the whole, but use as principal character of the genus only one feature, taking it as cardinal. For instance, W. J. Hall has described: 1) *Trionymus angustifrons*, a species having body elongate, with 5 to 7 pairs of cerarii and 8-jointed antennae, 2) *Ripersia internodii*, a species having body elongate, three cerarii and 6-jointed antennae, 3) *Ripersia artemisiae*, a species having rather oval body (the author points out the proximity of this species to the genus *Naiacoccus*), with 6 to 8 pairs of cerarii and 6-jointed antennae. Thus, the main feature which determine the relation of a species to a genus is considered by Hall in the number of antennal joints.

E. E. Green, in describing species allied to genus *Trionymus* in the common conception of this genus, takes it in the most part for genus *Pseudococcus*, for instance, *P. luffi* Newst., having only one cerarius, *P. newsteadi* Green with ovale body and 3 or 4 cerarii. This author acknowledges the genus *Trionymus* and takes as its main character the reduced number of cerarii (from 4 to 1), which is evident from his descriptions of *Trionymus phalaridis*, *T. peregrinus* and some others. However, E. E. Green nearly always precautiously encloses this generic name in brackets, thus emphasizing the relative validity of the genus. *Pseudococcus (Trionymus) californicus* Ehrh., is a species with 2 cerarii. *P. (T.) dactylis* Green — with 4 cerarii; *P. (T.) tomlini* Green, *P. (T.) phalaridis* Green and *P. (T.) peregrinus* Green are species with 2 cerarii. As fundamental features of the genus *Trionymus* Ferris regards the following: 1) elongated body shape in the female, 2) cerarii present only on some of the posterior abdominal segments. In particular, this author admits the unnatural genus *Ripersia*, but this genus, in his opinion, is a most heterogeneous assemblage.

To obtain an accurate distinction of three above mentioned genera, we should take following directions. The genera *Trionymus* and *Ripersia* are characterized by distinct features reciprocally bound. I. The genus *Trionymus* is closely connected with *Pseudococcus*. All structural peculiarities of the form are adaptations to narrow spaces, concealed beneath the sheaths of leaves, or another parts of the plant closely adhering each other. Most, but not all species of this group are located in this fashion. Thus, forms belonging to the genus *Trionymus* are only highly specialized species of *Pseudococcus*. For the genus *Trionymus* more peculiar and even principal character are the elongate and flat shape of the body, as well as following secondary features: 1) small number of cerarii, 2) short antennae and rostral loop, 3) quite slender legs and the presence of fungiform tubular ducts. Much specialized species of *Phenacoccus* is *Ph. interruptus* Green, living on wild grasses, between the stem and leaf sheaths; this species, according to conditions of its location, has received characters specific for the genus *Trionymus*, i. e. the elongate body, reduced number of cerarii, very short rostral loop, short and stout legs; but in other respects it has conserved all characters of *Phenacoccus*. II) In the genus *Ripersia* the principal characters are as follows: 1) round body shape, 2) absence of true cerarii instead of which it has setae similar to those on the anal lobe; secondary features are:

1) small number of discoidal pores, 2) short legs with their segments swollen, tibia as long as tarsus, or about so, 3) absence of ventralabium.

These characters exclude, I suppose, the necessity of classification according to variable number of cerarii or of antennal joints, having only secondary value. Thus, the genera *Trionymus* and *Ripersia* contain both species with 7-jointed antennae; determination of these forms cannot be always correct; for instance, *Ripersia phragmitis* Hall in reality is *Trionymus phragmitidis*.

1. *Phenacoccus latus*, sp. n. (Fig. 1)

Body of adult ♀ densely covered with white mealy matter. Colour of the body varying from crimson-red to citron-yellow. Outline broadly ovate; dorsum hemispherical; anal lobes faintly developed; length 1,8 to 2,0, breadth 1,6 to 1,8 mm.

Antennae small, 9-jointed, the longest joint being the 2nd; only slightly shorter is the 9th; the 3rd is subequal or shorter than the 9th; the 1st longer than the 5th, 6th, 7th and 8th, all subequal; the shortest joint is the 4th. Denticle of the claw on limbs of all pairs conspicuous. Rostrum relatively equilateral, roundly pointed on apex; its breadth at the basis being about four fifths of the length. Rostral loop short, almost extending to midway of line between the 1st and 2nd pairs of coxae. Cephalabia, caudalabia and ventralabium (ostioles) distinct. Ceriferous tract: 18 pairs of cerarii on each side present. Cerarii with short and conical (sometimes lanceolate) spines (5 pairs on the head: frontalis, antennalis pre- and postocellaris, rostralis; 2 pairs on each thoracic segment and one pair on each of 1 to 7th abdominal segments). Length of spines of the head cerarius equal to 12,2 micrones, breadth 2 micrones. Dimension of spines slightly increasing in the direction to the posterior end of the body; the length of spines on anal lobes 16,2 micrones. Head cerarii (praeocellaris, antennalis—almost always and frontalis, postocellaris—sometimes) having 3 spines; all remaining cerarii with 2 spines. Basis of spines not connected and having 2 to 10 trilocular pores, usually 3. Cerarius of the anal lobe situated on a faintly chitinized area; at the basis of the cerarian spines there are 7 to 10 trilocular pores and one additional spine situated on the border of the chitinized area. On the lower margin of cephalabia there are 6 or 7 trilocular pores and 3 spines. Spines, similar to the cerarian ones, and the spinules are in moderate number, these latter disorderly scattered on both surfaces and more numerous dorsally than ventrally. Densely located spines are on the front and on the sides of thoracic segments (laterally from 1st and 2nd pairs of coxae). Multilocular discoid pores relatively few and located only on abdominal segments. Ventrally: on the 1st segment are only 1 to 3 pores; on the 2nd—6 to 8, laterally from the middle line of the body; on the 3rd 5 pores situated lengthwise on the lower margin of segment in one transversal row; on 6th and 7th segments the pores are numerous and situated in two rows. Dorsally: on the 1st and 2nd segment the pores are absent; on the 3rd and 4th segments 3 or 4 lateral pores; on the 5th and 6th segments the pores are situated lengthwise on the lower margin in one transversal row,

with long interval between each other. Quinquelocular pores are present, in moderate number, only ventrally; around the rostrum, on all thoracic segments, inside of the spiracles, and on the 1st and 2nd abdominal segments they are scattered disorderly. Trilocular pores copious, disorderly scattered on both surfaces; absent ventrally on thoracic segments between the legs. Tubular ducts long and narrow; dorsally disorderly scattered in moderate quantity; ventrally copious, more numerous on abdominal segments, where they are situated in one transversal row lengthwise their inferior margins. Peritreme of the spiracle dish-like, with a broad circumference and a narrow rim; spiracular trachea straight

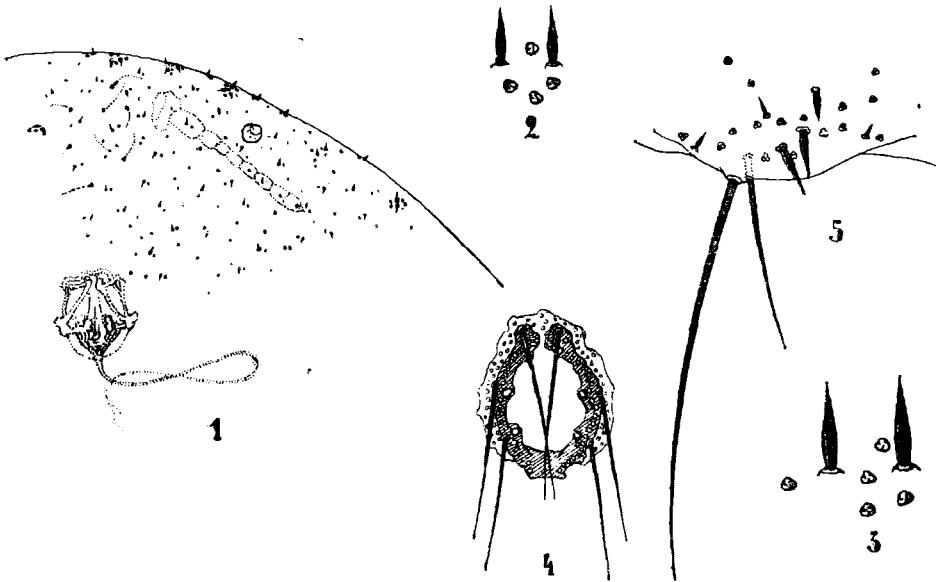


Fig. 1.

and relatively long. Setae only ventral, relatively short: one row of them in the middle of abdominal segments; the longer and more densely situated setae are disposed on the front. Setae on the anal ring in length 77,1 microns, about three fifths as long as setae on the anal lobes; the length of them is 127,2 micr. Near the latter there are four supplementary shorter setae and two very short ones.

This species, common and widely distributed, may be separated from *Ph. pumilus* described in this paper by its great size, by the small number of spines and spinules on the body, the great number and the distribution of multilocular discoid pores, the presence of quinquelocular pores. It is distinguished from *Ph. minutus* Green by its always greater size of body, by the cerarii of the head with three spines and conspicuous cephalabia and ventralabium.

Numerous colonies with great number of individuals found on roots of various plants. In certain seasons some species of plants are infested to 70—80 per cent. Individuals of colonies connected with a species of plant can be distinguished from individuals of another species by colour. On the roots of *Thymus marschallianus* Wild. the specimens (the right bank of Hadzhibei Liman (estuary), Odessa, on dry, stony slopes) have a crimson-red colour. Those on the roots of *Lepidium draba* L. (the right bank of Kujalnik Liman, Odessa, on the loamy falls), have the colour from light orange to citron yellow; 3/VI 1928 there were found 50 per cent ovisacs and 50 per cent different stages, particularly adult females. On the roots of *Sonchus asper* Vill. (the right bank of Kujalnik Liman, Odessa, on the fields of spring wheat) the specimens were citron yellow or pink. On the roots of *Galium verum* L. (on the loamy falls of the sea-side near the village Krijanovka, Odessa) the specimens were citron-yellow and the colonies copious. This species develops in two generations: the second one in the middle of July (15/VI) terminates the formation of ovisacs. Besides the above named food plants this species was found on the roots of *Inula ensifolia* L., *Convolvulus arvensis* L., *Medicago falcata* L., *Linaria vulgaris* Mill., *Isatis tinctoria* L. On the roots of *Isatis* there were observed only specimens of the 1st generation forming ovisacs in the middle of May; 24/V only ovisacs were found.

2. *Phenacoccus pumilus*, sp. n. (Fig. 2)

Body covered with white powder. Colour of body pink; length 1,0 to 1,6, breadth 0,8 to 1,0 mm.

