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Contents

The present author has previously described the larvae of two species of the subgenus Cyclanthaxia: A. brevis Cast. et Gory and A. plavilschikovi Obenb. (Soldatova, 1970).

In all known larvae of this subgenus the longitudinal grooves of the prothroax differ only slightly. They are primarily uniformly and weakly yellowish. In the larva of A. plavilschikovi the arms of the V-shaped groove of the pronotum narrow appreciably toward the free ends and are greatly widened where they fuse. In A. brevis and A. ephippiata larvae they are of practically identical width throughout their length. The longitudinal groove of the prosternum in the larva of A. brevis is indicated by a distinct yellowish contour and has a central sclerotized shiny strip. In the larvae of A. ephippiata and A. plavilschikovi the groove is poorly distinguishable by color on the surface of the prosternum, its contour is indistinct, and a shiny linear sclerotized strip is distinguishable on it.

The main differences between the larvae of the species referred to above are structural differences in the armature of the stomach; the nature of the arrangement of the spinules on the dorsal half of the stomach varies only slightly (Figs. 1, 4, 5). In larvae of these species the spinules of the basal area and the median strip cover the surface of this part of the stomach almost entirely.

Differences are to be found in the ventral half of the stomach with respect to a number of characters. For example, the spinules of the median strip in the larva of A. ephippiata are set on a level surface, whereas in the other two species they are set on large tubercles (Figs. 4 and 5). In the larva of A. plavilschikovi the spinules of the basal area do not meet the spinules in the lateral rows of the median strip and there is a considerable lumen between them (Fig. 4). The arrangement of the spinules is different in the larva of A. brevis. The spinules in the lateral rows of the median strip cover more than two-thirds of the length of the central row. Those of the basal area are in contact with them throughout their length, so that there is only a small lumen in this half of the stomach (Fig. 5).

Consequently, the larva of A. ephippiata possesses a whole number of characters typical of the larvae of other known species of the subgenus. At the same time the arrangement of the spinules comprising the inner armature of the stomach has a specific pattern found only in this species.

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NEW SPECIES OF THE GENUS ACMAEODERELLA COBOS (COLEOPTERA, BUPRESTIDAE) FROM SOVIET CENTRAL ASIA

M.G. VOLKOVICH (VOLKOVITSH)

When studying material of the widely distributed polytypic genus Acmaeodera Esch. the author found specimens belonging to previously unknown species. Dr. J. Jelinek of the Prague National Museum was kind enough to give the author access to the type-specimens of the species described by Dr. Obenberger. The author wishes to express his profound gratitude to Dr. Jelinek, and also to A.V. Alekseyev and V.G. Kaplin, who sent material for examination. The types of the new species are in the collection of the Zoological Institute, USSR Academy of Sciences in Leningrad.

A number of groups in the extensive genus Acmaeodera, which has more than 200 species in the Palearctic fauna alone, have now been segregated as independent genera in the tribe Acmaeoderini. The almost exclusively Palearctic genus Acmaeoderella established by Cobos (1935) is characterized by a cylindrical body, squamiform pubescence, reduction of the mesoepimera and a number of other characters. The species described below belong to a group associated with the deserts of Soviet Central Asia, Asia Minor and North Africa. Their larvae develop in the stems and roots of herbaceous plants and shrubs.

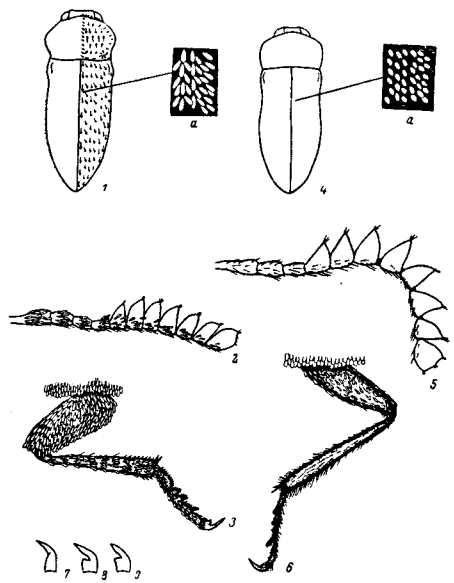
Acmaeoderella nivetecta Volkovitsh, sp. n.*

Body relatively large, cylindrical; width of pronotum considerably exceeding basal width of elytra; vestiture consisting of elongate large white scales (Fig. 1, a). Color bronze, elytra slightly lighter.