Antennae short, 9-jointed; the longest joint being the 2nd; the 3rd and 9th a little shorter than the 2nd and approximatively subequal; they are followed by the 1st, 5th, 6th, 7th and 8th, which are subequal; the shortest joint is the 4th. The denticle of the claw of all legs conspicuous. Rostrum faintly elongate, on the apex roundly pointed; its breadth at the basis about three fourths of its length. Rostral loop long, attaining or going over the middle line between the coxae of the 2nd pair of legs. Cephalabia and caudalabia (ostioles) quite distinct. Ceriferous tract: 18 pairs of cerarii on each side present. Cerarii with very short and conical, sometimes lanceolated spines. The cerarius praeocellaris nearly always, the antennalis and postocellaris sometimes having three spines, all others only two. Spines of cerarii on the head short and equal, in length 9,5, in breadth, on the basis, 1,3 micrones. Dimensions of other posterior spines slightly increasing, the spines of the anal cerarius being in length 14,9 micrones. Near the basis of the cerarian spines are usually situated two trilocular pores, only the anal cerarius has 4 to 6 pores. Along the lower margin of cephalabia there are situated several trilocular pores and three spines. Spines, similar to the cerarian ones, and spinules (twice shorter than the cerarian spines) are numerous, scattered dorsally, more densely concentrated on the front; ventrally there are only solitary spinules on the sides of segments. Multilocular discoid pores in moderate number. They are absent on the head, the thorax and the 1st abdominal segment. Ventrally on the 2nd

to 5th abdominal segments there are located from 10 to 25 pores on each segment; the pores are distributed along the lower margin of the segment with large intervals between solitary pores. On the 6th and 7th segments the pores are situated in a large transversal band of 2 or 3 rows of pores. Dorsally there are only 2 or 3 pores on the sides of the 4th segment; there are 3 to 5 pores in the middle of 5th segment and 5 to 7 disorderly scattered pores on the 6th segment. Trilocular pores numerous, disorderly scattered on both surfaces, more numerous dorsally on the head and the thorax, less numerous ventrally on the thorax between the legs. Bottle-shaped and narrow tubular ducts elongated.

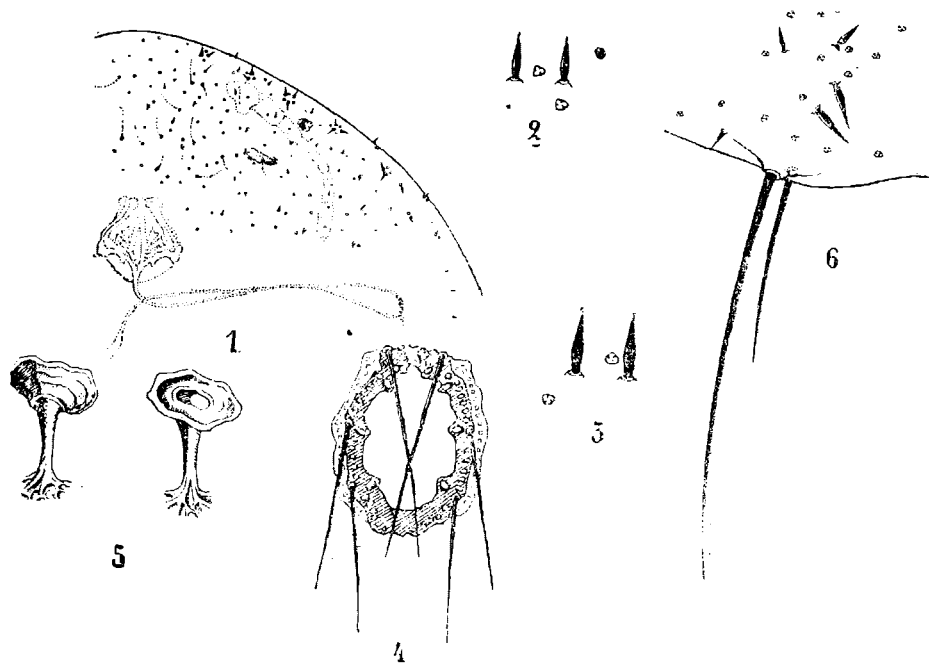


Fig. 2.

Dorsally single ducts are disorderly scattered everywhere, more numerous ventrally on the middle of abdominal segments. Peritreme of spiracle dish-like, with large circumference and narrow margin. Spiracular trachea straight and relatively long. Setae only ventrally relatively short and few; the longer and more densely situated setae are located on the front. Setae on the anal ring equalling in length 85.3 microns; they are about one half as long as the setae on the anal lobes, the length of which being 144.9 microns. Near the long and stout setae of the anal lobes there are situated two setae, twice shorter, and two spiniform setae still more shorter.

Abundant and numerous colonies were found on the roots of *Dianthus capitatus* Ball. and *Teucrium polium* L., growing on dry stony sides on the southern coast of the Crimea. In the months of August

and September 1928 and 1929 in the vicinity of the village Kekeneiz there were found ovisacs with eggs, adulte females, and young larvae. Zoological Institute of the Academy of Sciences, in Leningrad possesses specimens from the neighbourhood of Tiflis (Tbilisi), from the roots of *Inula conyza* D. C., 15/VII 27 (E. Koenig).

The shortness of the cerarian spines, the numerous dorsal spines and spinules, the correlation between the length of the anal ring and that of the setae of anal lobes, the very long rostral loop and small body size permit to easily distinguish this species from *Ph. graminis* Reut. and *Ph. latus* m.

3. *Phenacoccus hilarius*, sp. n. (Fig. 3)

Body covered with white secretion; colour of the body from pink to cherry red; its length 0,8 to 1,2, breadth 0,5 to 0,8 mm.

Antennae comparatively thin and long, 9-jointed; their 3rd segment thin and the longest; the 2nd a little shorter and stouter; then follow the 1st and the 9th, the latter being shorter; the 5th, 6th, 7th, and 8th approximatively of equal length; the 4th being the shortest. Denticle of the claw of all legs conspicuous. Rostrum short and roundly pointed on the apex; its width a little shorter at the basis than the length. Rostral loop comparatively long, attaining the middle line between the coxae of the 2nd pair of legs. Cephálabia, caudalabia and ventralabium (ostioles) clearly marked. Ceriferous tract: 17 pairs of cerarii on each side present. Cerarii with comparatively long, sharp and thin spines (on the head 4 pairs: frontalis, prae- and postocellaris, and the rostralis; two pairs on each thoracic segment and one on each of the 7 abdominal ones). Every cerarius composed of 2 spines; the length of cerarian spines on the head equals 13,5 micr., their breadth on the basis 2,7 micrones. Dimensions of spines gradually increasing to the posterior body end; the length of the anal lobe spines 16,2 micrones. Basis of spines closely connected and having near them 2 to 4 trilocular pores, usually 2. Spines, similar to the cerarian ones and the spinules located both on the ventral and dorsal surfaces, more numerous dorsally; their greatest number concentrated on the peripheric part of the head between the antennae and below; they are less number in the middle of the thoracic and abdominal segments. Ventrally these spines are not numerous and scattered disorderly all over the body. Multilocular discoid pores everywhere in moderate number, ventrally: on the head—one below and inwards from the basis of antennae; on the prothorax—1 to 4 below the rostrum; on the meso- and metathorax, laterally from the coxae—on each side of the mesothorax only single ones (3 or 4); on the metathorax more numerous (5 to 7); in both cases the pores are situated along the upper and lower margins of segments. On the abdominal segments they are more numerous: the anterior two segments have a transversal band consisting of one row of pores, but all the following segments—those of two rows; intervals between the pores becoming smaller on the posterior segments. Dorsally these pores are grouped as follows: on the head—2 or 3 pores externally and below the basis of antennae; on the prothorax—a few pores on the margins of segments

on the meso- and metathorax—single pores along the upper and lower margins of segments, separated from one another by great intervals; on all abdominal segments, except the 7th, the pores are placed in transverse bands consisting of one row of pores, with great intervals between them. Trilocular pores scattered disorderly in considerable number on both surfaces. Tubular ducts small in number, disorderly scattered everywhere, most numerous ventrally, on the middle of abdominal segments.

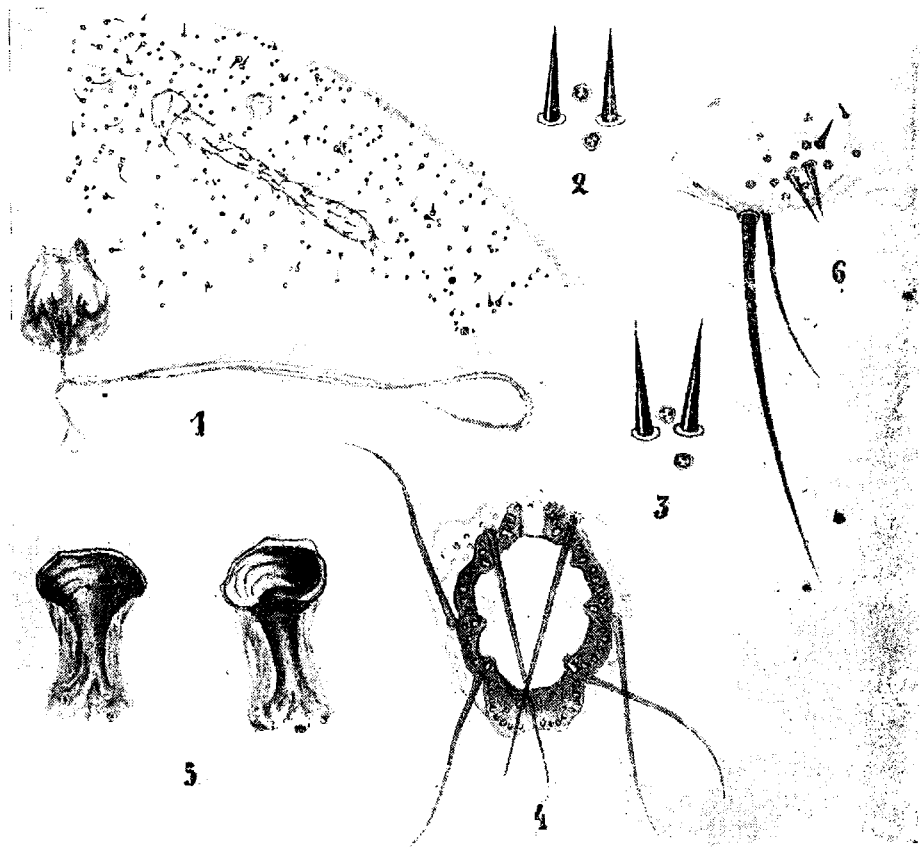


Fig. 3.

Setae disposed only ventrally; the longer and more numerous situated on the front and inwardly from the legs on the thorax. On the abdomen there are single setae, scarcely distributed and disposed along the middle of segments. Setae of the anal ring 74,5 micr. long, are thinner and about $\frac{2}{5}$ as long as the length of the setae on the anal lobes, the length of which being 171,9 microns. Peritreme of spiracles with wide margin, bowl-like; its circumference only slightly surpassing that of the spiracular trachea. Spiracular trachea large and relatively short.

On the southern coast of the Crimea, in vicinity of Kekeneiz, in colonies of a few individuals, on *Seseli gummiferum* Pall. and *S. dichotomum* Pall., placed between the stem and the petiole of leaves closely embracing the stem. Their food plants growing on rocks, stony steeps and falls, in the lower zone of the southern coast. In August and September 1928 adult ♀ ♀ with ovisacs and young larvae were found.

4. *Phenacoccus chersonensis*, sp. n. (Fig. 4)

Marginal filaments faintly developed. Colour of the body bottle-green; length 2,0 to 2,5, breadth 1,0 to 1,5 mm.

Antennae long and thin, 9-jointed, the 2nd joint being the longest; the 3rd visibly shorter than the 2nd, the 9th and 1st subequal; then follow the 5th, 6th, 7th and 8th, all subequal, the 4th being the shortest. Denticle of the claw on all legs very large. Rostrum elongate, its breadth at the basis being about two thirds of its length. Rostral loop nearly attaining the line between the 3rd coxae. Cephalabia, caudalabia and ventralabium (ostioles) distinct. Ceriferous tract: 18 pairs of cerarii on each side present. Cerarii with comparatively short conical spines. Each cerarius with only two spines, their length equalling 12,2, and the breadth on the basis 4,0 microns. Dimensions of spines subequal, except of those of the spines of anal cerarius which are stouter and longer than the other and measuring 20,3 microns. Basis of spines closely connected; usually one trilocular pore present, in some cases two; all cerarii situated on conspicuous projections of the body. Spines, similar to the cerarian ones and spinules scattered disorderly and in small numbers on both surfaces. They are more numerous dorsally and particularly on the front. Multilocular discoid pores numerous on both surfaces of all segments. In some segments they are grouped by 2 or 3 together, rarely by 4. Frequently among the pores is situated one large tubular duct with raised rim on its mouth. The grouping of pores is more pronounced on both surfaces of the head, the thorax and three anterior abdominal segments. From the 4th abdominal segment, ventrally the number of pores increases, the pores being situated along the lower border of segments in form of a transversal band of two or three rows of pores. Dorsally, on abdominal segments the pores are less abundant, their grouping being more distinct. Trilocular pores scattered disorderly on both surfaces, but more numerous dorsally on the head and the thorax. Peritreme of the spiracles calyciform, with large margins. Circumference of the spiracular trachea only a little narrower than its peritreme. Spiracular trachea relatively short. Setae numerous only ventrally, being longer and more densely distributed on the head, on the middle of thorax and on abdominal segments; they are absent on sides. Length of the setae of the anal ring 139,5 microns and as long as 3/5 of the length of the setae of the anal lobes being 203,1 microns; the setae of the anal lobes stout, having near them three setae twice shorter and thinner.

This species nearly approaches *Ph. zillae* Hall., from which can be easily distinguished in following features: 1) cerarii of all segments usually with only two spines; nearly always only one trilocular pore

present; 2) tubular ducts large, with raised rim about their mouth; 3) the species occurs only on the subterranean parts of its food plant.

Ph. chersonensis was found in great numbers on the roots of *Artemisia austriaca* Jacq. and *A. maritima* L., growing on loamy, friable, dry slopes and sandy banks of the Kujalnik Liman, near Odessa. More numerous specimens were found on the subterranean parts of the stem and on the main roots. Colonies and the process of the formation

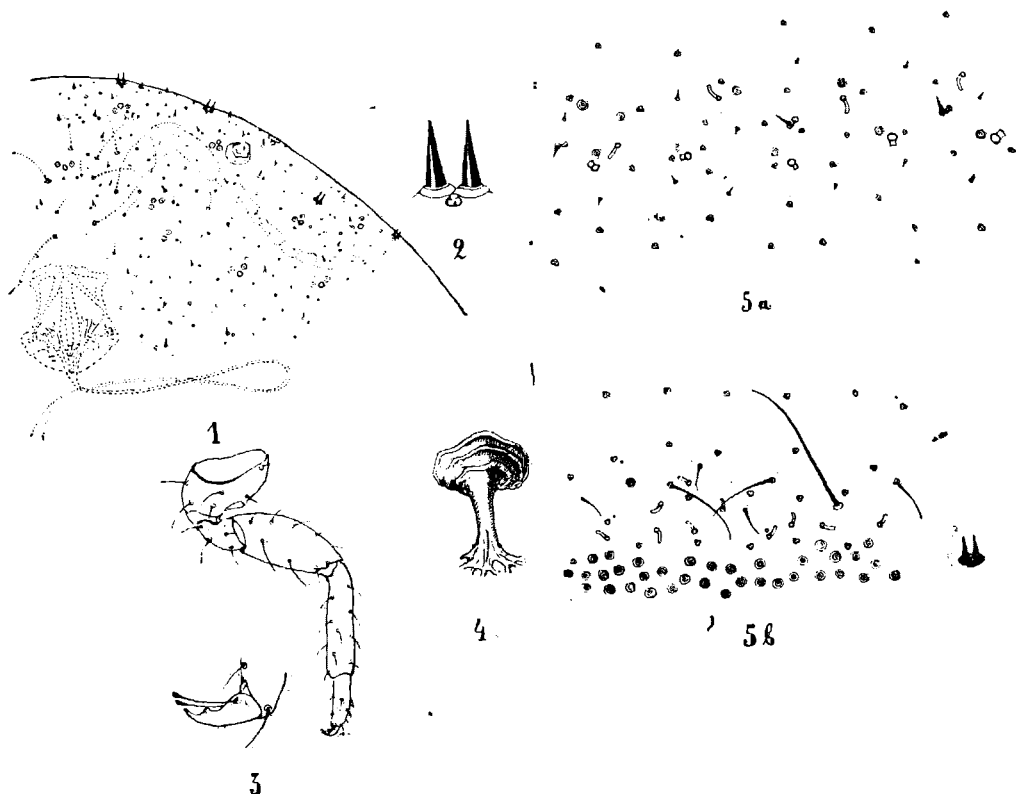


Fig. 4

of ovisacs were observed only rarely on the surface shoots spreading in closely contact with the ground. Abundant ovisacs were found first on 10 to 12 of June; then young larvae appeared on 8 of July. To the end of the vegetation period there developed two generations; the development of the second one terminating in the beginning of October. This species hibernates in eggs. *Ph. chersonensis* was also found on the southern coast of the Crimea, near Kutshuk-Koj, on the roots of *Artemisia* sp. The Crimean specimens differ from the Odessan ones in the following features: 1) the smaller size, 2) longer and thinner cerarian spines, 3) the presence, in most cases, of 2 trilocular pores at the bases of spines, 4) a smaller number of multilocular discoid pores.

5. *Phenacoccus ferrisi*, sp. n. (Fig. 5)

Only alcoholic material was examined, therefore the description of macroscopic character absent. Length 2,5, breadth 1,8 mm.

Antennae 8-jointed, long and slender; the longest joint being the 8th, a little shorter the 3rd, still shorter the 2nd; joints 1st and 5th markedly shorter than the 2nd; then follow the 4th and the 6th, the shortest. Legs relatively slender and long. Coxae of the 3rd pair in shape of elongate truncated cone. Tibiae slightly longer than femora,

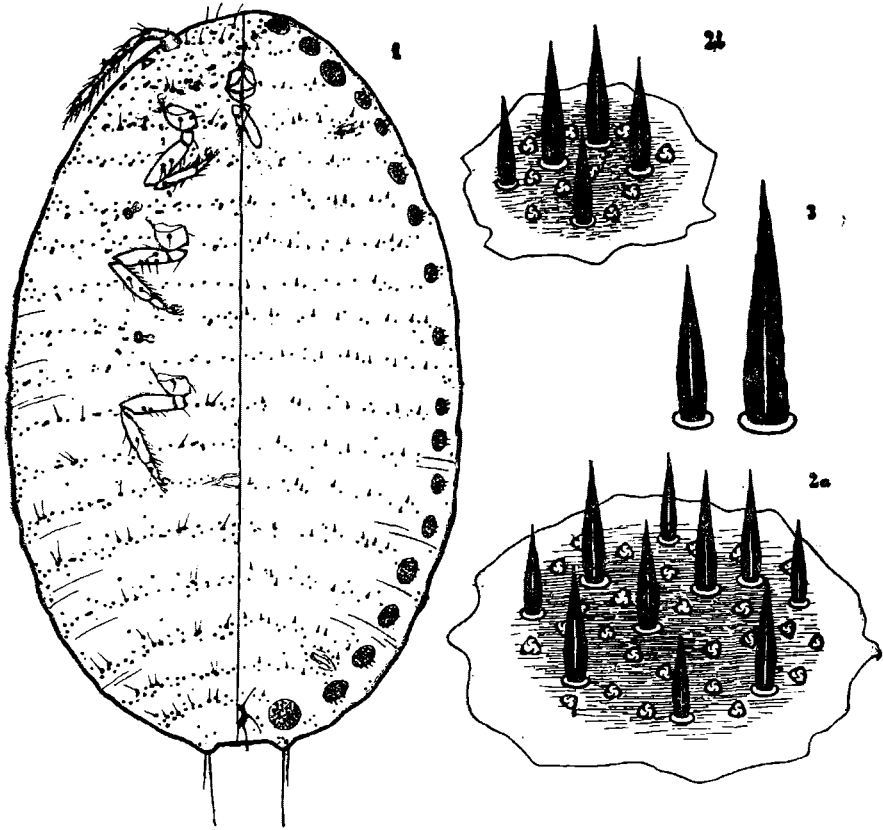


Fig. 5.

straight and comparatively slender. Tarsus as long as one third of the tibia. Claw small, somewhat curved, sharp and with a conspicuous denticle. Rostrum elongate, pointed on the apex, its basis being a little shorter than the lateral side. Rostral loop very short and only slightly protruding from the apex of the rostrum. Cephalabia and caudalabia distinct, with one row of trilocular pores and spinules on the labia. Ventralabium distinct, elongate-ovate in shape.

Ceriferous tract containing 18 pairs of cerarii, located on the round or oval, densely chitinated areas. The largest cerarius on the anal lobe;

dimensions of cerarii cephalad of the anal cerarius decrease and only the praeocellaris one is about the same size as the cerarius of the penultimate segment. Each cerarius consists of 3 to 12 spines and is accompanied by the same number of trilocular pores, or fewer. Cerarian spines sharp, relatively short and at the basis moderately constricted; they are of two dimensions: the longer are numerous, the shorter are few in quantity and situated for the most part on the periphery of the chitinized area. Number of spines and trilocular pores apparently variable; an average being as follows: 1) on the head: frontalis 3/3 (ratio of the number of spines to that of pores); antennalis—5/4; praeocellaris—16/10; postocellaris—3/4; rostralis—3/3; 2) on the thorax: prothorax—5/7; mesothorax—6/6 and 4/4, metathorax—4/5; 3) on the abdominal segments: on the 1st—6/6, the 2nd—4/8, the 3d—5/7, the 4th—9/8, the 5th—7/8, the 6th—9/9, the 7th—10/10. Spinulae dorsally disorderly scattered and in moderate number. Setae only on the abdomen, approximately short and slender, in moderate number in the middle of abdominal segments. Multilocular discoid pores moderate and only on the abdomen, on the 5th to 7th of the abdominal segments; lengthwise of its inferior margin is situated one transversal row of a few pores. Trilocular pores on both surfaces. Tubular ducts only on the abdomen; more numerous on the head, the pro- and metathorax, everywhere; some of them on the lateral sides of other segments. Anal setae as long as two thirds of the setae on the anal lobe. Anal ring of usual Phenacoccine type: it is cellular, elongate-ovate, very broad, chitinized. The inner ring with a single row of great oval cells in the limits of the chitinized ring. The other row containing relatively small round cells. Peritreme of spiracles broad dish-shaped, with narrow margins. Diameter of tracheal tube approximately short and smaller than that of the peritreme.

This species was quite abundant on the leaves of an unidentified wild plant in Turkestan, Hawa (district of Namangan, Shust-papa, Ferghana, altitude 250 m, V. N. Kuznetsov-Ugamskij). Specimens now in the Zool. Institute of the Ac. Sci. Leningrad.

This species in principal characters resembles *Ph. eriogoni* Ferris, from which can be easily distinguished in the most part of cerarii located on strongly chitinized areas, the trilocular pores few, the tubular ducts of the ordinary type numerous, chiefly on the head and thorax. From the *Ph. asteri* Takahashi it differs in a greater number of cerarian spines and pores: in the posterior segment $\frac{17-19}{28}$, in the penultimate—15/29, the praeocellaris $\frac{8-10}{6}$, which, as in *Ph. ferrisi*, is subequal to the penultimate cerarius; all other on an average as in *Ph. ferrisi*.

6. *Phenacoccus morrisoni*, sp. n. (Fig. 6)

Macroscopical description cannot be given for I possess only specimens in alcohol. Length. 5 mm, breadth 2 to 2.5; outline of body elongate-ovate; anal lobe prominent, more hardly chitinized outside.