Head. Frons convex, without a central longitudinal impression, only a weak elongated pit in front of the clypeus. Suture well marked, carinately raised on the vertex, projection triangular in shape from above. Lateral sides straight, sharply diverging toward the vertex. Width of frons at boundary with vertex 1.25-1.40 times the width on the level of the antennal sockets and 1.86-2.16 times the transverse diameter of the eye. Length of frons 1.07-1.22 times its width. Sculpture consisting of large punctures with a roughened bottom; distance between punctures one half-two thirds of a puncture diameter on upper half of frons and on vertex, punctures in these areas arranged in curved rows. Punctures on lower half of frons randomly distributed, very numerous, to the point of producing alveolate sculpture. Interspaces between punctures showing traces of shagreening. Anterior margin of clypeus almost straight, slightly sinuate; its middle area between the antennal sockets upraised, covered with roughened sculpture. Antennae short (Fig. 2), their length approximately 1.2 times the height of the eye. Segments compact, transversely broadened, from the 5th onward; last 7 segments broader in male than in female.

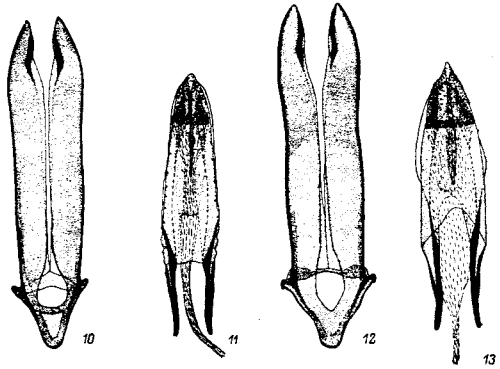
Thorax. Prothorax rounded, widest in the anterior third, but the concentration of scales along the sides creates the impression that the maximum width is in the middle. Anterior margin of pronotum projecting forward in a slight arc, basal margin straight or weakly concave. A longitudinal impression extending from the middle of the base to the anterior third is distinct because the scales run in opposite directions. Sculpture of pronotum very coarse. Sculpture on disk consisting of large rounded cells with a shiny

*One specimen from the collection of A.P. Semenov-Tyan-Shanskiy (Kyzylkum sands, 23 July 1907, N.A. Zarudnyy) is labeled: "Acmaeodera nivetecta sp. n.m., A. Semenov-Tian-Shansky det". Since the description of this species has not been found, we have considered it appropriate to give a description, retaining the old name.



Figs. 1-9.

1-3, 8) Acmaeoderella nivetecta, sp. n.: 1 - body contour (direction of scales indicated by arrows), 2 - antenna, 3 - hind leg, 8 - claw; 4-6, 9) A. richteri, sp. n.: 4 - body contour, 5 - antenna, 6 - hind leg, 9 - claw; 7) A. personata (Sem.), claw.



Figs. 10-13.

10, 11) Acmaeoderella nivetecta, sp. n.: 10 - tegmen, 11 - aedeagus, 12, 13) A. richteri, sp. n.: 12 - tegmen, 13 - aedeagus.

floor; cells decreasing in size at sides, partly merging; finally, in the anterior third they give way to simple punctures. Lateral carina wanting. Anterior margin of prosternum notched in a smooth arc, upraised in the center and bordered by a groove; anterior third of prosternum devoid of punctation to the rear of this groove and covered with fine rugae. Sculpture of remainder of prosternum consisting of alveolate punctures of average size that are less numerous on the proepisterna. Lateral margins of posterior process carinately upraised, their surface black. Mesothorax, metathorax, metathoracic episterna and coxal plates covered with very coarse shallow cells with shagreened margins.

Elytra narrowing barely perceptibly behind the humeri, thereafter widening to the level of the posterior third, whence they converge in an arc to rather acute, jointly rounded apices. Lateral margin with weak denticles at rear. Striae formed by oval punctures merging in the sutural region frequently not traceable in the anterior quarter. Intervals very slightly convex or completely flat; 3rd interval sometimes considerably broadened at rear. Sculpture of elytra consisting of confused multiserial punctures, rugae and conspicuous shagreening. Lateral intervals broader, with denser and shallower punctures, more rugose; 9th interval upraised in posterior third.

Abdomen. Posterior margins of two penultimate sternites sometimes projecting caudad in an arc. Anal sternite broadly rounded (female) or apically blunt (male); broadly transversely impressed, especially in male. Entire surface of abdomen covered with dense punctures, decreasing in size toward the apex.