Antennae slender and long, 9-jointed, the longest joint being the second, a little shorter the third; still more the 4th; 5th, 6th and 9th of

approximately equal size and shorter than the preceding; still shorter are the first and the 7th, the shortest being the 8th. Posterior legs stout and long; coxae conical, their length being equal to the half of length of the femur. Femur as long as the tibia or somewhat shorter, but twice broader; tarsus as long as one third of the tibia. Claw faintly curved, with stout denticle on the limit of the distal and the middle third. Cephalabia and caudalabia very distinct, with parallel rows of trilocular pores and spines on the superior and inferior labia. Ventralabium distinct, elongate-ovate. Rostrum in shape of an elongate triangle; the length of its lateral sides markedly surpassing its base. Rostral loop long, exceeding the line between the second coxae. Ceriferous tract: on the periphery of the body are situated 18 projections, in shape of truncated cones or papillae, on the flat apex of which are situated the cerarii. Dimensions of these papillae moderately decrease anteriorly. They are distributed as follows: on the head there are 5 (frontalis, antennalis, prae- and postocellaris, rostralis), on the thorax 2 on each segment, on the abdominal segments 7, in the lower half of each segment. Each cerarius containing two long and sharp spines, connected on the base with a varying number of pores, on an average about 4; on the sides of papillae there are situated also approximately 4 trilocular pores and a number (12 to 5) of spinulae. Near the cerarii, dorsally on the thoracic and abdominal segments and along the medianline of the latter (on the 1st to 5th segments) there are arranged projections (papillae) twice shorter than the cerarii; on the apices of these papillae are situated 2 spines and 1 or 2 trilocular pores. The spines resemble the cerarian spines, but are a little shorter and present in moderate number only dorsally; they are more numerous on the front and the thoracic segments; on the abdominal segments these spines form longitudinal rows, situated on each side between the cerarii and the double spines of the middle line. Setae are distributed only on the abdominal surface; the longer and stouter ones are more closely crowded on the head between the antennae and on the middle area of the abdominal segments. Multilocular discoid pores on both surfaces, and more numerous ventrally. Dorsally one group of pores is situated on the sides of the 5th to 7th abdominal segments, more copious on the 6th segment; solitary pores rarely distributed and forming transversal series across the inferior margin of the 1st to 7th abdominal segments. Ventrally an abundant group is disposed below the antennae and outside of the cerarii of the thoracic and abdominal segments; solitary pores are scattered on the thoracic segments; outside of the line of spiracles on the 1st to 3rd abdominal segments, across the lower margin of the segments there is situated a band of a single row of pores; on the 4th to 7th segments such band is composed of a number of rows. Numerous trilocular pores are disorderly scattered on both surfaces more copiously dorsally. Tubular ducts of elongate type; the diameter on both ends being of the same size as on the intermediate part; mouth part strongly chitinized; the number of these ducts is considerable; they are isolated dorsally, more numerous ventrally; largest number they are placed on the head, on the sides of the thoracic segments, on the 4th to 7th abdominal segments, on their middle area, and on the inferior margin among the

multilocular discoid pores. The setae of the anal ring as long as three fourth of the setae of the anal lobe. The latter are in number of three, of which the apical seta being stout and long, the second as long as three fourths of the first, and the third as long as one half of the second.

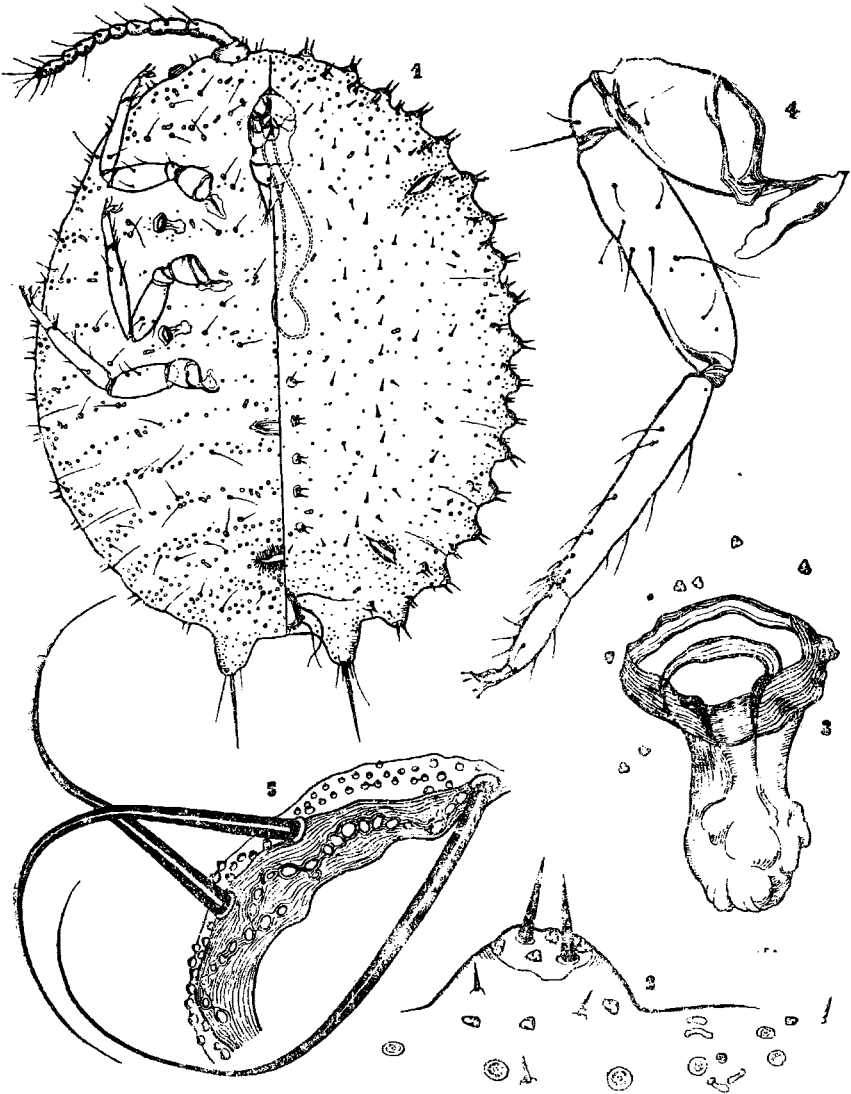


Fig. 6.

Anal ring consisting of a strongly chitinized and relatively broad ring, on the outer margin of which is situated the inner cellular ring, containing a row of small round pores; the outer cellular ring of more polygonal pores is faintly developed. Peritreme of the spiracles broad,

dish-shaped. Tracheal tube relatively short and twice narrower than the diameter of the peritrema.

This species in its prominent fully developed and strongly chitinated anal lobes and the situation of the cerarii on the projections is closely allied to *Ph. artemisiae* Ehrh., from which it distinguishes in the following: all cerarii on the head having only two cerarian spines, all spines of the cerarii being long and stout, setae of the anal lobes being markedly longer than the setae of the anal ring.

Transcaucasia, Adzharistan: Batumi (Batumi), Botanical garden, 16/XI 31; in crevices of the bark of *Carpinus* sp. (N. S. Borhsenius); the Crimea: Jalta, Nikita; on trunk of *Rosa canina* L.

Mediococcus, gen. n.

The characters of antennae and the presence of ventralabium and dorsalabia permit to refer this new genus to the group of *Pseudococcinae*. The structure of the anal ring having 6 setae, the 9-jointed antennae, the presence of a denticle on the claw, the spinulae being scattered dorsally, all that connects this genus with the genus *Phenacoccus*. But the absence of cerarii, the shape of spines, a nearly full absence of discoidal pores do not permit to refer the species described below to *Phenacoccus*. The spines, stout and relatively conical, the structure of the anal ring and the character of numerous tubular ducts connect very closely this new genus with *Eriococcus*, but all the above noted indications permit to establish for this species a new genus.

7. *Mediococcus circumscriptus*, sp. n. (Fig. 7)

Body of the adult ♀ dusted with dense white waxy secretion overcasting the true body colour. The latter dark brown. Outline of the body nearly circular, strongly convex; adult ♀ hemispherical. Anal lobe faintly developed. Ovisac of the solitary ♀ consisting of two parts: the external, peripheric, more solid, constituting the circumference of the ovisac itself, and the inner, superior, formed of a thinner and translucent material. A naked eye examination of the single ♀, after the formation of the ovisac, uncovers the insect in the form of a white porous hemisphere surrounded by relatively broad, snow-white borders; when in colonies, the insects usually represent a continuous layer of dirty-grey porous mass. Length of the ovisac 2 to 2.5 mm., its breadth 1 to 1.5 mm.

Antennae relatively short, 9-jointed; the longest joint being the 3rd, it follows the 9th; slightly shorter are the 2nd and the 8th, both nearly of equal size; somewhat shorter than the preceding being the 1st, shorter than the first and nearly of equal size are the 4th, 5th and 7th; the shortest joint is the 6th. Hind pair of legs short; femur a little broader than the tibia, length of the femur is three quarters of the tibia; tarsus slightly shorter than the half of the tibia; claw faintly curved, with well developed denticle; translucent pores absent. Tarsal digitules on the apex with gradual thickening. Claw digitules moderately knobbed at apex. Inferior margins of the 1st to 7th abdominal segments on both

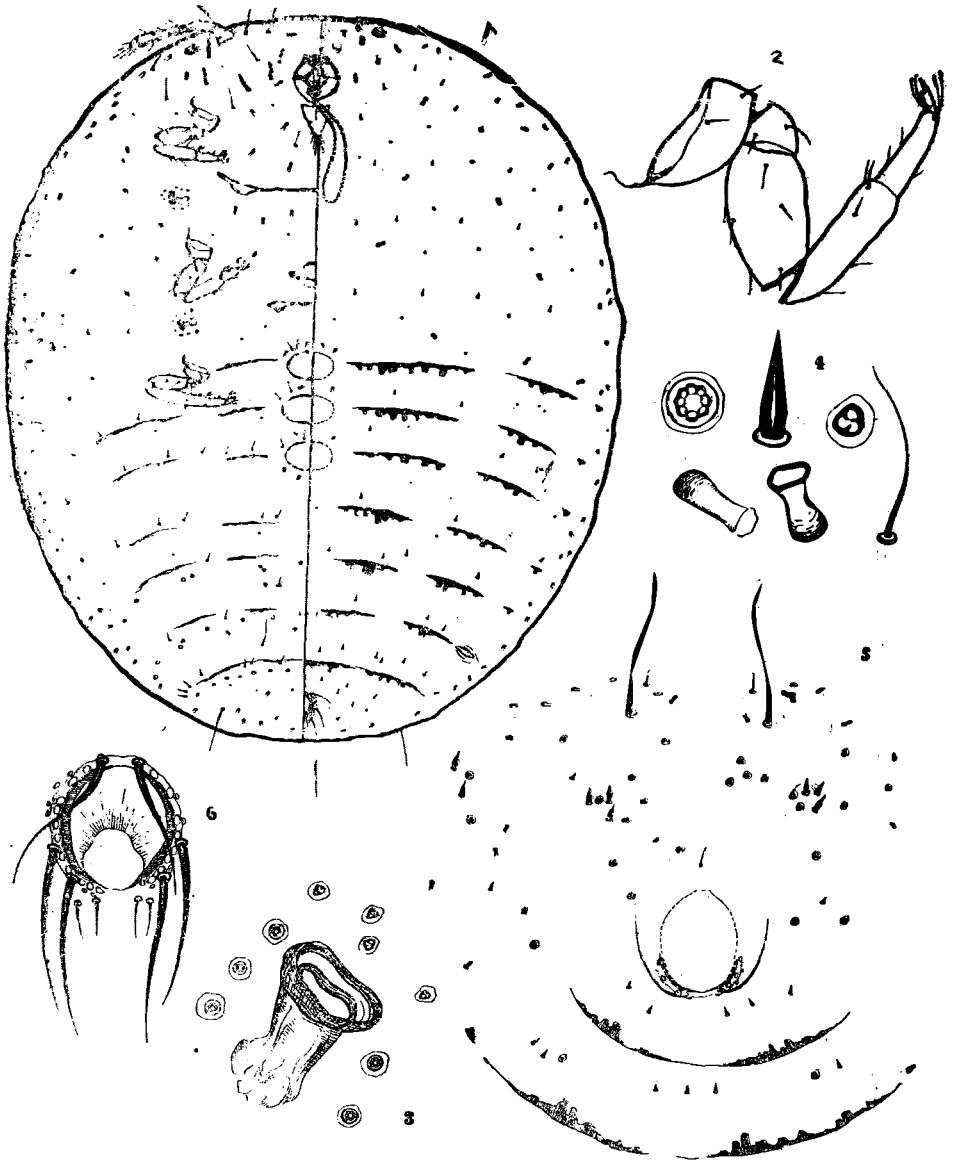


Fig. 7.

surfaces in their middle with chitinized thickenings; the chitinized band dorsally in the shape of irregular denticles, polygons and round patches; this structure in the middle line of the segment is interrupted except on the 7th segment; ventrally these thickened areas are with no protuberances, they have a shape of rather unbroken and relatively

narrow bands. Rostral loop attains the middle line between the 1st and 2nd pairs of legs. Rostrum triangular, pointed at the apex; length of the basis is slightly shorter than the lateral sides. Dorsolabia folded, without pores and spines on the borders, ventralabia of moderate size, in number of three; they are situated face to face and separated from each other by a space of segments as broad as the width of the ventralabium. The superior ventralabium elongate-oval transversally, subequal or slightly smaller than two other; the middle one not so long as the inferior; in the shape both the inferior are similar to the superior or they are more convex and shorter. Sometimes their superior border appears to be more flat and longer, the inferior rounded and shorter. Spinulae lanceolate, stout, relatively short, in moderate number, placed dorsally, more densely distributed on the head, above the antennae and on the posterior abdominal segments. On the other segments in the middle line a transversal band of relatively few spinulae is present; ventrally there are some spinulae only on the last abdominal segment around the anal ring. Setae placed only ventrally, in moderate number; more stout and more densely distributed on the head, between the antennae and on the last abdominal segments; on other segments in the middle line there are situated very short setae. Multilocular discoid pores, in moderate number, are found only on three last abdominal segments forming across their inferior margins a transversal band of few pores; some pores are situated about the spiracles. Tubular ducts are of two distinct types: 1) particularly large and short ones, with strongly chitinized polygonal rims on both extremities, which are a little broader than the intermediate part; the mouth part in form of trilocular pores, and 2) relatively large and long ducts with thickening of external end and the inner end disappeared. Solitary ducts of the first type are placed everywhere; those of the second type are abundant on the ventral surface; they are more closely distributed on the sides outward of the line of legs; the space between the legs carries solitary ducts. Dorsally, singular ducts are scattered everywhere, being more numerous on the sides. Peritreme of spiracles relatively broad, dish-shaped, its border being narrow and flat. Tracheal tube relatively broad and short. Near the spiracles there are situated a number of multilocular discoid pores, commonly 5. Setae of the anal ring in number of 6, as long as three quarters of the setae of anal lobe. The latter, in number of one, is moderately stout and long. Anal ring comparatively large. The inner row of pores being closely connected with the chitinized ring, the outer row consisting of isolated and relatively few pores.

Turkestan: Mogol-tau. Chodzhent district, 1928; vicinity of Fergana, 10/V 31; sandy parts of the stony desert; copious colonies of this species heavily infesting the branches of the shrub *Athraphaxis pyrifolia* (A. D. Archangelskaja).

8. *Pseudococcus achilleae*, sp. n. (Fig. 8)

Marginal appendages faintly developed; colour of the body pale-violaceous. Outline of the body egg-shaped, obviously broader behind; its length surpasses the breadth twice; length 2,5 mm., breadth 1,5 to 2 mm.

Antennae short and stout, the longest joint being the 8th; after it follows the 2nd; the first is as long as the 3rd, and the 5th as the 7th; the 4th of the same dimensions as the 5th. Legs of the posterior pair relatively short; the femur being twice broader than the tibia; tibia slender and slightly longer than the femur; tarsus as long as one half of the tibia; claw short, comparatively stout and faintly curved; the tooth absent. Tarsal digitules setiform, slender, markedly longer than the claw,

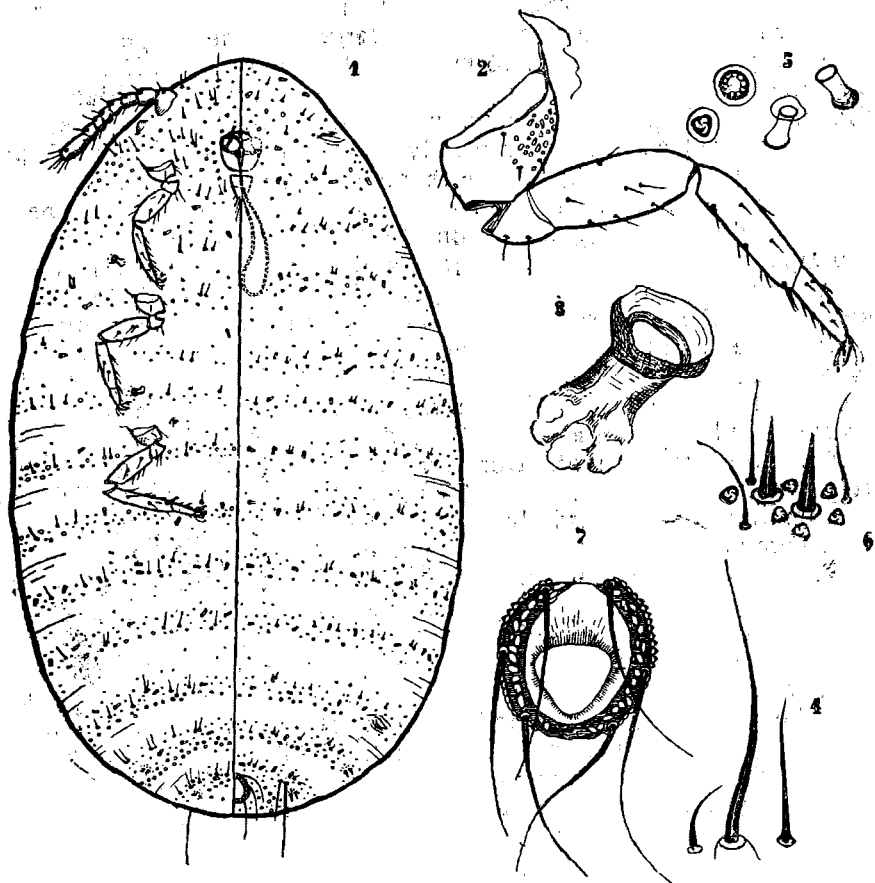


Fig. 8.

on the apex minutely knobbed. Claw digitules stouter and shorter than those of claw, on the apex dilated. Coxae of the third pair with numerous translucent pores present. The 1st and 2nd pairs of legs markedly shorter and broader than the hind one. Rostral loop attaining the middle line between the coxae of 1st and 2nd pairs of limbs. Rostrum triangular and considerably elongate, pointed on the apex; its breadth at the base being two thirds of the length. Cephalabia and caudalabia present, but ill developed. Ventral cicatrix absent.

Ceriferous tract: pairs of cerarii present on the 5th to 7th abdominal segments. Anal cerarius constant; cerarius of the 6th segment for the most part present, cerarius of the 5th segment often absent, or on its place two stout setae are situated. Anal cerarius consisting of two relatively long and sharp spines, with closely connected bases, two auxiliary setae on the periphery and 5 trilocular pores. All cerarii with no chitinized areas; dimensions of spines subequal.

Trilocular pores in moderate number are disorderly scattered on both surfaces of all segments, though rather numerous dorsally. Tubular ducts of two kinds: 1) the peculiar, the larger, in the shape of a mushroom, having its inner end in form of a broad plate continuing in a narrow tube, and 2) the smaller, of common type, without dilated plate. Multilocular discoid pores are numerous on all segments on both surfaces; They are arranged as follows: ventrally a group of a number of pores in the vicinity of the beak; on the thoracic segments, outwards of coxae of 1st pair of limbs, a group of 6 or 7 pores; on the 1st and 2nd abdominal segments on each sides there are disposed two groups of pores — the lateral and the internal; on the 3rd and 4th segments a transversal band of pores, situated in one row is present on the inferior margin; on the 5th to 7th segments there is a transversal band of two or more rows of pores, closely connected. Dorsally the number of pores is fewer; the pores situated on the inferior margin of all segments of the thorax and the abdomen compose a transversal band also. Setae numerous, distributed on both surfaces, in the middle line of segment. Dorsally there are short setae scattered scarcely, ventrally they are twice longer and more numerous. Trilocular pores numerous and disorderly scattered on both surfaces. They are more numerous dorsally. Spiracles small, both pairs approximately of equal size. Peritrema of spiracles cup-shaped, with narrow margins; its diameter slightly surpassing the diameter of tracheal tube. Tracheal tube short and broad. Setae of the anal ring as long as one half of the length of the setae of the anal lobe. Setae of the anal lobe in number of three, from which the first being twice longer and stouter than the setae of the anal ring, the second twice shorter than the former, and the third as long as one quarter of the first. Anal ring regularly round, rather strongly chitinized; the inner cellular ring consisting of a row of circular, polygonal pores, separated from one another by thin partitions; this ring being opened only in its superior parts; the limits of external cellular ring not defined; the pores of this ring widely separated from one another and in some cases not discernible.

The structural characters: distribution of the tubular ducts, that of the discoidal pores and the presence of 2 or 3 pairs of cerarii connect this species most nearly allied to *Trionymus mori* Lobdell (Ann. Ent. Soc. Amer., XXIII, no 2, pp. 209—236, 1930), of which *P. achilleae* is to be distinguished in the following: 1) in the cerarii without chitinized areas, 2) in the setae of the anal ring reaching only one half of the length of the setae of the anal lobe, 3) in the cerarii having only one auxiliary seta.

Ukraine; Odessa, on the right bank of the estuary Kujalnik; abundant colonies were found on the roots of *Achillea millefolium* L. and

Pyrethrum millefoliatum Willd. In the second decade of July 1929 there were present all instars, but adult ♀♀ after fecundation prevailed, also many ♂ were found. In 1931 only a little colonies occurred on the roots of *Achillea millefolium*. The Crimea: Eupatoria, on the roots of *Euphorbia* sp. (V. E. Jakovlev); Tshekurtsha (near Simferopol), on roots of *Achillea* sp. (B. G. Nemiritzky).

9. *Pseudococcus bufo*, sp. n. (Fig. 9).