Male genitalia as in Figs. 10 and 11.

Legs. Femora thick and short, weakly narrowed apically, completely covered with white scales. Tibiae broadening slightly toward the distal ends, which bear two spurs. Inner surface of tibiae bearing a row of short sharp setae on lower part. First segment of hind tarsus as long as 2nd and 3rd segments combined. Length of claw segment equal to or slightly less than overall length of 3rd and 4th segments. Brush of hairs normally developed, visible from the side only on 4th segment; plantar brushes of remaining segments rudimentary. Claw segment strongly thickened apically, wider than the other segments. A row of short, stout, blunt setae that are brownish or whitish extends along the periphery of the plantae of all segments (Fig. 3). Claws with a very large sharp basal tooth (Fig. 8).

Pubescence of body very specific. Entire thorax, antennae and legs completely covered with narrow white scales resembling petals. These scales directed sideways and upward on surface of frons. Direction of scales and their shape on the upper surface shown in Fig. 1 and 1, a. Undersurface completely concealed by tightly overlapping scales. Body length 7.7-7.9 mm, width 2.5-3.3 mm.

Material. Holotype - male, 20 km W of Kerki, Turkmenia, 20 June 1971, V.F. Zaytsev. Paratypes: 2 males, 2 females, same locality; 1 male, Kyzylkum sands, 23 July 1907, N.A. Zarudnyy; 5 males, 4 females, Mount Koy-P'yaz-Tau near Kabadian, 14 July 1934, V.V. Gussakovskiy; 1 male, Ayvadzh, 17 June 1936, V.V. Gussakovskiy; 2 females, Repetek, Heliotropium grande roots, 9 Nov. 1973, V.G. Kaplin; 2 females, Dzhilikumy, in "annual," 11 May 1973, B.M. Mamayev.

Ecology. This species develops in the stems and roots of annual plants, especially in Heliotropium roots (data of V.G. Kaplin).

A. nivetecta, sp. n., is similar to A. personata (Sem.) and A. alfierii (Théry) in a number of characters (abbreviated antennae; continuous scale cover extending onto terminal segments of tarsi and antennae; rudimentary hair brushes on first three tarsal segments; blunt setae on the segments clearly apparent from the side. A. personata differs from A. nivetecta in the following respects.

A. personata (Sem.)

Sculpture of pronotum consisting of very sparse delicate punctures

Tarsal claws without a tooth, slightly thickened basally (Fig. 7)

Scales round, tightly overlapping over the entire surface of the body

A. nivetecta, sp. n.

Pronotal disk covered with coarse cells

Claws with a sharp basal tooth (Fig. 8)

Scales elongate, sparser, revealing the surface on the pronotal disk and in the sutural area of the elytra

A. nivetecta, sp. n., is apparently closest to the Egyptian species A. alfierii (Théry). Unfortunately, the characters indicated in the original description of the latter (Théry, 1929) are often of a general nature, and the text lacks illustrations. Obenberger (1940) repeats Théry's diagnosis in his identification key. The two species are similar in the shape of the scales* and in the nature of the scale cover, and in having a sharp tooth at the base of the claws. However, to judge by the description, the frons of A. alfierii (Théry) is impressed in the middle and the cells cover the entire surface of the pronotum.

Acmaeoderella richteri Volkovitsh, sp. n.

Body rather large, cylindrical; covered with narrow oval scales; frons slightly narrowed toward vertex.

Head. Frons broadly longitudinally impressed. Suture upraised around posterior margin of vertex, not visible from above. Frons very slightly narrowed toward vertex; its lateral sides diverge in the lower third, and then narrow apically. Width of frons at boundary with vertex equal or practically equal to its width at the level of the antennal sockets (exceeding the latter by no more than 1.05 times) and 1.33-1.35 times the transverse diameter of the eye. Length of frons 1.25-1.38 times its width. Sculpture consisting of umbilicate punctures with indistinct, frequently broken down central granules.

Punctures very dense, slightly raduliform. Interspaces between punctures shiny. Anterior margin of clypeus notched in a broad arc, central area between sockets upraised and indistinctly sculptured. Antennae relatively long, widening from the 4th segment onward. Length of antennae 1.63-1.66 times height of eye, segments broader in male (Fig. 5).