Body globular; body colour pink; length 3,5 mm., breadth 3,2 mm. Antennae short and stout, usually 8-jointed and rarely 7-jointed; the longest joint being the 8th, longer than two following together; the

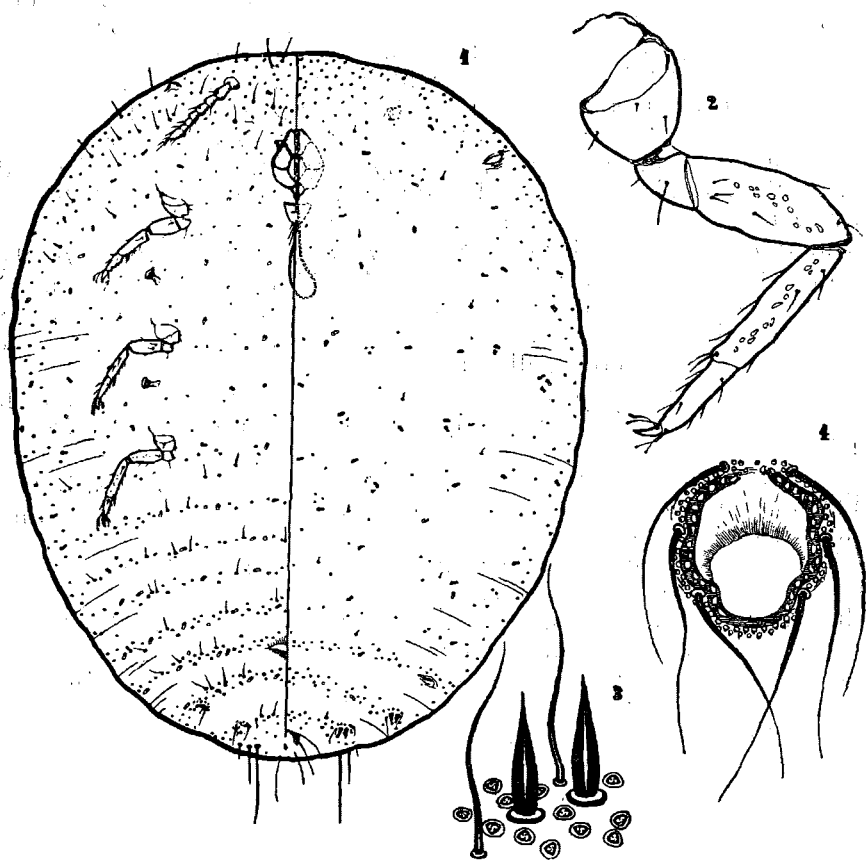


Fig. 9.

2nd some shorter, the 1st shorter than the 2nd, the 3rd and the 5th subequal; shorter are the 7th, the 4th and the 6th, from which the shortest being the 4th. Legs short and rather slender; on their hind pair the femur being twice broader and slightly shorter than the tibia; tibia straight; tarsus somewhat longer than the half of the tibia, or subequal;

claw relatively short and faintly curved, sharp; tarsal digitules slender, not obviously knobbed; ungual digitules somewhat longer than the claw, on the apex thickened. Translucent pores disseminated, in moderate number, on the femur and tibia. Rostrum in form of a rather equilateral triangle, on the apex rounded; the length of its base being approximately equal to the length of the lateral sides; length of the rostrum three times shorter than the length of tentorium. Rostral loop short, descending somewhat beneath the space between the coxae of the first and second pairs of legs.

Ceriferous tract: only two cerarii on the posterior abdominal segments are present. Cerarius of the anal lobe containing two short and sharp spines; there are 12 to 18 scattered trilocular pores and two auxiliary setae; cerarius of the penultimate segment consisting of two spines, twice shorter than the preceeding, and 7 to 8 trilocular pores, with no auxiliary setae. Trilocular pores on both surfaces scattered everywhere. Many tubular ducts on both surfaces. Multilocular discoid pores also on both surfaces, in moderate number; ventrally on three posterior abdominal segments they form a transversal row across the inferior margin of the segments; dorsally, singular pores are situated on two last abdominal segments. Peritrema of the spiracles dish-shaped, relatively broad, with large borders; its diameter surpassing that of the tracheal tube twice. Tracheal tube relatively short and broad. Anal ring normal, slightly oval, closed; this strongly chitinized ring confining the inner cellular ring of continuous row of round pores of small size; external glandular ring situated outside of chitinized ring is closed and contains two rows of small round pores.

Setae of the anal ring twice shorter than those of the anal lobe. Two setae of the anal lobe closely connected, one of them twice shorter than the other.

Ukraine: Odessa, on the roots of *Gramineae*. The Crimea, Kekeneiz, on the way to mountainous plateau, the Jaila, on the superior limit of the forest, on roots of *Poa bulbosa*.

This species, on the base of number of cerarii and antennal joints, may be referred to the genus *Trionymus*. But being not specialized for the life in narrow spaces and, consequently, having no morphological adaptations in this direction, it has all features of the genus *Pseudococcus*. Differentiation from the specialized species of the genus *Trionymus* consists in the following: the body round, rather globular, legs short, femur and tibia comparatively broad, ventralabium lacking.

This new species may be distinguished from *Trionymus pulverarius* Newst., *T. californicus* Ehrh. and *T. tomlini* Green in the anal cerarius being in latter species located on a strongly chitinized area and containing many auxiliary setae. *P. bufo* also considerably resembles *Trionymus crini* Hall and *T. indicisus* Hall, but it distinguishes from both by globular form of the body and, in particular: 1) *T. crini* having the anal cerarius with 4 to 6 long and 4 to 6 short auxiliary setae, situated on the chitinized area, 2) *T. indicisus* differing by presence on the anal cerarius of three auxiliary setae and multilocular discoid pores around the genital orifice. From *Pseudococcus achilleae* m. its differs in the globular form of the body, the lanceolate form of cerarian spines,

the number and distribution of pores: *P. bufo* having relatively moderate number of tubular ducts, the latter situated both ventrally and dorsally only on the posterior abdominal segments.

10. *Pseudococcus multivorus*, sp. n. (Fig. 10).

♀ Marginal tessels short, irregular; tessels of the anal lobes and the praeapical segment being the longest. The body colour of salmon-pink to crimson-red. Length 3 to 4 mm; breadth 2 to 2,5 mm.

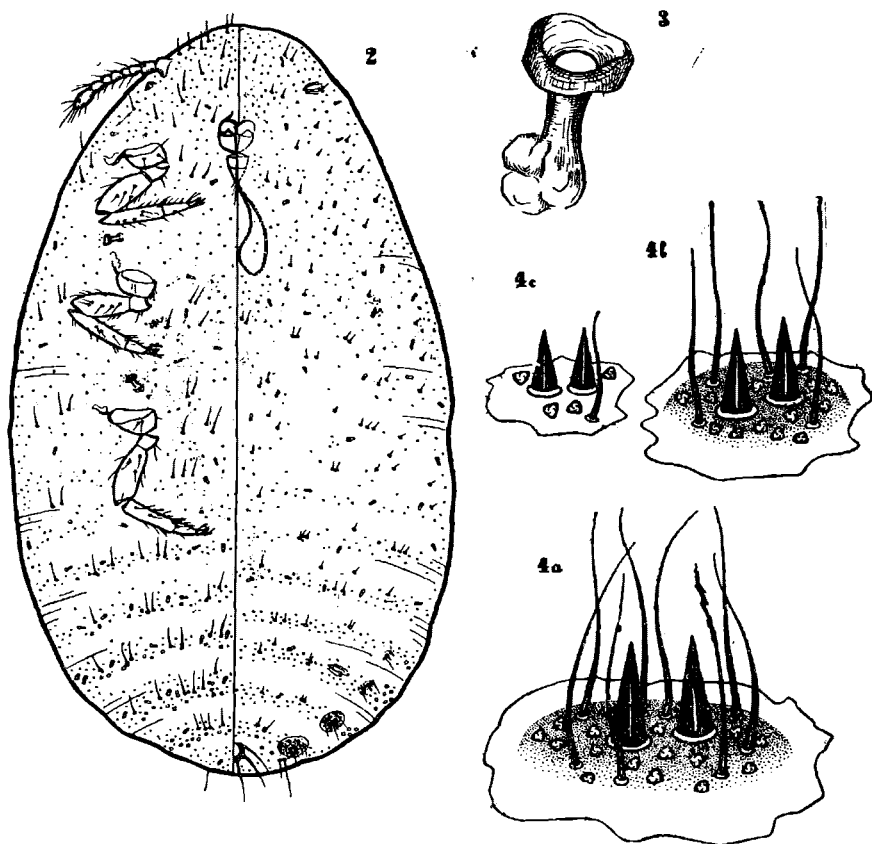


Fig. 10.

Antennae relatively small, 8-jointed; the longest joint being the 8th, terminal, followed by the 1st and 2nd, which are subequal; the 3rd only slightly shorter than the 2nd; the 5th and 7th subequal and slightly longer than the 4th and 6th, which are equal. Posterior pair of limbs robust, relatively short and broad; femur slightly shorter than the tibia, tarsus somewhat shorter than the half of the tibia; claw short, sharp; translucent pores lacking; tarsal digitules slender, longer than the claw, on the apex minutely knobbed; claw digitules stouter, on the apex

thickened, slightly longer than the claw. Rostrum trianguliform, elongate, on the apex pointed, in length slightly surpassing its breadth on the basis. Rostral loop long, approximatively attaining the middle of the space between the coxae of the 2nd pair or reaching some further. Cephalabia and caudalabia distinct, with a number of rows of trilocular pores on the folds; ventralabium absent.

Ceriferous tract: four pairs of well developed cerarii are commonly present on the last abdominal segment; cerarian spines two, relatively short and conical. Anal cerarius, situated on a chitinized area, extending on the abdominal surface of the anal lobe and bearing two stout conical spines; some 17 to 20 trilocular pores, scattered over its area and 5 or 6 auxiliary setae. Cerarii of other segments with no chitinized area and the spines markedly shorter. Cerarius of the 6th segment with 13 to 15 trilocular pores and 3 to 5 auxiliary setae; cerarius of the 5th segment with two relatively stout spines, 5 to 8 trilocular pores and 2 auxiliary setae; cerarius of the 4th segment with 2 shorter spines, in some cases setiform, 3 or 4 trilocular pores and 1 auxiliary seta.

Setae in moderate number on both surfaces, dorsally much fewer and short setae; twice longer setae ventrally. All kinds of pores numerous. Multilocular discoid pores in moderate number on both surfaces; dorsally a group of pores is situated on the sides near the cerarii on the 5th to 7th segments; ventrally the pores are situated on the 3rd and 4th segments; on the 3rd segment they form a transversal band of a few pores widely distant from one another; on the 4th segment the pores form a transversal band of pores more numerous and more closely placed; on the 5th to 7th segments the transversal band consists of a double row of pores. Trilocular pores are moderately and disorderly scattered on both surfaces. Tubular ducts, with raised rim about the mouth, are numerous and disorderly scattered everywhere; less numerous are the ducts on the head and the thoracic segments; more numerous they are on the sides and on the middle line of the last abdominal segments. Setae of the anal ring are somewhat shorter than those of the anal lobe, approximatively as long as four quarters of the latter. Peritreme of spiracles dish-shaped, with broad margin; the diameter of peritreme surpasses the diameter of the tracheal tube. Tracheal tube narrow and relatively long; posterior pair of spiracles somewhat larger.