Thorax. Pronotum rounded, very convex above. Lateral sides of pronotum very weakly bulging in the center; lateral margin appearing straight as far as the middle, rounded only toward anterior angles. Anterior margin projecting slightly forward, basal margin straight or barely concave. Median groove appearing either as a line that is clearly apparent by virtue of the scales running in opposite directions, or as a deep impression. Sculpture of pronotum extremely fine, consisting of shallow punctures that are very dense on the disk and on the sides, where they form a system of cells with indistinct margins. Punctures smaller on anterior half of pronotum, their boundaries blurred. Interspaces between punctures shiny, sometimes bearing traces of shagreening. Anterior margin of prosternum very slightly notched and thickened. Entire surface of prosternum covered with coarse alveolate punctures, margins of posterior process finely bordered. Punctures on proepisterna large (their diameter approximately twice the diameter of the punctures on the prosternum and the sides of the pronotum), umbilicate. Surface of mesothorax, metathorax, metathoracic episterna and coxal plates bearing very dense and coarse shallow sculpture consisting of cells or simple punctures with a shiny floor and shagreened margins.

Elytra very massive, copper-bronze; widening at the level of the humeri, thereafter narrowing to anterior quarter and again widening to the level of the posterior third, whence they narrow in a gentle arc to the broadly, jointly rounded apices (Fig. 4). Base of elytra slightly transversely impressed in scutellar region. Striae rather deep, consisting of large round punctures traceable right to the base. Interspaces convex, with confused multiserial punctures, rugae and shagreening. Sculpture coarser on sides. Ninth interval slightly upraised in posterior third.

Abdomen. Surface covered with simple, slightly raduliform punctures that become sparser and deeper toward the apex. Anal sternite broadly transversely impressed, apically rounded or slightly blunt (male).

Male genitalia as in Figs. 12, 13.**

Legs. Femora appreciably thickened basally. Tibiae slender and straight, widening very weakly apically (Fig. 6). First segment of hind tarsus approximately equal to 2nd and 3rd segments combined; last three segments of equal length, their overall length corresponding to that of the claw segment. Last segment gradually widening apically, its width less than that of the other segments. Claws with a basal tooth (Fig. 9). Femora and in part tibiae sparsely covered with scales and white hairs; hairs on inner face of tibiae replaced by reddish brown setae. Tarsal plantae equipped with normally developed hair brushes.

Pubescence. Entire body surface covered with white oval scales (Fig. 4, a). Scales larger below, overlapping and completely concealing the surface. Above the scales are sparser, directed backward and sideways. Body length 7.5-8.3 mm, width 2.6-2.8 mm.

Material. Holotype - male, Mount Koy-P'yaz-Tau near Kabadian, Tadzhikistan, 20 June, 1934, V.V. Gussakovskiy. Paratypes: 1 male, 2 females, same locality; 1 female, same locality, 25 June 1934; 1 female, Stalinabad [Dushanbe], 1935, L.L. Mishchenko.

In the sculpture of the surface, the nature of the pubescence and the general structure of the genitalia A. richteri, sp. n., is similar to the Central Asian species A. xerxes (Obenb.) and A. solskyi (Obenb.). It is distinguished from both species by the structure of the frons, which narrows toward the vertex, and is of identical width above and below (in A. xerxes and

*This character varies on different parts of the surface and may differ in different specimens. Ribbing on the scales may disappear or, conversely, the number of ribs may increase.

**The greatly enlarged chamber shown in Fig. 13 is evidently an artifact.

A. solskyi the frons is broadened toward the vertex). It is also distinguished from A. xerxes by larger size (body length of A. xerxes 4.7-6.0 mm); it is distinguished from A. solskyi by having the sides of the prothorax weakly bulging in the middle, by the finer sculpture of the pronotum and the simple punctation of the frons (in A. solskyi the pronotum is noticeably widened in the posterior third, and the frons is covered with large irregular cells).

According to Obenberger (1940), A. xerxes has antennae that broaden from the 3rd segment onward. However, in all specimens of this species examined by us, including the type-specimen, the antennae are boradened from the 4th segment onward. This character has served for the discrimination of A. xerxes and A. leucotricha (Obenb.). The latter species is distinguished only by narrow scales on the upper surface. As has already been mentioned above, this character is unstable, but since we do not have specimens of A. leucotricha for study, we refrain at present from any final deduction concerning the independence of this species.

The new species is named after A.A. Rikhter (Richter).

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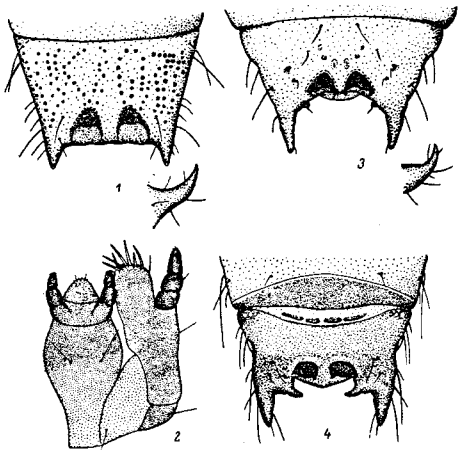
LARVAL MORPHOLOGY OF THE GENUS AGNATHUS GERM. (COLEOPTERA, PEDILIDAE) AND THE POSITION OF THE GENUS IN THE SYSTEM OF THE COLEOPTERA

B.M. MAMAYEV

The genus Agnathus Germ., represented by the single species A. decoratus Germ. occurring in Central Europe, in the southern European regions of the USSR and in the Caucasus, is one of the taxa whose position in the order Coleoptera has remained unclarified.

Medvedev (1965) included this species in the family Lagriidae, noting that its larvae were known as inhabitants of the passages of the bark beetle Xyleborus pfeili Ratz. Somewhat earlier Crowson (1955) had presented a different view. In Crowson's opinion Agnathus, together with the genus Cononotus Lec., represented in North America by 6 species, had to be treated as representing an independent family, Cononotidae. Crowson placed this family between the families Elacatidae (= Othniidae) and Salpingidae, on the one hand, and Mycteridae, Pythidae and Pyrochroidae on the other. When discussing the position of the family Cononotidae Crowson notes its possible connections with families grouped around the Anthicidae, but he gives a very broad interpretation to the family Anthicidae, including in it the subfamily Pedilinae and converging the family with the Oedemeridae. Böving and Craighead (1931) had earlier regarded the families Anthicidae and Pedilidae as independent, and when describing the larva of Eurygenius camplanatus Lec., had placed the second of these families with the Pyrochroidae.

Arnett (1968) includes the genus Cononotus in the family Salpingidae (= Pythidae), and in the subfamily Mycterinae. One of the reasons for this diversity of approach is the lack of adequate information on the morphology of the preimaginal developmental phases of Agnathus and Pedilus. It has now been possible to fill this gap and to describe the larvae of these genera.



Figs. 1-4. Structural details of larvae.

1-2) Agnathus decoratus Germ: 1 - end of body (from above) and urogomphus (side view), 2 - labium and left maxilla (from below); 3)-Pedilus sp., end of body (from above); 4) Pogonocerus thoracicus Fisch.-W., end of body (from above).

LARVAL MORPHOLOGY AND ECOLOGY

Agnathus decoratus Germ.

Larvae brownish yellow, moderately flattened, with two upward recurved hooks at the end and two pouches between the urogomphi (Fig. 1).

Head transverse. Coronal suture wanting, frontal sutures producing a lyriform figure. Five ocelli, lenses and pigments spots well expressed. Antennae three-segmented, set on a tubercle, the 2nd segment twice the length of the 1st, bearing one conoid sensillum, and the slender 3rd segment with 4 terminal setiform sensilla. Clypeus with a straight margin, frontoclypeal suture not pronounced. Labrum broadly oval, with two setae in the middle and 10 along the margin. Mandibles symmetrical, with two apical teeth and three additional teeth on the cutting edge. Molar part well developed, with transverse costation. Cardo appreciably shorter than stipes. Masticatory lobe of maxillae (Fig. 2) parallel-sided, terminally rounded, with a row of dagger-shaped setae along the inner margin and with three teeth in the apical region — 1 sharp and large, 2 smaller. In addition to the dagger-shaped setae, there are long acicular setae on the surface of the masticatory lobe of the maxillae. Maxillary palps three-segmented. Labium with well sclerotized hypopharyngeal scleroma, two tufts of hypopharyngeal hairs and a broad fleshy ligula bearing two long setae. Labial palps two-segmented.

Thoracic segments, like abdominal segments, weakly sclerotized, sparsely hairy. Legs having the structure usual for larvae of this group. Abdominal segments each with a transverse row of small denticles along anterior margin on dorsal side; 9th