The general distribution of pores and the character of cerarii are pretty well analogous with those in *P. mendosus*, described below, but *P. multivorus* may be distinguished in the following: 1) it inhabits only roots, 2) its legs are stouter and longer, 3) commonly only 4 cerarii are present, not 6 as in *P. mendosus*, 4) the rostral loop is longer, 5) the pores of all types abundant. This species may be confused also: I) with *Trionymus perrisi* Marsh., from which it can be easily separated by: 1) the presence of 4 cerarii as a constant feature, 2) the absence of discoidal pores on the head and thoracic segments; on abdominal segments these pores are more numerous, 3) ventralabium absent; II) with *Trionymus dactylis* Green, from which it differs as follows: 1) the shape of rostrum being elongate and the basis distinctly shorter than the length of sides, 2) the translucent pores absent on all limbs, 3) ventralabium lacking, 4) the discoidal pores on thoracic segments

absent, 5) the tubular ducts present in considerable number. This species occurs only on roots of many plants and varies much in coloration of body in dependence on the food plant. *Pseudococcus lanatus* Balach. occurs on the aerial parts of the host plant and distinguishes from *P. multivorus* in lacking of the dorsal multilocular discoid pores and the chitinized area of the anal cerarius.

Ukraine: Odessa. On roots of *Taraxacum officinale*; in some localities infesting great many plants; commonly in very large colonies; intensive infestation of roots of *Salvia nemorosa* on the sea-shore, village Kryzhanovka, on roots of *Salvia aethiopis*, *Malva borealis*, *Dianthus* sp.; Selzi (district of Odessa). The Crimea: Kurman-Kemeltshi, Agricultural Experiment Station, 12/VI. 30, on roots of *Marrubium praecox* (B. G. Nemiritzki). North Caucasus; Rostov on Don, on roots of the Lucerne. Agricultural Experiment Station (V. Znamensky). Transcaucasia: Azerbajdzhan, Tshepaltshi (district of Handzha, 27/VII. 12, under stones on the altitude of 4.500; Talysh, Zuvant, mount above the village Tatonj, on roots of *Althea rugosa* (D. Znojko); Armenia. Narasen (distr. of Nachitshevan) 27/IV. 24, on roots of *Spinacia* sp. (A. Shelkovnikov, Zool. Inst. Ac. Sci.)

11. *Pseudococcus mendosus*, sp. n. (Fig. 11)

White secretion on the body sides forming on each segment rather short and stout appendages, more stouter on the anal lobe and gradually decreasing to the anterior extremity. Length of alive ♀ surpassing their breadth in 2.5 to 3 times; length 3 to 4.5 mm, breadth 2 to 3 mm. Body colour dull-violet or pink.

Antennae relatively thin and long; their longest joint being the 8th, which is longer than two following, then follows the second, somewhat shorter, the 1st and the 3rd, which are of the same length, the 5th somewhat shorter than the 3rd; after them follow 4th and 7th subequal in size; the shortest joint is the 6th. Posterior pair of legs of moderate dimensions; femur a little broader than the tibia; tibia slightly longer than the femur; tarsus somewhat shorter than the half of the tibia; claw short, faintly curved; tarsal digitules slender, setiform, longer than the claw; claw digitules on the apex knobbed, slightly longer than the claw. Rostrum triangular, elongate; length of the basis slightly shorter than the lateral side. Rostral loop short, reaching the middle of the interspace between the 1st and 2nd pairs of limbs. Cephalabia and caudalabia distinct; on the superior and inferior folds only pores are present; ventralabium absent.

Ceriferous tract: 6 or 7 pairs of cerarii on the 1st to the 7th segments are present; each cerarius containing two spines, auxiliary setae and trilocular pores. Dimensions of spines increasing towards the posterior extremity. Anal cerarius is situated on a chitinized area, the spines of this cerarius being conical and relatively short; numerous trilocular pores, 18 to 20, are scattered on noticeable distances from one another; 4 or 5 auxiliary setae on the periphery of chitinized area are present. Cerarius of the 6th segment with two spines, twice shorter than those of the preceding cerarius, closely connected at the base; about 10 to

15 trilocular pores closely crowded on the base of spines; auxiliary setae three. Cerarii of other segments differing from those of the preceding by shorter spines and a reduction in number of trilocular pores; cerarius of the 5th segment commonly with 7 to 10 trilocular pores and 1 or 2 auxiliary setae, that of the 4th and 5th segments with 5 trilocular

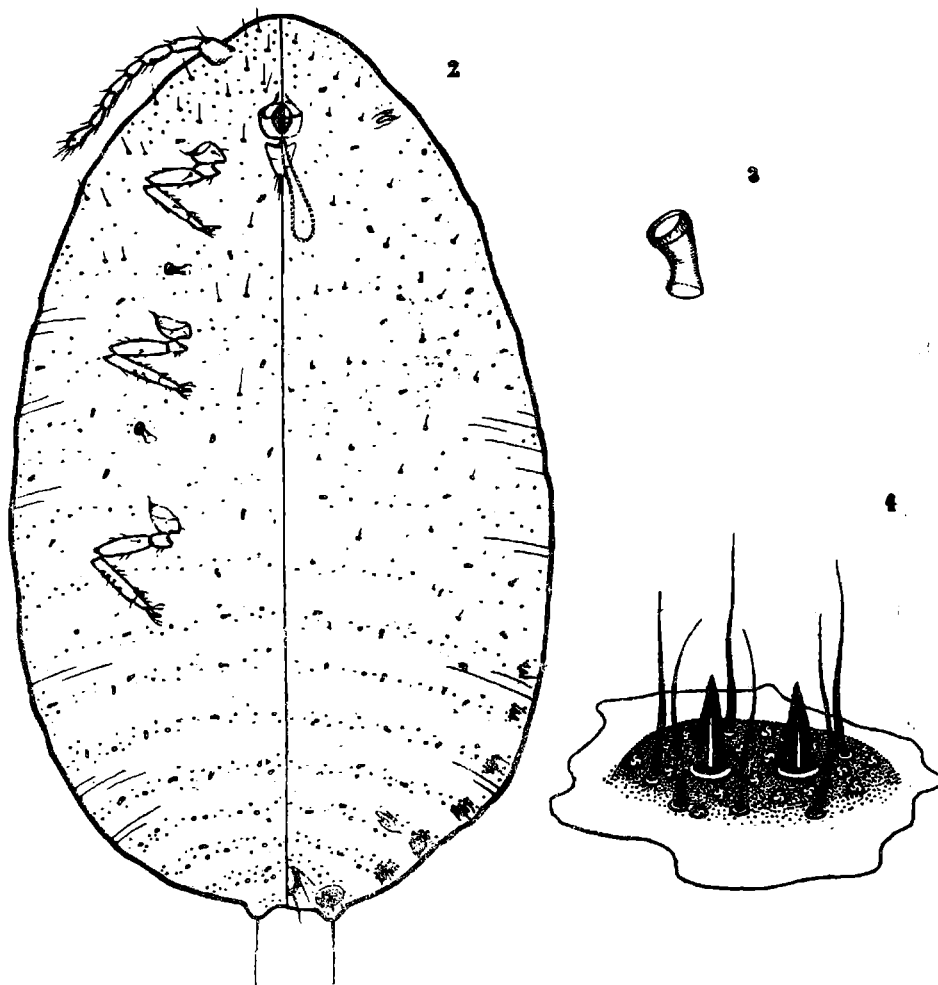


Fig. 11.

pores. Cerarii of the 1st and the 2nd segments having often only one seta, and 3 or 4 trilocular pores.

Setae in moderate number on both surfaces; dorsally, short setae are disorderly scattered on the head and the thoracic and abdominal segments; on the abdominal ones on their middle line ventrally there are relatively short setae, but twice longer than these on dorsal surface of all segments. All kinds of pores present in moderate number. Multilo-

cular discoid pores are placed on the abdominal segments, in small quantity ventrally and only solitary dorsally; dorsally on the last three segments across their inferior margin there is situated a transversal band of pores; ventrally, across the inferior margin of the 3rd segment is situated a transversal band of scarcely distributed pores; on other inferior segments a similar band of more pores is present. Trilocular pores in moderate number are disorderly scattered on both surfaces. Tubular ducts with raised rim about the mouth in moderate number on both surfaces. Setae of the anal ring as long as the three quarters of those on the anal lobe. Spiracles relatively small. Peritreme of spiracles dish-shaped, with broad margin, its diameter approximately twice broader than that of the tracheal tube. Tracheal tube narrow and moderately long.

The species is collected only from the aerial parts of plants. Ukraine: Odessa, the right bank of estuary Kujalnik, single specimens between the closely adpressed stem and the enveloping leaf sheath; on *Centaurea orientalis* and *Scabiosa ucrainica* in the above position; on *Rumex acetosa* L. between bases of leaves. In 1929 ovisacs still without eggs and single migratory adult ♀♀ were found 9/VI; in 1930 only ovisacs with eggs 22/VI were found. The Crimea, Southern coast, Kekeneiz, in the same position on *Glaucium flavum* Crantz, sea shore; Jalta 25/V. 30 in bosoms of leaves and flowers of *Psoralea bituminosa* (B. Nemiritskij). Turkestan, Samarkand, 24/VI. 28., in bosoms of leaves on *Psoralea drupacea* ovisacs (migratory ♀♀ on variable parts), also on *Glaucium* sp.; Tashkent, Botanical Garden, VI/27; on *Astragalus filicaulis*; Samarkand, 16/V; on *Centraurea pulchella*, *Lactuca scariola*, *Koelpinia linearis*; Andizhan, 26/V. 31 (A. Archangelskaja). Transcaucasia: Azerbaidzhan, Geok-tapa (Aresh district) on *Cirsium desertorum*, 25/VIII. 12 and *Lactuca* sp. 22/VI. 12 (A. Shelkovnikov).

The presence of 7 pairs of cerarii closely connects this species with 1) *Pseudococcus gossypifer* (Rond.) Ldgr. (*vovae* Nass.), from which *P. mendosus* differs in conical stout spines of cerarii; 2) *P. aegyptiacus* Hall. having also 7 cerarii, but one of them situated on the head; this feature separates it from *P. mendosus*. The species is also quite like to *P. multivorus*, particularly when the number of cerarii is decreased; most evident characteristics for specimens of *P. mendosus* of similar age are: pores less numerous, rostral loop shorter, setae less numerous and shorter.

Acanthococcus, gen. n.

Belongs to the subfamily *Pseudococcinae*, allied to the genus *Phenacoccus*. A peculiar situation of the marginal spines on the dorsum, the presence of a middle row of double spines indicate that this genus is closely allied to the genus *Synacanthococcus* (*S. bispinosus* Morrison, Philipp. Journ. Sci., 17, № 2, VII, 1920). The species described below is distinguished in following generic features, which permit to take it as a member of a new genus: 1) the presence of two transversal rows of solitary spines between the marginal row of spines and spines in the middle line, dorsally; 2) the absence of great, short, tubular glands characteristic for the genus *Synacanthococcus*.

12. *Acanthococcus marrubii*, sp. n. (Fig. 12)

The body of adult ♀ and its larva covered with a white mealy secretion; in newly moulted specimens this covering consisting of thin granules is distributed equally; after some time it loses its aspect of thin granulation becoming coarsely granulated, tufty or felty; this substance is more abundant in the middle of segments and forms digit-shaped, short marginal and dorsal filaments, well developed in newly moulted specimens; some more developed filaments are situated along the margin: some longer and stouter filaments are distributed on two posterior segments; the filaments have a form of thin, equal and equidistant spines; filaments situated on the middle line of segments have at their basis the form of irregular warts, sharply passing on the upper part into two thin filaments. Body colour pale-yellow. Outline of the body elongate-ovate; anal lobes moderately developed and a little prominent backwards. Sizes of six specimens are: $5 \times 1,2$; $1,8 \times 1,0$; $3,0 \times 1,6$; $3,0 \times 1,4$; $2,4 \times 1,2$; $2,2 \times 1,2$. Ovisacs white, porous.

Antennae relatively slender and long, 9-jointed; the longest joint being the 2nd; after it follow the 3rd and the 9th, a little shorter and approximately subequal; the 1st joint longer than the 5th, 6th, 7th and 8th, which are subequal; the shortest joint being the 4th. Denticle of the claw on the underside before the apex on limbs of all pair is conspicuous. Rostrum elongate: the breadth at its basis being about two thirds of its length. Rostral loop extending to the middle line between the coxae of the 2nd pair of limbs. Cephalabia and caudalabia (ostioles) distinct. Ceriferous tract: 17 pairs of cerarii on each side are present; cerarii with stout, conical spines situated on slightly chitinized areas. 4 pairs on the head; two pairs on each thoracic segment and 1 pair on the 1st to 7th abdominal segments. Each cerarius having two stout spines; the length of spines is equal, 10,0 microns, the breadth of the basis 7,0 microns. Dimensions of spines are similar except the spines of the anal lobes, which are stouter and longer, measuring 28,4 microns. Bases of spines are connected; between them a trilocular pore is situated. Spines similar to the marginal ones are disposed only dorsally; they form longitudinal rows: 1) an odd row on the middle of dorsum formed by 12 pairs of spines, situated on the head, above the rostrum (one pair), the same on the prothorax; on the meso- and metathorax two pairs and one pair on the 1st to 6th abdominal segments; 2) between the median and the marginal rows there are placed on each side two longitudinal rows of solitary spines equidistant from one another as well as from the two other rows. Near the basis of the solitary and conjugate spines a trilocular pore is situated. Spines similar to these are disorderly scattered on front (in number 14 to 16) and 3 spines on the anal lobes. Spinulae numerous and disorderly scattered on both surfaces, more numerous dorsally; on the thoracic segments they are placed only laterally of the coxae. Quinquelocular discoid pores few, disposed ventrally: on the head some pores are situated above the rostrum and laterally of it; on the prothorax the scarcely situated pores are below the rostrum; on the meso- and metathorax they are less in number and scattered along the middle of segments. Length-

wise of the lower border of abdominal segments multilocular pores form one transversal band; on the 4th and 7th segments numerous pores are situated in transversal bands of two rows of pores; dorsally only on the 3rd and 6th abdominal segments they are two or three pores. Trilocular pores numerous, disorderly scattered on both surfaces, more numerous on abdominal segments; there are absent ventrally from the thorax between legs. Bottle-shaped short tubular ducts are numerous everywhere, more numerous ventrally on the middle of abdominal segments. Peritreme of spiracles calyciform; its circumference slightly larger than that

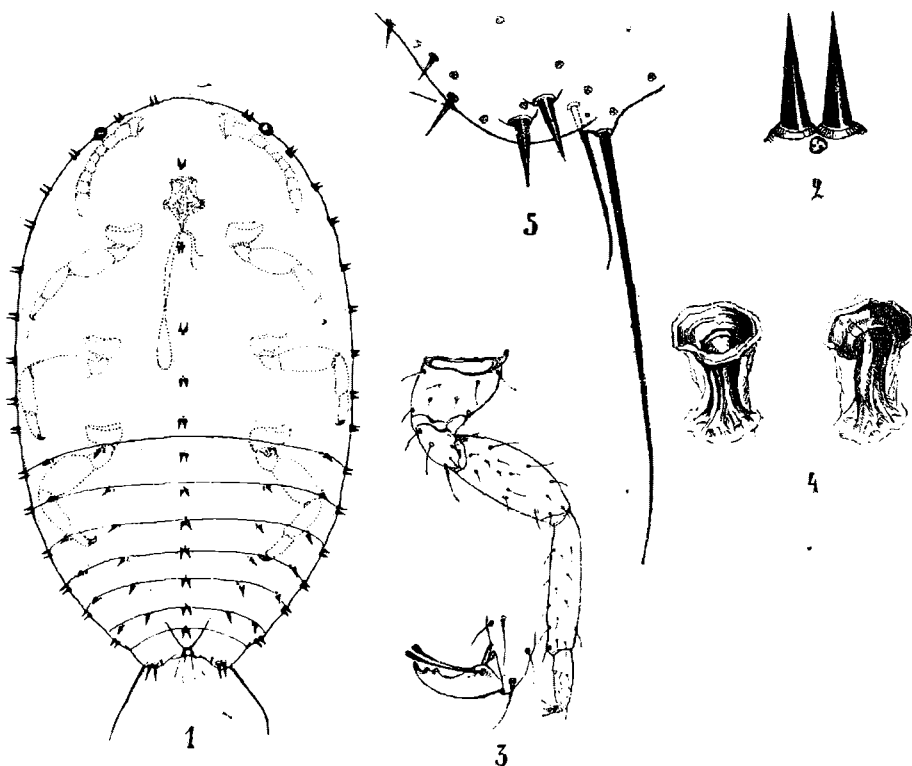


Fig 12.

of the spiracular trachea; the latter wide and short. Setae are disposed only ventrally; they are longer and more densely placed on the front, in the middle of the thoracic segments inside of the coxae and in the middle of abdominal segments. The length of the setae of the anal ring is 128,6 micr., about seven tenths of the length of the setae of the anal lobe, the length of which is 166,5 micr. Near the long setae of the anal lobe two setae three times shorter than the former are situated and 3 or 4 setae still shorter.

The nymph has elongate-ovate shape of the body. Antennae 7-jointed (7, 2, 3, 1, 5, 6, 4). Rostral loop extending to the 3rd coxae. Denticle

of the claw in all limbs conspicuous. Marginal and dorsal spine clearly distinct, their distribution being similar to that in the adult ♀.

This species was found in the Cholodnaja Balka, the village in the district of Odessa, 1 and 6/VI. 29. Specimens were numerous on lower parts of the stems, near the ground, on *Marrubium praecox* Janka, growing on dry slopes of the ravines („balka“) in the steppe. The plant-associations of *Marrubium* form in some parts of the steppe a compact vegetation. Ovisacs are placed in the upper layer of ground between the stems of the food plant. Colonies contained only a little number of specimens, but the percentage of bushes infested was great. 6/VI the most part of insects begun to form ovisacs. In the late summer till the autumn larvae or adult ♀ were not observed.

РЕЗЮМЕ

Характеристика обширных родов *Pseudococcus*, *Trionymus*, *Ripersia* (триба *Pseudococcina*), имеющих большое значение в сельском хозяйстве, недостаточно отчетливо сформулирована, что ведет к неправильному истолкованию руководящих родовых признаков при описании новых видов. С целью уточнить диагнозы, дается морфологическая характеристика приведенных выше родов. Род *Trionymus* весьма близок к роду *Pseudococcus*; все отличия первого рода связаны с специализацией обитания в узких щелевидных пространствах, между тесно соприкасающимися частями растений. Род *Ripersia* в теперешнем его объеме представляет искусственное объединение весьма разнородных родов. По этим соображениям изменяются родовые названия следующих видов: *Ripersia phragmitis* Hall = *Trionymus phragmitis*, *Ripersia imperatae* Hall = *Trionymus imperatae*, *Ripersia internodii* Hall = *Trionymus internodii*; *Ripersia cellulosa* Hall = *Trionymus cellulosus*.

Описываются следующие новые палеарктические виды: 1) *Phenacoccus latus* — многоядный вид, повреждающий люцерну, найден в Крыму и степной Украине; 2) *Ph. pumilus* — на корнях *Dianthus cavitatus* и *Leucrum polium* в Крыму; 3) *Ph. hilarius* — в пазухах листьев *Seseli gummiferum* и *S. dichotomum*, на Южном берегу Крыма; 4) *Ph. chersonensis* — очень обычен на корнях *Artemisia austriaca* в Крыму и в степной Украине; 5) *Ph. ferrisi* — на травянистом, точно не определенном растении, в горной части Ферганы; 6) *Ph. morrisoni* — на стволах вяза и шиповника в Грузии (Батуми) и Крыму (Ялта); 7) *Pseudococcus achilleae* — в степной Украине и Крыму на корнях тысячелистников (*Achillea*), молочая и *Pyrethrum*; 8) *Ps. bufo* — в степной Украине и горном Крыму на корнях диких злаков; 9) *Ps. mendosus* — наземный многоядный вид на *Glaucium*, *Psoralea*, *Lactuca*, *Astragalus* в степной Украине, Крыму, Закавказьи и Туркестане; 10) *Ps. multivorus* — многоядный корневой вид на *Taraxacum*, *Salvia*, *Malva*, *Dianthus*, *Lucerna*, *Marrubium* в степной Украине, на Южном берегу Крыма, С. Кавказе, Закавказьи и Туркестане. В статье дается описание двух новых родов трибы *Pseudococcina*: *Acanthococcus* и *Mediococcus*. Род *Acanthococcus* близок к роду *Synacanthococcus*, описанному Morrison'ом с Филиппинских островов. Представителем нового рода в пределах СССР является *A. marrubii*, обитающий в степной Украине на корнях *Marrubium praecox* Janka. Описанный Morrison'ом *Syn. bispinosus* найден на корнях *Ficus* sp. и дикорастущих фиг. Род *Mediococcus* занимает промежуточное положение между *Phenacoccus* и *Pseudococcus*; к нему относится *M. circumscriptus* из низменной Ферганы, образующий на ветвях кустарника *Athrafaxis pyrifolia* обширные колонии.

Explanation of figures

1. *Phenacoccus latus*, sp. n. Adult female: 1. Head, 2. Head cerarius, 3. Anal cerarius, 4. Anal ring, 5. Anal lobe.
2. *Phenacoccus pumilus*, sp. n. Adult female: 1. Head, 2. Head cerarius, 3. Anal cerarius, 4. Anal ring, 5. Spiracle, 6. Anal lobe.
3. *Phenacoccus hilarius*, sp. n. Adult female: 1. Head, 2. Head cerarius, 3. Anal cerarius, 4. Anal ring, 5. Spiracle, 6. Anal lobe.

4. *Phenacoccus chersonensis*, sp. n. Adult female: 1. Head, 2. Head cerarius, 3. Hind leg, 4. Spiracle, 5. Sixth abdominal segment: a—dorsally, b—ventrally.
5. *Phenacoccus ferrisi*, sp. n. Adult female: 1. General view, 2. Cerarii: a—on the anal lobe, b—prothoracic first pair, 3. Spines.
6. *Phenacoccus morrisoni*, sp. n. Adult female: 1. General view, 2. Cerarius on the 1st abdominal segment, 3. Posterior spiracle, 4. Hind. leg, 5. Anal ring.
7. *Mediococcus circumscriptus*, sp. n. Adult female: 1. General view, 2. Hind leg, 3. Posterior spiracle, 4. Pores and spines, 5. Two posterior segments ventrally and dorsally, 6. Anal ring.
8. *Pseudococcus achilleae*, sp. n. Adult female: 1. General view, 2. Hind leg, 3. Posterior spiracle, 4. Setae, 5. Pores, 6. Anal cerarius, 7. Anal ring.
9. *Pseudococcus bufo*, sp. n. Adult female: 1. General view, 2. Hind leg, 3. Cerarius of anal lobe, 4. Anal ring.
10. *Pseudococcus multivorus*, sp. n. Adult female: 2. General view, 3. Posterior spiracle, 4. Cerarii: a—on the anal lobe, b—of 6th abdominal segment; c—of 5th abdominal segment.
11. *Pseudococcus mendosus*, sp. n. Adult female: 2. General view, 3. Pores, 4. Anal lobe cerarius.
12. *Acanthococcus marrubii*, sp. n. Adult female: 1. General view ventrally, 2. Head cerarius, 3. Hind leg, 4. Spiracle, 5. Anal lobe.